

[54] **SPINNING FRAME HAVING TWO CONFRONTINGLY MOUNTED RING ROWS**

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[58] Field of Search **57/1, 34 R, 34.5, 56, 122, 57/136, 106**

[56] **References Cited**

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[57] **ABSTRACT**

A spinning frame is disclosed of the kind having two confrontingly mounted spindle rows and three movable bars for each of said rows, which are adapted, respectively, to support the slider-carrying rings, the antiballooning containers and the thread guides, the improvement consisting in that the three movable bars enumerated above, relative to one of said rows, are made mechanically independent of the three bars relative to the other row. Thus the space comprised between the two fronts of the machine becomes freely available and is permitted to house ancilliary apparatus such as cleaning devices.

4 Claims, 5 Drawing Figures

Tav. I

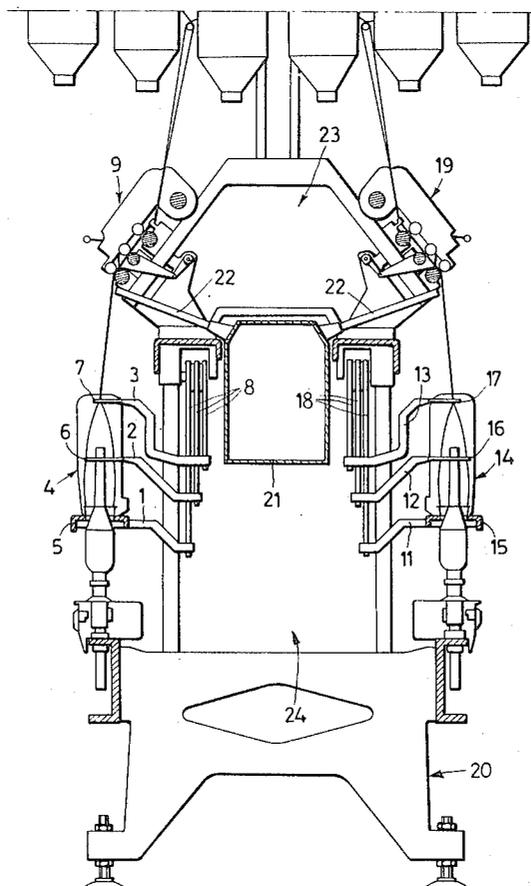
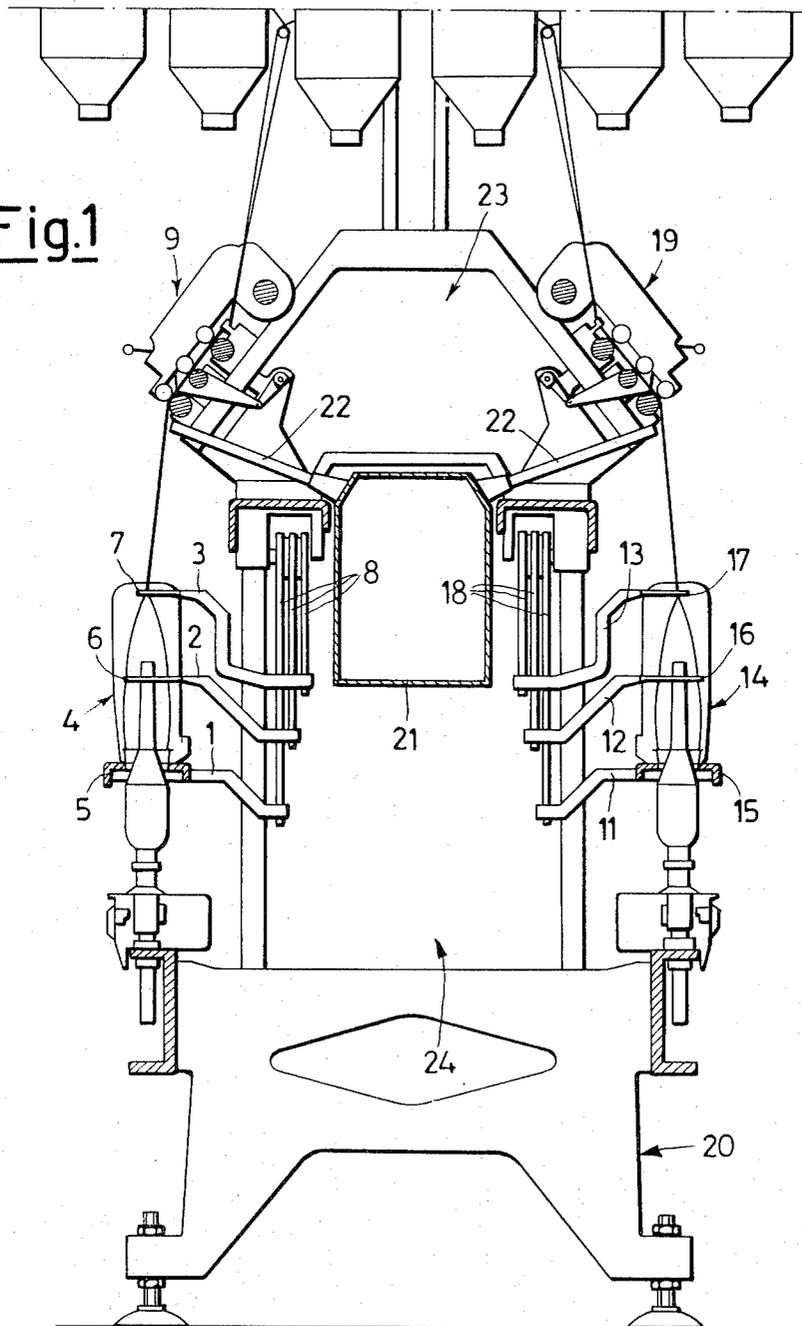
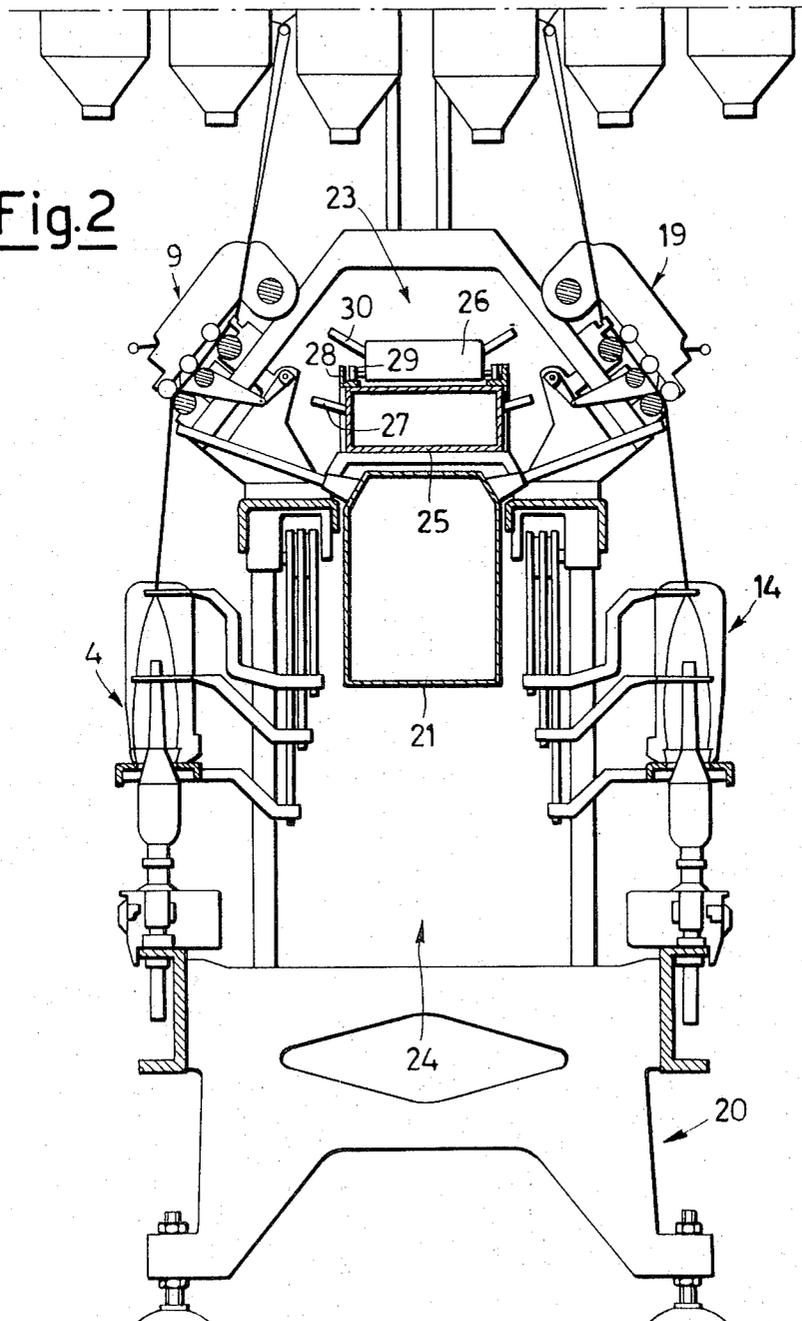


