Sept. 12, 1933. F. CASABLANCAS 1,926,475

CONDENSING OR REDUCING DEVICE FOR TEXTILE SLIVERS

Filed March 11, 1931 2 Sheets-Sheet 1

FIG. 8.

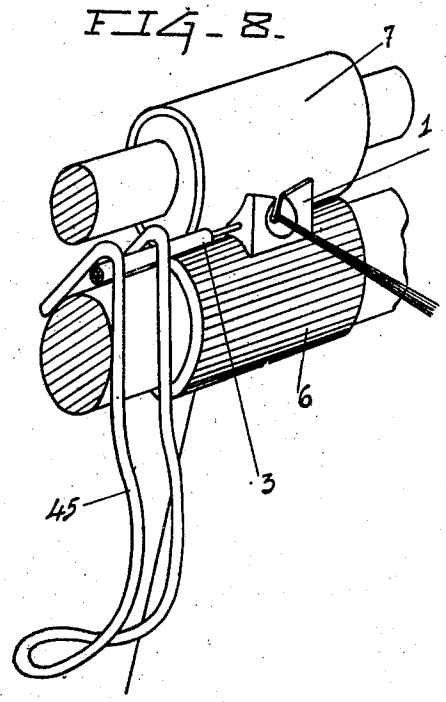


FIG. 1.

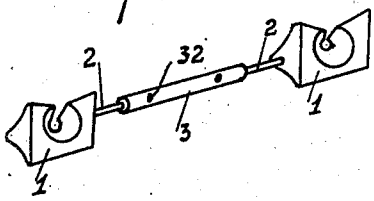


FIG. 3.

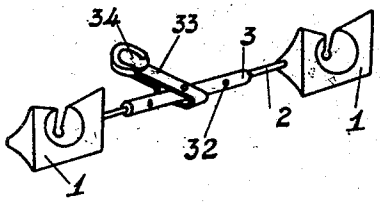


FIG. 5.

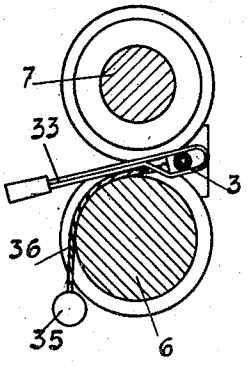
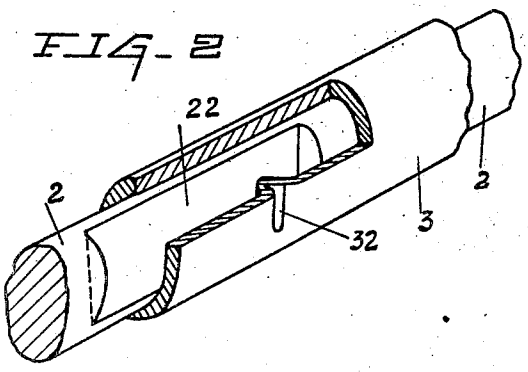


FIG. 2



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FIG. 4.

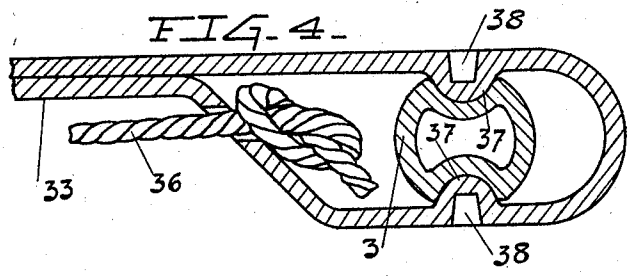


FIG. 5.

