

Jan. 12, 1960

Filed April 25, 1956

K. SCHROTZ
RELEASABLE LOCKING DEVICE FOR DRAWING
MECHANISM OF SPINNING MACHINES

2,920,356

5 Sheets-Sheet 1

FIG. 1

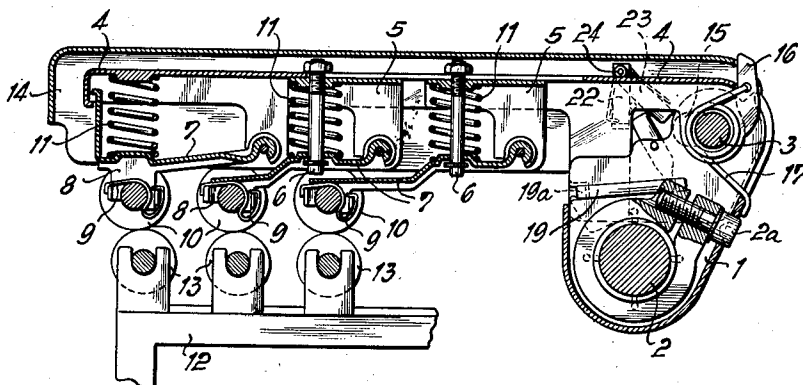
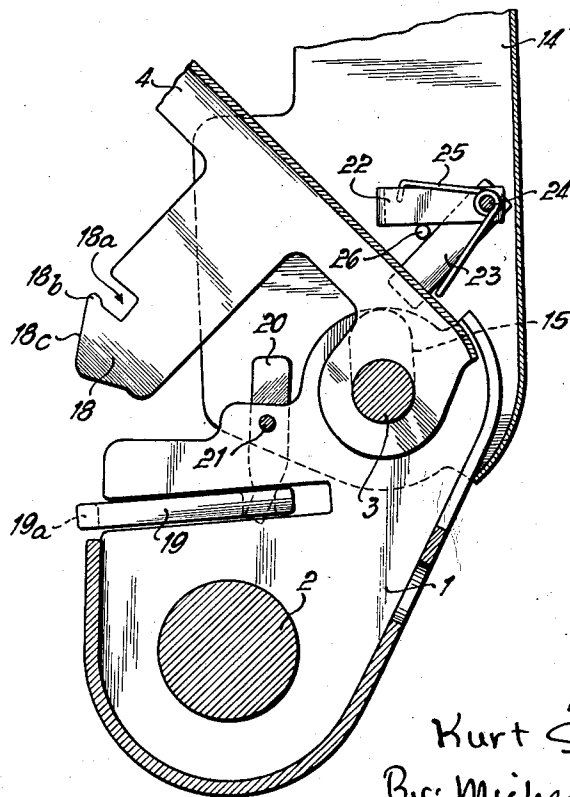


FIG. 2



INVENTOR:
Kurt Schrotz
By: Michael S. Striker
agt.