Fig. 1



Tav. II

Fig. 2



Tav. III

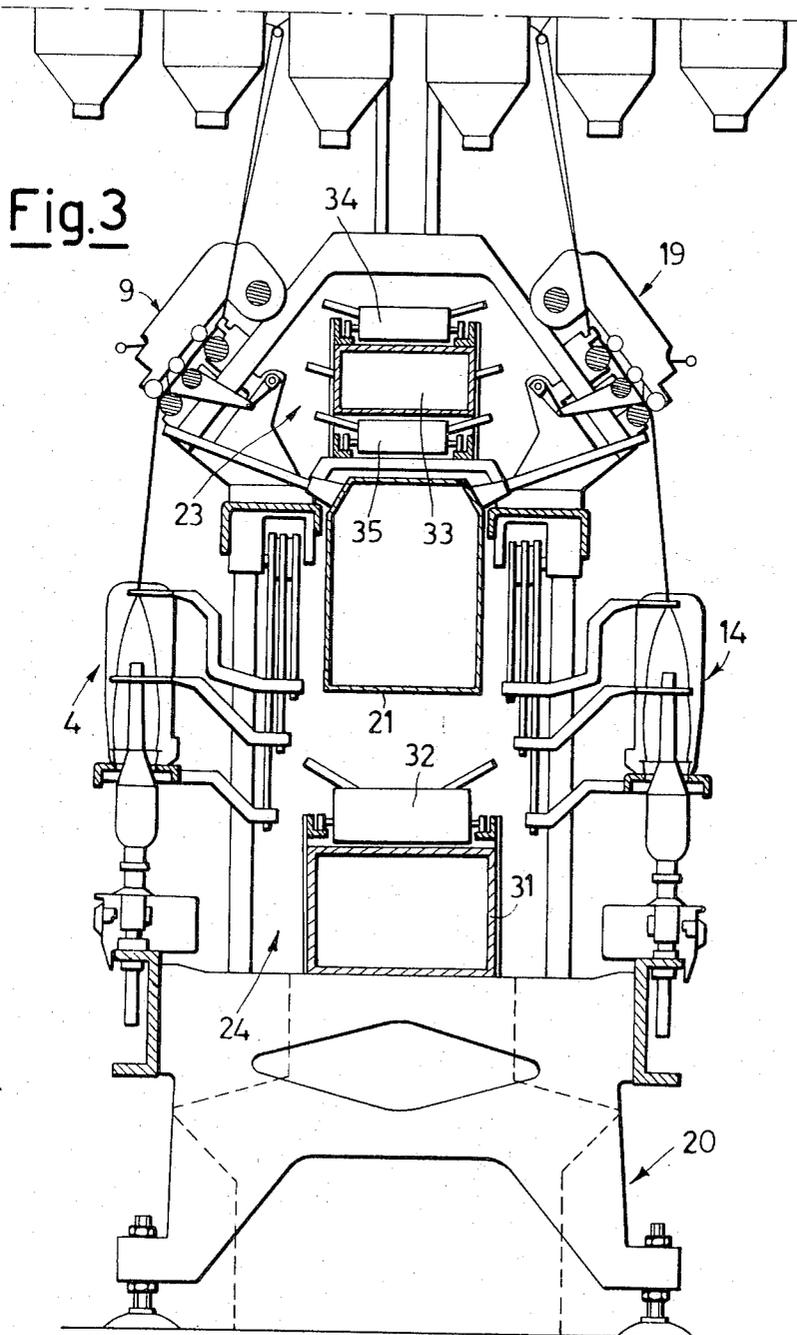