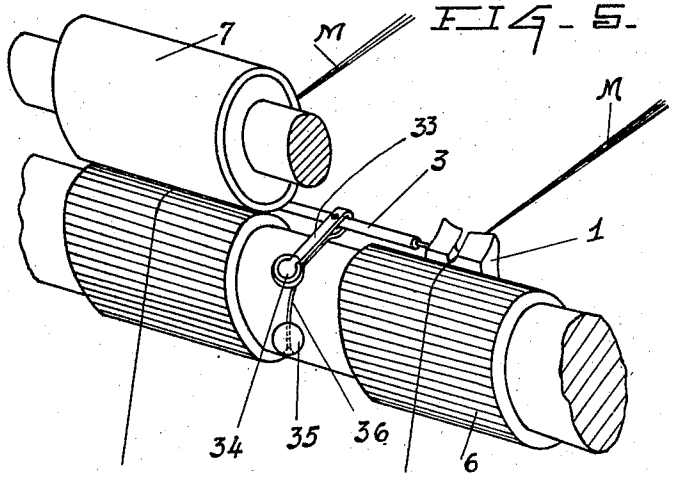
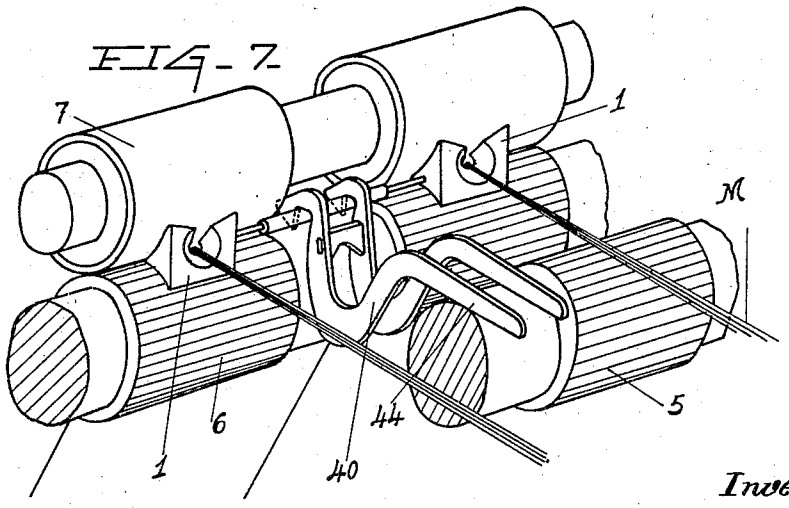


FIG. 7.



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UNITED STATES PATENT OFFICE

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CONDENSING OR REDUCING DEVICE FOR TEXTILE SLIVERS

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Application March 11, 1931, Serial No. 521,791, and in Spain March 17, 1930

5 Claims. (Cl. 19—130)

This invention constitutes an improvement of the condensing or reducing devices for textile slivers described in my previous application for patent Ser. No. 440,517.

The previous application relates to condensers or reducers of the width of the roving or sliver used in drawing mechanisms for textile fibres and which are situated between the coupling organs and the drawing organs of the roving. In accordance with the previous application, these condensers are placed absolutely free without being fixed to any supporting organ and allowed to bear only on the lower drawing cylinder. These condensers are assembled in pairs by means of a coupling organ which does not prevent a certain relative motion of the two condensers, whereby each one of them may independently and exactly follow the motion of its corresponding roving or sliver. Furthermore these condensers are provided with a hook of a special shape which is placed between every two sets of drawing mechanisms, and each hook holds back each pair of condensers by engaging their coupling organ when the upper drawing cylinder is temporarily withdrawn. This prevents the condensers, dragged by the motion of the lower drawing cylinder, from falling towards the front part of the machine.

The present invention relates to improvements introduced in this arrangement of condensers of the width of the roving, by which means important advantages are obtained in the construction and working of these condensers.

These improvements refer specially to the manner of coupling each pair of condensers, with the object of assuring the relative motion of these two condensers in the desired positions, while at the same time preventing any entry of dust or dirt between the coupling organs, by the application of a movable strip or handle to facilitate the manipulation of the condensers. This handle acts at the same time as a counterbalance, in connection with the arrangement of a small supplementary weight coupled to said handle in order to insure the proper placing of the condensers, even in such drawing mechanisms like those of the speed frames and the selfacting type, in which the trajectory of the roving is nearly horizontal.

In the accompanying drawings are shown roving condensers of this type in which are incorporated the improvements of the present invention.

Figure 1 shows, in perspective, a couple of condensers with the modified coupling organ.

Figure 2 shows, on a much larger scale, a detail of this coupling organ, indicating the manner of coupling the exterior tube to the interior rod, whereby the same are joined to the condenser.

Figure 3 is a view in perspective of a couple of condensers provided with the strip or handle for their manipulation.

Figure 4 shows on a larger scale, a system of joining the handle to the coupling tube of the condensers.

Figure 5 is a perspective view looking from the exterior of the drawing mechanism, showing a couple of condensers coupled together with a handle and supplementary weight, in working position.

Figure 6 is a vertical section showing the location of the coupling for the condensers with their supplementary handle and weight in relation to the collars of the front cylinders of the drawing system disclosed in Figure 5.

Figures 7 and 8 show perspective views of two arrangements of the retaining hook to prevent the condensers from falling when the upper drawing cylinder is raised.