Jan. 12, 1960

K. SCHROTZ
RELEASABLE LOCKING DEVICE FOR DRAWING
MECHANISM OF SPINNING MACHINES

2,920,356

Filed April 25, 1956

5 Sheets-Sheet 2

FIG. 3

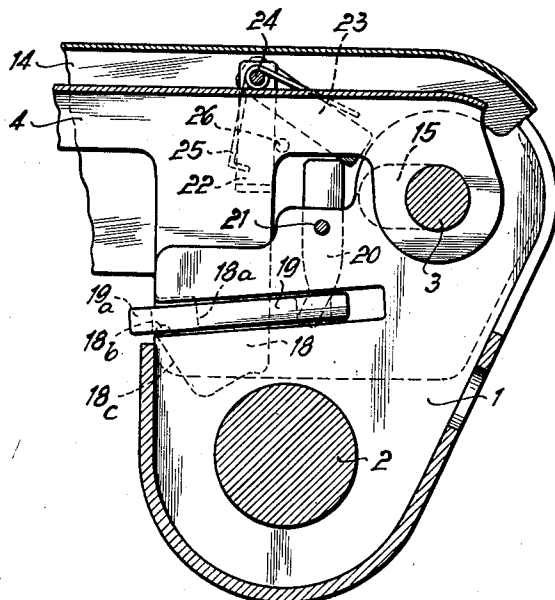
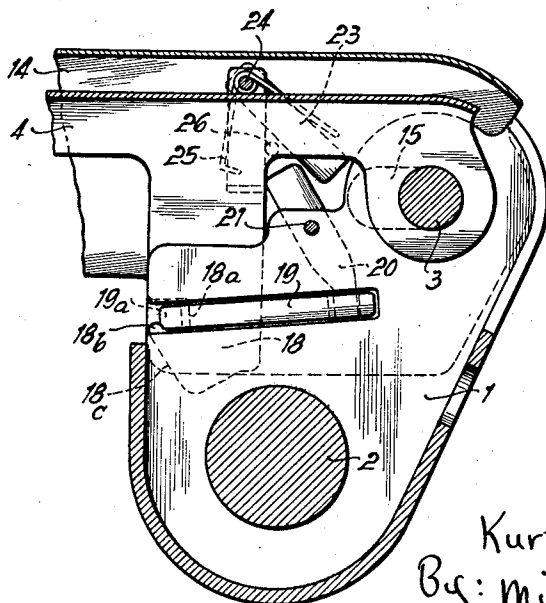


FIG. 4



INVENTOR:

Kurt Schrotz

By: Michael S. Sticker
agt

Jan. 12, 1960

K. SCHROTZ
RELEASABLE LOCKING DEVICE FOR DRAWING
MECHANISM OF SPINNING MACHINES

2,920,356

Filed April 25, 1956

5 Sheets-Sheet 3

FIG. 5

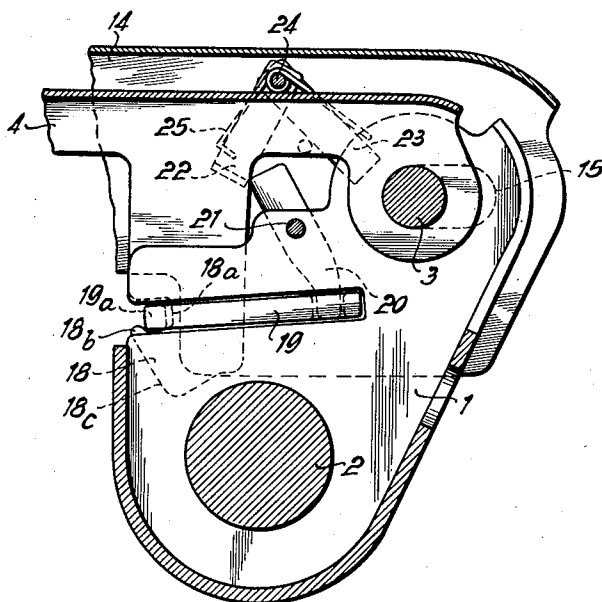
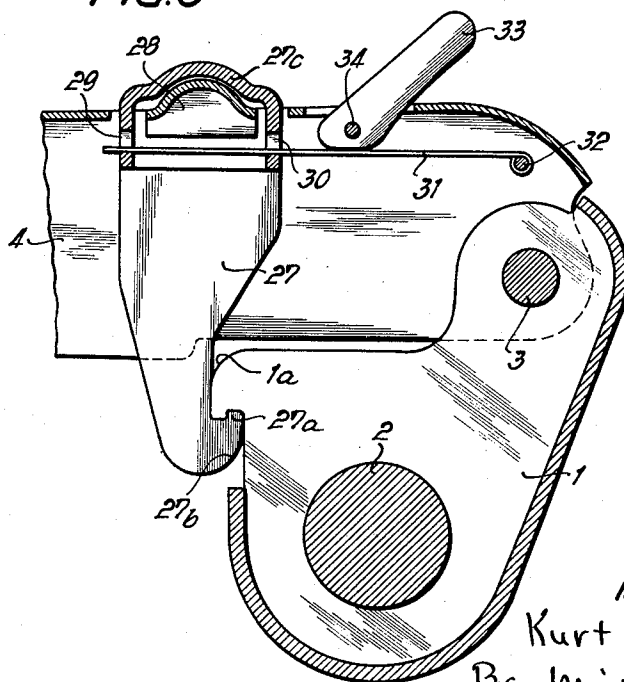


