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(54) **Servicing device of a spinning machine**

(57) Attending device of the spinning machine which is in its top section equipped with an upper travel for adjustable mounting onto the top section of the spinning machine and in its lower section is equipped with a supporting means for stabilisation in working position in front of an operating unit of the spinning machine. Supporting means is a part of an adjustable support (7), which is in

an adjustable manner in the direction from and to the spinning machine mounted on the attending device(1), and which is provided with means to fit on a contact surface on the spinning machine in working position of the attending device (1), while on the adjustable support (7) there is mounted at least one operating means (10) of the attending device (1).

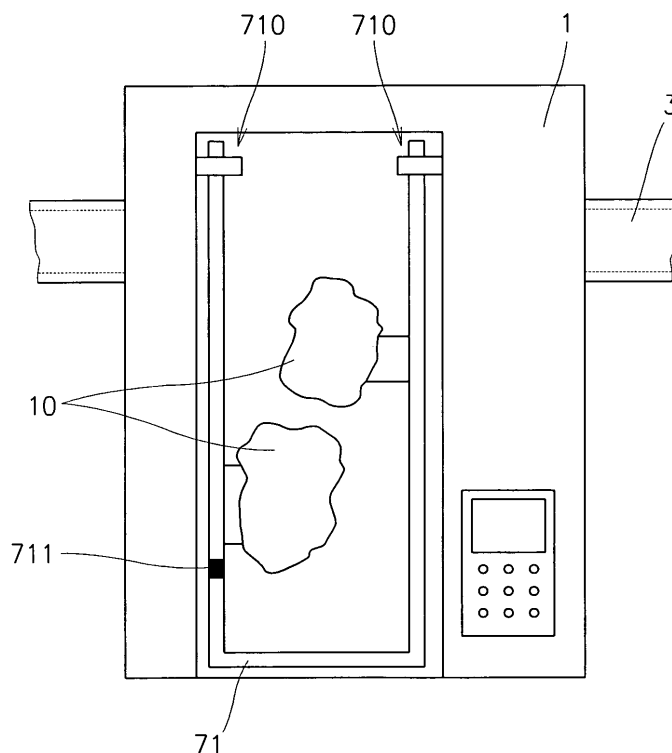


Fig. 2

Description

Technical field

[0001] The invention relates to an attending device of the spinning machine which is in its top section equipped with an upper travel for adjustable mounting onto the top section of the spinning machine and in its lower section is equipped with a supporting means for stabilisation in working position in front of an operating unit of the spinning machine.

Background art

[0002] On the spinning machines, especially on the rotor spinning machines, there are used the attending devices (attending automatic machines) for automatization of at least of some operations at production of yarn. Spinning machine comprises at least one row of operating units along which the attending device mounted on the machine on guiding means is travelling. On the machine there are installed the guiding tracks or rails, while the attending device in its top section is provided with pulleys rolling on these tracks or rails, through which the defined motion of the attending device along the row of operating units is enabled.

[0003] Known is an embodiment, when the attending device on the machine in all situations is mounted by means of an upper travel only. For example the embodiment according to the CZ 253 973. Nevertheless the necessary ruggedness of an upper travel on the machine as well as on the attending device represents an disadvantage of this arrangement, because it is necessary to ensure stability of the attending device especially during performance of servicing operations highly demanding as to the space as well as time exactness, like e.g. restoring of spinning, replacement of bobbin, etc.

[0004] Known is also embodiment, e.g. according to the CZ application No: 2000-1402, when except for the upper guiding there is used also a lower guiding, that comprises pulley rolling along the travelling track, performed as a rule on the front side of the machine and thus stabilising the attending device. Disadvantage of this arrangement is necessity to provide the machine with another travelling track, which must be exact and durable. Also an additional installation of travelling track for a pulley on already existing machine, at a need to additionally equip the already existing machine with attending device, may be difficult. This embodiment also disables a simple taking out of the spinning unit, as it is necessary to disassemble also a part of the guiding, by which an interruption of the guiding occurs, over which the attending device according to this embodiment cannot run over without re-assembly of the spinning unit, which restricts operation of the attending device. Known is also a solution when the attending device is equipped with swinging supporting means which, after arrival of the attending device to the operating unit being attended, swivels and

leans against the defined surface in the operating unit, while during leaning against it presses on this surface, slightly pushes away the attending device from the operating unit, thus delimits the clearance in travelling mechanism of attending device. Through this it is achieved that the attending device towards the means of each operating unit is always in the same position on a whole machine, thus the operating members of the attending device mounted on a frame of the attending device may perform equally good all their operations on all operating units.

