### CPC COOPERATIVE PATENT CLASSIFICATION

### D TEXTILES; PAPER

### TEXTILES OR FLEXIBLE MATERIALS NOT OTHERWISE PROVIDED FOR

## D01 NATURAL OR MAN-MADE THREADS OR FIBRES; SPINNING (NOTE omitted)

# **D01H SPINNING OR TWISTING** (twisting oakum <u>D01G 35/00</u>; crimping or curling of fibres, filaments, or yarns <u>D02G 1/00</u>)

#### **WARNING**

{In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.}

	Kinds or types of spinning or twisting machines; Drafting machines or arrangements; Twisting arrangements		Framework; Casings; Coverings {; Removal of heat; Means for generating overpressure of air
1/00	Spinning or twisting machines in which the product is wound-up continuously (open-end		against infiltration of dust; Ducts for electric cables}
	spinning machines <u>D01H 4/00</u> {; doubling of yarns	1/162	• • {for ring type}
	B65H $54/00+$ <b>T</b> ; doubled, plied or cabled threads	1/164	• • · {for flyer type}
	D02G 3/28, e.g. using hollow spindles D02G 3/283;	1/166	• • · {for two-for-one type}
	spin-twisting <u>D02G 3/281</u> ; threads with alternately "S" and "Z" direction of twist, e.g. self-twist process,	1/168	• • • {Arrangements for the sound-dampening of the machines (in general <u>G10K 11/00</u> )}
	D02G 3/286; wrapping strands of filaments or staple	1/18	<ul> <li>Supports for supply packages</li> </ul>
	fibres by a binder yarn D02G 3/38})	1/183	• • • {Overhead suspension devices}
1/003	• {Twisting machines in which twist is imparted from	1/186	• • • {for supplying from cans}
	the supply packages, e.g. uptwist}	1/20	• Driving or stopping arrangements (for open-
1/006	• {Twisting machines in which twist is imparted at the paying-out and take-up stations}		end spinning machines <u>D01H 4/12</u> , <u>D01H 4/20</u> , <u>D01H 4/42</u> ; safety devices <u>D01H 13/14</u> )
1/02	<ul> <li>ring type {(arrangements with two or more spinning or twisting devices in combination <u>D01H 7/90</u>)}</li> </ul>	1/22	• • • for rollers {of drafting machines; Roller speed control}(regulating or varying draft
1/025	• • { with a condensing device between drafting		<u>D01H 5/32</u> )
	system and spinning unit}	1/24	• • • for twisting {or spinning} arrangements, e.g.
1/04	• flyer type		spindles (braking arrangements for spindles
1/06	. cap type		<u>D01H 7/22</u> ; interrelated flyer and bobbin drive
1/08	<ul> <li>cup, pot or disc type, in which annular masses of</li> </ul>	1/0/11	mechanisms D01H 7/50)
	yarn are formed by centrifugal action	1/241	driven by belt
1/10	<ul> <li>for imparting multiple twist, e.g. two-for-one</li> </ul>	1/242	driven by toothed wheels
	twisting	1/243	driven by friction discs
1/101	• • {in which multiple twist is imparted at the take-up	1/244	each spindle driven by an electric motor
	stations}	1/26	• • • with two or more speeds; with variable-speed
1/103	• • • {Two-for-one twisting}	1 /20	arrangements
1/105	<ul> <li>{ Arrangements using hollow spindles, i.e. the yarns are running through the spindle of the unwound bobbins}</li> </ul>	1/28	<ul> <li>for two or more machine elements possessing different characteristics but in operative association</li> </ul>
1/106	• • • {Two-for-one twisting}	1/30	with two or more speeds; with variable-speed
1/108	• • • {for two or more supply bobbins one on top		arrangements
1/11	of the other}  Spinning by false-twisting {(twisting by false-	1/305	• • • • {Speed control of the spindles in response to the displacements of the ring rail}
1/11	twisting D01H 7/92; D02G 3/28; increasing the	1/32	for complete machines
	strength of a roving or sliver by false-twisting	1/34	with two or more speeds; with variable-speed
	D01H 7/92, during drafting D01H 5/28)}		arrangements {, e.g. variation of machine
1/115	<ul> <li>using pneumatic means</li> </ul>		speed according to growing bobbin diameter
1/14	<ul> <li>Details (drafting arrangements <u>D01H 5/00</u>; twisting arrangements <u>D01H 7/00</u>)</li> </ul>		(responsive to reduction in material tension D01H 13/16)}