FIG. 6



INVENTOR:
Kurt Schrotz
By: Michaels. Stuken
att.

Jan. 12, 1960

K. SCHROTZ
RELEASABLE LOCKING DEVICE FOR DRAWING
MECHANISM OF SPINNING MACHINES

2,920,356

Filed April 25, 1956

5 Sheets-Sheet 4

FIG. 7

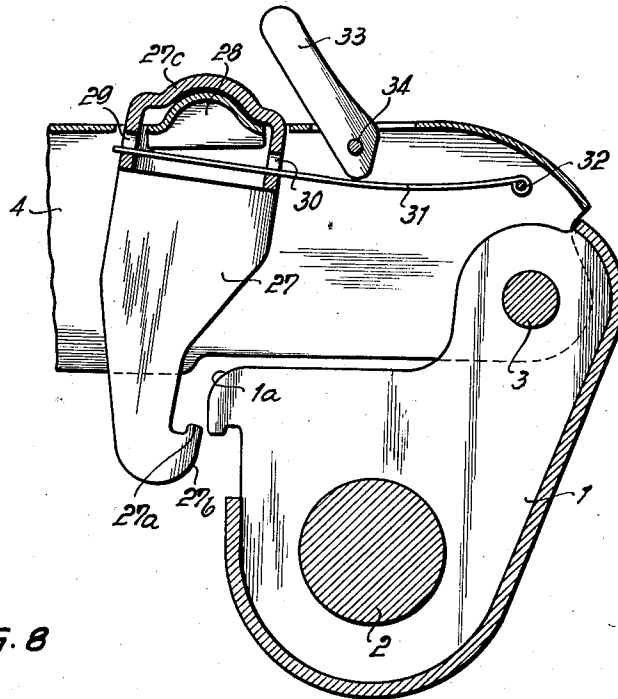
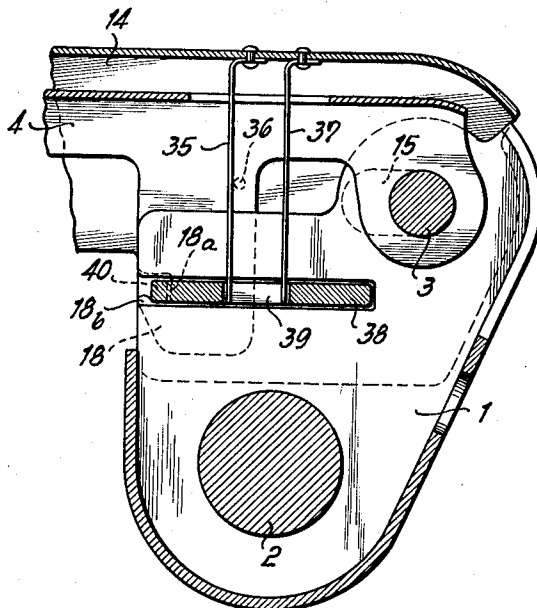


FIG. 8



INVENTOR:
Kurt Schrotz
By: Michael S. Striker
agt.