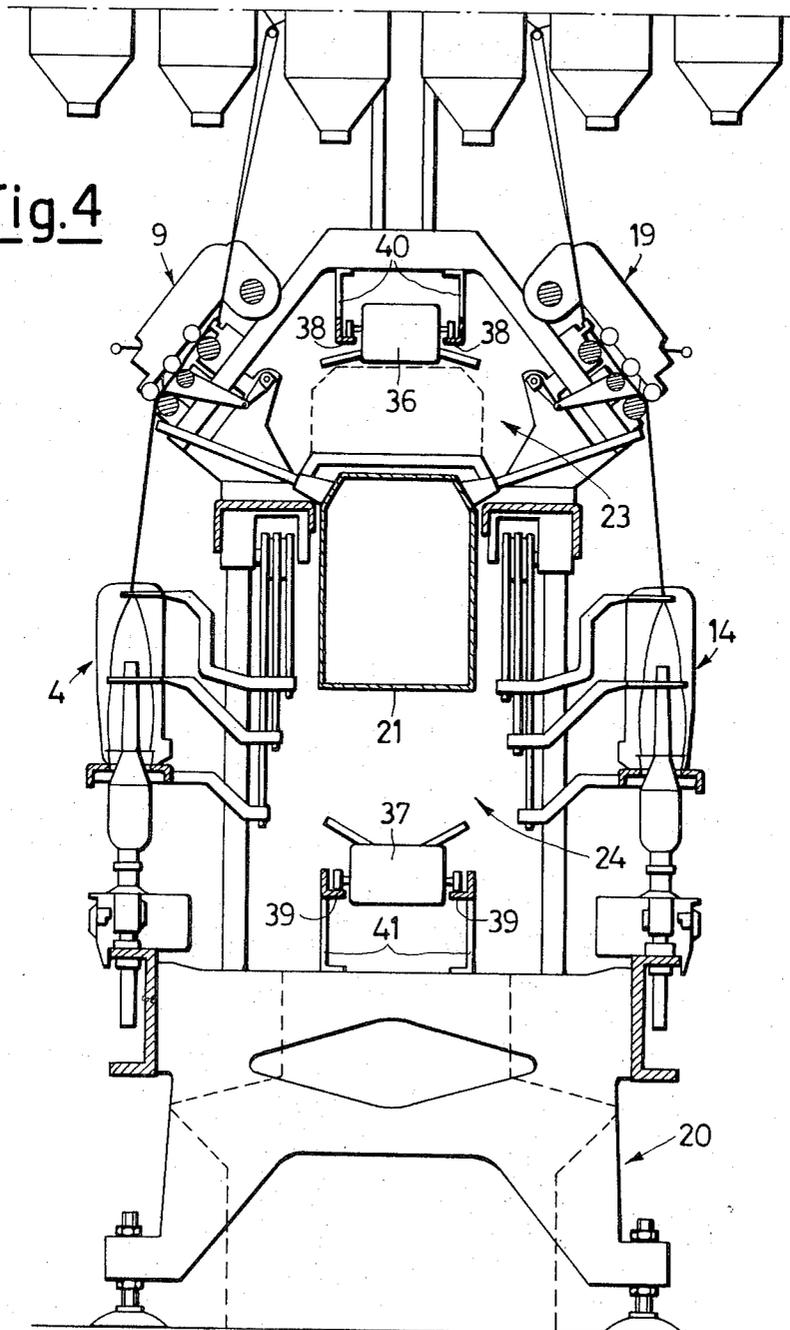


