

B41J

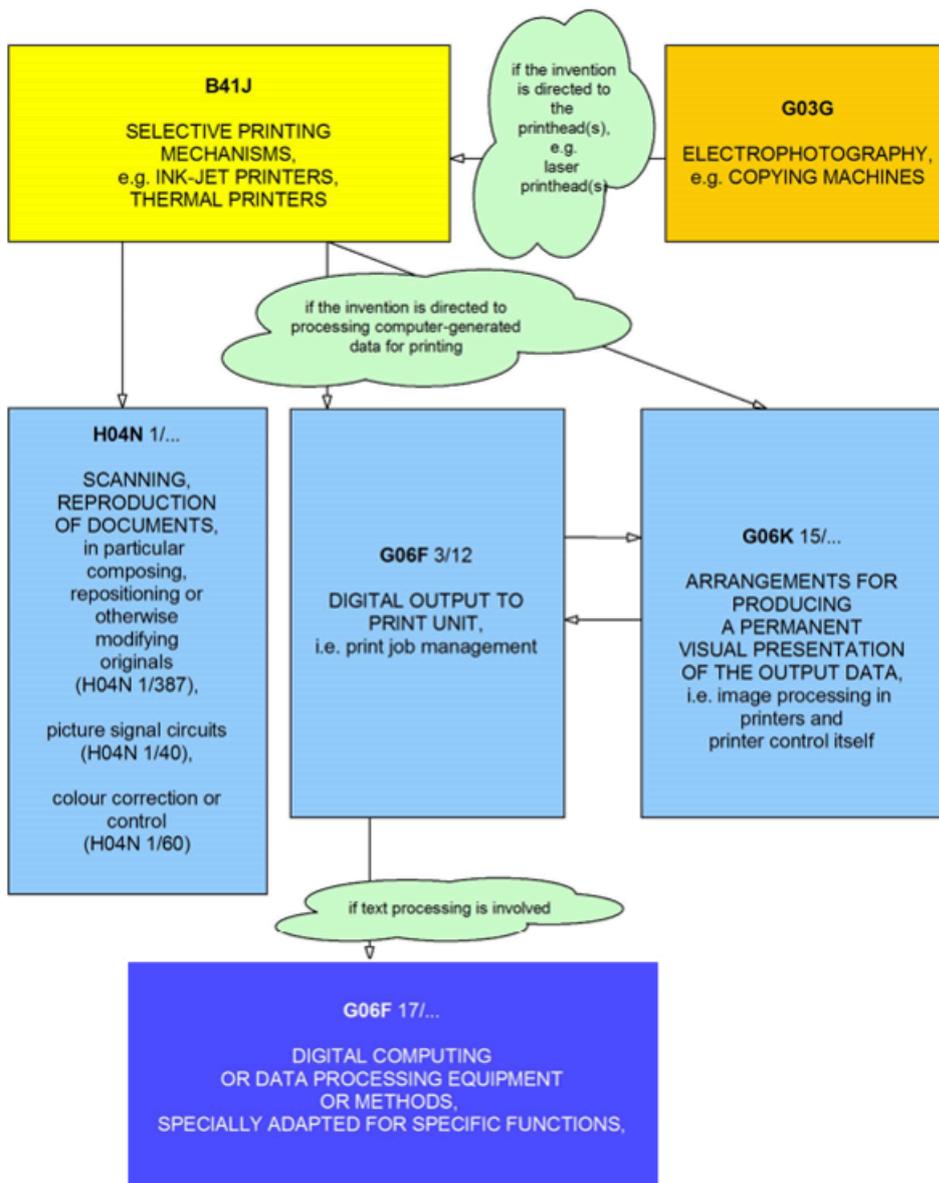
TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS

Definition statement

This place covers:

- Only selective printing mechanisms including kinds of type-writers
- Manually controlled power-operated apparatus or apparatus of this type with additional control by input of stored program instructions, e.g. on punched cards or tapes;
- The "print-out" features of apparatus controlled by stored program instructions or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads;

Relationships with other classification places



Relationships with other classification places

The preceding image includes references to [B41J](#), [G03G](#), [H04N 1/00](#), [H04N 1/387](#), [H04N 1/40](#), [H04N 1/60](#), [G06F 3/12](#), [G06F 17/00](#) and [G06K 15/00](#).

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Machines for printing and issuing tickets	G07B 1/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Shaping of 3D-objects by means of liquid-jetting	B29C 64/112
Composing	B41B
Printing presses	B41F
Stamps or stamping	B41K
Erasers, rubbers or erasing devices	B43L 19/00
Fluid media for correction of typographical errors by coating	C09D 10/00
Recording the results of measuring	G01
Recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching	G06K
Processing computer-generated data for printing or electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus	G06K 15/00 or G06F 3/12
Franking or ticket-printing and issuing apparatus	G07B
Electric keyboard switches, in general	H01H 13/70 , H03K 17/94
Coding in connection with keyboards or like devices, in general	H03M 11/00
Receivers or transmitters for transmission of digital information	H04L
Transmission or reproduction of documents, or the like, e.g. facsimile transmission	H04N 1/00
Conversion of picture/colour signals for printing	H04N 1/00

Special rules of classification

Printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance: see the relevant subclasses.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Printing material/media	paper or temporary record carriers from which records are transferred to a paper (not: printing masters, e.g. formes or printing plates)
Paper	printing material, including similar flexible material

B41J 1/00

Typewriters or selective printing mechanisms characterised by the mounting, arrangement or disposition of the types or dies

Definition statement

This place covers:

- Type-writers only.
- Publications of general interest and those not provided for in the lower sub-groups, e.g. complete machines.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Dot-marking printers as ink-jet printers, dot-matrix printers, laser printers	B41J 2/00
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Type-writer	device with printing elements having complete characters, thus not built up from dots
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B41J 1/02

with separate or detached types or dies

Definition statement

This place covers:

In general with additional characters

B41J 1/20

with types or dies mounted on endless bands or the like

Definition statement

This place covers:

Using type-belts.

Control circuits therefor.

B41J 1/22

with types or dies mounted on carriers rotatable for selection

Definition statement

This place covers:

Drums and wheels in general

B41J 1/24

the plane of the type or die face being perpendicular to the axis of rotation (B41J 1/60 takes precedence)

Definition statement

This place covers:

Daisy wheel printers and general aspects of the machine

References

Limiting references

This place does not cover:

With types or dies on spherical, truncated-spherical, or like surfaces	B41J 1/60
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of the carriers, font change and interchangeable carriers	B41J 25/24
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B41J 1/32

the plane of the type or die face being parallel to the axis of rotation, e.g. with type on the periphery of cylindrical carriers (B41J 1/60 takes precedence)

References

Limiting references

This place does not cover:

With types or dies on spherical, truncated-spherical, or like surfaces	B41J 1/60
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Output mechanism with printing mechanisms, e.g. for character-at-a-time or line-at-a-time printing	G06C 11/04
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B41J 1/60

with types or dies on spherical, truncated-spherical, or like surfaces

Definition statement

This place covers:

E.g. of the golf-ball type

B41J 2/00

Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement or disposition of types or dies [B41J 1/00](#))

Definition statement

This place covers:

Bringing liquid or particles selectively onto a printing material, either by jetting or through contact. In particular, the sub-groups contain inkjet printers and thermal printers. It covers the structure of the apparatuses used for bringing liquid or particles selectively onto a printing material, their driving/controlling methods and the methods to manufacture them.

References

Limiting references

This place does not cover:

Mounting, arrangement, or disposition of types or dies	B41J 1/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Marking methods	B41M 5/00
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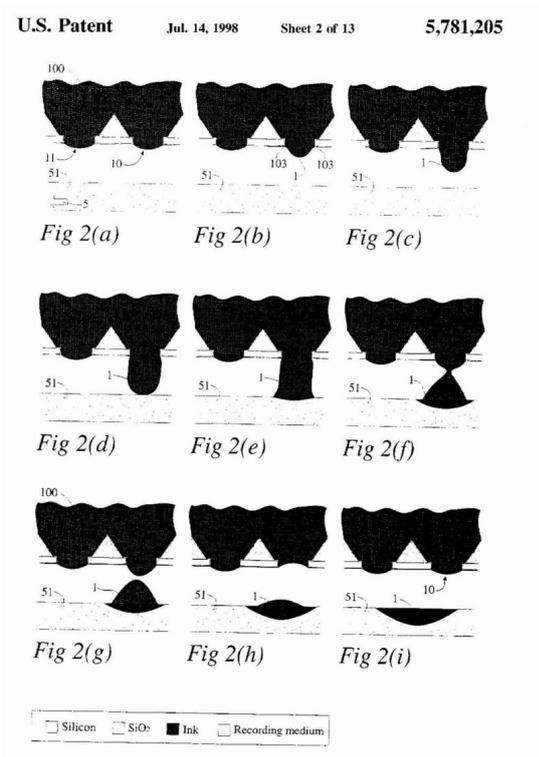
B41J 2/005

characterised by bringing liquid or particles selectively into contact with a printing material (printing by selective application of impact or pressure on a printing or impression-transfer material [B41J 2/22](#))

Definition statement

This place covers:

Ink reaches paper without forming a flying drop



References

Limiting references

This place does not cover:

Printing by selective application of impact or pressure on a printing or impression-transfer material	B41J 2/22
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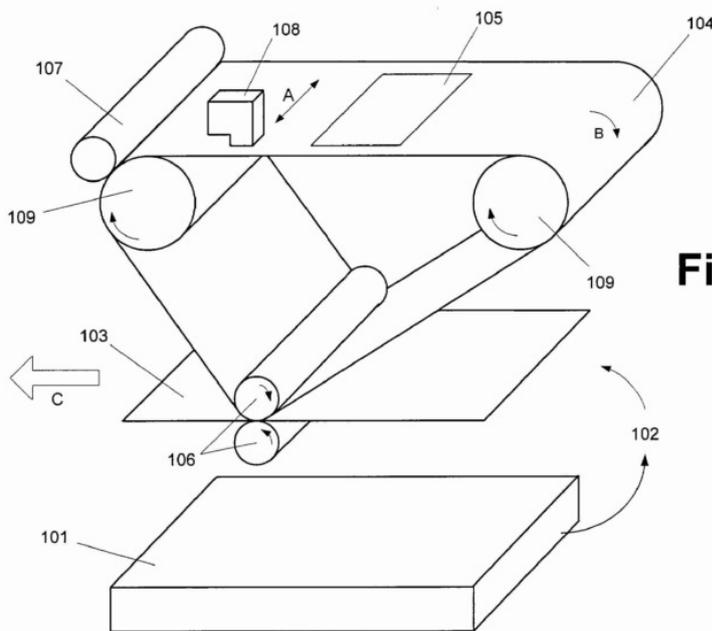
B41J 2/0057

{where an intermediate transfer member receives the ink before transferring it on the printing material}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

**Fig. 1**

Patent Application Publication May 22, 2003 Sheet 1 of 8 US 2003/0095170 A1

B41J 2/01**Ink jet****Definition statement**

This place covers:

Inkjet printers in general, when no details on structure is provided.

Relationships with other classification places

This sub group does not cover use of inkjet printers in manufacturing processes unless the printer itself has some significance

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For printing on special surfaces	B41J 3/407
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B41J 2/02

generating a continuous ink jet

Definition statement

This place covers:

Heads generating a continuous stream of droplets, and selecting some to be printed while others are collected back into the ink supply system.

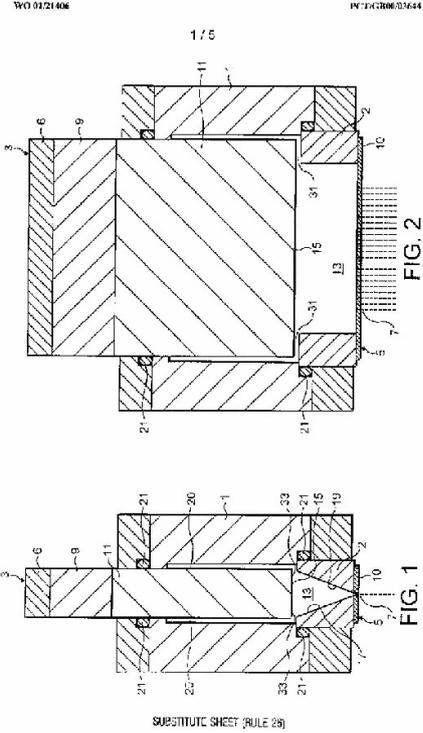
B41J 2/025

by vibration

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/04

generating single droplets or particles on demand

Definition statement

This place covers:

On-demand inkjet heads (every formed ink droplet will be printed).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Magnetic and electrostatic actuators	B41J 2002/041 , B41J 2002/043
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B41J 2/04501

{Control methods or devices therefor, e.g. driver circuits, control circuits}

Special rules of classification

For control methods, each document should bear at least one code specifying the type of head being controlled, chosen from [B41J 2/04575](#) - [B41J 2/04586](#).

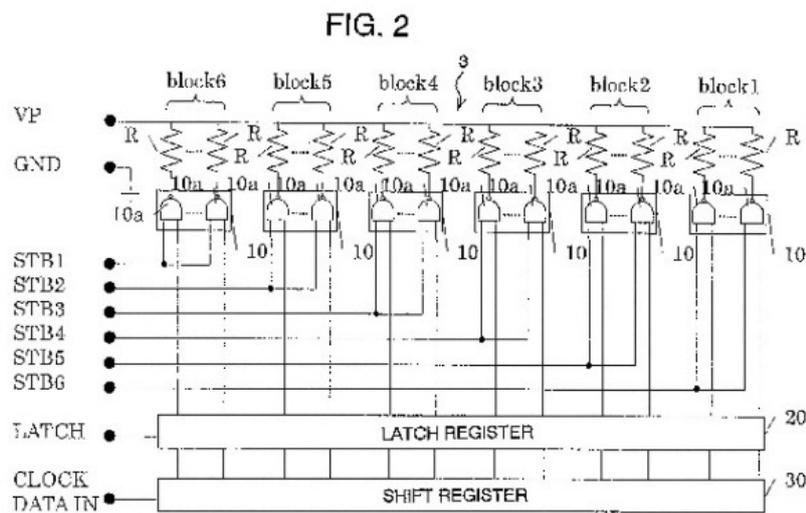
B41J 2/04543

{Block driving}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



Patent Application Publication Aug. 22, 2002 Sheet 2 of 9 US 2002/0113857 A1

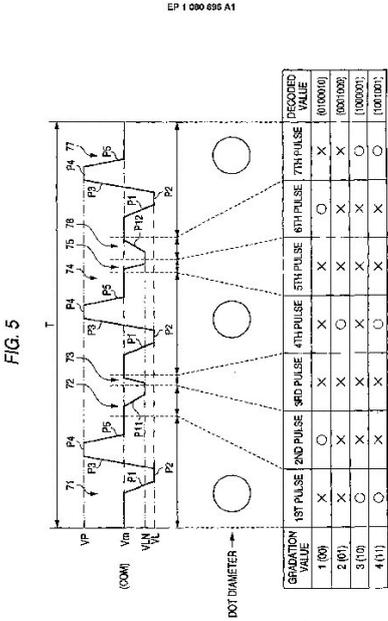
B41J 2/04593

{Dot-size modulation by changing the size of the drop}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/04595

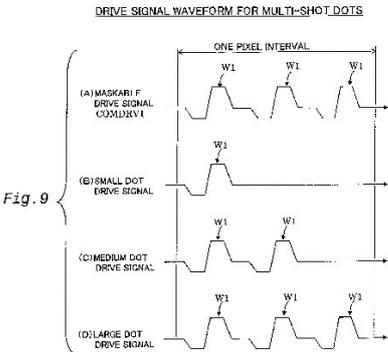
{Dot-size modulation by changing the number of drops per dot}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

EP 1 078 770 A1



B41J 2/055

Devices for absorbing or preventing back-pressure

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Jan. 5, 2001 Sheet 1 of 16 US 6,241,350 B1

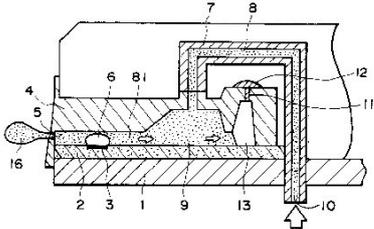


FIG. 1

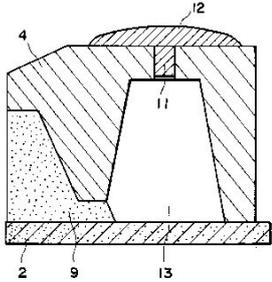


FIG. 2

B41J 2/06

by electric or magnetic field

Definition statement

This place covers:

This sub-group contains documents in which an electric field causes the ejection of ink directly, without involvement of a membrane or the like.

Illustrative example of subject matter classified in this group.

U.S. Patent Jan. 7, 2003 Sheet 2 of 8 US 6,502,924 B1

FIG. 2

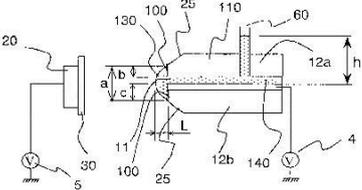
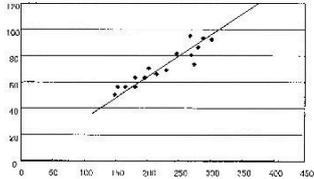


FIG. 3



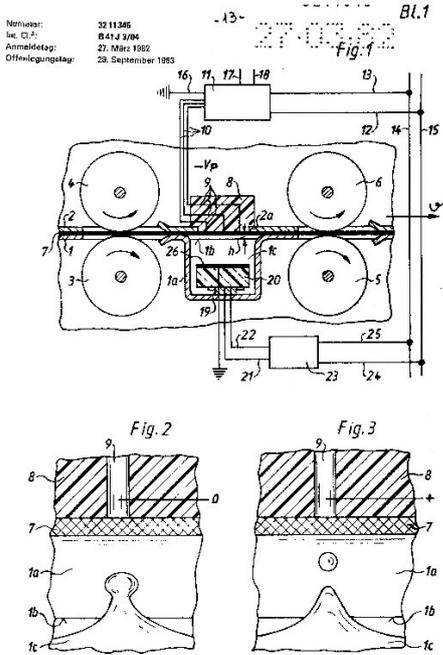
B41J 2/065

involving the preliminary making of ink protuberances

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



V 2650.6 PB / MB

B41J 2/125

Sensors, e.g. deflection sensors {(nozzle clogging detection for cleaning reasons [B41J 2/16579](#); detection for compensation for failed nozzles [B41J 2/2139](#))}

Definition statement

This place covers:

Deflection sensors for continuous ink jet printers.

Cameras for jet or dot position control.

References

Limiting references

This place does not cover:

Nozzle clogging detection for cleaning reasons	B41J 2/16579
Detection for compensation for failed nozzle	B41J 2/2139

Informative references

Attention is drawn to the following places, which may be of interest for search:

During manufacture or detection by means of print head drive signal response	B41J 2/045
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B41J 2/135**Nozzles****Definition statement**

This place covers:

This group should be left empty. Classify in the lower subgroups that cover structures of on-demand inkjet heads (not only of nozzles). For nozzles and nozzle plates per se, see [B41J 2/1433](#) and [B41J 2002/14475](#). For manufacturing of nozzles and nozzle plates, see [B41J 2/162](#). Heads in which an electric field causes the ejection of ink directly (thus without involvement of a membrane) are classified only in [B41J 2/06](#) (thus not in the sub-groups of [B41J 2/135](#)).

B41J 2/14**Structure thereof {only for on-demand ink jet heads}****Definition statement**

This place covers:

Should be understood as "structure of on-demand inkjet heads", where the head is the part comprising the chambers and actuators, and not the whole cartridge. .