rangement	,		
1/36	• Package-shaping arrangements, e.g. building	4/10	Rotors
	motions {, e.g. control for the traversing stroke of ring rails; Stopping ring rails in a predetermined	4/12	Rotor bearings; Arrangements for driving or
	position}	4/1.4	stopping (control therefor D01H 4/42)
1/365	• • • {for flyer type}	4/14	Rotor driven by an electric motor
1/38	Arrangements for winding reserve lengths of yarn	4/16	<ul> <li>Friction spinning, i.e. the running surface being provided by a pair of closely spaced friction</li> </ul>
1/30	on take-up packages {or spindles}, e.g. transfer tails		drums, e.g. at least one suction drum {(false twisting with friction drums D01H 1/11)}
1/385	• • • {Removing waste reserve lengths from	4/18	Friction drums, e.g. arrangement of suction
1/40	spindles}  Arrangements for connecting continuously-		holes
	delivered material to bobbins or the like	4/20	• • • Drum bearings; Arrangements for driving or stopping (control therefor <u>D01H 4/42</u> )
1/42	• Guards or protectors for yarns or threads, e.g.	4/22	Cleaning of running surfaces
	separator plates, anti-ballooning devices (anti-ballooning devices on spindles D01H 7/18)	4/24	in rotor spinning
1/422	• • {Separator plates}	4/26	in friction spinning
1/425	{Anti-ballooning rings}	4/28	using electrostatic fields
1/427	• • {Anti-ballooning rhigs} • • • {Anti-ballooning cylinders, e.g. for two-for-one	4/30	• Arrangements for separating slivers into fibres;
1/42/	twist machine (with combined cleaning effect D01H 11/00)}		Orienting or straightening fibres {, e.g. using guiderolls}
	<u>D0111 11/00</u> ) }	4/32	• using opening rollers {(stopping of rovings or
3/00	Spinning or twisting machines in which the	1/21	slivers <u>D01H 13/18</u> )}
	product is wound-up intermittently, e.g. mules	4/34	• using air-jet streams
3/02	• Details (drafting arrangements <u>D01H 5/00</u> ; twisting	4/36	• with means for taking away impurities
	arrangements D01H 7/00)	4/38	• Channels for feeding fibres to the yarn forming
3/04	Carriages; Mechanisms effecting carriage	4/40	region
2.00	movements	4/40	<ul> <li>Removing running yarn from the yarn forming region, e.g. using tubes</li> </ul>
3/06	Carriages; Carriage rails; Squaring motions	4/42	Control of driving or stopping
3/08	Drawing-out or taking-in motions	4/44	in rotor spinning
3/10	Moving-creel arrangements, e.g. for twiners	4/46	in friction spinning     in friction spinning
3/12	Package-shaping motions; Faller arrangements	4/48	Piecing arrangements; Control therefor {(stopping)
3/14	Roller-driving arrangements	4/40	roving D01H 13/18)}
3/16	Spindle-driving arrangements (spindles, spindle	4/50	• • for rotor spinning
2/10	bearings, spindle supports D01H 7/04)	4/52	• • for friction spinning
3/18	Tin rollers; Driving arrangements intimately associated with tin rollers		•
3/20	Spindle-driving arrangements during drawing-	5/00	Drafting machines or arrangements {; Threading of roving into drafting machine}
	out or backing-off	5/005	• {Arrangements for feeding or conveying the slivers
3/22	Spindle-driving arrangements during taking-in	3/003	to the drafting machine}
3/24	Quadrant motions; Nosing motions	5/02	• Gill boxes or other drafting machines employing
3/26	Driving or stopping arrangements not otherwise	3/02	fallers or like pinned bars
	provided for; Locking motions (safety devices	5/04	with pinned bars actuated by screw members
	<u>D01H 13/14</u> ){; Control of machines}	5/06	Intersecting gill boxes
4/00	Open-end spinning machines or arrangements for	5/08	• • with bars connected by links, chains, or the like
4/00	imparting twist to independently moving fibres	5/10	• with pinned bars unconnected with each other but
	separated from slivers; Piecing arrangements		actuated through pressure of one against another
	therefor; Covering endless core threads with fibres	5/12	Details
	by open-end spinning techniques {(arrangements	5/14	Pinned bars
	with two or more spinning or twisting devices of	5/16	Framework; Casings; Coverings
	different types in combination D01H 7/90)}	5/18	Drafting machines or arrangements without fallers
	NOTE		or like pinned bars
		5/20	in which fibres are controlled by contact with
	In this group, the expression "open-end spinning" covers such expressions as "break spinning",		stationary or reciprocating surfaces
	"ringless spinning", "rotor spinning" and "friction	5/22	in which fibres are controlled by rollers only
	spinning", but does not cover the expression	5/24	• • • with porcupines or like pinned rotary members
	"spinning by false-twisting"	5/26	<ul> <li>in which fibres are controlled by one or more endless aprons</li> </ul>
4/02	<ul> <li>imparting twist by a fluid, e.g. air vortex</li> </ul>	5/28	in which fibres are controlled by inserting twist
4/04	<ul> <li>imparting twist by contact of fibres with a running</li> </ul>		during drafting
	surface	5/30	• • incorporating arrangements for severing
4/06	<ul> <li>co-operating with suction means (<u>D01H 4/08</u>, <u>D01H 4/16</u> take precedence)</li> </ul>		continuous filaments, e.g. in direct spinning (converting tows to slivers or yarns <u>D01G 1/06</u> )
4/08	Rotor spinning, i.e. the running surface being	5/32	Regulating or varying draft
7/00	provided by a rotor	5/34	by manual adjustments