As is seen in Figures 1 and 2, the two condensers 1 are provided with rods or stems 2 which are coupled together by means of a tube 3 as disclosed in the said previous application. However, according to this invention, the union of rods 2 and tube 3 is effected by arranging at the end of each rod 2 and at the part which remains hidden inside tube 3, an elongated groove or flat portion 22, and providing tube 3, to register with each of these flat portions, with notch embossed portions 32 which project into the interior part of the tube. Each of the notches 32 fluctuates in the groove 22 and allows rod 2 to displace itself with relation to tube 3 in a width corresponding to this groove 22. These notches 32 in the tube 3 cause the tube to suffer no weakness whatever, and also allow the grooves 22 to remain completely enclosed whereby to prevent the entry of dust or dirt.

In order to facilitate the manipulation of a couple of condensers 1 and at the same time to better insure their proper placing in the machine, there can be attached and joined to tube 3, a small arm 33 formed from a metal strip. This strip surrounds tube 3 and is lengthened so as to form arm 33 which points in a forward direction with its ends, preferably terminating, in a circular or widened part 34 which forms a button and thus facilitates its handling. The form shown for joining this arm 33 to the coupling tube of the condensers 1 may be a vertical axle hinge-joint, whereby to allow of a certain freedom of motion in the connection of these two elements. This

may be obtained by linking a vertical wire pin at the point of joining the handle 33 to the tube 3, but it can also be done as is shown in Figure 4. This joint comprises two circular sockets 38 punched in the handle 33 after the same has been mounted on tube 3 thereby causing the formation of the sockets 37 in the tube 3 at this point and giving the tube a cross section shape like an 8. This system of joining these parts prevents the defects which would be offered by a rigid union when cleaning the neck of the lower cylinder 6 during work with the object of eliminating the fibres which accumulate therein; because the handle 33 rests on this neck and the least contact of the operator's hands with said handle 33 would displace the system of condensers from its normal position, and break the rovings. On the other hand, this union being hinge-shaped, although the operator charged with the cleansing of the necks of the lower cylinder 6 touches the handle 33, this displaces itself laterally without in any way disturbing the position and the working of condensers 1.

Besides by having this arm 33 joined as said to tube 3, this arm forms a counterbalance for condensers 1 during the working of the drawing mechanism, since the arm 33 projects forwardly from the condensers and rests on the neck of the lower drawing cylinder 6 as shown in Figure 5. This position of the arm facilitates the operator in manually controlling the movement of the condensers from the exterior part of the spinning machine when it is desired to take them off and on, and by the counterbalance effect of the arm 33 helps to maintain the proper placing of the condensers. In effect, in the ring spinning frames whose drawing mechanisms are inclined, the condensers, by their own weight helped by handle 33 remain inserted between the lower and upper drawing cylinders.

On the contrary, in the machines in which the path of the roving M is sensibly horizontal, as, for example, in the speed frames and in the selfactings, the weight of the condensers, although very small, has a tendency to make them fall towards the back part of the drawing cylinders, especially when the machine stops, and thus the counterbalance effect of the handle 33 would not be sufficient to counterbalance this drawback, because for this it would have to be unduly lengthened.

Where it is desired a forward traction force is applied by means of a supplementary weight 35 as shown in Figures 5 and 6 which weight may be joined to handle 33 by means of a cord or other flexible link 36. This cord may be of flexible material such as jute, hemp, gut &c., so that the cord falls towards the front of the lower drawing cylinder 6, and leans on the neck of the said cylinder in such manner that handle 33 of the condensers rests on the said neck with the interposition of cord 36. The action of the weight 35, aided by the friction of cord 36 on the neck of the lower cylinder 6, forces this system of condensers to maintain itself forwards, and prevents them from falling or slipping backwards on the lower rifled cylinder 6 when the machine stops.

This weight 35 carried by the cord 36 may be fixed directly to the tube 3, and attain the desired operation of the tube 3 and condensers 1 without the use of the handle 33.