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Generating single droplets or particles on demand	B41J 2/04
Heads in which an electric field causes the ejection of ink directly, thus without involvement of a membrane	B41J 2/06

B41J 2/14008

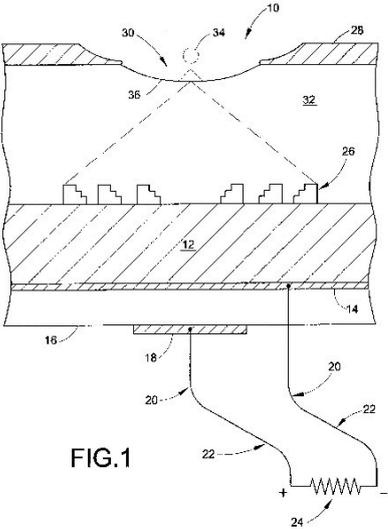
{Structure of acoustic ink jet print heads}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Feb. 25, 2003 Sheet 1 of 6 US 6,523,944 B1



B41J 2/14048

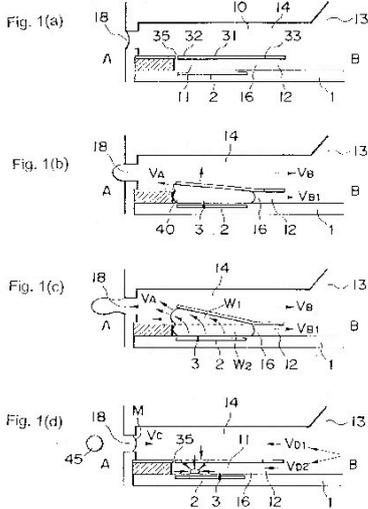
{Movable member in the chamber}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication May 8, 2003 Sheet 1 of 38 US 2003/0085963 A1



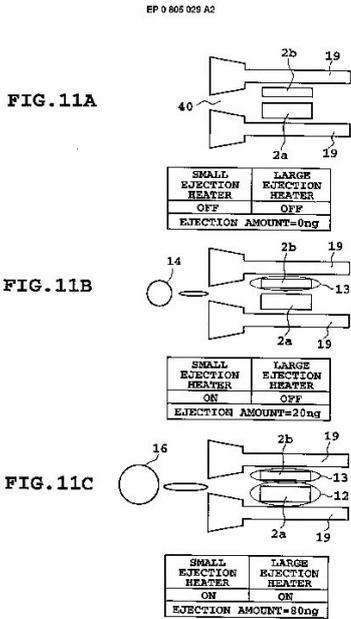
B41J 2/14056

{Plural heating elements per ink chamber}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/14064

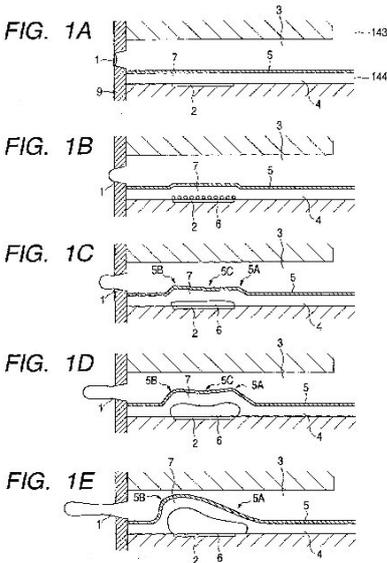
{Heater chamber separated from ink chamber by a membrane}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Feb. 7, 2002 Sheet 1 of 43 US 2002/0015079 A1



B41J 2/14072

{Electrical connections, e.g. details on electrodes, connecting the chip to the outside...}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Oct. 17, 2002 Sheet 2 of 7 US 2002/0149632 A1

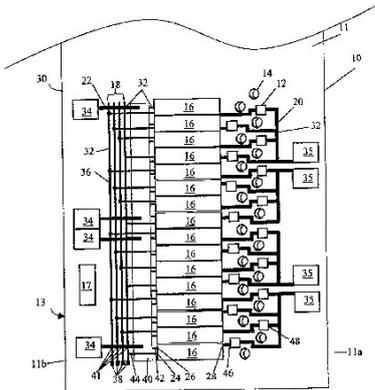


Fig. 2

B41J 2/1408

{Structure dealing with thermal variations, e.g. cooling device, thermal coefficients of materials}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

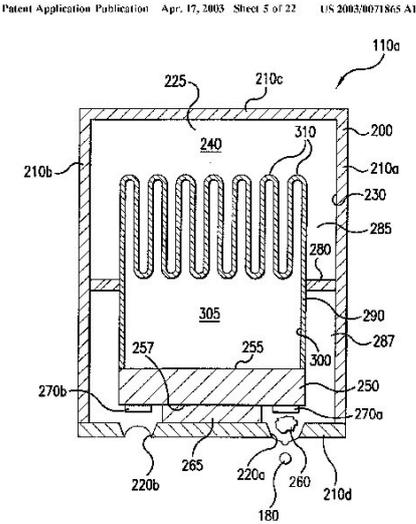


FIG. 5

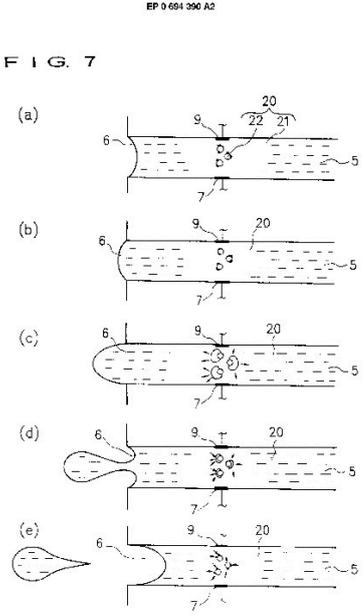
B41J 2/14096

{Current flowing through the ink}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/14104

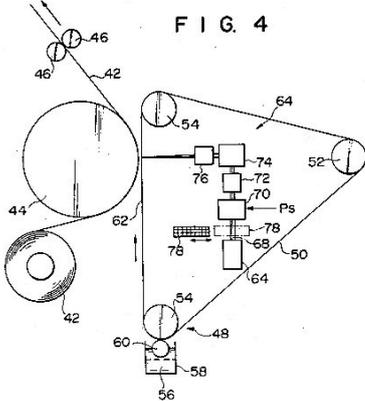
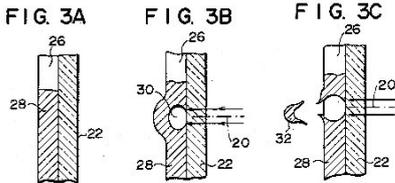
{Laser or electron beam heating the ink}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent June 4, 1991 Sheet 2 of 10 5,021,808



B41J 2/1412

{Shape}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Sep. 15, 1992 Sheet 13 of 22 5,148,185

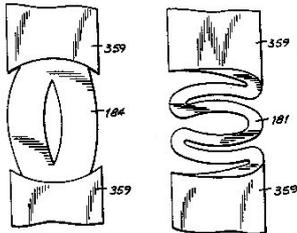


FIG. 17(a) FIG. 17(b)

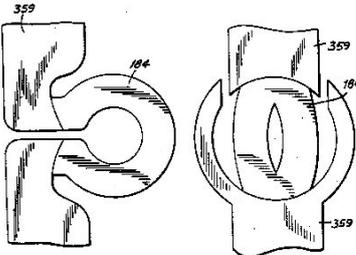


FIG. 17(c) FIG. 17(d)

B41J 2/14129

{Layer structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Mar. 7, 1989 Sheet 2 of 2 4,809,428

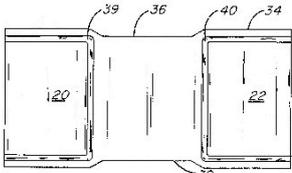


Fig. 3

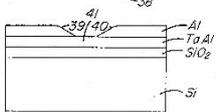


Fig. 4A

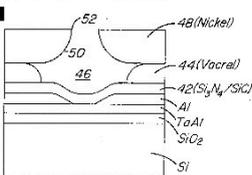


Fig. 4B

B41J 2/14145

{Structure of the manifold}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Dec. 19, 2002 Sheet 1 of 11 US 2002/0191054 A1

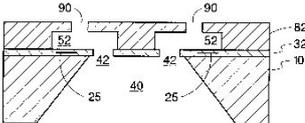


Fig. 1A

—PRIOR ART—

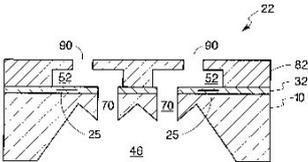


Fig. 1B

B41J 2/14153

{Structures including a sensor}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication May 8, 2003 Sheet 4 of 33 US 2003/0085938 A1

FIG. 3A

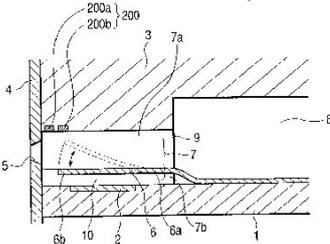
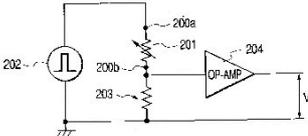


FIG. 3B



B41J 2/14161

{Structure having belt or drum with holes filled with ink}

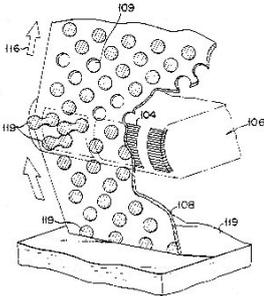
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Feb. 9, 1988 Sheet 5 of 10 4,724,447

FIG. 7



B41J 2002/14193

{movable member in the ink chamber}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Movable member in the pressure chamber of bubble jet print heads	B41J 2/14048
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B41J 2/14209

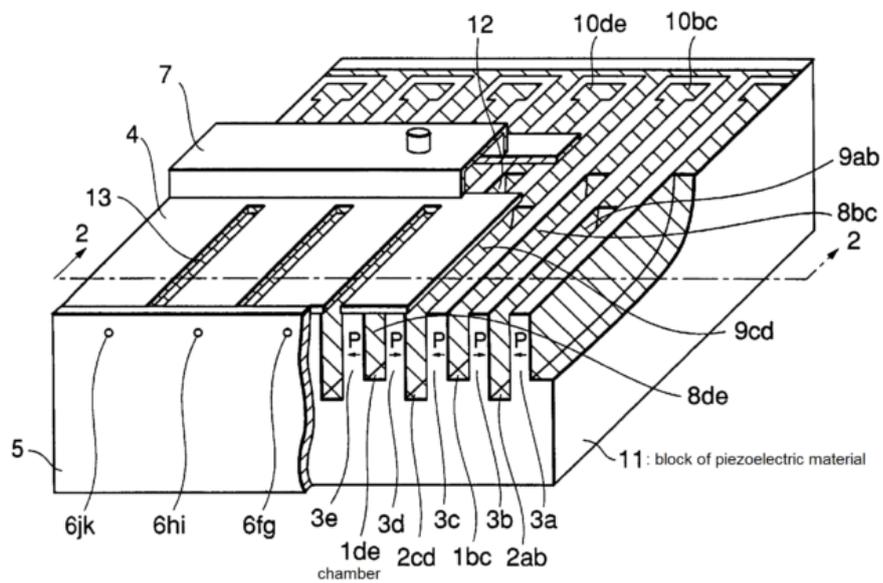
{of finger type, chamber walls consisting integrally of piezoelectric material}

Definition statement

This place covers:

No membrane between the chamber and the piezo element.

Illustrative example of subject matter classified in this group.



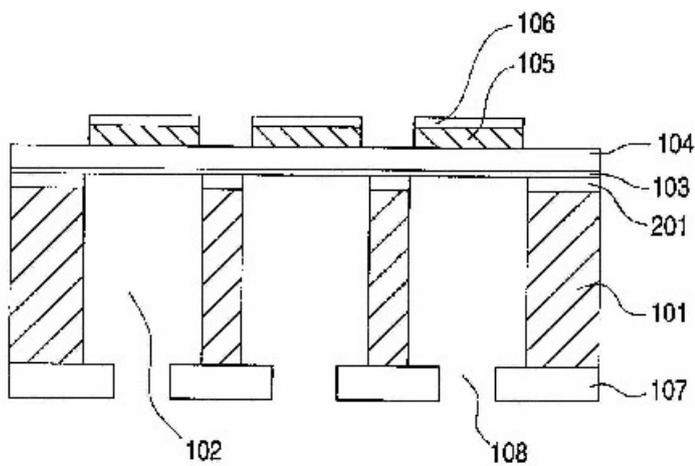
B41J 2/14233

{of film type, deformed by bending and disposed on a diaphragm}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



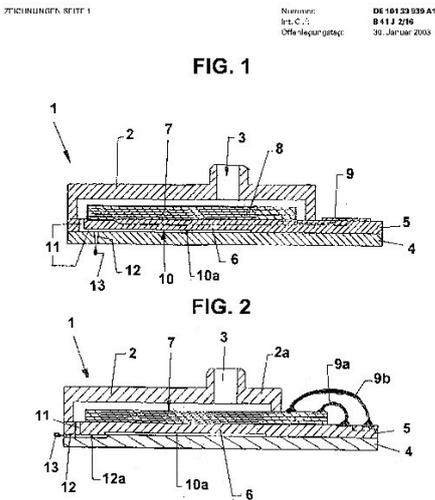
B41J 2/14282

{of cantilever type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



1/2 000-101

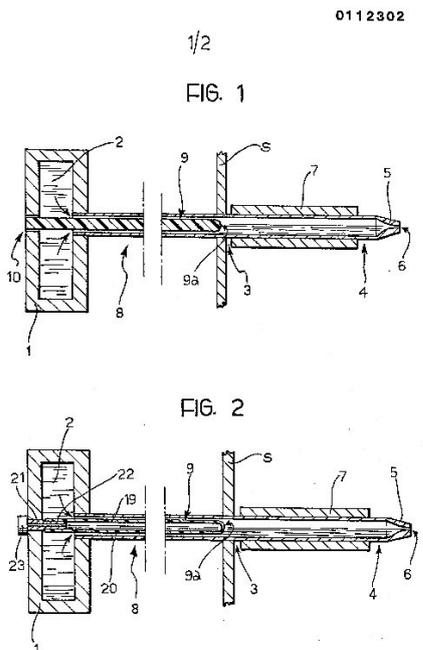
B41J 2/1429

{of tubular type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/14298

{of disc type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Mar. 8, 1988 4,730,196

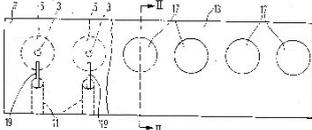


FIG. 1

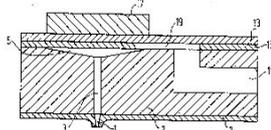


FIG. 2

B41J 2/1433

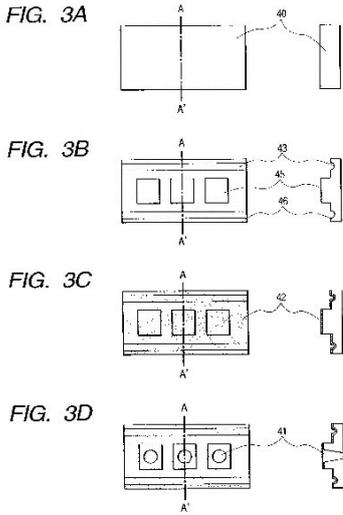
{Structure of nozzle plates}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Feb. 13, 2003 Sheet 2 of 31 US 2003/0030698 A1



B41J 2002/14338

{Multiple pressure elements per ink chamber}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Plural heating elements per ink chamber in bubble jet print heads	B41J 2/14056
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B41J 2002/14419

{Manifold}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Structure of the manifold of bubble jet print heads	B41J 2/14145
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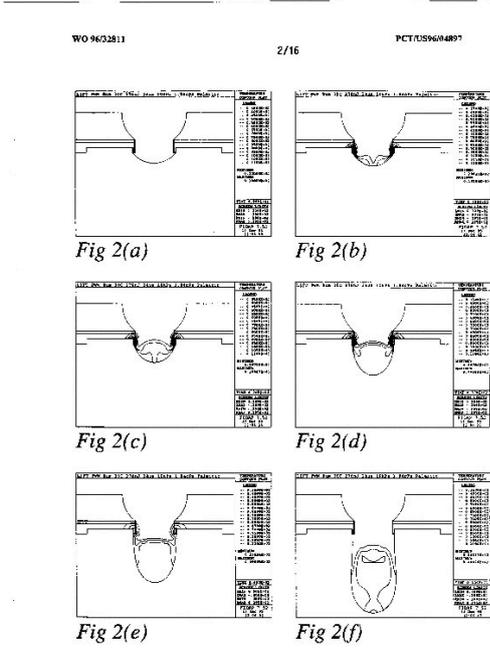
B41J 2/14451

{Structure of ink jet print heads discharging by lowering surface tension of meniscus}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2002/14483

{Separated pressure chamber}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Heater chamber separated from ink chamber by a membrane in bubble jet print heads	B41J 2/14064
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B41J 2002/14491

{Electrical connection}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electrical connections of bubble jet print heads	B41J 2/14072
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B41J 2/145

Arrangement thereof

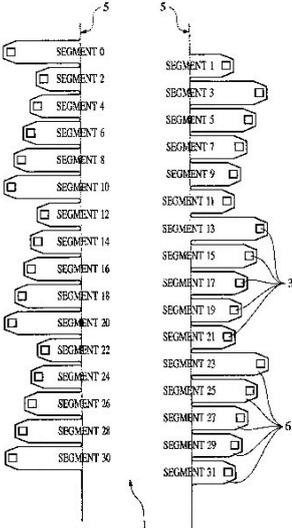
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication: Oct. 24, 2002 Sheet 8 of 12 US 2002/0154183 A1

FIG. 8



B41J 2/15

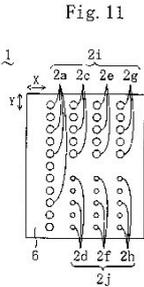
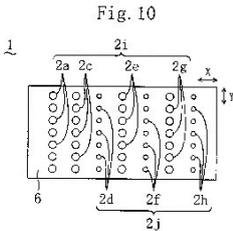
for serial printing

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Apr. 15, 2003 Sheet 7 of 11 US 6,547,352 B1



B41J 2/1601

{Production of bubble jet print heads ([B41J 2/1606](#), [B41J 2/162](#) take precedence)}

Definition statement

This place covers:

This group is used for bubble-jet heads when it is neither front shooter nor edge shooter, i.e. it is used when orientation is unknown or for back shooters.

References

Limiting references

This place does not cover:

Coating the nozzle area or the ink chamber	B41J 2/1606
Manufacturing of the nozzle plates	B41J 2/162

B41J 2/1603

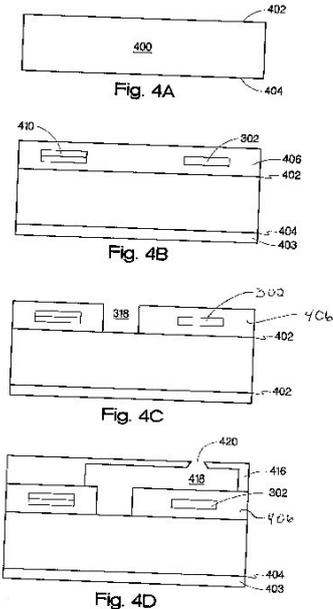
{of the front shooter type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication May 31, 2001 Sheet 4 of 11 US 2001/0002135 A1



B41J 2/1604

{of the edge shooter type}

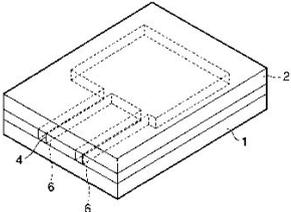
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

EP 0 761 448 A2

FIG.1



6

B41J 2/1606

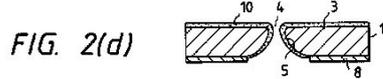
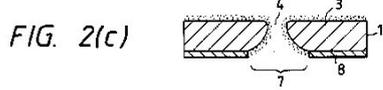
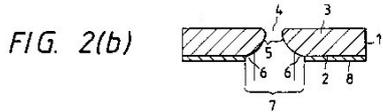
{Coating the nozzle area or the ink chamber}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Mar. 19, 2002 Sheet 2 of 2 US 6,357,857 B1



B41J 2/1607

{Production of print heads with piezoelectric elements ([B41J 2/1606](#), [B41J 2/162](#) take precedence)}

Definition statement

This place covers:

This sub-group is used when the type of piezo electric head being manufactured is not defined.

References

Limiting references

This place does not cover:

Coating the nozzle area or the ink chamber	B41J 2/1606
Manufacturing of the nozzle plates	B41J 2/162

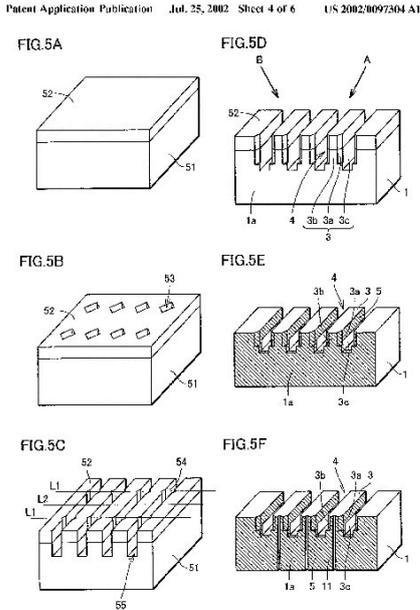
B41J 2/1609

{of finger type, chamber walls consisting integrally of piezoelectric material}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/161

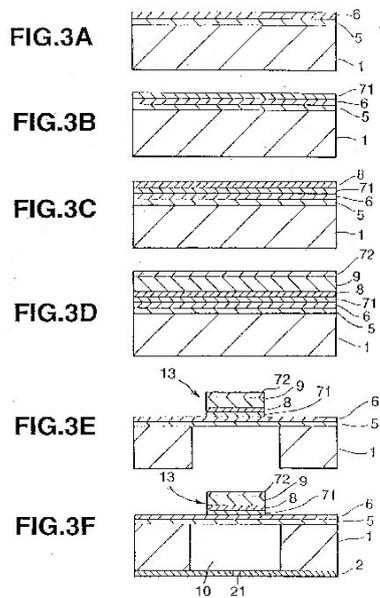
{of film type, deformed by bending and disposed on a diaphragm}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication May 15, 2003 Sheet 3 of 18 US 2003/0092203 A1



B41J 2/1612

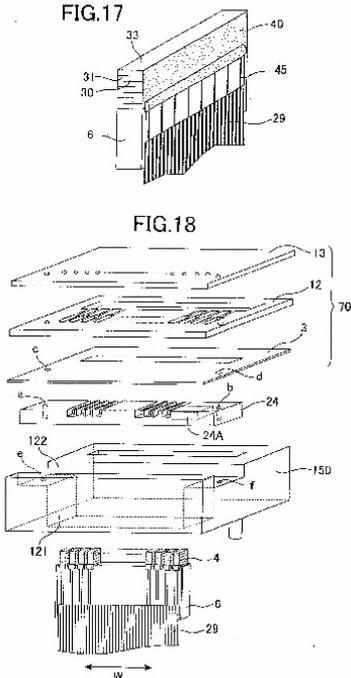
{of stacked structure type, deformed by compression/extension and disposed on a diaphragm}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Apr. 8, 2004 Sheet 13 of 16 US 2004/0066431 A1



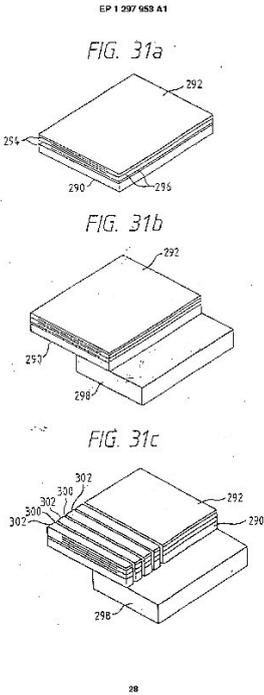
B41J 2/1614

{of cantilever type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



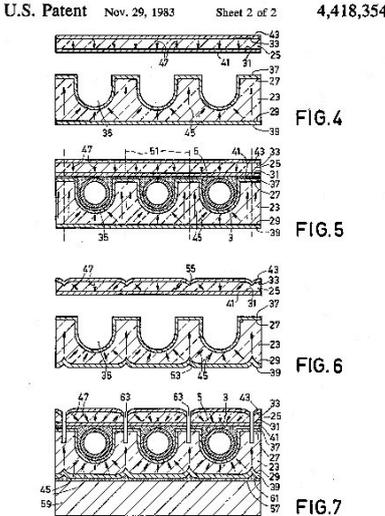
B41J 2/1615

{of tubular type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



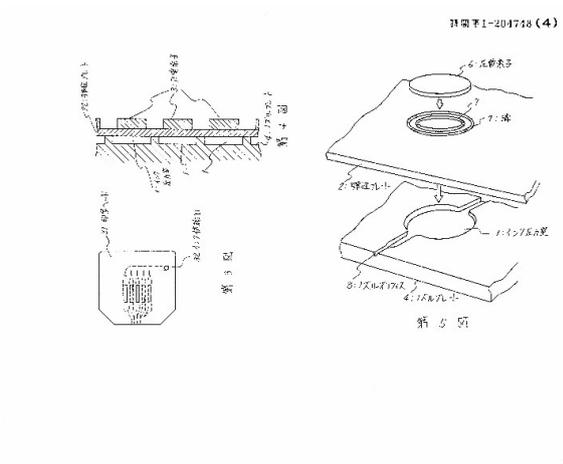
B41J 2/1617

{of disc type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/1618

{Fixing the piezoelectric elements}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

U.S. Patent Mar. 14, 2000 Sheet 2 of 4 6,037,707

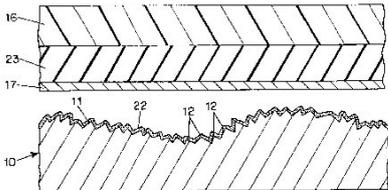


FIG. 3

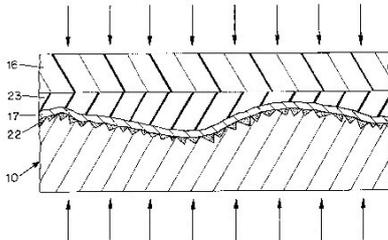


FIG. 4

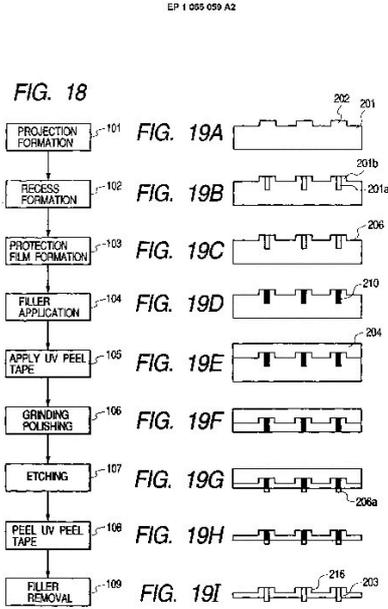
B41J 2/162

{Manufacturing of the nozzle plates}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/1621

{Manufacturing processes}

Special rules of classification

When classifying a manufacturing method, at least one class should always be given for the type of head being manufactured, i.e. [B41J 2/16](#) - [B41J 2/162](#) or [B41J 2/1648](#). A classification for each used manufacturing process from [B41J 2/1623](#) - [B41J 2/1646](#) should be given.