Jan. 12, 1960

K. SCHROTZ
RELEASABLE LOCKING DEVICE FOR DRAWING
MECHANISM OF SPINNING MACHINES

2,920,356

Filed April 25, 1956

5 Sheets-Sheet 5

FIG. 9

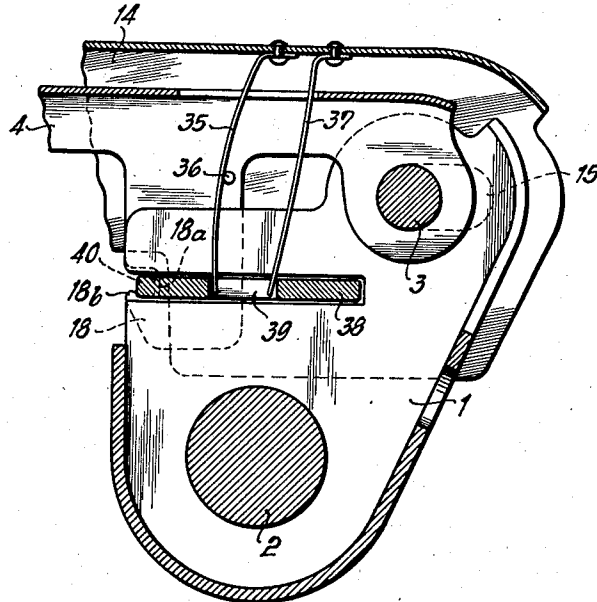
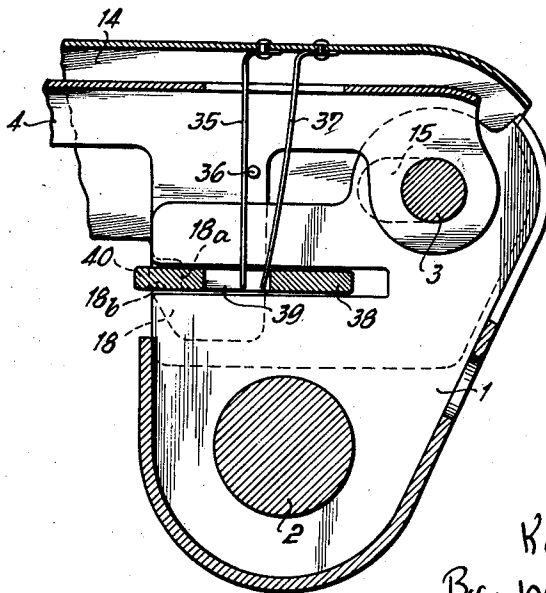


FIG. 10



INVENTOR:
Kurt Schrotz
By: Michael S. Starker
agt.

1

2,920,356

RELEASABLE LOCKING DEVICE FOR DRAWING MECHANISM OF SPINNING MACHINES**Kurt Schrotz, Fellbach, Germany, assignor to SKF Kugellagerfabriken G.m.b.H., Schweinfurt, Germany****Application April 25, 1956, Serial No. 580,643****Claims priority, application Germany April 29, 1955****3 Claims. (Cl. 19—135)**

The present invention relates to spinning machines.

More particularly, the present invention relates to drawing mechanisms for use with spinning machines and forming a part of the spinning machines.

With such drawing mechanisms a suitable releasable locking structure is provided to maintain the top rolls carrying arm of the drawing mechanism in its operating position against the force of the springs which urge the top rolls downwardly toward the bottom rolls. From time to time it is necessary to turn the top rolls carrying arm from its operating position to a rest position turned upwardly away from the operating position, and in order to do this it is necessary to release the lock structure which maintains the top rolls carrying arm in its operating position. Conventional lock structures are extremely inconvenient in this respect, because they require both hands of the operator to effect the release of the lock and furthermore it is difficult for the operator to determine whether or not the top rolls carrying arm is securely locked in its operating position. Furthermore, these releasable lock devices of conventional drawing mechanisms are of an extremely complicated construction.