The arm 33 has still another utility by permitting the operator to know easily the type of condenser so as to surely be able to choose in each case the proper condenser. In order to obtain good results in the spinning, the form and sizes of the condensers must in every case be appropriated to the roving being worked, and the separation between the center lines of the condensers of every couple must correspond as exactly as possible with the separation between the center lines of every two drawing devices in the machine. Therefore, in a spinning mill there should be a supply of condensers corresponding to the different sizes of condensers 1, and to the different usual separations between the center lines of the two condensers. In order to easily distinguish in practice these condensers from one another, so that the operator should not be confused when mounting the condensers in a special machine, good results are obtained in practice by making condensers 1 of a different color or of a different material, according to the sizes, and by applying the button 34 to the arm 33. This button is formed from a disk of celluloid, paper, or other material of the same color as, or another color from the condensers associated therewith. The button 34 is placed according to the distance between the center lines of the condensers. By this means, when the operator has once determined the sort of condensers he has to mount on a machine, he knows perfectly by merely choosing all the condensers of the same color, and all the disks 34 likewise of the same color, that they are all exactly the same, and correspond to the type chosen for the work to be done.

Figure 7 shows a form of hook to grasp the condensers by the central joining tube with the object of preventing the same from falling when the upper drawing cylinder 7 is withdrawn. This hook 40 shown in Figure 7 is formed to rest on the neck of the intermediate lower cylinder 5 by means of two straight branches 44, and buffers or bears against the neck of the lower front cylinder 6, thus enabling the use of this hook 40 whatever the separation be between the drawing cylinders and the intermediate ones. As is known, this separation likewise varies in the spinning according to the class of fibres which are worked, and this arrangement of hook 40 has the novel feature that it does not necessitate a special hook for each separation of the cylinders as its position is determined by the front lower cylinder 6, and therefore the hook always remains in the correct position with respect to condensers 1.

This hook 40 has the objection in that it rather complicates the mechanism on account of its permanent arrangement between the cylinders, and as a matter of fact this hook works only in certain moments, and it is therefore advisable in many cases to utilize the type of removable hook 45 shown in Figure 8. This hook 45 is made of wire or of sheet metal and is removable, so that in normal working of the apparatus this hook is not used, and the operator has only one of these hooks at her disposal. When she wishes to remove the upper drawing cylinder 7, and does not wish to remove at the same time the condensers of the roving, she previously places one of these hooks so that it passes under and behind the drawing cylinders in the position shown in Figure 8. Once the hook is placed in this position, the operator can freely remove the upper drawing cylinder 7 without the condensers 1 falling or being displaced. When the operator replaces the upper drawing cylinder, she removes the hook 45 and keeps it for further use.

What is claimed is:

1. In a drawing mechanism for textile slivers, drawing cylinders for the slivers, a pair of float-

ing condensers resting upon the lower drawing cylinder, rods attached to said condensers having flat portions cut adjacent their inner ends, a tube for joining the rods and housing the flat portions, and means provided in said tube for engaging the flat portions to form joints which will prevent the entry of foreign matter from the joints and permit the condensers to move toward and away from each other.

2. In a drawing mechanism for textile slivers, drawing cylinders for the slivers, a pair of floating condensers resting upon the lower drawing cylinder, means for connecting the condensers together to prevent the entry of dust and permit the condensers to move toward and away from each other, and an arm carried by the condensers to counterbalance the same and the said arm permitted to rest on the lower drawing cylinder to allow the said arm to be operated from the exterior of the machine whereby to control the condensers and insure the proper placing of the condensers during the working of the machine.

3. In a drawing mechanism for textile slivers, drawing cylinders for the slivers, a pair of floating condensers having a tubular connection and provided with joints to permit the movement of the condensers toward and away from each other, an arm hingedly mounted to said tube and projecting forwardly toward the exterior of the machine, and a flexible cord extending in a likewise direction, carrying a weight to co-act with the hinged arm to counterbalance the condensers, and the said cord allowed to rest on the lower drawing cylinder whereby the arm and cord can be moved to control the proper placing of the condensers during the working of the machine.

4. In a drawing mechanism for textile slivers, drawing cylinders for the slivers, a pair of floating condensers resting upon the lower drawing cylinder, means for connecting the condensers together to permit movement toward and away from each other, a flexible cord carried by the condensers to project forwardly toward the exterior of the machine, the said cord resting on the lower drawing cylinder whereby the same can be grasped from the exterior of the machine to control the proper placing of the condensers, and a weight attached to the lower end of the cord to tend to maintain the condensers applied against the drawing cylinder.

5. In a drawing mechanism for textile slivers, drawing cylinders for the slivers, a pair of floating condensers having a tubular connection and provided with joints to permit the movement of the condensers toward and away from each other, a removable hook-shaped wire bent to straddle the tubular connection and the lower drawing cylinder and hold the condensers properly placed when the upper drawing cylinder is raised.

FERNANDO CASABLANCAS.