B41J 2/1635

{dividing the wafer into individual chips}

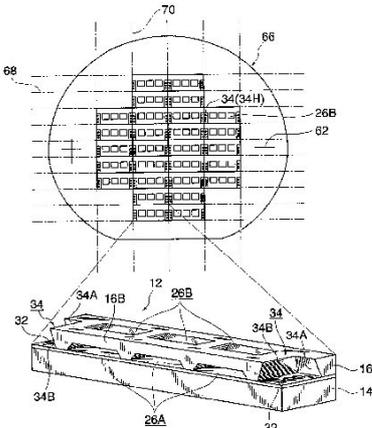
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Nov. 15, 2001 Sheet 6 of 17 US 2001/0040608 A1

FIG. 6



B41J 2/1639

{sacrificial molding}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Patent Application Publication Nov. 1, 2007 Sheet 3 of 10 US 2007/0252673 A1

FIG. 5A

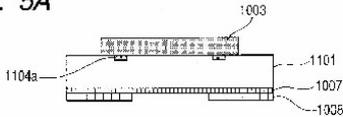


FIG. 5B

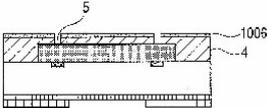


FIG. 5C

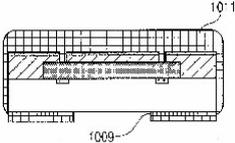
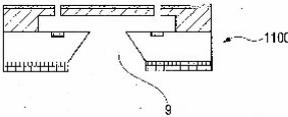


FIG. 5D



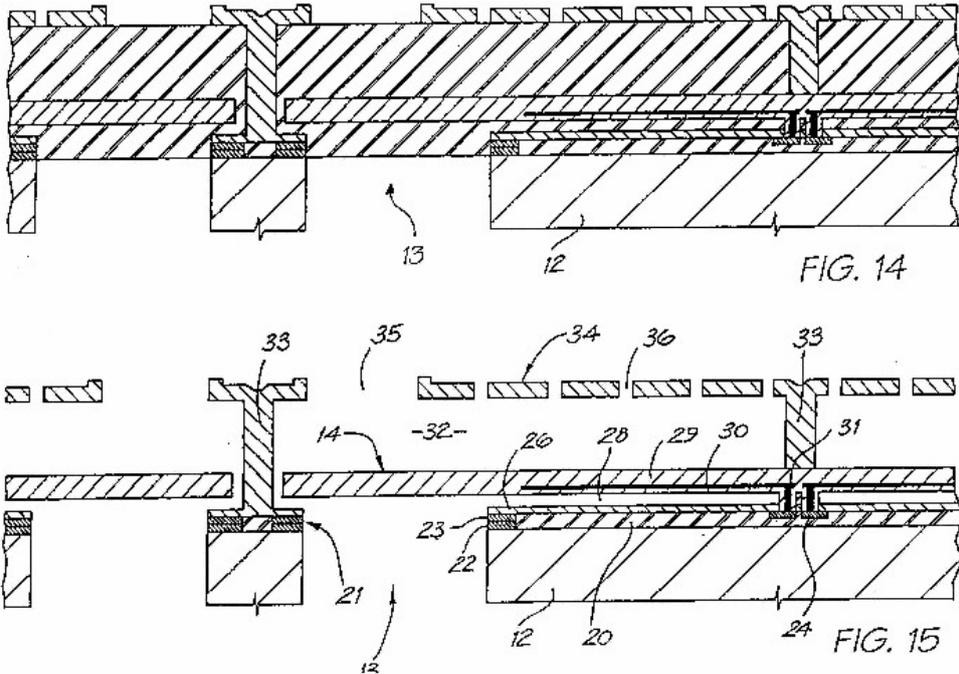
B41J 2/1648

{Production of print heads with thermal bend detached actuators}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



9/42
PCT/AL2004/001163

B41J 2/165

Prevention {or detection} of nozzle clogging, e.g. cleaning, capping or moistening for nozzles

Definition statement

This place covers:

- Preventing clogging of nozzles;
- Cleaning of nozzles;
- Detection of defective nozzles for cleaning

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conditioning of ink supply systems/circuits	B41J 2/1707 , B41J 2/1714
Detection of defective nozzles for compensation of them by well-functioning nozzles	B41J 2/2142
Cleaning arrangements	B41J 29/17

Arrangements for cleaning in a spraying apparatus	B05B 15/50
For powder toner printers	G03G

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "nozzles", "apertures", "print(ing) elements" and "openings"
- "discharge/ejection failure", "defect", "non-discharge", "clogging", "defective", "failing", "non-operative", "inoperative", "non-firing" and "malperforming"
- "cleaning", "maintenance", "recovery" and "priming"

B41J 2/16505

{Caps, spittoons or covers for cleaning or preventing drying out}

Definition statement

This place covers:

Caps for the print head nozzles.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Cap/cover	to isolate the print head nozzles from the atmosphere
Spittoon	ink collector in which the print head ejects ink (it may be the cap itself)

B41J 2/16507

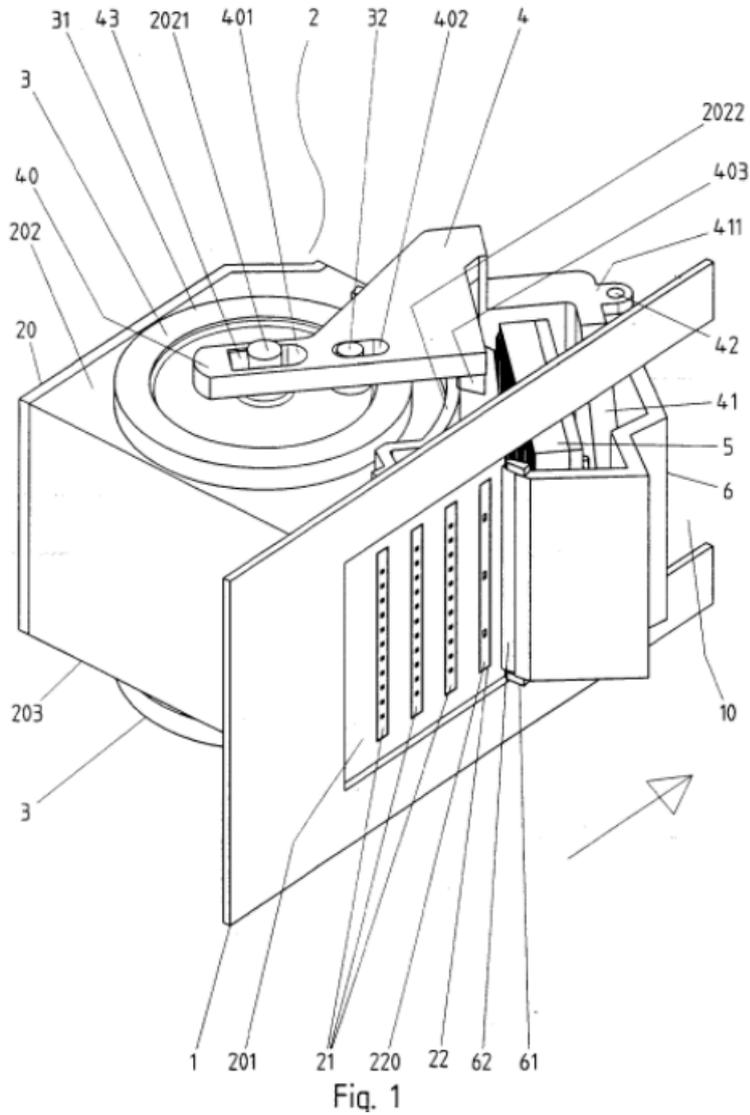
{integral with the printhead}

Definition statement

This place covers:

Caps integral with the print head.

Illustrative example of subject matter classified in this group.



B41J 2/16508

{connected with the printer frame}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Line or stationary printers	B41J 2/16585
Collecting waste ink, ink collectors therefor	B41J 2/1721

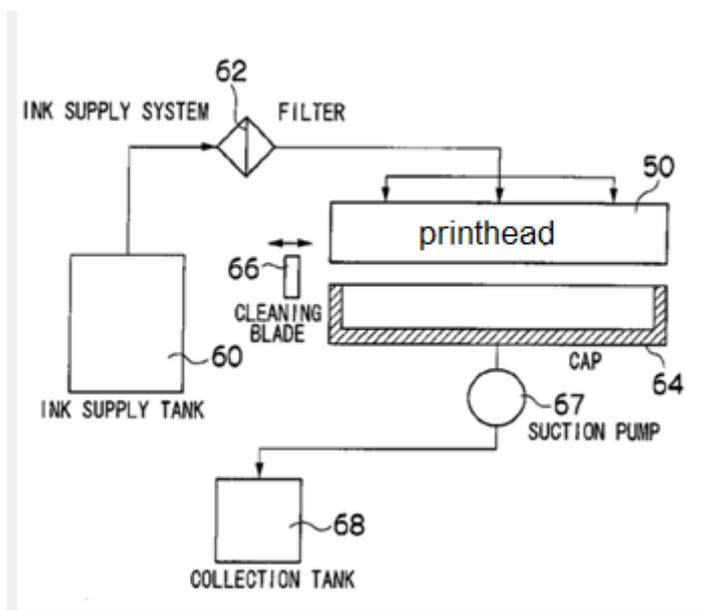
B41J 2/16517

{Cleaning of print head nozzles ([B41J 2/16505](#), [B41J 2/1707](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

**References****Limiting references**

This place does not cover:

Caps	B41J 2/16505
Cleaning of the ink supply system	B41J 2/1707

Informative references

Attention is drawn to the following places, which may be of interest for search:

Waste ink/suction circuits	B41J 2/16523
Line or stationary printers	B41J 2/16585
Cleaning of printhead parts not dealing with the nozzle plate	B41J 2/1714
Waste ink collection tanks	B41J 2/1721
For monitoring ink quality	B41J 2/195

B41J 2/16523

{Waste ink transport from caps or spittoons, e.g. by suction (Collecting or collectors of waste ink [B41J 2/1721](#))}

Definition statement

This place covers:

Systems comprising waste ink transport from a cap to a waste ink collector.

References**Limiting references**

This place does not cover:

Waste ink collectors	B41J 2/1721
----------------------	-----------------------------

B41J 2/16526

{by applying pressure only}

Definition statement

This place covers:

Liquid from the inside of the print head is forced through the printing apertures by actuation of the drivers.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "idle/idly discharge/ejection", "flushing", "priming", "spitting" and "purging"

B41J 2/16532

{by applying vacuum only}

Definition statement

This place covers:

Processes and means sucking liquid from the inside of the print head through the printing apertures into a cap connected to a vacuum pump.

B41J 2/16535

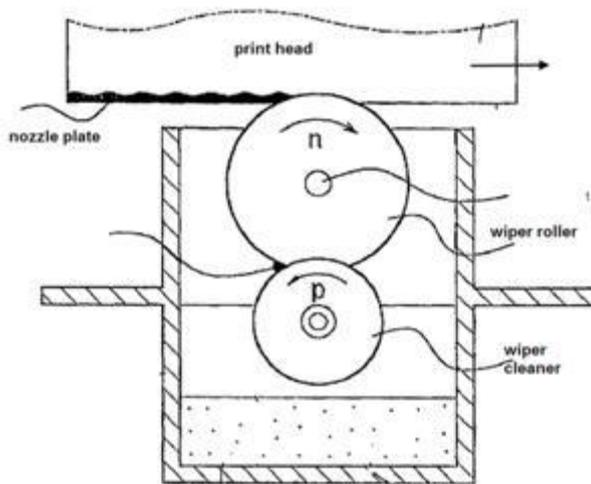
{using wiping constructions ([B41J 2/16552](#) takes precedence)}

Definition statement

This place covers:

Nozzle plate wipers as rollers or ribbons.

Illustrative example of subject matter classified in this group.



References

Limiting references

This place does not cover:

Using cleaning fluids	B41J 2/16552
-----------------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Means to remove deposits from wipers or scrapers	B41J 2/16541
--	------------------------------

B41J 2/16552

{using cleaning fluids}

Definition statement

This place covers:

Liquids or fluids for cleaning ink supply systems, nozzles or wipers.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detergent compositions based essentially on surface-active compounds; Use of these compounds as a detergent	C11D 1/00
--	---------------------------

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Nozzles	printhead openings for passing the printing liquid
---------	--

Wipers	material contacting a print head nozzle plate for removing liquid thereon
--------	---

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "cleaning", "cleansing", "rinsing liquid" and "fluid"

B41J 2/16579

{Detection means therefor, e.g. for nozzle clogging}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Detecting failure, e.g. clogging or malfunctioning actuator	B41J 2/0451
For monitoring ink quality	B41J 2/195
Compensation for malfunctioning nozzles creating dot place or dot size errors	B41J 2/2139
Detection of malfunctioning nozzles	B41J 2/2142

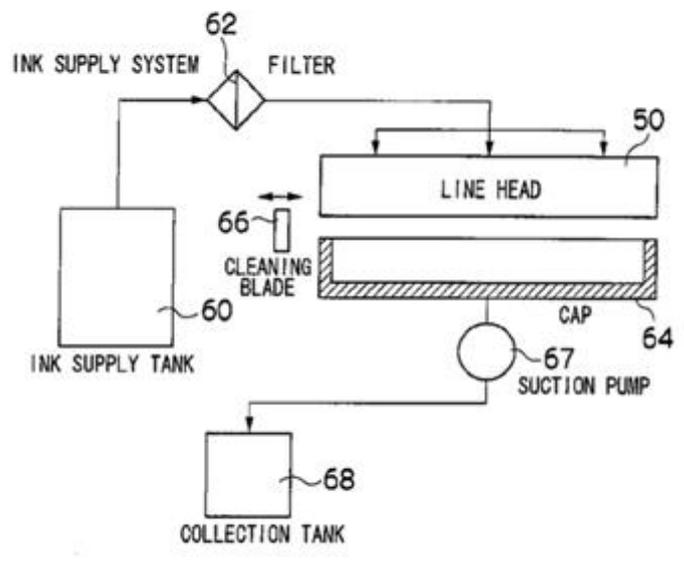
B41J 2/16585

{for paper-width or non-reciprocating print heads}

Definition statement

This place covers:

Line heads or stationary print heads.



Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Page-width or stationary print head	print head not moving during printing
-------------------------------------	---------------------------------------

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "line", "page-width" and "paper-width"
- "non-reciprocating" and "stationary"

B41J 2/17

characterised by ink handling {(cleaning by driving a fluid through the nozzles to the outside thereof [B41J 2/1652](#); for treating before, during or after printing or for uniform coating or laminating the copy material before or after printing [B41J 11/0015](#))}

References

Limiting references

This place does not cover:

Forcing ink through nozzles for cleaning nozzles	B41J 2/1652
Forced drying of ink/liquid printed onto a printing medium	B41J 11/0015

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Ink	all kinds of liquid for printing onto a printing medium, may also be colourless
-----	---

B41J 2/1707

{Conditioning of the inside of ink supply circuits, e.g. flushing during start-up or shut-down}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For removing air bubbles from ink supply circuits, cartridges or tanks	B41J 2/19
Circulating the ink in the stand-by time	B41J 2/20

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Flushing	rinsing
----------	---------

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "rinsing", "flushing" and "priming"

B41J 2/1721

{Collecting waste ink; Collectors therefor}

Definition statement

This place covers:

Ink tanks collecting waste ink from caps or directly from a print head during borderless printing.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For collecting ink after ink ejection	B41J 2/16508 , B41J 2/185
---------------------------------------	--

B41J 2/1752

{Mounting within the printer}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Bodily-changeable print heads or carriages	B41J 25/34
--	----------------------------

B41J 2/17546

{electronically}

Definition statement

This place covers:

Also other data transfer as remaining liquid information

B41J 2/17566

{Ink level or ink residue control}

Definition statement

This place covers:

Remaining ink quantity measurement using floater, optical means, impedance measurements, vibration, temperature change or counting ejected droplets
Low level operation of printer

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For information data transfer therewith	B41J 2/17546
For details	B41J 2002/17569 - B41J 2002/17589

B41J 2/185

Ink-collectors; Ink-catchers

Definition statement

This place covers:

Ink-catchers for ink jet printers of the continuous type.

Collecting ink after ejection from printers of the DOD-type.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Spittoons receiving ink by idle ink ejection during maintenance	B41J 2/16505 , B41J 2/16508
Collectors receiving ink during printing (e.g. borderless printing)	B41J 2/1721

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

DOD	drop on demand (opposite to ink jet of the continuous type)
-----	---

B41J 2/205

for printing a discrete number of tones ([B41J 2/21](#) takes precedence)

Definition statement

This place covers:

Monochrome gray levels.

Liquids of same hue but with different intensity.

References

Limiting references

This place does not cover:

For multi-colour printing	B41J 2/21
Halftoning by varying the number of within a pixel (dithering) for multi-colour printers	B41J 2/2132

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "gray levels", "tone levels" and "colour intensity"
- "levels", "grayscale", "shading", "halftoning", "gradation" and "gradation value"

B41J 2/2052

{by dot superpositioning, e.g. multipass doubling}

Definition statement

This place covers:

True half toning by means of superpositioning of droplets of the same colour.

B41J 2/2054

{by the variation of dot disposition or characteristics, e.g. dot number density, dot shape}

Definition statement

This place covers:

Halftoning by a selectable number of adjacent dots of the same colour within a pixel.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Halftoning by dithering dots of different colour within a pixel	B41J 2/2132
---	-----------------------------

B41J 2/2056

{by ink density change}

Definition statement

This place covers:

Ejecting liquids of same hue but with different intensity, e.g. light and dark magenta/cyan inks.

B41J 2/21

for multi-colour printing

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Print resolution change	B41J 2/505
Print resolution change by print head rotation	B41J 25/003
Conversion of colour signals	H04N
Colour registering	H04N

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "colour", "color" and "hue"

B41J 2/2107

{characterised by the ink properties (supplying ink in a solid state [B41J 2/17593](#))}

Definition statement

This place covers:

Covering dye-based inks vs pigmented inks.

Inks reactive which each other.

References

Limiting references

This place does not cover:

Using solid state inks	B41J 2/17593
------------------------	------------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink compositions	C09D 11/30
------------------	----------------------------

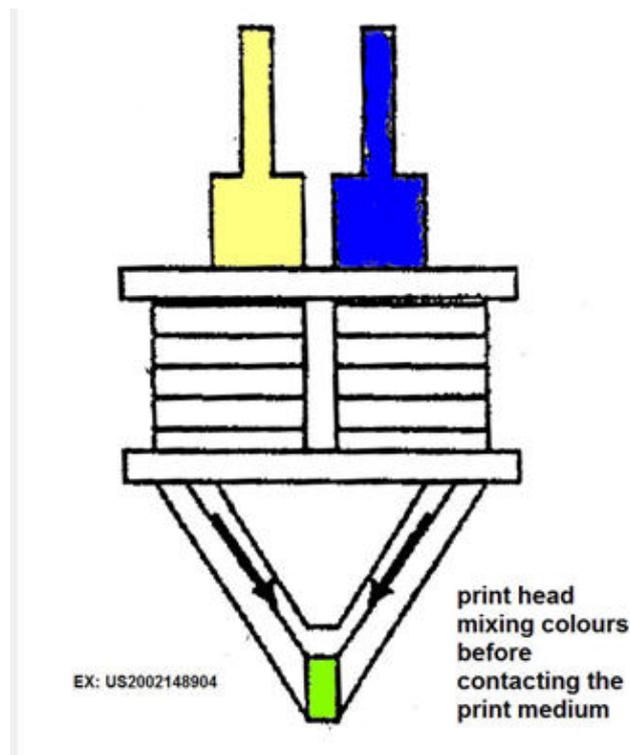
B41J 2/211

{Mixing of inks, solvent or air prior to paper contact}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/2114

{Ejecting specialized liquids, e.g. transparent or processing liquids ([B41J 2/211](#) takes precedence)}

Definition statement

This place covers:

Ejecting specialized liquids, e.g. processing or transparent liquids

References

Limiting references

This place does not cover:

Mixing of inks, solvent or air prior to paper contact	B41J 2/211
---	----------------------------

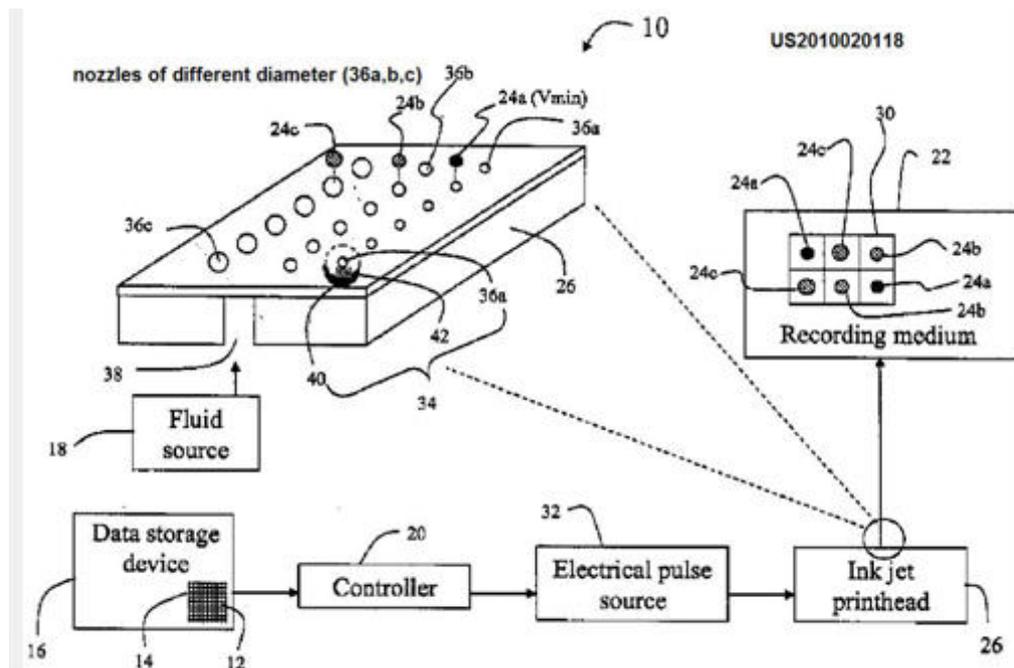
Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "processing liquid", "ink" and "printing improvement liquid"

B41J 2/2125**{by means of nozzle diameter selection}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group.