[0005] The disadvantage of this embodiment is a demanding driving of the swinging supporting means which must overcome the weight of a whole attending device for the purpose to slightly push away this attending device from the operating unit and to bring the attending device on each operating unit into the required defined position towards the means of operating unit.

[0006] The goal of the invention is to remove or at least minimise the disadvantages of the present state of art.

The principle of invention

[0007] The goal of the invention has been achieved by the attending device of spinning machine, whose principle consists in that the supporting means is a part of an adjustable support, which is in an adjustable manner in the direction from and to the spinning machine mounted on the attending device, and which is provided with means to fit on a contact surface on the spinning machine in working position of the attending device, while on the adjustable support there is mounted at least one operating means of the attending device.

[0008] This device is simple and functional and it enables its troublefree incorporating into the attending device. Another advantage of this device is that it is not necessary to use the lower guiding of the attending device and so this embodiment reduces an economical demand of the machine. Another advantage of the device according to the invention is that it is possible simply without necessity to disassemble further parts to remove the spinning unit. Another advantage of the device according to the invention is that it enables to the attending device to run over the operating units without the spinning unit, so that even after removal of the spinning unit from the operating unit or from several operating units of a row of operating units, the operation of the attending device for remaining operating units is not restricted. Another advantage of the device according to the invention is that operating means of the attending device do not need to have long travel for performance of their operations, which further reduces an economic demand of the machine, at the same time increases the rigidity of a system of operating means on the attending device.

[0009] According to one advantageous embodiment the adjustable support is formed by a frame body having the shape of "U" letter, which by its upper ends is in swing-

ing manner mounted in the attending device and it is coupled with a drive, while in the lower section of the frame body there is mounted a supporting pin to fit on a contact surface in the spinning machine in operating position of the attending device.

[0010] According to another advantageous embodiment the adjustable support is formed by a straight-lined body mounted in swinging manner in the attending device, while the straight-lined body is coupled with the drive, on its free end is provided with supporting means and on it there is mounted at least one operating member of the attending device.

[0011] These embodiments are simple, not expensive at the same time fully functioning and reliable.

[0012] From the functional point of view it is advantageous if the supporting means in working position of the attending device fits on the contact surface on the face side of spinning unit of the operating unit being attended.

[0013] According to another advantageous embodiment the drive of the adjustable support is formed by a linear drive whose one part in an interval from upper ends of the frame body of adjustable support is coupled with adjustable support, and whose second part is coupled with frame of the attending device.

[0014] According to another advantageous embodiment the drive of the adjustable support is formed by a rotating drive, with which at least one from upper ends of the frame body of adjustable support is coupled.

Description of the drawing

[0015] The invention is schematically represented on the drawing, where the Fig. 1 represents a view to arrangement of the attending device on a spinning machine, and the Fig. a view to arrangement of the attending device from the Fig. 1 in direction of arrow A in the Fig. 1.

Examples of embodiment

[0016] Attending device 1 of a spinning machine comprises the upper travel 2 in the represented example of embodiment formed by the first travel joint 20 and the second travel joint 21. The first and second travel joint 20, 21 are mounted in an adjustable manner on travelling tracks 3 mounted continuously along a whole length of the spinning machine, i.e. along at least one row of operating units, while at the double sided machine the travelling tracks 3 may contain also the "turning" for running over of the attending device 1 to the second side of the machine. Each side of the machine may also be provided with at least one own attending device 1 or the attending devices 1 from each side of the machine may suitably co-operate on both sides of the machine, etc.