rungement	S	
5/36	• • according to a pre-arranged pattern, e.g. to	7/08 Mounting arrangements
<i>5 /</i> 29	produce slubs in response to irregularities in material {;	7/10 Spindle supports; Rails; Rail supports, e.g.
5/38	Measuring irregularities \	poker guides 7/12 Bolsters; Bearings
5/385	• • • {employing hydraulic or pneumatic time-	7/14 Holding-down arrangements
	delay devices}	7/16 Arrangements for coupling bobbins or like to
5/40	employing mechanical time-delay devices	spindles
5/42	• • • employing electrical time-delay devices	7/18 Arrangements on spindles for suppressing yarn
5/44	Adjusting drafting elements, e.g. altering ratch	balloons
5/46	Loading arrangements	7/20 Lubricating arrangements
5/48	using weights	7/22 Braking arrangements
5/50 5/505	<ul><li>using springs</li><li>(for top roller arms)</li></ul>	7/2208 {using mechanical means} 7/2216 {with one or two manually actuated shoe-
5/503 5/52	using fluid pressure	brakes acting on a part of the whorl}
5/525	{for top roller arms}	7/2225 {the braking means surrounding nearly the
5/54	using magnetic arrangements	whole periphery of the whorl}
5/56	Supports for drafting elements	7/2233 {by suppressing the driving means, e.g. by
5/565	{Top roller arms}	declutching}
5/58	Arrangements for traversing drafting elements	7/2241 { the belt being moved off the driven
5/60	Arrangements maintaining drafting elements free	whorl}
	of fibre accumulations	7/225 { and the spindle being braked simultaneously }
5/62	Non-rotary cleaning pads or plates; Scrapers	7/2258 {the pivoted spindle being pulled off the
5/625	• • • • {in cooperation with suction or blowing	belt}
5 /C A	means}	7/2266 { and braked simultaneously}
5/64 5/645	<ul><li>Rollers or aprons with cleaning surfaces</li><li>{in cooperation with suction or blowing</li></ul>	7/2275 {using hydraulically or pneumatically
3/043	means}	operated brakes}
5/66	• • • Suction devices {exclusively; ( <u>D01H 5/625</u> and	7/2283 {using electromagnetically operated brakes}
2,00	D01H 5/645 take precedence; in cooperation	7/2291 {characterised by the control of braking
	with thread breakage detecting means	means, e.g. operated by a yarn break-detector
	<u>D01H 13/1691</u> )}	or tension device}
5/68	Suction end-catchers	7/24 Flyer or like arrangements
5/70	Constructional features of drafting elements	<ul><li>7/26 Flyer constructions</li><li>7/28 arranged to guide material over exterior of</li></ul>
5/72	Fibre-condensing guides	legs
5/74	Rollers {or roller bearings}	7/30 with guide channels formed in legs, e.g.
5/76 5/78	<ul><li>Loose-boss assemblies</li><li>with flutes or other integral surface</li></ul>	slubbing flyers
3/10	characteristics	7/32 with pressing devices
5/80	with covers; Cots or covers	7/34 with haul pulleys or like arrangements
5/82	Arrangements for coupling roller sections	7/36 with traversing devices
5/84	Porcupines	7/38 Ring flyers
5/86	Aprons; Apron supports; Apron tensioning	7/40 Flyer supports, e.g. rails
	arrangements	7/42 Arrangements coupling flyers to spindles
5/88	Cradles; Tensors	7/44 Drag arrangements for bobbins or flyers
7/00	Spinning or twisting arrangements (for open-end	7/46 Devices attached to, or integral with, flyers for temporarily increasing twist in material passing
	spinning D01H 4/00)	to them
7/02	<ul> <li>for imparting permanent twist</li> </ul>	7/48 Eyes or like guiding arrangements (D01H 7/46)
7/04	Spindles	takes precedence)
7/041	• • • {Spindles with sliding contact bearings	7/50 Interrelated flyer and bobbin drive
	$(\underline{D01H7/045} \text{ takes precedence})$	mechanisms, e.g. winding-on motions for
7/042	{Spindles with rolling contact bearings	cotton-roving frames
7/044	( <u>D01H 7/045</u> takes precedence)}	7/52 . Ring-and-traveller arrangements
7/044 7/045	<ul><li> {Spindles with fluid bearings}</li><li> {Spindles provided with flexible mounting</li></ul>	7/54 with fixed rings 7/56 with freely-rotatable rings; with braked or
1/043	elements for damping vibration or noise, or for	dragged rings {; Lubricating arrangements
	avoiding or reducing out-of-balance forces due	therefor
	to rotation (in general F16F 15/00)}	7/565 { with fluid bearings}
7/047	• • • { with springs }	7/58 with driven rings {; Bearings or braking
7/048	• • • { with means using plastic deformation of	arrangements therefor}
<b>=</b> 10 =	members}	7/585 {by fluid driving means}
7/06	Stationary spindles with package-holding	
	sleeves	