**B41J 2/2128****{by means of energy modulation (control methods or devices therefor, e.g. driver circuits or control circuits [B41J 2/04501](#))}****Definition statement***This place covers:*

Half-toning or colouring by ejecting an ink droplet of selectable size from nozzles by using different drive power levels.

References**Limiting references***This place does not cover:*

Drive signal shaping, stabilising ejection rates e.g. by temperature measurements	B41J 2/04501
---	------------------------------

B41J 2/2132

{Print quality control characterised by dot disposition, e.g. for reducing white stripes or banding (methods for local corrections by dot omission, image edge enhancement, or multi-pass mask selection [G06K 15/102](#); colour conversion [H04N 1/40](#))}

Definition statement

This place covers:

Multi-pass printing; Interlacing, the printed pixels printed in both fast- as slow-scan direction.

Dithering: several non-overlapping dots of different colour (C,M,Y,K) within a pixel to give the impression of one colour.

Preventing banding: white or dark stripes due to systematic dot positioning errors.

References

Limiting references

This place does not cover:

Methods for local corrections by dot omission, image edge enhancement, or multi-pass mask selection	G06K 15/102
Colour conversion	H04N 1/40

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Multi-pass	several movements of a print head in the main-scan direction, without a paper feed
Interlacing/interleaving	filling up the lines between the raster lines caused by the distance between two adjacent nozzles. Sometimes also used for filling up the empty pixels in a mask in the fast-scan direction

B41J 2/2135

{Alignment of dots}

Definition statement

This place covers:

Alignment by nozzle drive control adjustment.

Test patterns.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Mechanical adjustment	B41J 25/001 , B41J 25/304 , B41J 25/34
Devices for controlling or analysing the entire machine	B41J 29/393

B41J 2/32

using thermal heads

Definition statement

This place covers:

Direct printing type thermal head, i.e. using heat sensitive print media

B41J 2/325

by selective transfer of ink from ink carrier, e.g. from ink ribbon or sheet

Definition statement

This place covers:

Indirect thermal printing using ribbon between the head and the paper for printing.

B41J 2/335

Structure of thermal heads

Definition statement

This place covers:

All aspects relating to the head itself

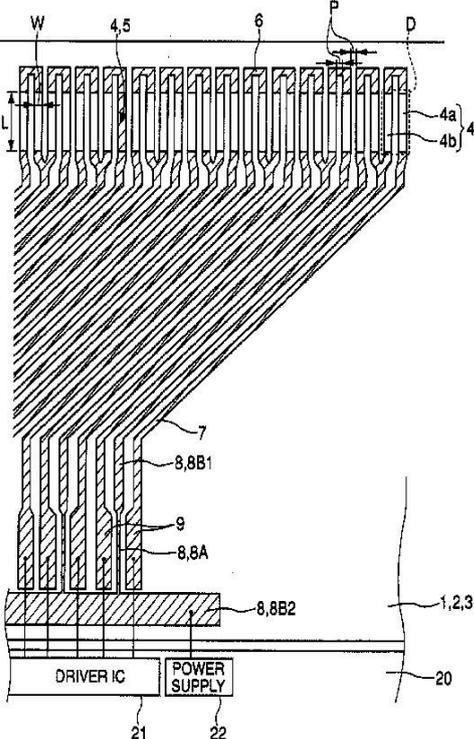
B41J 2/3351

{Electrode layers}

Definition statement

This place covers:

Details concerning the electrodes: shape, geometry, dimension, material.



US2008100686

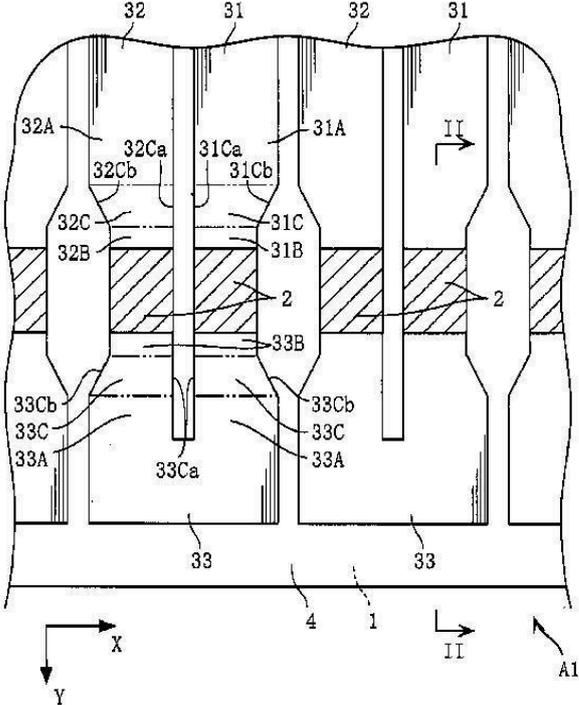
B41J 2/33515

{Heater layers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



B41J 2/3352

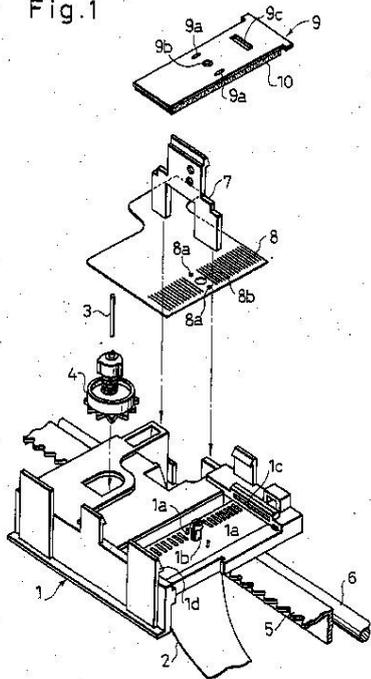
{Integrated circuits}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Fig.1



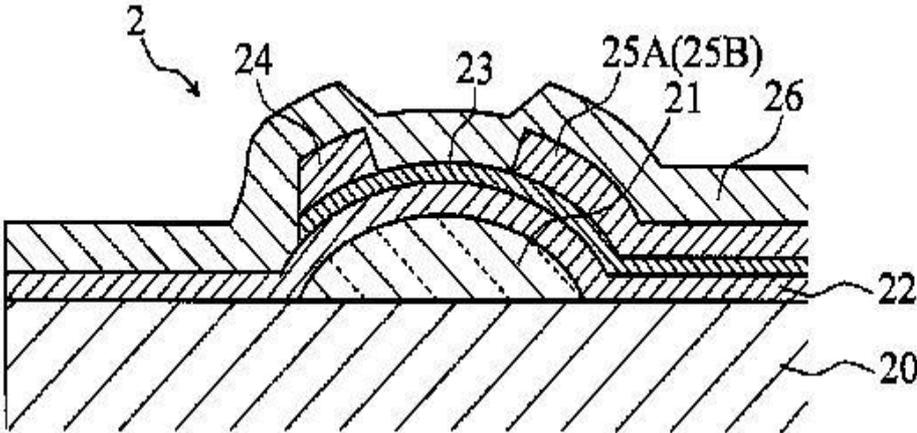
B41J 2/33525

{Passivation layers}

Definition statement

This place covers:

Details of passivation layer: shape, dimension, geometry, material



WO2008081949

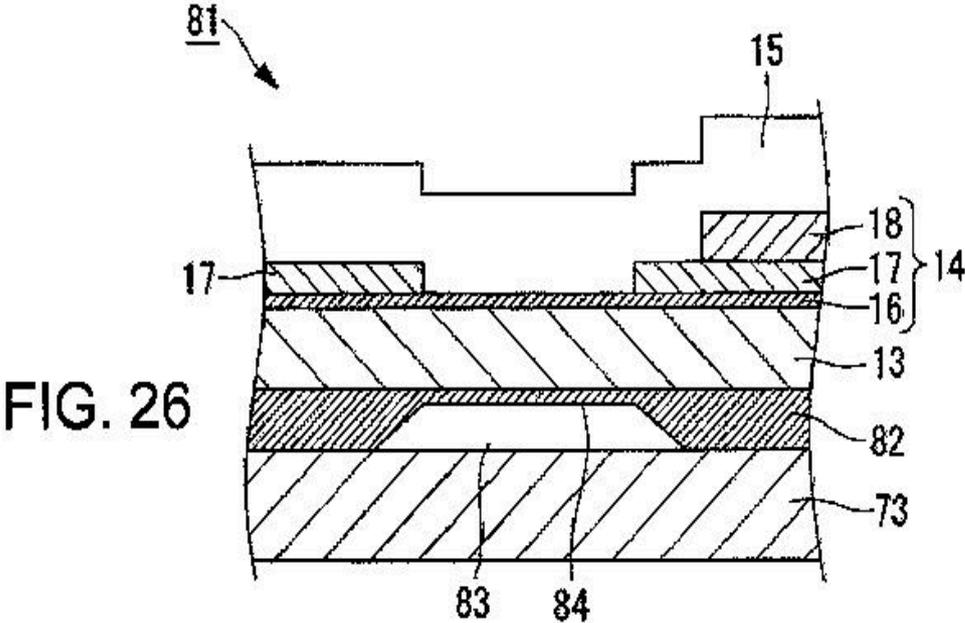
B41J 2/3353

{Protective layers}

Definition statement

This place covers:

Details of the protection layer: shape, dimension, geometry, material



US2010134583

B41J 2/33535

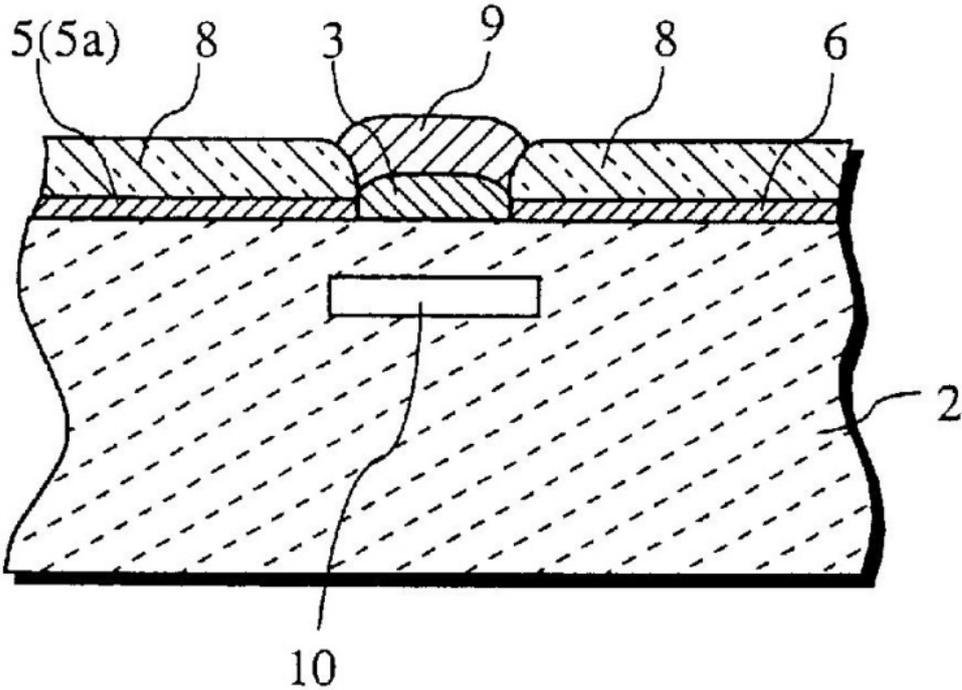
{Substrates}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Detail of the substrate such as architecture, material, geometry



EP0763431

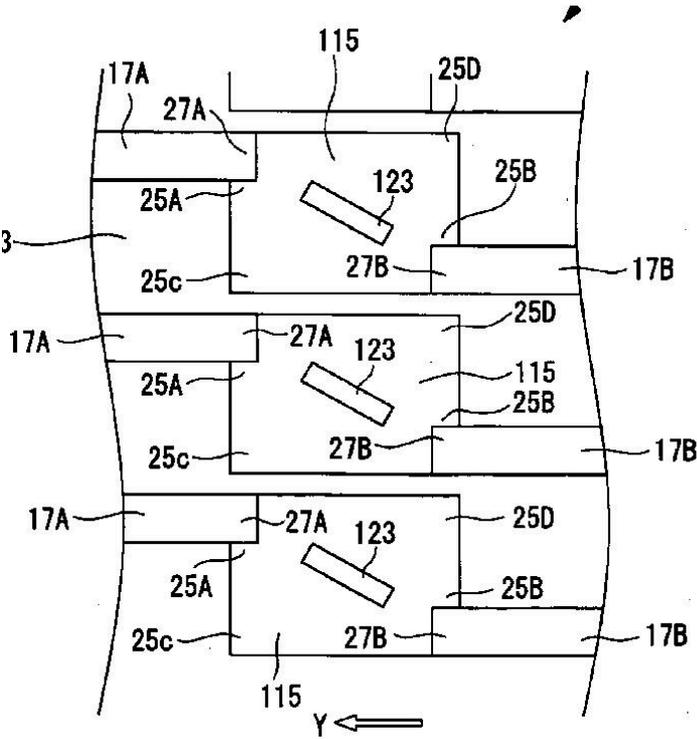
B41J 2/3354

{characterised by geometry}

Definition statement

This place covers:

Geometrical characteristic:



US2011141216

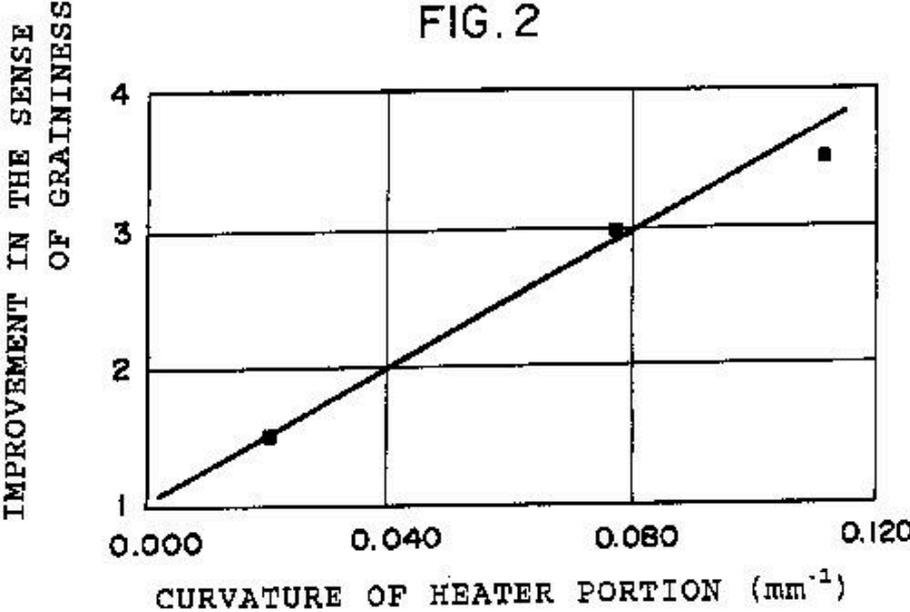
B41J 2/33545

{characterised by dimensions}

Definition statement

This place covers:

Dimension being one of the key issues of the invention



US6151054

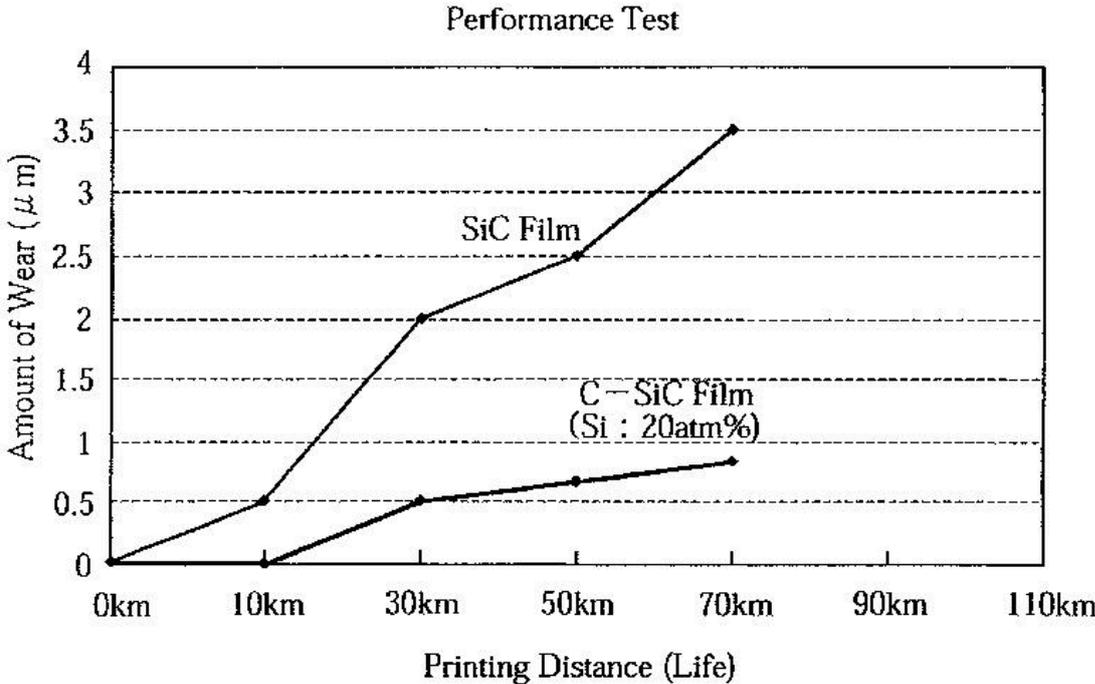
B41J 2/3355

{characterised by materials}

Definition statement

This place covers:

If a specific material is used for the head.



EP1195255

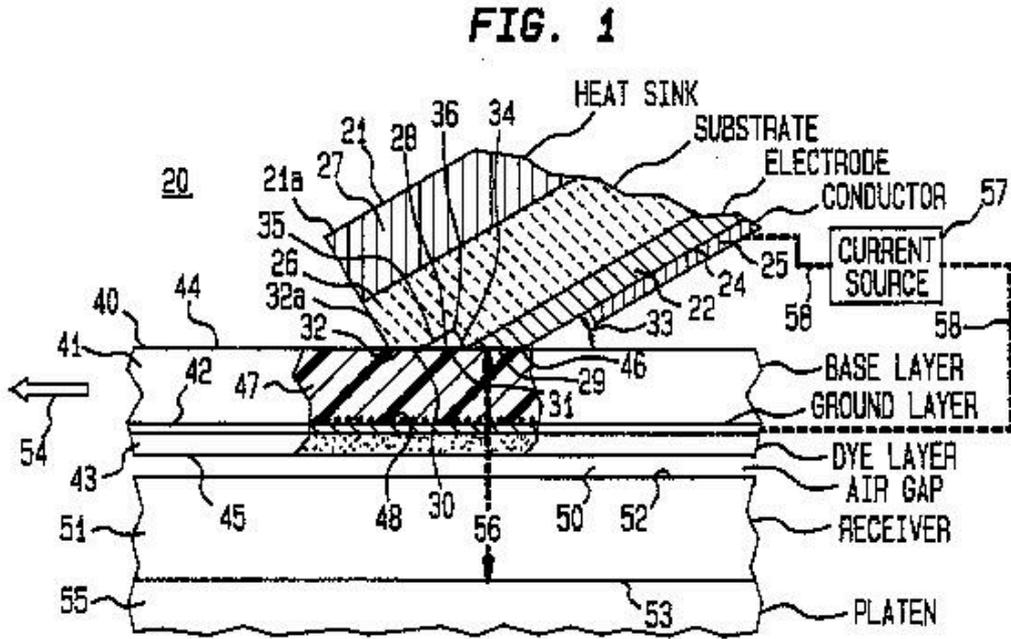
B41J 2/3356

{Corner type resistors}

Definition statement

This place covers:

Heater at the corner of the substrate.