Fig. 4



Tab. V

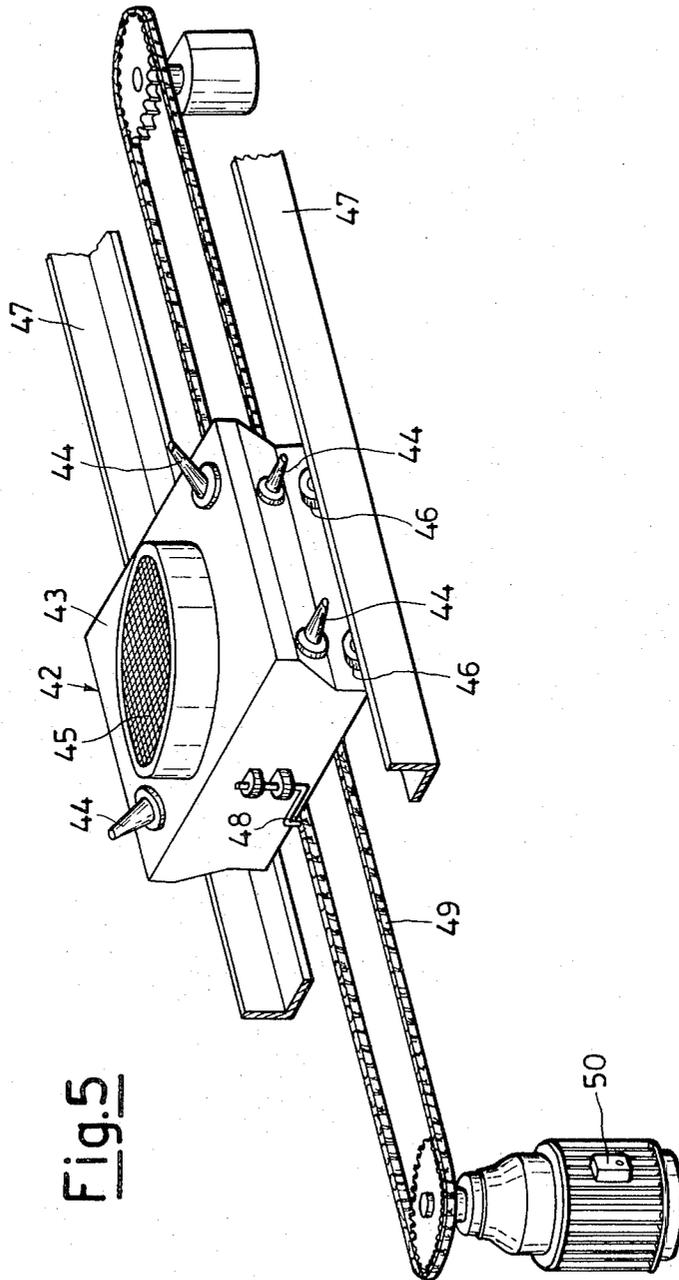


Fig. 5

SPINNING FRAME HAVING TWO CONFRONTINGLY MOUNTED RING ROWS

This invention relates to a spinning frame of the single-control type having two confrontingly mounted ring rows.