Kinds or types of spinning or twisting machines; Drafting machines or arrangements; Twisting arrangements

arrangement			
7/60	• • Rings or travellers; Manufacture thereof not otherwise provided for {; Cleaning means for	9/06	Removing yarn from centrifugal cups on to yarn carriers
7/602	rings} {Rings}	9/08	Doffing arrangements independent of spinning or twisting machines
7/604	{Travellers}	9/10	Doffing carriages {; Loading carriages with
7/604	{Traveners} {Driving means for travellers}	9/10	cores}
7/608	{Cleaning means for travellers}	9/12	Manual cop-tube applying apparatus; Stands
7/62	Arrangements providing lubricant for travellers	<i>)</i> /12	for cop-tube applying apparatus
7/64	Ring supports, e.g. ring rails	9/14	• • for preparing machines for doffing of yarns {, e.g.
7/66	Cap arrangements		raising cops prior to removal
7/68	Cap constructions	9/16	• Yarn-severing arrangements {, e.g. for cutting
7/70	Arrangements for supporting caps on spindles		transfer tails; Separating of roving in flyer}
7/72	Bobbin-supporting arrangements, e.g. bobbin	9/18	<ul> <li>for supplying bobbins, cores, receptacles, or</li> </ul>
1772	rails		completed packages to, or transporting from,
7/74	Cup or like arrangements		paying-out or take-up stations (D01H 9/10 takes
7/76	Rotary discs		precedence){; Arrangements to prevent unwinding
7/78	Constructions of cups, e.g. spinning boxes		of roving from roving bobbins (transporting
7/80	adapted to collect wet yarns		full yarn bobbins to subsequent machines B65H 67/06+ <b>T</b> )}
7/82	Casings or guards for rotary cups or the like	9/182	• {Overhead conveying devices}
7/84	Spindles or yarn carriers for co-operation with	9/182	<ul><li>. {Overhead conveying devices}</li><li>. {Transporting cans}</li></ul>
	rotary cups	9/183	<ul><li>{ transporting cans}</li><li>{ on individual supports, e.g. pallets}</li></ul>
7/86	Multiple-twist arrangements, e.g. two-for-one	9/10/	• • {on marvidual supports, e.g. panets}
	twisting devices {; Threading of yarn; Devices in	11/00	Arrangements for confining or removing dust, fly
	hollow spindles for imparting false twist}		or the like (cleaning of running surfaces in open-end
7/862	• • • {Arrangements for holding the bobbin in a		spinning machines <u>D01H 4/22</u> )
	fixed position}	11/001	• {Hand tools used for cleaning the machines}
7/864	{Coupling devices between the fixed and the	11/003	• • {with a rotary pin}
	rotative parts}	11/005	• {with blowing and/or suction devices (in general
7/866	• • • {Means to facilitate the unwinding of yarn}		A47L 7/00; in cooperation with thread breakage
7/868	• • • {Yarn guiding means, e.g. guiding tubes}	11/006	detecting means D01H 13/1691)}
7/88	• Hollow-spindle arrangements ( <u>D01H 7/86</u> takes	11/006	• • {travelling along the machines}