US5426451

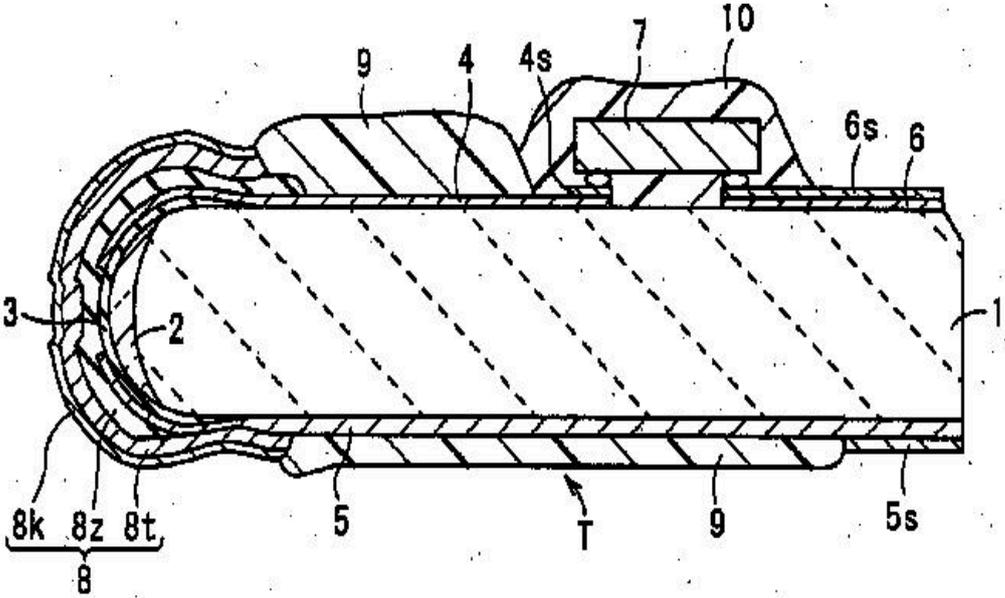
B41J 2/33565

{Edge type resistors}

Definition statement

This place covers:

Heater on the edge of the substrate



US2006098052

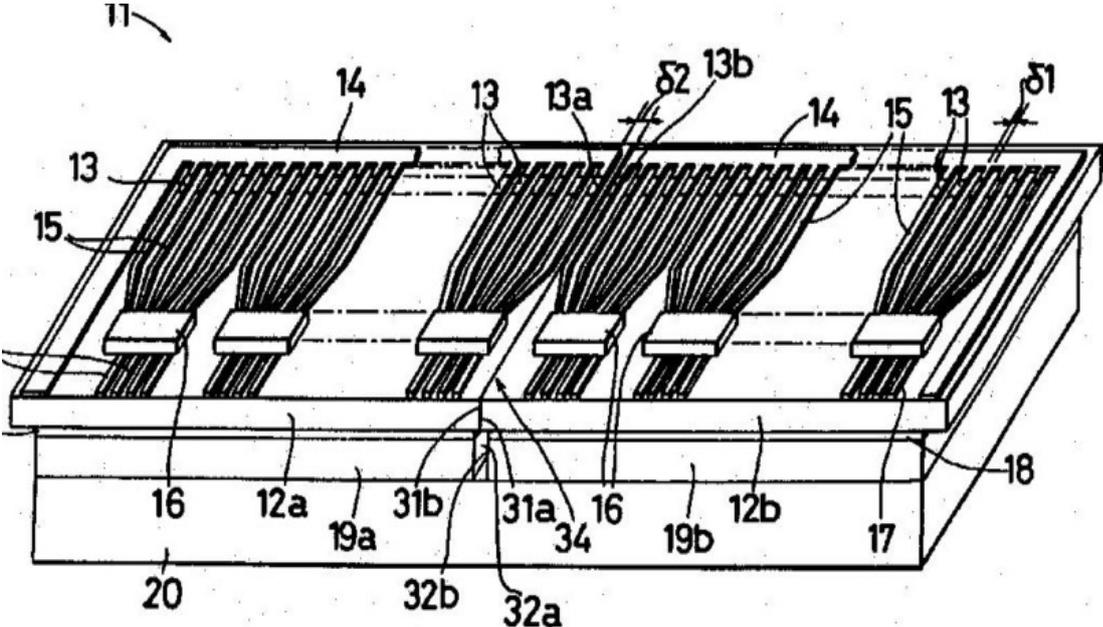
B41J 2/3357

{Surface type resistors}

Definition statement

This place covers:

Heater on the surface of the substrate



US5305021

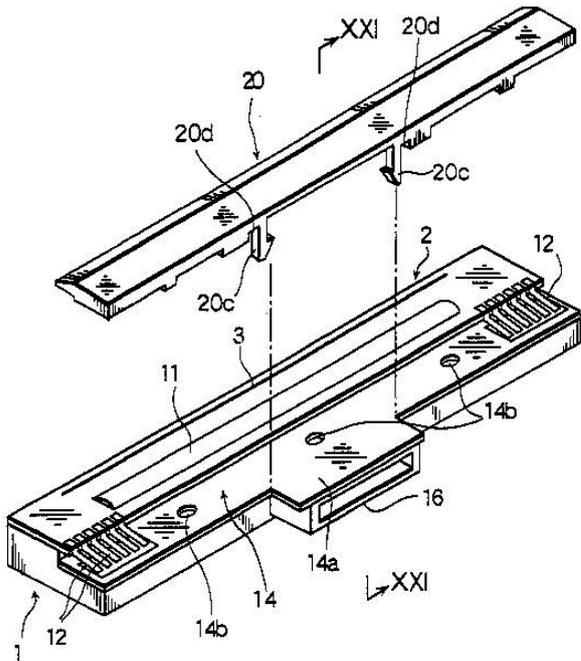
B41J 2/33575

{Processes for assembling process heads}

Definition statement

This place covers:

Method comprising steps for assembling parts of a head



WO9610490

B41J 2/3358

{Cooling arrangements}

Definition statement

This place covers:

Architecture for cooling the head itself by heat dissipation on the substrate side.

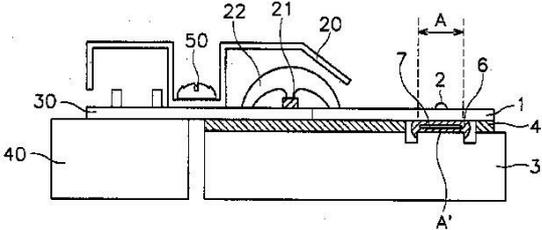
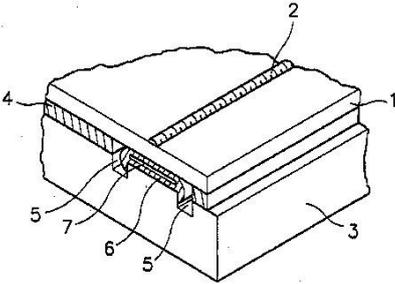


FIG. 6



US5568176

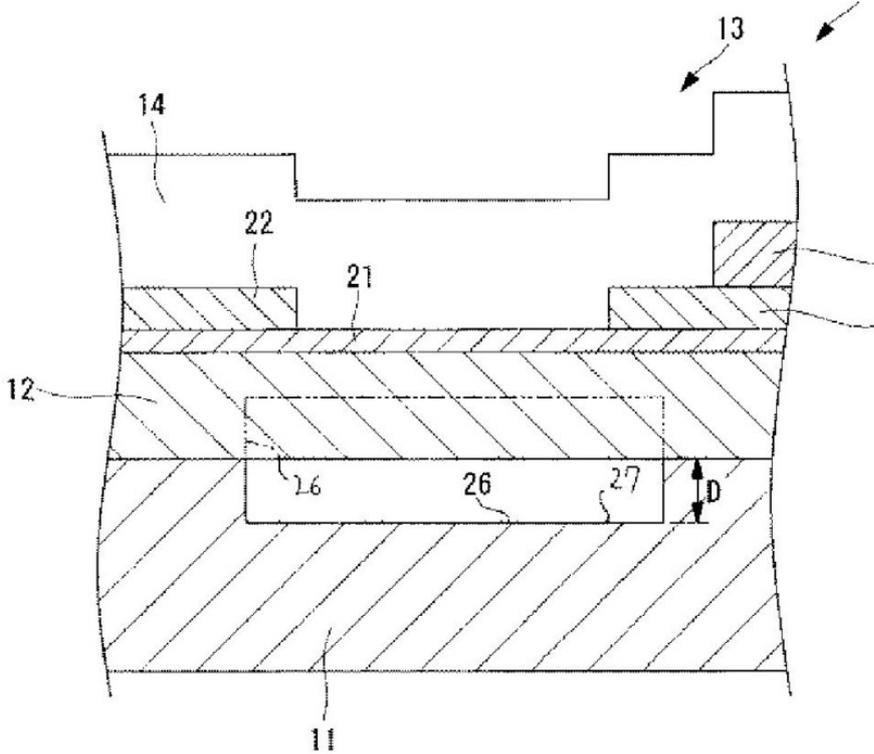
B41J 2/33585

{Hollow parts under the heater}

Definition statement

This place covers:

Part of the substrate or first layer above the substrate having a groove filled or not in order to dissipate heat.



JP2007083532

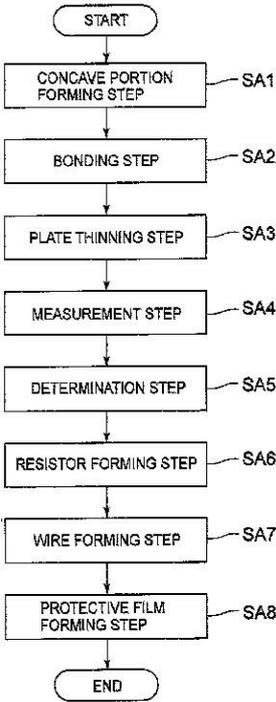
B41J 2/3359

{Manufacturing processes}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



EP2284010

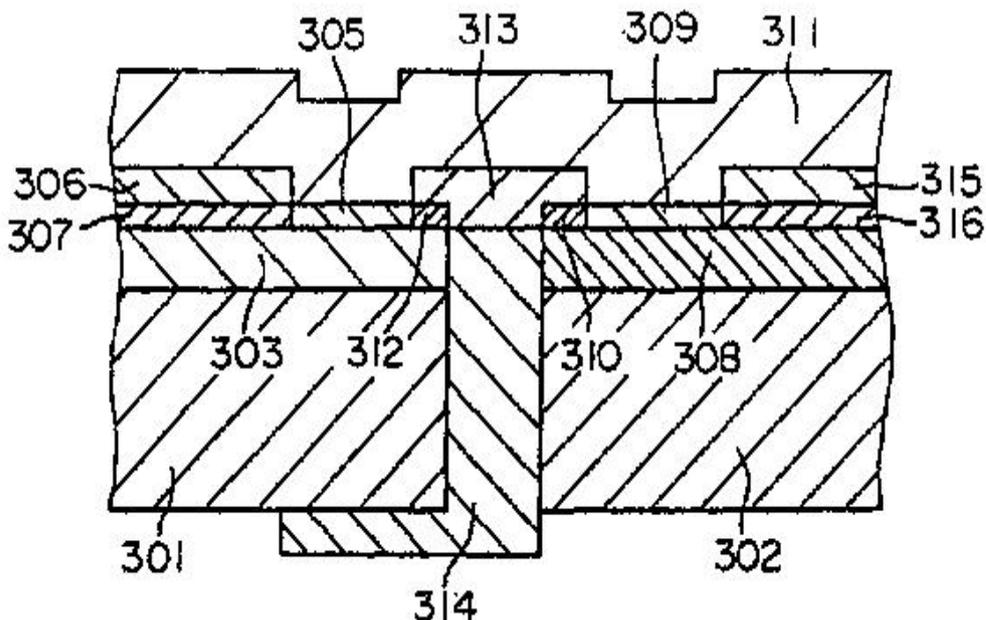
B41J 2/33595

{Conductors through the layered structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



EP1077135

B41J 2/385

characterised by selective supply of electric current or selective application of magnetism to a printing or impression-transfer material ([B41J 2/005](#) takes precedence)

Definition statement

This place covers:

Print heads only.

References

Limiting references

This place does not cover:

Characterised by bringing liquid or particles selectively into contact with a printing material	B41J 2/005
---	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electrography, magnetography	G03G
Copying machine subjects other than the print head	G03G 15/00

B41J 2/405

Selection of the stylus or auxiliary electrode to be supplied

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Electronic switching circuits in general	H03K 17/00
--	----------------------------

B41J 2/4155

{for direct electrostatic printing [DEP]}

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

DEP	Direct Electrostatic Printing, without the intermediate step of a latent image because the toner particles are directly driven through the holes or slits.
-----	--

B41J 2/42

for heating selectively

Definition statement

This place covers:

Printing by selective heating by applying an electric current to a printing medium.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Printing by contacting a printing medium by heated electrodes	B41J 2/32
Printing by heating through selective radiation	B41J 2/475

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Printing medium	e.g. a paper sheet on which is printed
-----------------	--

B41J 2/435

characterised by selective application of radiation to a printing material or impression-transfer material

Definition statement

This place covers:

Optical print heads as laser print heads

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Ablation writing by laser on work pieces	B23K 26/0665
Optical elements, systems, or apparatus	G02B
Modulation or deflection of light	G02F
Electrophotography	G03G
Using a test patch for electrographic printers	G03G 15/5058

B41J 2/44

using single radiation source {per colour}, e.g. lighting beams or shutter arrangements ([B41J 2/475](#) takes precedence)

References**Limiting references**

This place does not cover:

Characterised by selective application of radiation to a printing material or impression-transfer material for heating selectively by radiation or ultrasonic waves	B41J 2/475
---	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Characterised by selective application of radiation to a printing material or impression-transfer material using masks, e.g. light-switching masks	B41J 2/465
Characterised by selective application of radiation to a printing material or impression-transfer material using the combination of scanning and modulation of light	B41J 2/47

B41J 2/442

{using lasers}

Definition statement

This place covers:

Laser characteristics as power, power density.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Working material by laser beam in general	B23K 26/00
Ablative marking methods and sheet materials for use therein	B41M 5/24

B41J 2/447

using arrays of radiation sources ([B41J 2/475](#) takes precedence)

Definition statement

This place covers:

General lay-outs of printers with light array print heads

References

Limiting references

This place does not cover:

Characterised by selective application of radiation to a printing material for heating selectively:	B41J 2/475
---	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for electrographic processes using a charge pattern by application of light, e.g. using a LED array	G03G 15/326
---	-----------------------------

Special rules of classification

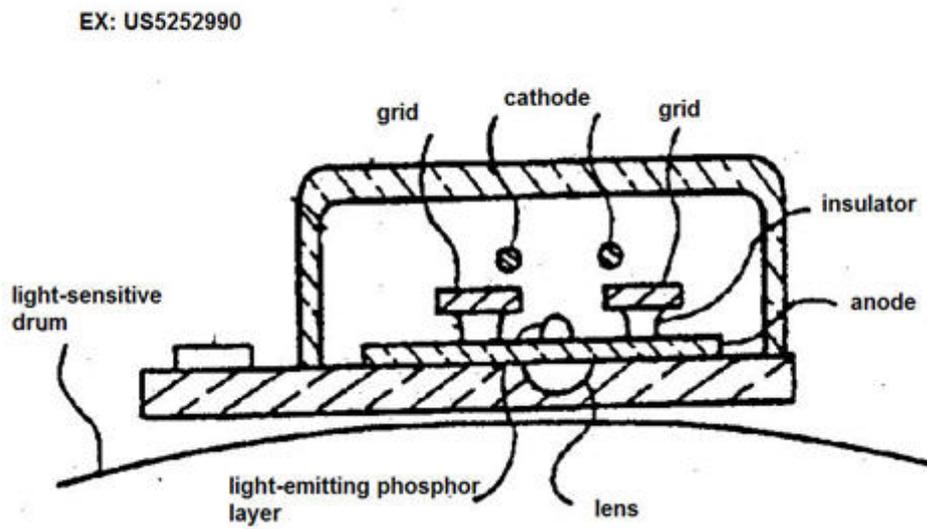
Light beam arrays are also used as light source in rotating mirror printers:

[B41J 2/473](#)

For reciprocating print head carriers: [B41J 2/47](#)

B41J 2/4476**{using cathode ray or electron beam tubes}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group.

**B41J 2/46****characterised by using glass fibres****Definition statement***This place covers:*

Printers using one or more glass fibres as optical waveguide to guide light from a light source to the printing medium.

B41J 2/465**using masks, e.g. light-switching masks****Definition statement***This place covers:*

Light-switching mirrors or valves for modulating.

Light slits for focusing light beams.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Photographic composing	B41B
------------------------	----------------------

B41J 2/47

using the combination of scanning and modulation of light

Definition statement

This place covers:

Light array print heads reciprocating (scanning) over the media to be printed.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Light modulation	light source intensity being set on a level corresponding with an image data map
------------------	--

B41J 2/471

{using dot sequential main scanning by means of a light deflector, e.g. a rotating polygonal mirror}

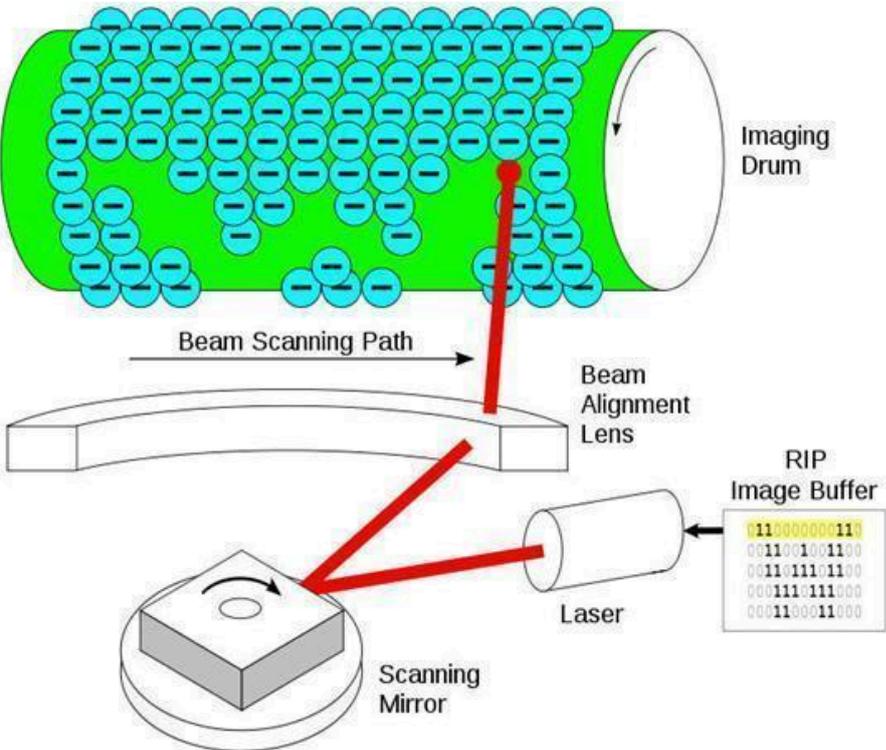
Definition statement

This place covers:

A modulated light beam from, e.g., a laser diode array is directed to a rotating mirror. From there the light beam is directed through a lens and is moved (scanned) over a medium, e.g. an electrically chargeable drum.

Illustrative example of the subject matter classified in this subgroup:

A rotating polygonal scanning mirror for moving (scanning) a laser light beam over an imaging drum.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light	G02B 26/00
Printer aspects other than the print head, e.g. toner powder subjects	G03G

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

ROS	raster output scanner
Rotating polygon	rotating device having a plurality of mirrored facets
Scanning mirror	moving mirror, e.g. rotating
Main-scanning	here: light beam moving over e.g. a drum
Sub-scanning	drum, belt or paper movement;
Light modulation	light source intensity being set on a level corresponding with an image data map.

B41J 2/473

{using multiple light beams, wavelengths or colours}

Definition statement

This place covers:

A plurality of light beams directed to the same scanning mirror (e.g. a light source array).

B41J 2/475

for heating selectively {by radiation or ultrasonic waves}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Thermal heads using heated electrodes contacting the material to be treated	B41J 2/32
By an electrical current between head and printing medium	B41J 2/42

B41J 2/4753

{using thermosensitive substrates, e.g. paper}

Definition statement

This place covers:

Heating for writing or erasing on print media.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Erasing by a thermal head by contacting the print media	B41J 2/315
Erasing by an electric or magnetic field	B41J 3/4076

B41J 2/485

characterised by the process of building-up characters {or image elements} applicable to two or more kinds of printing or marking processes

Definition statement

This place covers:

Matrix printing having means to control the print result e.g. negative print, background shaded, avoiding of wearing out by selective use of print elements. E.g. use of ultra-sonic vibrations therefor.

B41J 2/49

by writing

Definition statement

This place covers:

Reproducing of handwriting.

Signatures.

Pens on carriages (plotters).

B41J 2/50

by the selective combination of two or more non-identical printing elements

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

With multiple print heads of different type	B41J 3/546
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B41J 2/505

from an assembly of identical printing elements

Definition statement

This place covers:

Matrix printer print quality adjustment;

Print resolution adjustment;

Interlacing for printers not being of the ink-jet type.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink-jet subjects not having resolution change	B41J 2/2103 - B41J 2/215
With multiple print heads of different type	B41J 3/546
Arrangements for producing a permanent visual presentation of the digital output data using matrix printers, e.g. individual print element control for printing letters	G06K 15/10

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Printing elements	e.g. nozzles, electrodes, LED's to form dots on a material to be printed (print media)
Identical printing elements	e.g. an array of nozzles
NLQ	Near letter quality, which means high print quality
Registration/registering	In color printing the method of correlating the overlapping colours on one single position of an image
Print resolution	printing at a predetermined dot density
Dot density	number of dots per unit of surface
Raster	line or grid with a predetermined dot density

B41J 2/5054

{with special adaptations characterised by dot size ([B41J 2/2121](#) takes precedence)}

Definition statement

This place covers:

Print heads other than of the ink jet type.

References

Limiting references

This place does not cover:

Multi-colour printing characterised by dot size, e.g. combinations of printed dots of different diameter	B41J 2/2121
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B41J 2/5056

{using dot arrays providing selective dot disposition modes, e.g. different dot densities for high speed and high-quality printing, array line selections for multi-pass printing, or dot shifts for character inclination ([B41J 2/2132](#) takes precedence)}

References

Limiting references

This place does not cover:

Print quality control characterised by dot disposition, e.g. for reducing white stripes or banding	B41J 2/2132
--	-----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

For changing the angle between a print element array axis and the printing line, e.g. for dot density changes	B41J 25/003
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B41J 2/51

serial printer type

Definition statement

This place covers:

Printers with a print head reciprocating over the material to be printed in order to print a single line or swath, e.g. geometry aspects as columns/rows of print elements (monochrome) or functional aspects as inclination of characters (matrix printers).