It is known that in the spinning frame each ring row is fitted with a ring-carrying rod or rail, an antiballooning container-carrying bar and a bar for carrying the thread-guide carrying bar. In the aforementioned type, that is the single-control type, the three bars which carry the rings, the containers and the thread guide of the spindle row are mechanically connected to the corresponding bars of the other row by means of stiff cross-ties which are parallel to each other. The presence of these cross-ties, which are intended for simultaneously transferring the lifting control to the above indicated bars, leads to the drawback of interrupting, at intervals, the continuity of the inner longitudinal space which is comprised between the two fronts of the machine thus making it usable to a slight extent only (in practice only in the top portion as comprised between the two cylinder sets) for positioning suitable channels, such as that for sucking air for grasping the broken threads.

An object of the present invention is to provide a single-control machine for spinning having two confrontingly mounted ring rows which, by doing away the above indicated defect, leaves between the two fronts a wide longitudinal space without any discontinuity, which can be used, in addition to the installation of the conventional suction manifold, for the air intended to grasp the broken threads, also for placing other appropriate devices, such as blowing or suction devices for cleaning the cylinders and the two fronts of the machine.

Having these objects in view, the machine according to the invention is characterized in that the three bars which are moveable relatively to either spindle row are made independent of those relative to the other spindle row, that is the connection cross-ties are dispensed with.

By so doing, the space between the two fronts of the machine is made wholly free from obstructions and can be used, not only for arranging the air suction manifold for grasping the broken threads, but also for locating devices of a different nature, for example air blowing or air drawing devices for cleaning the cylinder sets and the two fronts of the machine.

In order that the free surface available may be further increased, also the cross-tie for connecting and supporting the two fronts has been dispensed with, said tie being conventional and is replaced by the base of the cylinder set support which is properly shaped towards its top.

In accordance with a preferred embodiment of the machine according to the invention, the central portion of the space which has thus been left free between the two spindle rows, is occupied by the air suction manifold for grasping the broken threads.

Thus, both the upper and the lower portions of this space become available and are respectively used for arranging the devices intended for cleaning the cylinder sets and the spindle rows.

These cleaning devices can be of various kinds, more particularly they can be fixed channels connected to a suction and blowing system, or they can be suction or

blowing units which are movable along the machine centre line, or also a combination of fixed channels and moveable units.

Particularly advantageous has proven to be the use of movable units (in combination, or not, with fixed channels), inasmuch this fact permits to vary at leisure the area and the interval for cleaning according to necessity. In addition the use of such movable units permits to perform the cleaning action along the entire machine span and not only in areas inserted between others with a reduced cleaning efficiency, as it occurs, conversely, with the fixed channels (which obviously can have only blowing or suction ports or spouts at pre-selected intervals).

A few of the possible approaches which can be adopted for cleaning the machine according to the invention are shown by way of example in the accompanying drawings, which will be referred to hereinafter for a better understanding of the features of the present invention.

IN THE DRAWINGS:

FIG. 1 shows a cross-sectional view of a machine according to the invention, which enables anyone to see how the removal of the connection cross-ties between the bars of the two spindle rows permits that a roomy inner space may be obtained, which is occupied in the central portion only by the suction manifold for the air used for grasping the broken threads.

FIGS. 2, 3 and 4 are cross-sectional views similar to that of FIG. 1 and show different possibilities of exploiting the residual inner space for locating cleaning devices.

FIG. 5 shows in perspective view an example of practical construction of a movable cleaning unit.

The machine shown in FIG. 1 comprises a base plate 20 which supports two ring rows 4 and 14. The spindle row 4 has a rail or bar 1 for supporting the slider-carrying rings 5, a bar 2 for supporting the antiballooning containers 6 and a bar 3 for supporting the thread-guide 7. The spindle row 14, in turn, is equipped with a rail or bar 11 for supporting the slider-carrying rings 15, a bar 12 for supporting the antiballooning containers 16 and a bar 13 for supporting the thread guide 17.

The drawing readily suggests that, in accordance with the invention, the rail or bar 1 for supporting the slider-carrying rings, the bar 2 for supporting the antiballooning container and the bar 3 for supporting the thread guides, relating to the spindle row 4 of the machine shown, are entirely independent (that is not connected by means of cross-ties) of the corresponding rail or bar 11 and the corresponding bars 12 and 13 of the other spindle row 14. The rail 1 and the bars 2 and 3 are driven by their respective rods or straps 8, whereas the rail 11 and the rods 12 and 13 are driven by their respective rods or straps 18.