One of the objects of the present invention is to overcome the above drawbacks by providing a drawing mechanism with a releasable lock device capable of releasing the top rolls carrying arm from its operating position and locking the top rolls carrying arm in its operating position with the use of only one hand of the operator.

Another object of the present invention is to provide a releasable lock device of the above type capable of being operated by only one hand and at the same time characterized by simplicity of construction and great reliability in operation.

A further object of the present invention is to provide a lock device of the above type with a means which lets the operator know that the top rolls carrying arm is securely locked in its operating position.

An additional object of the present invention is to provide a releasable lock device of the above type which may be very easily incorporated into drawing mechanisms of conventional construction.

With the above objects in view the present invention mainly consists of a drawing mechanism of a spinning machine which includes a stationary support member and a top rolls carrying arm turnably carried by the support member for movement between an operating position extending over the drawing plane and a rest position turned upwardly away from the operating position. This top rolls carrying arm carries a hook means which extends from the arm downwardly toward and is located adjacent the support. The stationary support carries a catch means which cooperates with the hook means for maintaining the arm in its operating position. One of these latter means is movable between a locking and release position with respect to the other of these means, and a spring is provided for moving this one means between its release and locking positions. A manually op-

2

erable biasing means cooperates with the spring for biasing the same to move the one means referred to above to its release position when the arm is to be released for movement to its rest position and for biasing this spring means to move the above mentioned one means to its locking position when the top rolls carrying arm is returned from its rest position to its operating position.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a longitudinal sectional view of a drawing mechanism which includes the structure of the present invention;

Fig. 2 is a fragmentary longitudinal sectional view on an enlarged scale of one embodiment of a releasable lock structure according to the present invention, the structure of Fig. 2 being shown in the position it takes when the top rolls carrying arm is released and moved upwardly toward its rest position;

Fig. 3 shows the structure of Fig. 2 in the position which it takes during the return of the top rolls carrying arm to its operating position;

Fig. 4 shows the position which the structure of Fig. 3 takes when the top rolls carrying arm is located in its operating position;

Fig. 5 shows the position which the structure of Fig. 2 takes when the arm starts to be moved by the operator from its operating position toward its rest position;

Fig. 6 shows another embodiment of a releasable lock structure according to the present invention, the structure of Fig. 6 being shown in the position it takes when the top rolls carrying arm is releasably locked in its operating position;

Fig. 7 shows the position which the structure of Fig. 6 takes just after the top rolls carrying arm is released for movement to its rest position;

Fig. 8 illustrates a third embodiment of a releasable lock structure according to the present invention, the parts being shown in Fig. 8 in the position which they take when the top rolls carrying arm is locked in its operating position;

Fig. 9 shows the position which the structure of Fig. 8 takes when it is set to release the top rolls carrying arm for movement to its rest position; and

Fig. 10 shows the position which the parts of Fig. 8 take just before the parts reach the position thereof illustrated in Fig. 8 when the top rolls carrying arm is located in its operating position.

Referring now to the drawings, Fig. 1 shows in a longitudinal sectional view a drawing mechanism of a spinning machine. The structure shown in Fig. 1 includes a stationary support 1 in the form of a bracket having side walls respectively formed with aligned openings through which a stationary bar 2 extends. The drawing mechanisms are arranged side by side in a bank and the bar 2 extends along the entire length of such a bank of drawing mechanisms. Within the support 1 is located a clamping member which is fixed to the support 1 and which surrounds the bar 2, as shown in Fig. 1, this clamping member having free springy ears formed with aligned bores one of which is threaded and receives the screw 2a the head of which is accessible through an opening in the rear wall of the stationary support 1, as indicated in Fig. 1, so that by turning the screw 2a the stationary support 1 is clamped onto the bar 2.