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink jet nozzle arrangements for serial printing	B41J 2/15
Features not dealing with the colouring process per se, e.g. construction of printers or heads, driving circuit adaptations	B41J 2/2103
Movements parallel to the plane of printing other than reciprocating	B41J 25/003 , B41J 25/005

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Serial printer	printer with a print head reciprocating over the material in order to print a single line or swath
Line head printer	page-width printer printing at least one raster line at the same time

B41J 2/515

line printer type

Definition statement

This place covers:

Page-width printers printing at least one raster line at the same time.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink jet nozzle arrangements for line printing	B41J 2/155
Movements parallel to the plane of printing other than reciprocating	B41J 25/001

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Serial printer	printer with a print head reciprocating over the material in order to print a single line or swath.
Line printer type	page-width printer printing at least one raster line at the same time.

B41J 2/52

Arrangement for printing a discrete number of tones, not covered by group [B41J 2/205](#), e.g. applicable to two or more kinds of printing or marking process ([B41J 2/525](#) takes precedence)

References

Limiting references

This place does not cover:

Arrangement for multi-color printing, not covered by group B41J 2/21 , e.g. applicable to two or more kinds of printing or marking process	B41J 2/525
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink jet	B41J 2/205 , B41J 2/21
For photomechanical production	G03F 5/00
Gradual grey tones	H04N

B41J 2/525

Arrangement for multi-colour printing, not covered by group [B41J 2/21](#), e.g. applicable to two or more kinds of printing or marking process

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink jet printers	B41J 2/21
For photomechanical production	G03F 3/00
Colour printing in general	H04N

B41J 3/00

Typewriters or selective printing or marking mechanisms characterised by the purpose for which they are constructed

Definition statement

This place covers:

In particular bar code printers, flat-bed ink-jet printers, ink-jet printers for printing on bank books, passports or the like, portable printers, hand-held printers, stamp-type ink-jet printers, printers for printing on CDs or DVDs, ink-jet printers for printing on three-dimensional objects, label printers, ink-jet printers for printing on textile, printers for printing on the front and on the back of sheets or continuous material.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cryptographic typewriters	G09C 3/00
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B41J 3/28

for printing downwardly on flat surfaces, e.g. of books, drawings, boxes {, envelopes, e.g. flat-bed ink-jet printers}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Selective printing mechanisms for portability	B41J 3/36
Selective printing mechanisms for marking on special material	B41J 3/407
Selective printing mechanisms for printing on disk-shaped media, e.g. CDs	B41J 3/4071
Selective printing mechanisms for printing on three-dimensional objects	B41J 3/4073
Tape printers; Label printers	B41J 3/4075

Selective printing mechanisms for printing on rewritable, bistable "electronic paper" by a focused electric or magnetic field	B41J 3/4076
Selective printing mechanisms for printing on textile	B41J 3/4078
Conveyor belts	B41J 11/007 , B41J 13/08 , B41J 15/048
Flat page-size platens	B41J 11/06
Drawing instruments	B43L 13/00
Automatic drafting machines	B43L 13/022

B41J 3/36

for portability {, i.e. hand-held printers or laptop printers ([B41J 3/4075](#) takes precedence)}

References

Limiting references

This place does not cover:

Tape printers; label printers	B41J 3/4075
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Printers with reduced dimensions	B41J 29/023
Stackable printers	B41J 29/026
Manually-controlled or manually-operable label dispensers having printing equipment	B65C 11/02

B41J 3/38

for embossing, e.g. for making matrices for stereotypes

Definition statement

This place covers:

Marking devices having a set of marking elements, for example a set of numerals, wherein each marking element can be selected and used independently from the others in order to carry out the impression operation.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Surface shaping, e.g. embossing	B29C 59/00
Mechanical deformation of paper or cardboard without removing material	B31F 1/00
Machines or apparatus for embossing decorations or marks	B44B 5/00

B41J 3/39**hand-held****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Manually-controlled or manually-operable label dispensers having printing equipment	B65C 11/02
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B41J 3/407**for marking on special material****References****Application-oriented references***Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Apparatus or processes for manufacturing printed circuits by printing or dispensing a conductive paste or ink	H05K 3/1241
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Methods of making colour filters, e.g. printing	G02F 1/133516
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B41J 3/4071**{Printing on disk-shaped media, e.g. CDs}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Recording by optical means, e.g. recording using a thermal beam of optical radiation	G11B 7/00
Guiding record carriers from consecutive-access magazine of disc records, e.g. for optically recording on CDs	G11B 17/08

B41J 3/4075**{Tape printers; Label printers}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Tape cartridges containing continuous copy material to be printed	B41J 15/044
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B41J 3/4076**{printing on rewritable, bistable "electronic paper" by a focused electric or magnetic field}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Displays in which the positions of movable elements are controlled by the application of an electric field	G09F 9/372
Displays in which the positions of movable elements are controlled by the application of a magnetic field	G09F 9/375

Glossary of terms*In this place, the following terms or expressions are used with the meaning indicated:*

Electrochromism means	the phenomenon displayed by some chemical species of reversibly changing colour when a burst of charge is applied (adjective: electrochromic).
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B41J 3/4078**{Printing on textile}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Ink-jet dyeing or printing processes for textile	D06P 5/30
Conversion of colour picture signals to a plurality of signals some of which represent particular mixed colours, e.g. for textile printing	H04N 1/54

B41J 3/44

Typewriters or selective printing mechanisms having dual functions or combined with, or coupled to, apparatus performing other functions

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Printing mechanisms coupled to typographical composing machines	B41B 27/41
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Synonyms and Keywords

In patent documents, the following abbreviations are often used:

RFID	radio frequency identification
------	--------------------------------

B41J 3/50

Mechanisms producing characters by printing and also producing a record by other means {, e.g. printer combined with RFID writer}

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

RFID	radio frequency identification
------	--------------------------------

B41J 3/54

with two or more sets of type or printing elements ([B41J 3/60](#) takes precedence)

Definition statement

This place covers:

Selective printing or marking mechanisms with two or more sets or types of printing elements

References

Limiting references

This place does not cover:

Selective printing mechanisms for printing on both faces of the printing material	B41J 3/60
---	---------------------------

B41J 3/543

{with multiple inkjet print heads ([B41J 2/17503](#), [B41J 2/2103](#) take precedence)}

References**Limiting references**

This place does not cover:

Ink cartridges; ink cartridges mounted on a common carriage	B41J 2/17503
Construction of print heads for multi-colour ink-jet printing; multi-colour print heads mounted on a common carriage	B41J 2/2103

B41J 3/62

for printing on two or more separate sheets or strips of printing material {being conveyed simultaneously to or through the printing zone} ([B41J 3/54](#) takes precedence)

Definition statement

This place covers:

The cases of two or more cut sheets or at least one cut sheet and at least one strip of printing material that are conveyed simultaneously to or through the printing zone.

References**Limiting references**

This place does not cover:

Selective printing mechanisms with two or more sets or types of printing elements	B41J 3/54
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Multiple web-feeding apparatus	B41J 15/18
Multiple web-feeding apparatus for webs superimposed during printing	B41J 15/20
Multiple web-feeding apparatus for feeding webs in separate paths during printing	B41J 15/22
Multiple web-feeding apparatus with means for registering the webs with each other	B41J 15/24

B41J 5/00

Devices or arrangements for controlling character selection (methods or arrangements for sensing record carriers [G06K 7/00](#))

Definition statement

This place covers:

Type-writers only.

References

Limiting references

This place does not cover:

Methods or arrangements for sensing record carriers:	G06K 7/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Interpreting	G06K 3/00
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B41J 5/08

Character or syllable selected by means of keys or keyboards of the typewriter type

Definition statement

This place covers:

Keyboards for type-writers.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Keyboards not for type-writers	G06F 3/02
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B41J 5/102

{Keyboard overlays}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For computer use	G06F 3/023
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B41J 5/28

Multiple-action keys, e.g. keys depressed by two or more amounts or movable in two or more directions to effect different functions or selections

Definition statement

This place covers:

E.g. repeat actions for type-writers.

B41J 5/30**Character or syllable selection controlled by recorded information****Definition statement***This place covers:*

Type-writers only.

B41J 5/44**characterised by storage of recorded information****Definition statement***This place covers:*

E.g. font or memory cartridges.

B41J 7/00**Type-selecting or type-actuating mechanisms (index setting [B41J 5/02](#))****Definition statement***This place covers:*

Type-writers only.

References**Limiting references***This place does not cover:*

Index setting	B41J 5/02
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B41J 7/005**{Type-selecting actions or mechanisms by unusual means, e.g. for use by physically disabled persons}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Control means for physically disabled persons in general	A61F 4/00
--	---------------------------

B41J 7/30**Preventing rebound or clash of levers or type members****Definition statement***This place covers:*

E.g. print sequence control for type-writers.

B41J 7/36**Selecting arrangements applied to type-carriers rotating during impression****Definition statement**

This place covers:

E.g. carrousel type carriers for type-writers.

B41J 7/42**Timed impression, e.g. without impact****Definition statement**

This place covers:

E.g. accelerated or delayed impression for type-writers.

B41J 7/48**Type carrier arrested in selected position by electromagnetic means****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Output mechanism with printing mechanisms	G06C 11/04
---	----------------------------

B41J 7/50**Type-face selected by combinations of two movements of type carrier****Definition statement**

This place covers:

E.g. selection over the shortest rotation in type-writers.

B41J 7/54**Selecting arrangements including combinations, permutation, summation, or aggregation means****Definition statement**

This place covers:

Type-writers only.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Apparatus or local circuits for transmitting or receiving codes wherein each character is represented by the same number of equal-length code element - at the receiving end, using aggregate motion translation	H04L 17/26
--	----------------------------

B41J 7/92

Impact adjustment; Means to give uniformity of impression ([B41J 9/46](#), [B41J 9/48](#) take precedence)

Definition statement

This place covers:

Type-writers only.

References

Limiting references

This place does not cover:

For deciding or adjusting hammer-firing time	B41J 9/46
For deciding or adjusting hammer- drive energy	B41J 9/48

B41J 7/96

Means checking correctness of setting

Definition statement

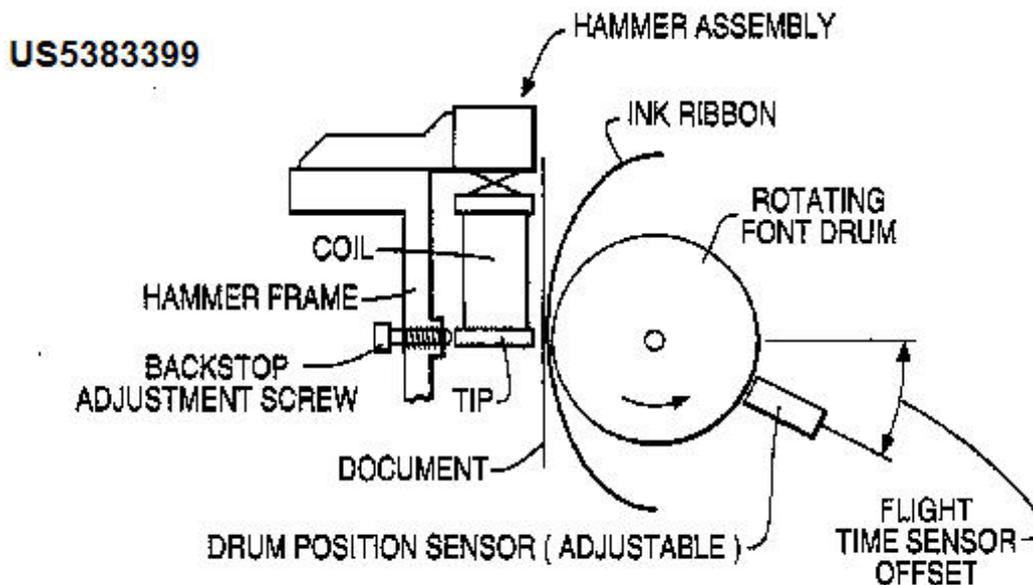
This place covers:

E.g. control of selected characters for type-writers

B41J 9/00**Hammer-impression mechanisms****Definition statement**

This place covers:

Illustrative example of subject matter classified in this group.

**B41J 9/02****Hammers; Arrangements thereof****Definition statement**

This place covers:

General features.

B41J 9/10

of more than one hammer, e.g. one for each character position

Definition statement

This place covers:

Hammer banks.

B41J 9/26**Means for operating hammers to effect impression****Definition statement**

This place covers:

Mechanisms for quiet printing, mechanical means for print density adjustment.

B41J 9/36

in which mechanical power is applied under electromagnetic control

Definition statement

This place covers:

Preloaded springs.

B41J 9/44

Control for hammer-impression mechanisms

Definition statement

This place covers:

Circuits.

General features.

Noise reduction.

B41J 9/46

for deciding or adjusting hammer-firing time

Definition statement

This place covers:

Flight time adjustment.

Print intensity adjustment by flight time control.

B41J 9/48

for deciding or adjusting hammer-drive energy

Definition statement

This place covers:

Print intensity adjustment by drive energy control.

B41J 9/50

for compensating for the variations of printer drive conditions, e.g. for compensating for the variation of temperature or current supply

Definition statement

This place covers:

Also compensating for source voltage variations, paper feed variations.

B41J 9/52

for checking the operation of print hammers

Definition statement

This place covers:

In general: limiting the number of fired hammers.

Detection of the impact.

Preventing overheating.

B41J 11/00

Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers or thermal printers,} for supporting or handling copy material in sheet or web form (script supports connected to the typewriter or printer [B41J 29/15](#))

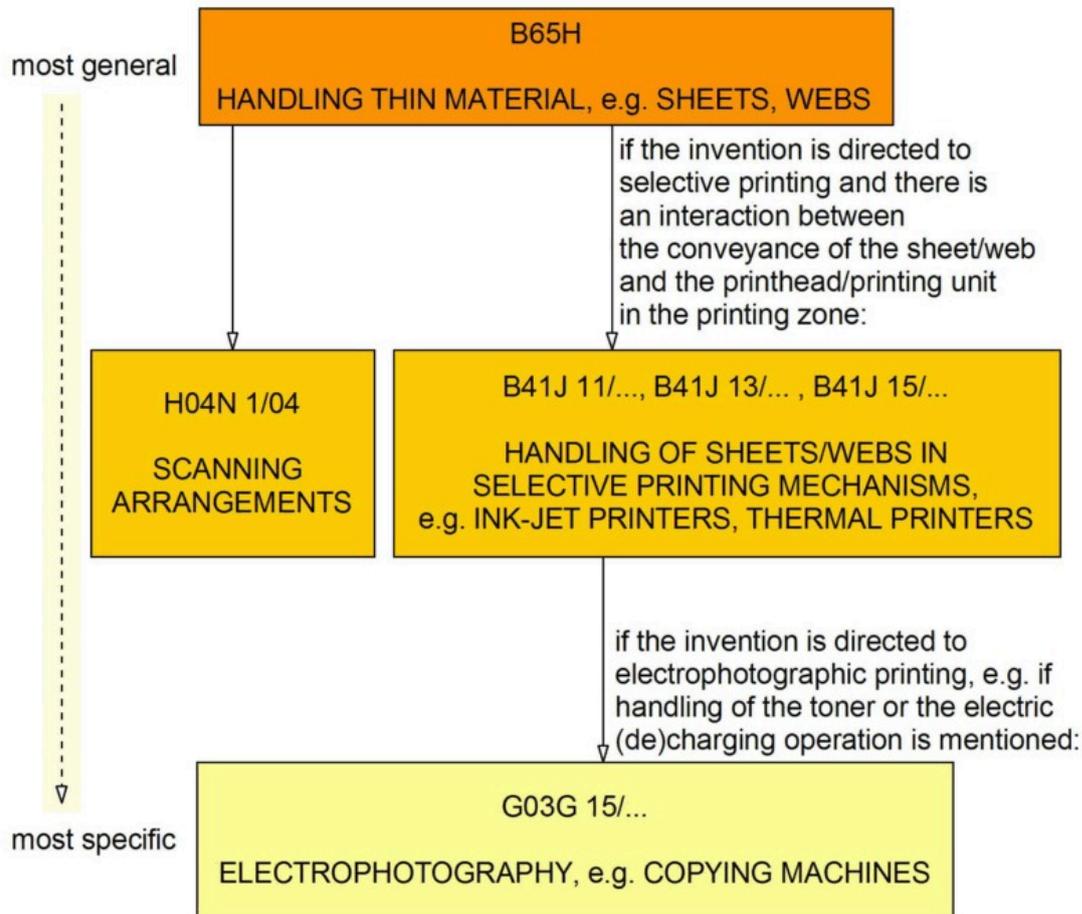
Definition statement

This place covers:

Inventions that are independent from the length of the copy material (the copy material therefore including cut sheets and continuous webs), e.g. ink-jet printers with irradiating or cutting devices.

Relationships with other classification places

Hierarchical Relationship between B65H, H04N, B41J and G03G



The preceding image includes references to [B41J](#), [B41J 11/00](#), [B41J 13/00](#), [B41J 15/00](#), [B65H](#), [H04N](#), [H04N 1/04](#), [G03G](#), and [G03G 15/00](#).

References

Limiting references

This place does not cover:

Script supports connected to the typewriter or printer	B41J 29/15
--	----------------------------

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Devices or arrangements specially adapted for supporting or handling copy material in short lengths, e.g. sheets	B41J 13/00
Devices or arrangements specially adapted for supporting or handling copy material in continuous form, e.g. webs	B41J 15/00

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "recording medium", "paper to be printed" and "copy material"

B41J 11/0005

{Curl smoothing, i.e. smoothing down corrugated printing material, e.g. by pressing means acting on wrinkled printing material}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Means for tensioning webs in general	B41J 15/16
Means for tensioning webs in selective printing or marking devices	B41J 15/165
Smoothers in general	B65H 5/36 , B65H 29/52
Taking out curl from webs in general	B65H 23/34
Article bending or stiffening arrangements	B65H 29/70
Decurling sheets after fixing process in copying machines	G03G 15/6576

B41J 11/001

{Handling wide copy materials}

Definition statement

This place covers:

Selective printing machines which are designed such that they allow to handle copy materials being wider than "usual" copy materials.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Selective printing machines adapted to print on wide cut sheets	B41J 13/0072
---	------------------------------

B41J 11/0015

{for treating before, during or after printing or for uniform coating or laminating the copy material before or after printing (selective coating [B41J 2/2114](#))}

References

Limiting references

This place does not cover:

Selective coating, i.e. coating dot by dot	B41J 2/2114
--	-----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Methods of application of ink fixing material by inkjet printers	B41M 5/0011
Methods of after-treatment of prints relating to the nature of material	B41M 7/00
Methods of after-treatment of prints using protective coatings or layers	B41M 7/0027

B41J 11/0021

{using irradiation}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Methods of after-treatment of prints using UV radiation	B41M 7/0081
Methods of after-treatment of prints using IR radiation	B41M 7/009

B41J 11/0035

{Handling copy materials differing in thickness ([B41J 11/20](#) takes precedence)}

References**Limiting references**

This place does not cover:

Platen adjustments for varying the strength of impression, for a varying number of papers or for alignment	B41J 11/20
--	----------------------------

Informative references

Attention is drawn to the following places, which may be of interest for search:

Movable mechanisms for print heads with print gap adjustment mechanisms	B41J 25/308
---	-----------------------------

B41J 11/005

{Guides in the printing zone, e.g. guides for preventing contact of conveyed sheets with printhead}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Guides in the printing section for copy material in short lengths	B41J 13/14
---	----------------------------

B41J 11/0065

{Means for printing without leaving a margin on at least one edge of the copy material, e.g. edge-to-edge printing}

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "borderless printing", "marginless printing", "bleed printing", "full bleed printing" and "edge-to-edge printing"

B41J 11/007

{Conveyor belts or like feeding devices}

References**Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Conveyor belts specially adapted for handling sheets	B41J 13/08
Conveyor belts specially adapted for handling copy material in continuous form	B41J 15/048

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conveyor belts in general	B65G 15/00
Separating articles from piles using endless belts	B65H 3/04
Feeding articles by belts	B65H 5/02

B41J 11/009

{Detecting type of paper, e.g. by automatic reading of a code that is printed on a paper package or on a paper roll or by sensing the grade of translucency of the paper}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Selecting type of paper	B41J 11/485
Investigating or analysing materials by the use of optical means	G01N 21/00
Investigating moving sheets	G01N 21/86

B41J 11/06

Flat page-size platens {or smaller flat platens having a greater size than line-size platens ([B41J 11/0085](#) takes precedence)}

References**Limiting references**

This place does not cover:

Using suction for maintaining printing material flat	B41J 11/0085
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Flat-bed ink-jet printer	B41J 3/28
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B41J 11/14

Platen-shift mechanisms; Driving gear therefor

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment	B41J 11/20
--	----------------------------

B41J 11/20

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment {, or for print gap adjustment}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Mechanisms for print heads or carriages movable towards or from paper surface with print gap adjustment mechanisms	B41J 25/308
Mechanisms for print heads or carriages movable towards or from paper surface with print pressure adjustment mechanisms	B41J 25/312

B41J 11/22**Paper-carriage guides or races****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Print head carriage guides	B41J 19/00
----------------------------	----------------------------

B41J 11/42**Controlling {printing material conveyance for accurate alignment of the printing material with the printhead; Print registering}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Controlling the print head to print on accurate positions on the copy material	B41J 11/008
Control of the transport of cut sheets	B41J 13/0009

B41J 11/48

Apparatus for condensed record, tally strip, or like work using two or more papers, or sets of papers {, e.g. devices for switching over from handling of copy material in sheet form to handling of copy material in continuous form and vice versa or point-of-sale printers comprising means for printing on continuous copy material, e.g. journal for tills, and on single sheets, e.g. cheques or receipts ([B41J 15/042](#) takes precedence)}

References**Limiting references**

This place does not cover:

Supporting or feeding devices for loading rolled-up continuous copy material into printers, e.g. for replacing a used-up paper roll; Point-of-sale printers with openable casings allowing access to the rolled-up continuous copy material	B41J 15/042
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Simultaneous conveyance of sheets or strips	B41J 3/62
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B41J 11/485

{Means for selecting a type of copy material amongst different types of copy material in the printing apparatus}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Detecting type of paper	B41J 11/009
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B41J 11/50

in which two or more papers or sets are separately fed in the same direction towards the printing position

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Multiple web-feeding apparatus	B41J 15/18
Multiple web-feeding apparatus for webs superimposed during printing	B41J 15/20
Multiple web-feeding apparatus for feeding webs in separate paths during printing	B41J 15/22
Multiple web-feeding apparatus with means for registering the webs with each other	B41J 15/24

B41J 11/51

with different feed rates

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Multiple web-feeding apparatus	B41J 15/18
Multiple web-feeding apparatus for webs superimposed during printing	B41J 15/20
Multiple web-feeding apparatus for feeding webs in separate paths during printing	B41J 15/22
Multiple web-feeding apparatus with means for registering the webs with each other	B41J 15/24

B41J 11/56

specially constructed to facilitate storage or transport of typewriter

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Selective printing mechanisms for portability	B41J 3/36
---	---------------------------

B41J 11/58

Supply holders for sheets or fan-folded webs, e.g. shelves, tables, scrolls, pile holders

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Sheet holders, retainers, movable guides, or stationary guides	B41J 13/10
Sheet holders, retainers, movable guides, or stationary guides for the sheet feeding section	B41J 13/103
Sheet holders, retainers, movable guides, or stationary guides for the sheet output section	B41J 13/106

B41J 11/66

Applications of cutting devices

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Cutting tools in general, independent from the field where the cutting tools are used	B26D 1/00
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B41J 13/00

Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers or thermal printers,} specially adapted for supporting or handling copy material in short lengths, e.g. sheets

Definition statement

This place covers:

In particular selective printing mechanisms comprising devices for the control of the conveyance of sheets, paper sheet guides, rotatable drums for holding sheets by suction or by clamps.