The same drawing shows that the entire space comprised between the two spindle rows 4 and 14 and between the overlying cylinder sets 9 and 19 remains entirely free the whole machine length throughout. The central portion of this space is intended for housing the air suction manifold 21 for grasping the broken threads (equipped with suction spouts 22 and connected to an appropriate air drawing unit not shown in the drawing), whereas both the upper portion 23 and the lower portion 24 can be used for locating air-blowing or suction

devices for cleaning the cylinder sets and the two fronts of the machine, respectively.

A possible example of exploitation of the thus created spaces 23 and 24 is shown in FIG. 2 where, in the space 23, a cleaning channel is secured in fixed position, 25, and a movable cleaning unit 26. The channel 25 can be connected, indifferently, either to a suction or a blowing unit (not shown in the drawing) and is equipped on both sides with a sequential array of suction spouts or, respectively, with blowing spouts 27, which are extended down to the immediate vicinity of the cylinder sets 9 and 19. To the fixed channel 25 there are secured two rails 28, along which the movable unit 26 is allowed to run by the agency of wheels 29. The latter unit, in turn, is equipped with suction or blowing spouts 30 oriented towards the cylinder sets 9 and 19.

Another example of exploitation of the spaces 23 and 24 is shown in FIG. 3, wherein, in the space 24 (left available in the case of FIG. 2) there are arranged a fixed channel 31 and a movable unit 32 which are entirely equal to the devices 25 and 26 of the machine shown in FIG. 2. In the space 23, conversely, there are arranged a fixed channel 33 and, above this fixed channel, two movable units 34 and 35.

In the case of FIG. 4, in the spaces 23 and 24, there are arranged the respective movable units 36 and 37, whose guiding and supporting rails 38 and 39 are affixed to the framework 20 by means of the relative stirrups 40 and 41.

For a better understanding of the movable units as used for cleaning the cylinder sets and the spindle fronts of the machine according to the invention, one of them is shown in detail in FIG. 5. This movable unit, indicated herein generally with the reference numeral 42, comprises a box 43 in whose interior either a suction unit or a blowing unit can be indifferently housed. In the former case, the spouts 44 which emerge from the box 43 have a suction function whereas the widened mount 45 has a blowing action; the reverse is true

in the latter case.

The box 43 is equipped with wheels 46 which slide along fixed rails 47 and, in addition, is connected through a couple of pins 48 to a chain 49 which can be rotated in either direction by a motor and reducing gear unit 50. Apparently, this permits to the movable unit 42 to effect reciprocations from an end to the other of the machine, or, if so desired, only reduced strokes. Also its displacement speed is clearly adjustable through an appropriate adjustment of the speed of the motor and reducing gear unit 50.

What is claimed is:

1. A single-control spinning frame having two confrontingly mounted spindle rows, in which each spindle row comprises three bars movable and respectively adapted to support the slider-carrying rings, the anti-ballooning containers and the thread guides, said three movable bars relative to one of the spindle rows being independent of those relative to the other spindle row, the inner space between the two machine fronts remaining thereby free of connecting cross-ties, an air-drawing manifold for grasping broken threads in the central portion of said inner free space, air moving devices for cleaning the machine cylinder set in the upper portion of said inner free space, and air moving devices for cleaning the two machine fronts in the lower portion of said inner free space.

2. A machine according to claim 1, wherein said air moving devices comprise fixed channels connected to air moving systems having mouth means.

3. A machine according to claim 1, wherein said air moving devices comprise movable units having a box containing an air moving unit, and a mouth.

4. A machine according to claim 1, wherein said air moving devices comprise, in combination, at least a fixed channel connected to an air moving system and having mouth means, and at least a movable unit having a box containing an air moving unit, and mouth means.

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