7/00	precedence)	11/008	• {with static field means}
7/90	<ul> <li>Arrangements with two or more {spinning or} twisting devices {of different types} in</li> </ul>	13/00	Other common constructional features, details or
	combination (D01H 7/88 takes precedence)		accessories
7/92	• for imparting transient twist {, i.e. false twist	13/005	• {Service carriages travelling along the machines
	(D01H 1/11 takes precedence)}		(characteristics relating to the apparatus
7/923	• • {by means of rotating devices}		supported by the carriage, <u>see</u> relevant groups,
7/926	{by means of traversing devices}		e.g. <u>D01H 9/005</u> , <u>D01H 9/10</u> , <u>D01H 13/145</u> , <u>D01H 15/00</u> )}
		13/02	Roller arrangements not otherwise provided for
	atures or details of, or accessories for, spinning or	13/04	• Guides for slivers, rovings, or yarns; Smoothing
_	chines of various kinds or types (drafting arrangements	15, 0.	dies (fibre-condensing guides <u>D01H 5/72</u> {; means
<u>D01H 5/00;</u>	twisting arrangements D01H 7/00)		to facilitate the unwinding of yarn in multiple-twist
9/00	Arrangements for replacing or removing bobbins,		arrangements D01H 7/866})
	cores, receptacles, or completed packages at	13/045	• • {Guide tube}
	paying-out or take-up stations {; Combination of	13/06	Traversing arrangements
	spinning-winding machine}	13/08	Twist arresters
9/001	• {Bobbin-taking arrangements}	13/10	Tension devices
9/003	• • {Graspers operating under the action of a fluid}	13/102	• • {Regulating tension by regulating delivery of
9/005	• {for removing empty packages or cans and		yarn from supply package (D01H 13/108 takes
	replacing by completed (full) packages or cans at		precedence)}
	paying-out stations; also combined with piecing of the roving}	13/104	• • {Regulating tension by devices acting on running
0/006	<del>-</del> -		yarn and not associated with supply or take-up
9/006 9/008	<ul><li> { for two-for-one twist type machines }</li><li> { for cans }</li></ul>	12/106	devices}
9/008 9/02	<ul><li>• {for cans}</li><li>• for removing completed take-up packages and</li></ul>	13/106 13/108	• • • {for double-twist spindle}
9/02	replacing by bobbins, cores, or receptacles at take-	13/108	<ul> <li>{Regulating tension by regulating speed of driving mechanisms of unwinding, paying-out,</li> </ul>
	up stations; Transferring material between adjacent		forwarding, winding or depositing devices, e.g.
	full and empty take-up elements		automatically in response to variations in tension}
9/04	Doffing arrangements integral with spinning or	13/12	Arrangements preventing snarls or inadvertent
	twisting machines		doubling of yarns
9/043	• • • {for cap type machines}		
9/046	• • • {for flyer type machines}		