Relationships with other classification places

Hierarchical relationship between [B65H](#), [H04N](#), [B41J](#) and [G03G](#):

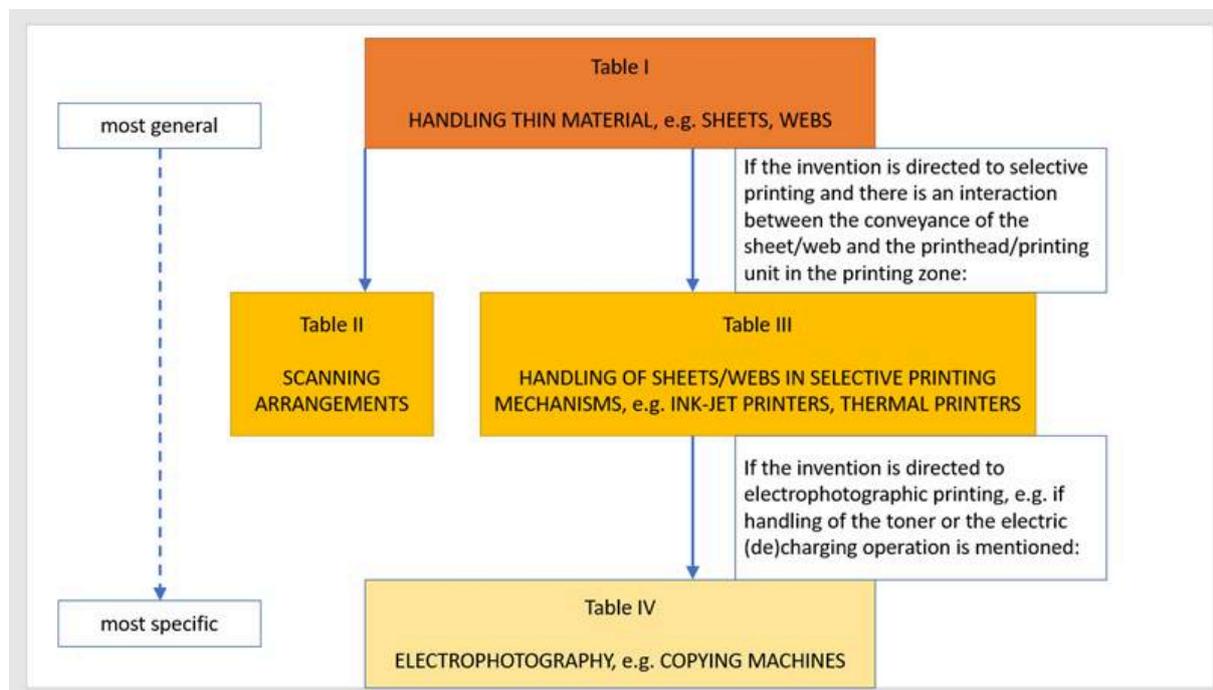


Table #	CPC Area	Description
Table I	B65H	Handling thin or filamentary material, e.g. sheets, webs, cables
Table II	H04N 1/04	Scanning arrangements, i.e. arrangements for the displacement of active reading or reproducing elements relative to the original or reproducing medium, or vice versa
Table III	B41J 11/00	Devices or arrangements of selective printing mechanisms, e.g. ink-jet printers or thermal printers, for supporting or handling copy material in sheet or web form
(same as above)	B41J 13/00	Devices or arrangements of selective printing mechanisms, e.g. ink-jet printers or thermal printers, specially adapted for supporting or handling copy material in short lengths, e.g. sheets

Relationships with other classification places

(same as above)	B41J 15/00	Devices or arrangements of selective printing mechanisms, e.g. ink-jet printers or thermal printers, specially adapted for supporting or handling copy material in continuous form, e.g. webs
Table IV	G03G 15/00	Apparatus for electrographic processes using a charge pattern

Delimitation of [B41J 13/00](#) - [B65H](#)

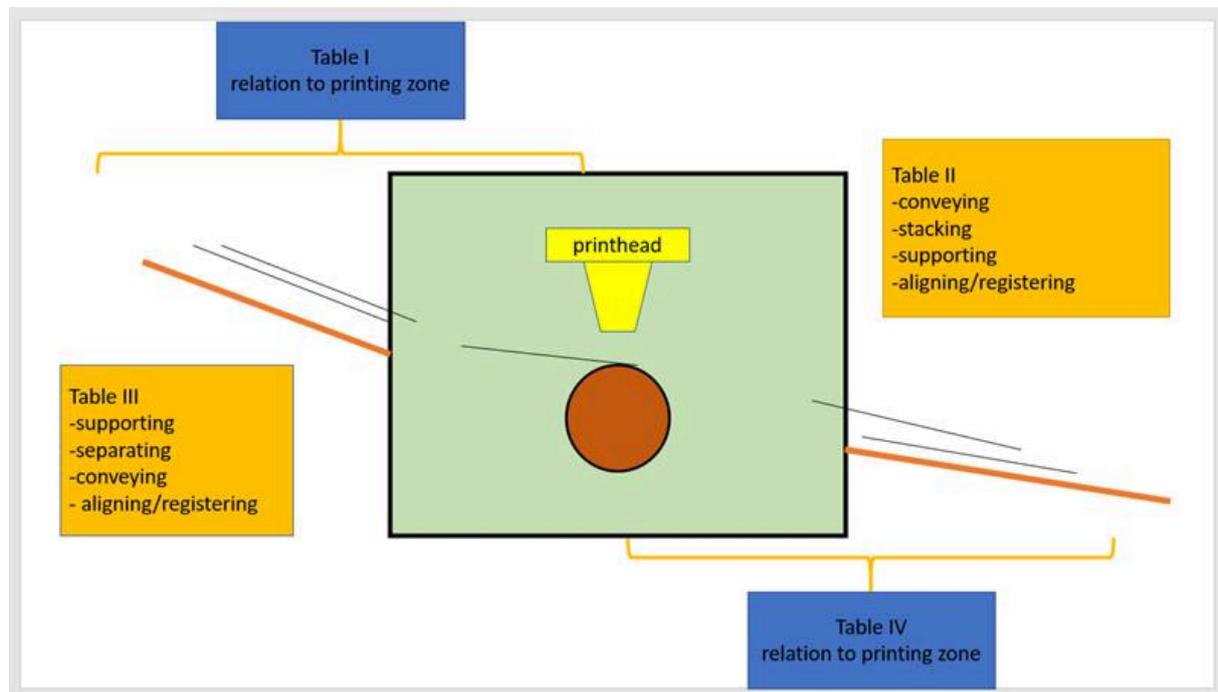


Table #	CPC Area	Description
Table I	B41J 13/00	Devices or arrangements of selective printing mechanisms, e.g. ink-jet printers or thermal printers, specially adapted for supporting or handling copy material in short lengths, e.g. sheets
Table II	B65H	Handling thin or filamentary material, e.g. sheets, webs, cables
Table III	B65H	Handling thin or filamentary material, e.g. sheets, webs, cables

Table IV	B41J 13/00	Devices or arrangements of selective printing mechanisms, e.g. ink-jet printers or thermal printers, specially adapted for supporting or handling copy material in short lengths, e.g. sheets
----------	----------------------------	---

B41J 13/0018

{in the sheet input section of automatic paper handling systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Guides for the sheet feeding section	B41J 13/103
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B41J 13/0027

{in the printing section of automatic paper handling systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Rollers	B41J 13/02
Guides for the printing section	B41J 13/14

B41J 13/0036

{in the output section of automatic paper handling systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Rollers	B41J 13/02
Guides in the output section	B41J 13/106

B41J 13/0045

{concerning sheet refeed sections of automatic paper handling systems, e.g. intermediate stackers (printing on both faces [B41J 3/60](#))}

References**Limiting references**

This place does not cover:

Printing on both faces	B41J 3/60
------------------------	---------------------------

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "duplex printing", "printing on both faces" and "perfect printing"

B41J 13/0063

{Handling thick cut sheets, e.g. greeting cards or postcards, larger than credit cards, e.g. using means for enabling or facilitating the conveyance of thick sheets ([B41J 11/20](#), [B41J 13/12](#) take precedence)}

References**Limiting references**

This place does not cover:

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment	B41J 11/20
Devices specially adapted for small cards, envelopes, or the like, e.g. credit cards, business cards	B41J 13/12

Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjustment by moving the print head	B41J 25/308
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B41J 13/02

Rollers (roller platens [B41J 11/04](#))

References**Limiting references**

This place does not cover:

Roller platens	B41J 11/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Rollers for conveying in general	B65G 39/00
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Separating articles from piles using friction rollers in general	B65H 3/06
Feeding articles by rollers in general	B65H 5/06

B41J 13/08

{Conveyor} bands or like feeding devices

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Conveyor belts adapted both for handling copy material in sheet form and in continuous form	B41J 11/007
---	-----------------------------

B41J 13/103

{for the sheet feeding section}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Supports and (paper feeding) cassettes for supporting articles horizontally in general	B65H 1/04
--	---------------------------

B41J 13/106

{for the sheet output section}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pile receivers in general	B65H 31/00
---------------------------	----------------------------

B41J 13/12

especially adapted for {small} cards, envelopes, or the like {, e.g. credit cards, cut visiting cards}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Handling thick cut sheets larger than credit cards	B41J 13/0063
--	------------------------------

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

"visiting cards" means	"business cards"
------------------------	------------------

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "visiting cards" and "business cards"

B41J 13/26

Registering devices

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Registering, e.g. orientating, articles in general	B65H 9/00
--	---------------------------

B41J 15/00

Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers or thermal printers,} specially adapted for supporting or handling copy material in continuous form, e.g. webs

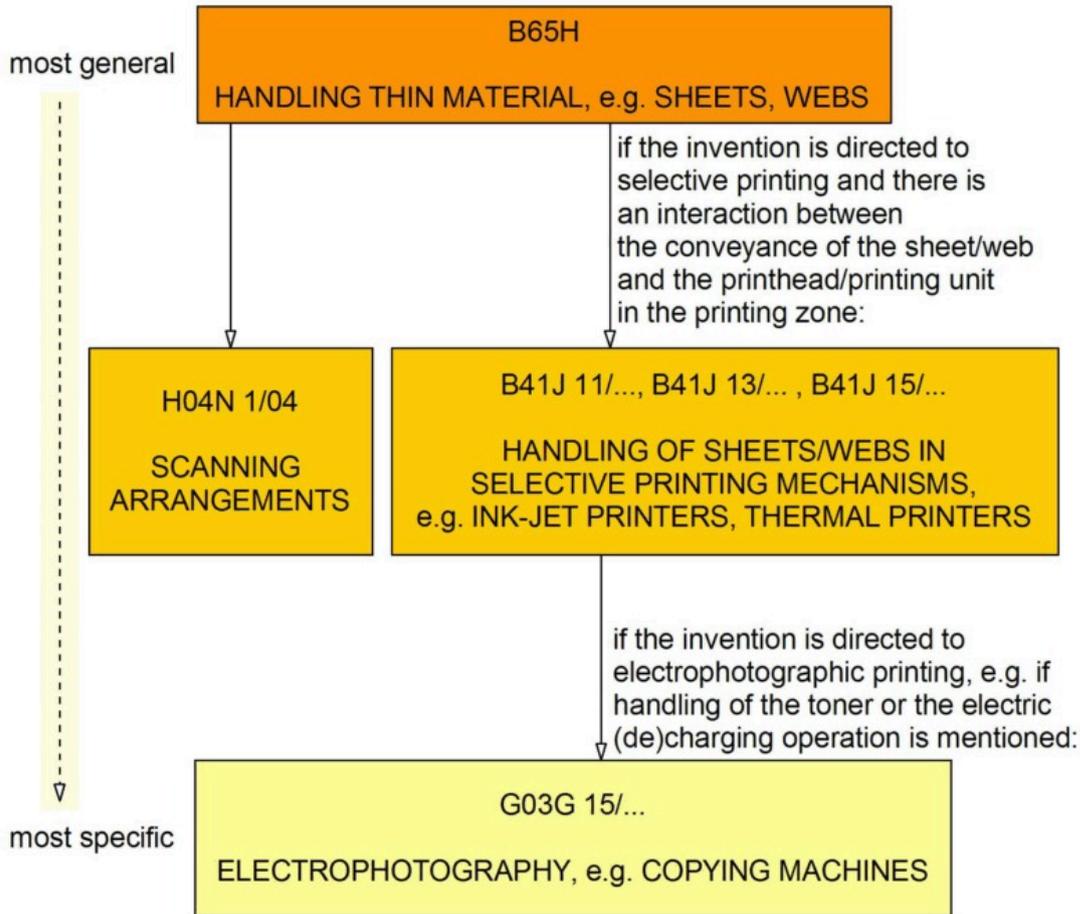
Definition statement

This place covers:

In particular selective printing mechanisms comprising devices for feeding web material and devices for tensioning web material

Relationships with other classification places

Hierarchical Relationship between B65H, H04N, B41J and G03G



The preceding image includes references to [B41J 11/00](#), [B41J 13/00](#), [B41J 15/00](#), [B65H](#), [G03G 15/00](#), and [H04N 1/04](#).

B41J 15/04

Supporting, feeding, or guiding devices; Mountings for web rolls or spindles

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Unwinding mechanisms not restricted to selective printing mechanisms for a continuous web depletion	B65H 16/00
---	----------------------------

B41J 15/048

{Conveyor belts or like feeding devices ([B41J 11/007](#) takes precedence)}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Conveyor belts adapted both for handling copy material in sheet form and in continuous form	B41J 11/007
---	-----------------------------

B41J 15/20

for webs superimposed during printing

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Machines for separating superposed webs	B65H 41/00
---	----------------------------

B41J 17/00

Mechanisms for manipulating page-width impression-transfer material, e.g. carbon paper (in manifolding devices [B41L](#))

Definition statement

This place covers:

Thermal transfer webs.

Ink donor films (IDF).

Page-wide ribbons.

IDF-identification means.

References**Limiting references**

This place does not cover:

In manifolding devices	B41L
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Sheet material for duplicating or marking	B41M 5/00
---	---------------------------

B41J 17/24

Webs supplied from reels or spools attached to the machine

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans	B65H 75/02
--	----------------------------

B41J 17/32

Detachable carriers or holders for impression-transfer material mechanism

Definition statement

This place covers:

In general cassettes

B41J 17/36

Alarms, indicators, or feed-disabling devices responsible to material breakage or exhaustion

Definition statement

This place covers:

Reading the IDF

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For colour ribbons	B41J 35/18
For ribbons	B41J 35/36

B41J 17/38

for dealing with the impression-transfer material after use

Definition statement

This place covers:

Peeling-off.

Deleting the information.

B41J 17/40

for retracting sheets for re-use

Definition statement

This place covers:

Re-use of impression material by using all the remaining ink thereof

B41J 19/00

Character- or line-spacing mechanisms

Definition statement

This place covers:

Mechanisms for relative movement in two directions between printing element and medium to be printed and parallel thereto:

- Type-writer carriages.
- Serial (reciprocating) or oscillating print head constructions for selective printing devices.
- Print head carriage guide bar constructions.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Superimposed movements for serial printing	B41J 25/005
Key actions	B41J 25/02

Special rules of classification

Dot printing devices: [B41J 19/00](#) - [B41J 19/04](#), [B41J 19/14](#) - [B41J 19/207](#), [B41J 19/305](#), [B41J 19/76](#), [B41J 19/78](#)

Dot printer with continuous moving drum and serial printing head: [B41J 19/16](#)

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Character and line spacing	in type-writers generally performed by means of the paper carriage while the print element head is stationary. Character spacing is in the direction of the paper width and line spacing is in the direction of the paper sheet length
Main- and sub-scanning	In modern serial dot printers the character (dot) spacing is generally done by the movement of the print head over the width of a paper sheet (main-scanning) and the line spacing is done by paper movement (sub-scanning). If a drum is continuously rotating during printing, then this movement is called main-scanning. The step-wise movement of the print head after one revolution of the drum is then called sub-scanning
Fast-scanning	see main scanning
Slow-scanning	see sub-scanning

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "print head-carrier," "print head-shuttle" or "print head-carriage"

B41J 19/005

{Cable or belt constructions for driving print, type or paper-carriages, e.g. attachment, tensioning means}

Definition statement

This place covers:

Mechanical constructions making the movement of carriages possible or easier.

Also including the electrical cables (guiding, attachment).

B41J 19/04

Sound-deadening or shock-absorbing devices or measures therein ([B41J 19/38](#) takes precedence)

Definition statement

This place covers:

Type-writers only

References

Limiting references

This place does not cover:

Adapted for silent return (type-writers)	B41J 19/38
--	----------------------------

B41J 19/14

with means for effecting line or character spacing in either direction

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

X,Y-printers with a print head movable in X- and Y-direction	B41J 11/00
--	----------------------------

B41J 19/142

{with a reciprocating print head printing in both directions across the paper width}

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

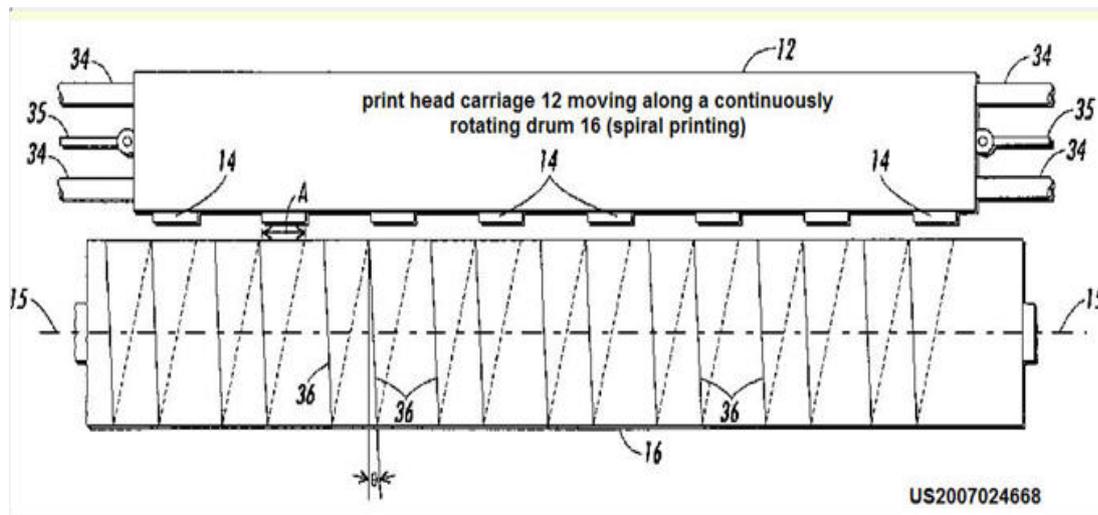
- "bidirectional or rearward" and "forward/backward printing"

B41J 19/16**Special spacing mechanisms for circular, spiral, or diagonal-printing apparatus****Definition statement**

This place covers:

Serial print head above a rotating drum (spiral printing with main-scanning in rotating direction and sub-scanning in the width direction);

A continuously rotating drum with a print head carriage movement after each drum rotation (circular dot bands).

**B41J 19/18****Character-spacing or back-spacing mechanisms; Carriage return or release devices therefor****Definition statement**

This place covers:

Only type-writers.

The carriage of a typewriter is for carrying paper.

B41J 19/20**Positive-feed character-spacing mechanisms (controlled by escapements [B41J 19/52](#))****Definition statement**

This place covers:

Type-writers.

Ink jet, matrix or optical print head carriers moving along the width of material to be printed (fast-scan direction).