[0017] The spinning machine further comprises at least one row of operating units, out of which each in the represented example of embodiment comprises a place for the can 4 with fibre sliver 40, the spinning unit 5 for transforming the fibre sliver 40 into a yarn 50, which is

drawn-off from the spinning unit 5 and wound onto the bobbin 60 by means of winding mechanism 6.

[0018] Attending device 1 comprises individual mechanisms necessary for their activity on the machine. The attending device also comprises the in swinging manner adjustable support 7, which at motion of the attending device 1 is situated in interval from the machine, and which when the attending device 1 stops in front of the operating unit that should be attended by the attending device 1, swings out towards the machine and it touches the specified contact surface of operating unit, in represented example of embodiment it touches the face side 51 of the spinning unit 5. In the not represented example of embodiment it touches another suitable surface on the operating unit or on the machine.

[0019] The in swinging manner adjustable support 7 is provided with a drive 70 connected to the control device and securing its motion towards and from the machine. In the represented example of embodiment the adjustable support 7 is formed by a frame body 71 having the shape of "U" letter, which by its upper ends 710 is in a swinging manner mounted in a frame of the attending device 1. In the represented example of embodiment the swinging drive of the in swinging manner adjustable support 7 is formed by a linear drive, whose movable member 700 is in interval from upper ends 710 of the frame body 71 coupled with the frame body 71, while the fixed member 701 of linear drive is mounted on the attending device 1. In the not represented example of embodiment the moveable member 700 of linear drive is mounted on the attending device 1 and the fixed member 701 of linear drive is coupled with the frame body 71 of adjustable support 7. In another not represented example of embodiment the in swinging manner adjustable support 7 is coupled with the rotating drive.

[0020] In lower section of the frame body 71 there is mounted the supporting pin 711 in the represented example of embodiment contacting the respective place on the machine or on the operating unit, e.g. fitting on a face side of the spinning unit 5 of the operating unit being attended.

[0021] On the adjustable support 7 there is mounted at least one operating means 10 of the attending device 1, e.g. at rotor spinning machines it is the spinning-in head, the searching nozzle of yarn end on a bobbin etc., which at least partially is saving the moveable apparatus of the respective working member 10, or working members 10 of the attending device 1, which moreover are always in the same and exact initial position, secured in an excellent and simply way, towards the means of an machine operating unit being attended.

[0022] In another not represented example of embodiment the adjustable support 7 is performed in another suitable way, e.g. by one rod or tube (a straight-lined body) one-sided mounted in swinging manner in the attending device, coupled with the drive connected to the controlling device and provided with supporting means on its free end, while on the straight-lined body there is

mounted at least one operating member **10** of the attending device **1**.

List of referential markings

[0023]

1	attending device
10	operating member of the attending device
2	upper travel
20	first travel joint
21	second travel joint
3	travelling track
4	can with fibre sliver
40	fibre sliver
5	spinning unit
50	yarn
51	face side of spinning unit
6	winding mechanism
60	bobbin
7	adjustable support
70	drive
700	moveable member of the drive
701	fixed member of the drive
71	frame body
710	upper end of frame body
711	supporting pin

terised by that the adjustable support (7) is formed by a straight-lined body mounted in a swinging manner in the attending device, while the straight-lined body is coupled with the drive, on its free end is provided with supporting means and on it there is mounted at least one operating member (10) of the attending device (1).

4. Attending device according to any of the claims 1 to 3, **characterised by** that the supporting means in working position of the attending device (1) fits on the contact surface on the face side of spinning unit (5) of the operating unit being attended.

5. Attending device according to any of the claims 1, 2 and 4, **characterised by** that the drive of the adjustable support (7) is formed by a linear drive, whose one part in an interval from upper ends (710) of the frame body (71) of adjustable support (7) is coupled with adjustable support (7), and whose second part is coupled with frame of the attending device (1)

6. Attending device according to any of the claims 1, 2 and 4, **characterised by** that the drive of the adjustable support (7) is formed by a rotating drive, with which at least one from upper ends (710) of the frame body (71) of adjustable support (7) is coupled.