13/14	• Warning or safety devices, e.g. automatic fault detectors, stop motions {; Monitoring the
13/145	<ul><li>entanglement of slivers in drafting arrangements}</li><li>• {set on carriages travelling along the machines;</li></ul>
	Warning or safety devices pulled along the
	working unit by a band or the like}
13/16	• responsive to reduction in material tension, failure of supply, or breakage, of material
13/1608	• • • {where the paying-out and take-up stations are
	stopped at one and the same time}
13/1616	• • {characterised by the detector}
13/1625	• • • {Electro-mechanical actuators}
13/1633	• • • {Electronic actuators}
13/1641	• • • • {Capacitor sensing means}
13/165	• • • • {Photo-electric sensing means}
13/1658	<ul> <li> {Associated actuators with mutual actuation,</li> <li>e.g. for two or more running yarns}</li> </ul>
13/1666	{Lighting or luminous devices making easier
	the setting of the breakage of yarns}
13/1675	• • • • {Pencil of rays on side of machines}
13/1683	• • • {Pneumatic sensing means}
13/1691	{Thread breakage detector means associated
	with pneumatic cleaning devices, e.g. suction
	of broken end of yarn}
13/18	stopping supply only
13/181	• • • {by stopping supply packages}
13/182	• • • • {by raising or lifting of one of the drafting
	cylinders, e.g. by removing of the loading means}
13/183	• • • { the yarn moving out of its normal path, e.g.
	by lateral diverting}
13/185	• • • {a plate moving in the nip of drafting or guiding cylinders}
13/186	• • • • {guiding or drafting cylinders moving by gravity when a yarn breakage occurs}
13/187	• • • { using means stopping the driving of the
	drafting, guiding cylinders, e.g. friction
	clutches}
13/188	• • • {by cutting or clamping yarns or rovings}
13/20	<ul> <li>responsive to excessive tension or irregular</li> </ul>
	operation of apparatus
13/22	• • responsive to presence of irregularities in running material
13/24	responsive to delivery of a measured length of
	material, completion of winding of a package or
	filling of a receptacle
13/26	Arrangements facilitating the inspection or testing
	of yarns or the like in connection with spinning or
12/20	twisting
13/28	<ul> <li>Heating or cooling arrangements {for yarns (removal of heat from machines <u>D01H 1/16</u>)}</li> </ul>
13/30	<ul> <li>Moistening, sizing, oiling, waxing, colouring, or</li> </ul>
	drying yarns or the like as incidental measures
	during spinning or twisting
13/302	• • {Moistening, e.g. for wet spinning}
13/304	• • {Conditioning during spinning or twisting (for
10/00	carding or combing D01G 99/005)}
13/306	• • {by applying fluids, e.g. steam or oiling liquids}
13/308	• • {by applying solids, e.g. wax}
13/32	Counting, measuring, recording or registering devices
	devices

15/00	Piecing arrangements (for open-end spinning machines D01H 4/48){; Automatic end-finding, e.g. by suction and reverse package rotation; Devices for temporarily storing yarn during piecing (piecing of rovings in combination with replacing of completed packages or cans D01H 9/005)}
15/002 15/004 15/007 15/013	<ul> <li>{for false-twisting spinning machines}</li> <li>{for centrifugal spinning machines}</li> <li>for two-for-one twisting machines</li> <li>Carriages travelling along the machines</li> </ul>
<b>17/00</b> 17/02	<ul> <li>Hand tools</li> <li>Arrangements for storing ring travellers; Devices for applying travellers to rings</li> </ul>

2700/00	Spinning or twisting machines; Drafting devices
2700/01	<ul> <li>Preparatory spinning machines</li> </ul>
2700/20	Spinning mules; Transmissions
2700/202	Carriages or their movement; Lubrication
2700/205	Spindles or spindle control in spinning mules
2700/207	• • Yarn delivery rollers; Drawing systems for
	spinning mules; Silver rollers
2700/21	<ul> <li>Piecing or cleaning in spinning mules</li> </ul>
2700/22	<ul> <li>Winding devices for spinning mules</li> </ul>
2700/24	Spinning or twisting machines of different kinds
2700/242	Spinning or twisting devices wherein twist is
	created during winding
2700/245	Conception or fabrication of drafting cylinders
2700/247	Guilding means for veil or sliver on drafting
	systems