References

Limiting references

This place does not cover:

Typewriters controlled by escapements	B41J 19/52
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Print head movement in slow-scan direction parallel to the rotating axis of a drum or belt	B41J 19/16
Lead-screws in general	F16H
Motors and control for carriage movement in general	H02P , H02K

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "print head-carrier, -carriage, -shuttle, and -chute"
- "pitch, spacing and distance"

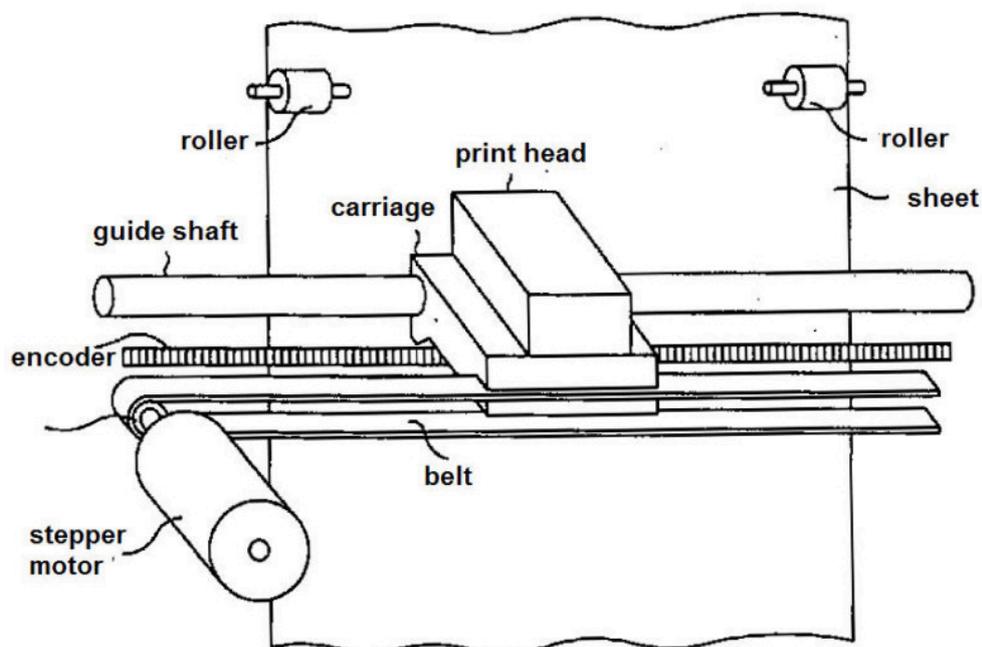
B41J 19/202

{Drive control means for carriage movement}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group



Synonyms and Keywords

In patent documents, the following words/expressions are often used with the meaning indicated:

"main/fast-scan direction"	"reciprocating movement direction of the print head carriage"
"sub/slow-scan direction"	"paper feed direction"

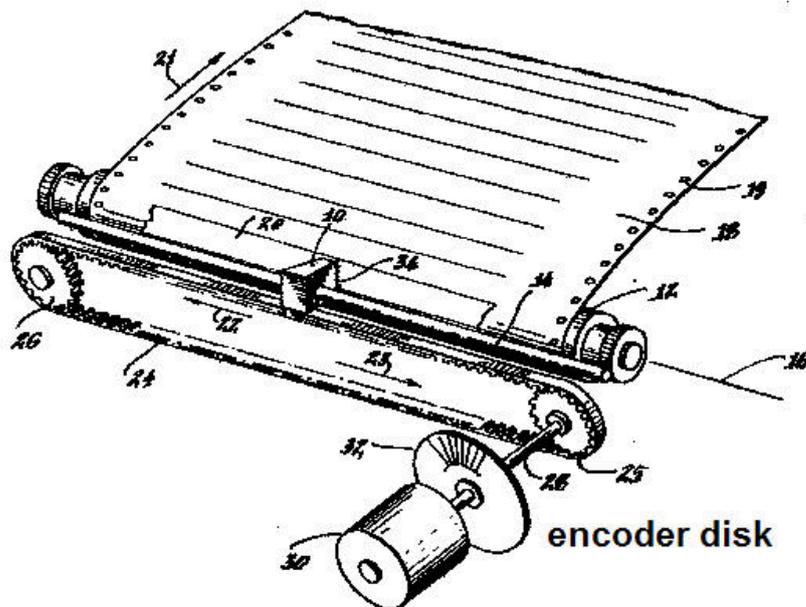
B41J 19/205

{Position or speed detectors therefor}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group



B41J 19/22

acting by friction or gripping effect

Definition statement

This place covers:

Type-writers only.

B41J 19/24

Pawl and ratchet

Definition statement

This place covers:
Type-writers only.

B41J 19/30

Electromagnetically-operated mechanisms

Definition statement

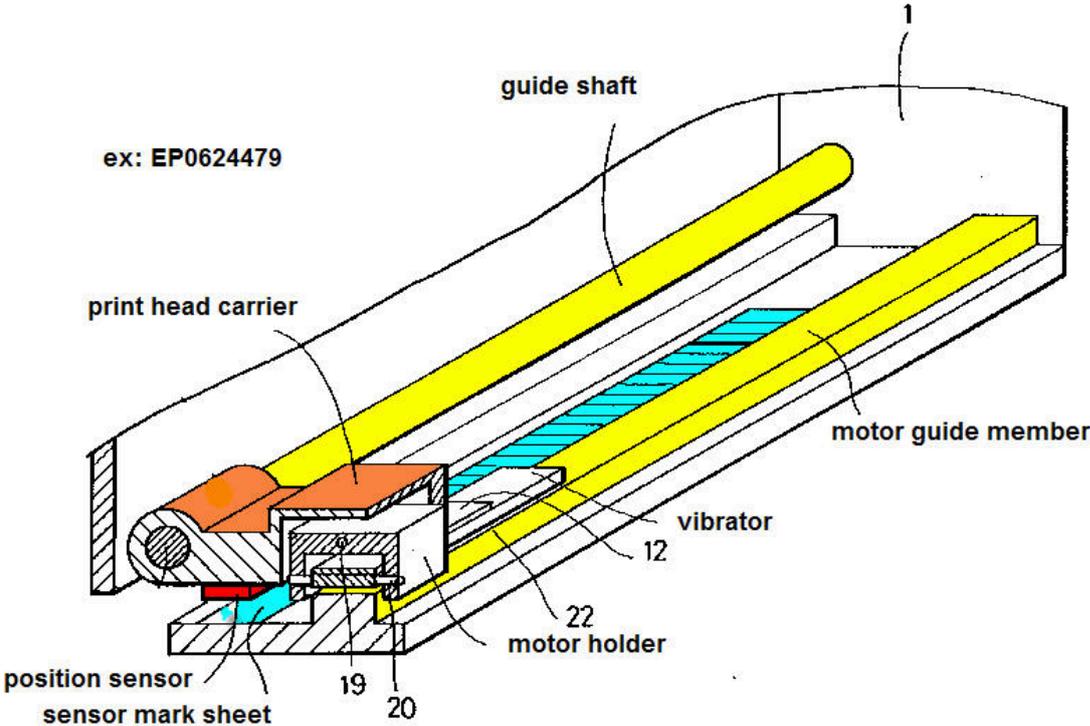
This place covers:
Type-writers only.
Linear motors therefor.

B41J 19/305

{Linear drive mechanisms for carriage movement}

Definition statement

This place covers:
Printers using a linear motor instead of a cable, belt or lead screw to move the print head carrier
Illustrative example of subject matter classified in this group



B41J 19/32**Differential or variable-spacing arrangements****Definition statement**

This place covers:

Type-writers only.

B41J 19/34**Escapement-feed character-spacing mechanisms****Definition statement**

This place covers:

Type-writers only.

B41J 19/60**Auxiliary feed or adjustment devices****Definition statement**

This place covers:

Type-writers only.

B41J 19/66**Carriage-release mechanisms****Definition statement**

This place covers:

Type-writers only.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Carriage	a paper supporting device moving sideward during printing (opposed to a print head carriage of e.g. an ink jet printer)
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B41J 19/68**Carriage-return mechanisms, e.g. manually actuated****Definition statement**

This place covers:

Type-writers only.

B41J 19/74

with special means to maintain character-spacing or back-spacing elements in engagement during case-shift or like movement

Definition statement

This place covers:

Type-writers only.

B41J 19/76

Line-spacing mechanisms (special line-feeds, e.g. long feeds [B41J 11/36](#))

Definition statement

This place covers:

Paper movement in horizontal line direction for only type-writers.

References**Limiting references**

This place does not cover:

Special line-feeds, e.g. long feeds	B41J 11/36
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Paper transport other than for type-writers	B41J 11/00 , B41J 13/00 , B41J 15/00
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B41J 21/00

Column, tabular or like printing arrangements; Means for centralising short lines (carriage-release mechanisms [B41J 19/66](#))

Definition statement

This place covers:

Type-writers only.

References**Limiting references**

This place does not cover:

Carrier-release mechanisms therefor	B41J 19/66
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Tabulating	B41J 25/18
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B41J 21/08

Mechanisms for initiating, effecting, skipping, or stopping tabulation movement; Means for centralising short lines

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Adjusting side margins for type-writers	B41J 29/50
---	----------------------------

B41J 21/14

characterised by denominational arrangements

Definition statement

This place covers:

In general: decimal tabulation for type-writers.

B41J 21/17

controlled by stored information

Definition statement

This place covers:

Memory.

Register controlled

B41J 23/00

Power drives for actions or mechanisms ([B41J 9/00](#) {, [B41J 19/305](#)} take precedence)

References**Limiting references**

This place does not cover:

Hammer printers	B41J 9/00
Linear motors	B41J 19/305

Informative references

Attention is drawn to the following places, which may be of interest for search:

Dot printers	B41J 23/02 , B41J 23/025
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B41J 23/04

with driven mechanism arranged to be clutched to continuously- operating power source

Definition statement

This place covers:

Type-writers only.

B41J 23/12

Mechanism driven by cams engaging rotating roller

Definition statement

This place covers:

Type-writers only.

B41J 23/14

Mechanism driven by through an oscillating or reciprocating member

Definition statement

This place covers:

Type-writers only.

B41J 23/16

Mechanisms driven by a spring tensioned by power means

Definition statement

This place covers:

Type-writers only.

B41J 23/18

Continuously-cycling drives

Definition statement

This place covers:

Type-writers only.

B41J 23/20

Fluid-pressure power drives

Definition statement

This place covers:

Type-writers only.

B41J 23/32

Electromagnetic power drives, e.g. applied to key levers

Definition statement

This place covers:
Type-writers only.

B41J 25/00

Actions or mechanisms not otherwise provided for

Definition statement

This place covers:
Selective printers, including type-writers, ink jet and thermal printers.

B41J 25/001

{Mechanisms for bodily moving print heads or carriages parallel to the paper surface}

Definition statement

This place covers:
E.g. page-width print heads moving during printing for compensating for print element aberrations.

References

References out of a residual place

Examples of places in relation to which this place is residual:

Character- or line-spacing mechanisms	B41J 19/00 , B41J 19/20
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B41J 25/003

{for changing the angle between a print element array axis and the printing line, e.g. for dot density changes}

Definition statement

This place covers:
Serial and line print heads.

References

References out of a residual place

Examples of places in relation to which this place is residual:

Dot arrays providing selective dot disposition modes	B41J 2/5056
--	-----------------------------

B41J 25/005

{for serial printing movements superimposed to character- or line-spacing movements}

Definition statement

This place covers:

Serial print heads only.

E.g. mechanical alignment parallel to the printing medium

illustrative example:

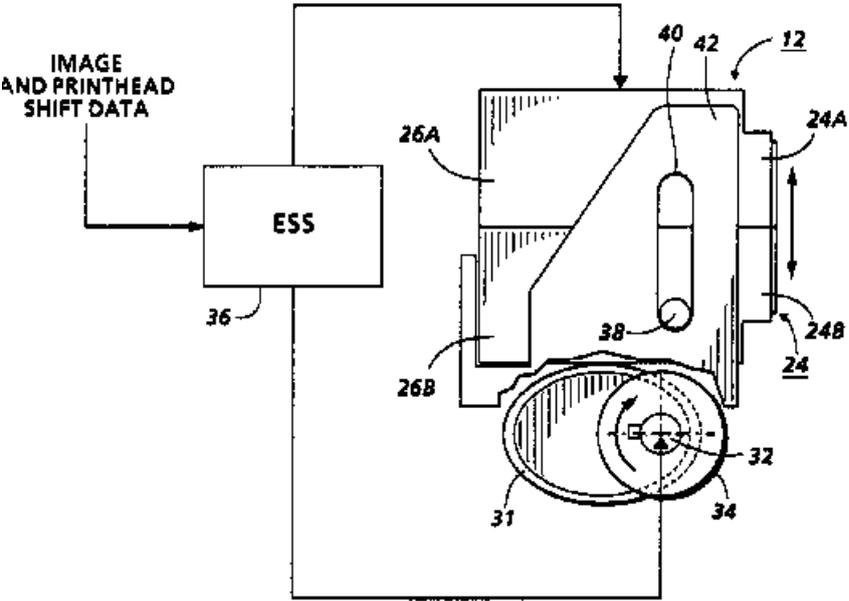


FIG. 2 from EP0748693

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Serial print head	reciprocating print head printing during its movement along the width of a medium to be printed (main-scanning)
Line-spacing	movement step in the length direction of the printing material, by means of a medium transport system (sub-scanning)

B41J 25/006

{for oscillating, e.g. page-width print heads provided with counter-balancing means or shock absorbers}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Linear drive mechanisms for carriage movement	B41J 19/305
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B41J 25/02

Key actions for specified purposes

Definition statement

This place covers:

Type-writers only.

In general: repeat actions

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For repeat keys	B41J 5/28
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B41J 25/04

Back spacing

Definition statement

This place covers:

Only for type-writers, in general half-space keys.

B41J 25/20

Auxiliary type mechanisms for printing distinguishing marks, e.g. for accenting, using dead or half-dead key arrangements, for printing marks in telegraph printers to indicate that machine is receiving

Definition statement

This place covers:

Type-writers only.

B41J 25/22**for aligning characters for impression****Definition statement**

This place covers:

Type-writers only.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

In machines using index setting	B41J 5/02
---------------------------------	---------------------------

B41J 25/24**Case-shift mechanisms; Fount-change arrangements****Definition statement**

This place covers:

Type-writers only.

References**References out of a residual place**

Examples of places in relation to which this place is residual:

Platen-shift mechanisms; Driving gear therefor	B41J 11/14
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Key actions	B41J 25/08
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B41J 25/304**Bodily-movable mechanisms for print heads or carriages movable towards or from paper surface****References****References out of a residual place**

Examples of places in relation to which this place is residual:

Type carriers sliding for impression	B41J 1/36
Type carriers swinging for impression	B41J 1/40
Line print heads movable towards a cleaning unit	B41J 2/16588

B41J 25/308

with print gap adjustment mechanisms

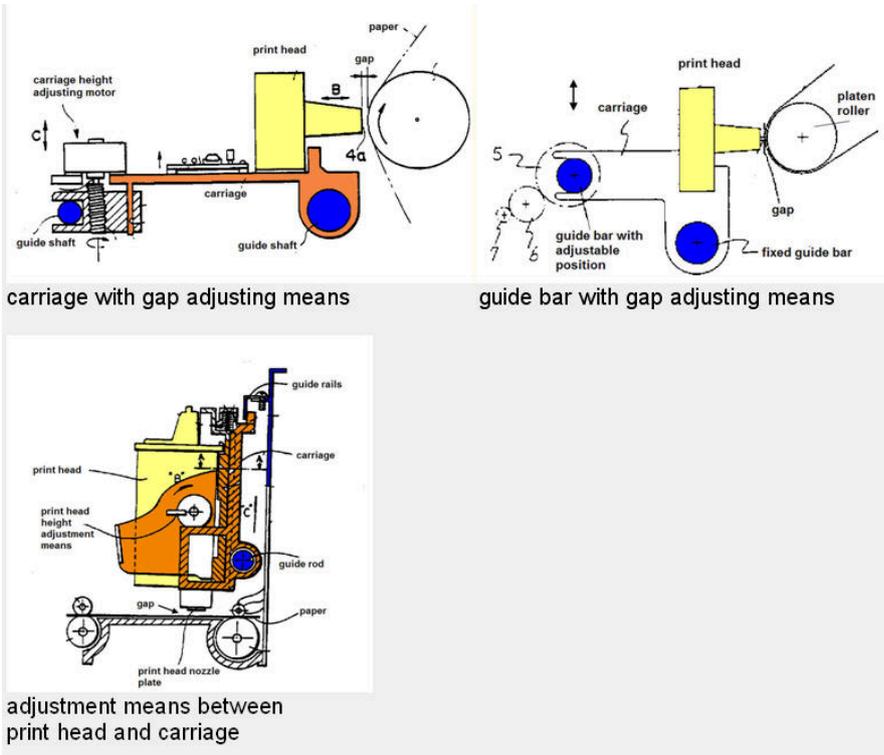
Definition statement

This place covers:

With print gap adjustment means on the print head carriage (e.g. for rotation around a guide bar or using a rotatable eccentric bearing).

With print gap adjustment means between the print head and its carriage.

With print gap adjustment means on the printer frame (e.g. for rotation of an eccentric carriage guide shaft).



References

References out of a residual place

Examples of places in relation to which this place is residual:

By platen movement	B41J 11/20
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Print gap	Distance between print head nozzle plate and print medium
Guide shaft/rod/bar/rails	Guiding means supporting and guiding a reciprocating print head carriage
Print/printing medium/media	Material to be printed, e.g. a sheet of paper
Carriage/carrier	Print head holder which is movable over the width of a print medium

Platen	Surface supporting the print medium, e.g. flat surface or a rotating drum
--------	---

B41J 25/312

with print pressure adjustment mechanisms, e.g. pressure-on-the paper mechanisms

References

References out of a residual place

Examples of places in relation to which this place is residual:

By platen movement	B41J 11/20
--------------------	----------------------------

B41J 25/316

with tilting motion mechanisms relative to paper surface

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Mounting in general	B41J 25/304
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B41J 25/32

Impression mechanisms in which a roller co-operates with stationary type-faces

Definition statement

This place covers:

Type-writers only.

B41J 25/34

Bodily-changeable print heads or carriages

Definition statement

This place covers:

Print head carriages, e.g. for ink jet.

Interchangeable type-writer print heads, as disks.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Typewriters or selective printing mechanisms with types or dies mounted on endless bands or the like	B41J 1/20
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Typewriters or selective printing mechanisms with types or dies mounted on carriers rotatable for selection	B41J 1/22
Typewriters or selective printing mechanisms with types or dies on spherical, truncated-spherical, or like surfaces	B41J 1/60

Special rules of classification

For mounting an ink-jet cartridge into a carriage, see also [B41J 2/1752](#) (only ink jet).

B41J 27/00

Inking apparatus

Definition statement

This place covers:

Inking in type-writers and desk-top printers other than of the ink-jet type.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink supply in ink-jet printers	B41J 2/175
Ink ribbons or devices to apply ink to them	B41J 31/00 , B41J 32/00 , B41J 33/00 , B41J 35/00

B41J 29/023

{with reduced dimensions}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Typewriters or selective printing or marking mechanisms constructed for portability	B41J 3/36
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B41J 29/06

Special supports, platforms or trolleys for supporting machines on tables

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Office furniture	A47B 21/00
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B41J 29/10**Sound-deadening devices embodied in machines****References*****References out of a residual place****Examples of places in relation to which this place is residual:*

Sound-deadening or shock-absorbing devices or measures therein	B41J 19/04
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B41J 29/15**Script supports connected to the typewriter or printer****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Tables, desks, office furniture, in general	A47B
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B41J 29/16**Auxiliary receptacles for articles, e.g. erasers, pencils****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Erasers, rubbers, or erasing devices; Holders therefor	B43L 19/00
--	----------------------------

B41J 29/17**Cleaning arrangements****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Cleaning of nozzles	B41J 2/165
Conditioning of ink supply systems (inside/outside)	B41J 2/1707 , B41J 2/1714

B41J 29/18**Mechanisms for rendering the print visible to the operator****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Ink-ribbon shifts	B41J 35/20
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B41J 29/26**Devices, non-fluid media or methods for cancelling, correcting errors, underscoring or ruling****Definition statement**

This place covers:

Only type writers

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Erasers, rubbers or erasing devices; Holders therefor	B43L 19/00
Correcting fluids, e.g. media for correction of typographical errors by coating	C09D 10/00

B41J 29/28**Writing or like instruments in holders or guides****Definition statement**

This place covers:

E.g. vertical ruling.

B41J 29/36**for cancelling or correcting errors by overprinting****References****References out of a residual place**

Examples of places in relation to which this place is residual:

Ink ribbons characterised by areas carrying media for obliteration or removal of typing errors	B41J 31/09
--	----------------------------

B41J 29/377**Cooling or ventilating arrangements****Definition statement**

This place covers:

Using fans or cooling liquid.

Detecting ambient temperature

B41J 29/393**Devices for controlling or analysing the entire machine {; Controlling or analysing mechanical parameters involving printing of test patterns}****Definition statement**

This place covers:

Printing and reading test patterns requiring mechanical action.

Battery mounted in the printer.

Wireless communication between the carriage and the printer.

References**References out of a residual place**

Examples of places in relation to which this place is residual:

Nozzle failure detection	B41J 2/16579 , B41J 2/2142
Ink residue control	B41J 2/17566
Density or colour adjustment	B41J 2/2132
Print head/platen gap adjustment	B41J 25/308 , B41J 11/20
Using a test patch for electrographic printers	G03G 15/5058

B41J 29/46**Applications of alarms, e.g. responsive to approach of end of line****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Responsive to transfer-material breakage or exhaustion	B41J 17/36
Responsive to ink-ribbon breakage or exhaustion	B41J 35/36

B41J 31/00

Ink ribbons; Renovating or testing ink ribbons

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Page width ink ribbons	B41J 17/00
Sheet material for duplicating or marking	B41M 5/00
Storing webs or tapes, e.g. on reels	B65H 75/00
Coated or treated non-woven strips or sheets used as ink ribbons	D21H

B41J 32/00

Ink-ribbon cartridges

Definition statement

This place covers:

Contains general features about ink ribbon cartridges and those with ribbons stored on spools.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For page width ink ribbons	B41J 17/32
Magnetic tape cassettes	G11B

B41J 33/00

Apparatus or arrangements for feeding ink ribbons or like character-size impression-transfer material

Definition statement

This place covers:

In general, ribbon-sized impression transfer material. But in some cases, also page-width impression transfer material if [B41J 17/00](#) does not provide an appropriate entry.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ink-ribbon cartridges	B41J 32/00
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B41J 33/003**{Ribbon spools}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

For page width ink ribbons	B41J 17/32
Spools in general	B65H 75/00

B41J 33/08**and extending parallel to the length of the platen****Definition statement***This place covers:*

Containing in general correcting ribbons on separate holders

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Mechanisms permitting the selective use of a plurality of ink ribbons	B41J 35/22
---	----------------------------

B41J 33/54**for ensuring maximum life of the ribbon ([B41J 33/38](#) takes precedence)****References****Limiting references***This place does not cover:*

Slow, e.g. "creep", feed mechanisms	B41J 33/38
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

By adjustment of vibrator mechanisms	B41J 35/14
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B41J 35/00**Other apparatus or arrangements associated with, or incorporated in, ink-ribbon mechanisms****Definition statement***This place covers:*

Impression transfer ribbon material.

Also covering page-width impression transfer material in the sub-groups if [B41J 17/00](#) does not provide an appropriate entry.

In general the heating or pre-heating of ink ribbons.

B41J 35/12

adjustable, e.g. for case shift

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Key actions	B41J 25/02
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B41J 35/16

Multicolour arrangements

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Vibrator mechanisms; Driving gear therefor	B41J 35/10
Colour picture communication systems	H04N 1/46

B41J 35/22

Mechanisms permitting the selective use of a plurality of ink ribbons

Definition statement

This place covers:

Use of correcting ribbons.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ribbons placed on separate holders	B41J 33/06
------------------------------------	----------------------------

B41J 35/26

Ink-ribbon shields or backings

Definition statement

This place covers:

Avoiding "ghost printing"

B41J 35/38

Feeding the ink ribbon to waste after use

Definition statement

This place covers:

E.g. deleting the printed text from the ribbon or making the text illegible.

B41J 2202/15

Moving nozzle or nozzle plate

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For moving nozzle or nozzle plate made of thermal bend actuator	B41J 2002/14435
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