Claims

1. Attending device of the spinning machine which is in its top section equipped with an upper travel for adjustable mounting onto the top section of the spinning machine and in its lower section is equipped with a supporting means for stabilisation in working position in front of an operating unit of the spinning machine, **characterised by** that the supporting means is a part of an adjustable support (7), which is in an adjustable manner in the direction from and to the spinning machine mounted on the attending device(1), and which is provided with means to fit on a contact surface on the spinning machine in working position of the attending device (1), while on the adjustable support (7) there is mounted at least one operating means (10) of the attending device (1).
2. Attending device according to the claim 1, **characterised by** that the adjustable support (7) is formed by a frame body (71) having the shape of "U" letter, which by its upper ends (710) is in swinging manner mounted in the attending device (1) and it is coupled with a drive, while in the lower section of the frame body (71) there is mounted a supporting pin (711) to fit on a contact surface in the spinning machine in operating position of the attending device (1).

3. Attending device according to the claim 1, **charac-**

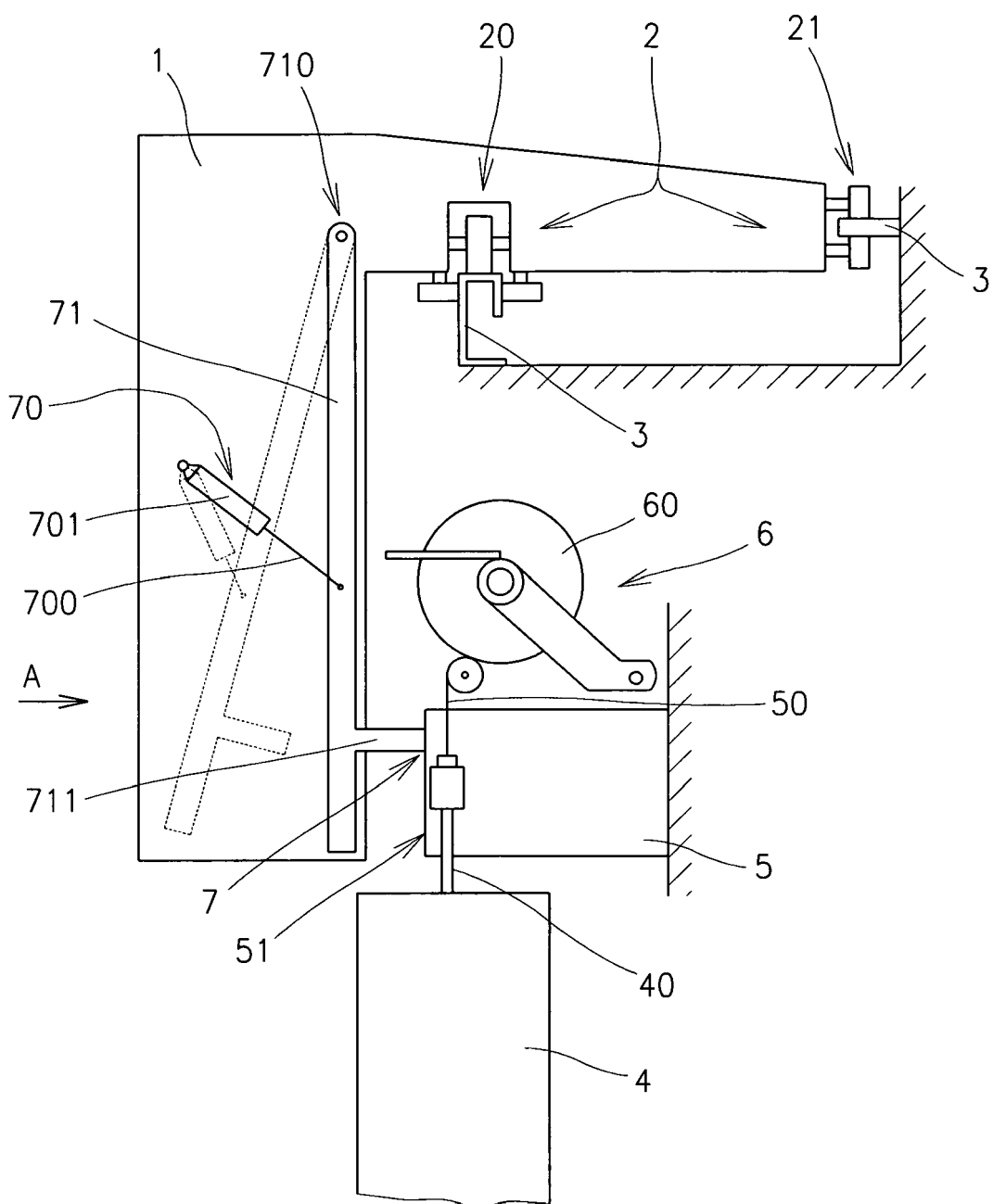


Fig. 1

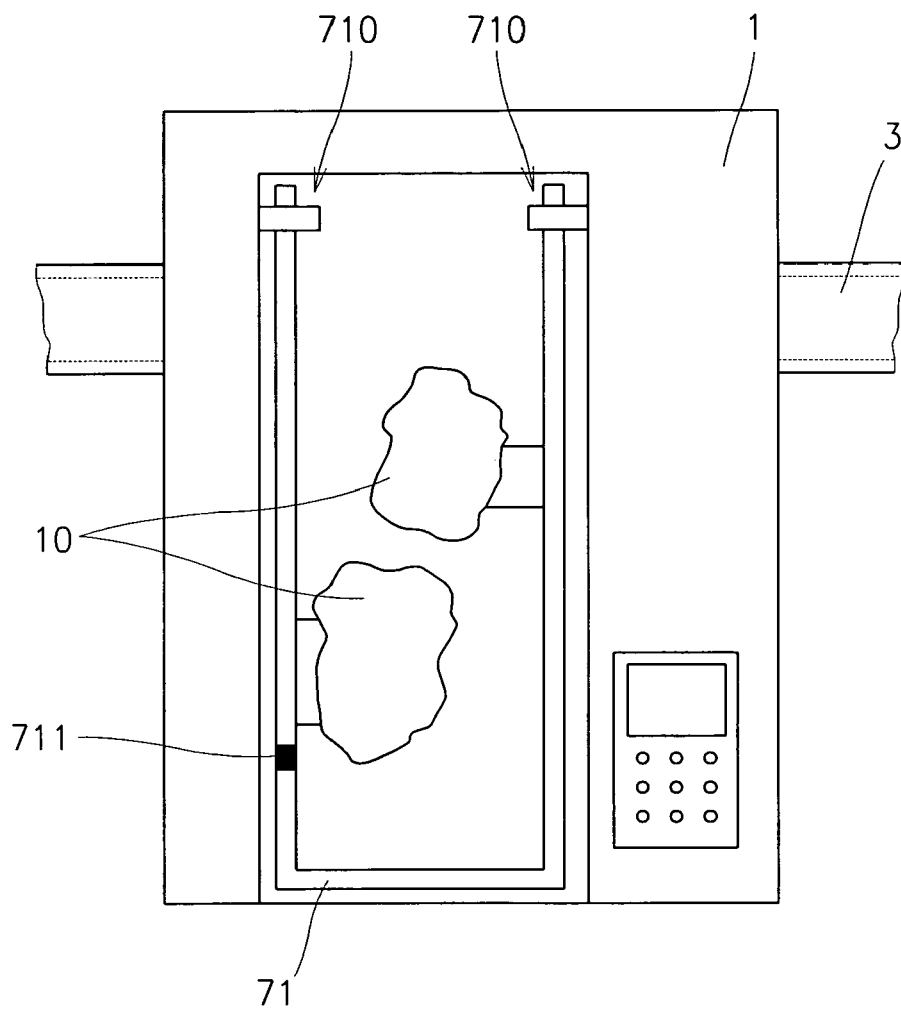


Fig. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 46 6003

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 June 2008	Examiner Dreyer, Claude
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 08 46 6003

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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