The stationary support 1 carries a pivot pin 3 which extends across and is carried by the opposite side walls

3

of the stationary support 1. A top rolls carrying arm 4 is pivotally mounted at its right end, as viewed in Fig. 1, on the pivot pin 3 for turning movement between the operating position shown in Fig. 1 where the top rolls carrying arm 4 extends over the drawing plane to a rest position where the arm 4 is turned upwardly away from the position thereof indicated in Fig. 1.

A pair of slide members 5 are located within the top rolls carrying arm 4 which has the cross section of an inverted U, and the side members 5 engage the underside of the top wall of the arm 4. This top wall of the arm 4 is formed with an elongated slot through which screw members 6 pass, these screw members 6 being threadedly connected to the top walls of the slide members 5. At the outer face of the top wall of the arm 4 a pair of nuts are threadedly connected to the free ends of the screw members 6, so that these nuts may fix the slide members 5 in adjusted positions along the arm 4. A pair of springs 11 are coiled about the screw members 6 and engage the undersides of the top walls of the slide members 5, and a front spring 11 is in direct engagement with the underside of the top wall of the arm 4. All of these springs 11 press downwardly against arms 7 which are pivotally supported at their right ends, as viewed in Fig. 1. The left arm 7 of Fig. 1 is pivotally supported by the side walls of the top rolls carrying arm 4, while the other two arms 7 are pivotally carried by the slide members 5. The left free ends of the arms 7 respectively carry saddle members 8 which engage the shafts of the top rolls 10, and springs 9 are connected in a conventional way to the saddles 8 and to the shafts of the top rolls 10 for releasably retaining the latter in connection with the saddles. The top rolls 10 respectively engage the bottom rolls 13 which are supported for turning movement by a stationary frame 12 of the drawing mechanism.

In the embodiment of the invention which is shown in Figs. 1-5, the top rolls carrying arm 4 is covered by an elongated cover member 14 which is of a channel-shaped configuration and which has top walls and side walls spaced from and directed toward the top wall and side walls of the top rolls carrying arm 4. The side walls of the cover member 14 are formed adjacent their right end, as viewed in Fig. 1, with a pair of elongated slots 15 through which the pivot pin 3 passes, the outer side walls of the cover member 14 extending along the outer faces of the outer side walls of the stationary support 1. Thus, the cover member 14 is not only turnable about the pivot pin 3, but also it is shiftable to the right and left along the pivot pin 3 as a result of the slots 15 through which the pivot pin 3 passes. A member 16 is turnable on the pivot pin 3 and has a projection engaging the right edge of the top wall of the cover member 14, as viewed in Fig. 1. A wire spring 17 is coiled about the pivot pin 3 and has its free ends in engagement with the member 16 as well as the stationary support 1, as indicated in Fig. 1, so that the member 16 urges the cover member 14 to the position indicated in Fig. 1 where the pivot pin 3 is located at the right ends of the slot 15.

The top rolls carrying arm 4 is provided with a hook means which is fixed to and extends downwardly therefrom adjacent the stationary support 1. This hook means takes the form of a pair of members 18 respectively formed integrally with and extending downwardly from the side walls of the top rolls carrying arm 4, and the configuration of each hook member 18 is shown most clearly in Fig. 2. Thus, the hook members 18 have notches 18a formed in the front edges thereof, and the bottom edges of these notches respectively have upwardly extending projections 18b. Furthermore, below the projection 18b the hook member 18 has an inclined edge 18c. When the arm 4 is in its operating position shown in Fig. 1 the members 18 extend along the outer faces of the side walls of the stationary support 1.

A catch means is provided to cooperate with the hook

4

means for maintaining the top rolls carrying arm 4 in its operating position, and this catch means is movable, in the embodiments of Figs. 1-5 as well as Figs. 8-10 to be described below, between a locking position cooperating with the hook means for locking the arm 4 in its operating position and a release position releasing the hook means to release the arm 4 for movement to its rest position. In the embodiment of Figs. 1-5, this catch means takes the form of a catch member 19 which is slidably guided in elongated aligned cutouts formed in the side walls of the stationary support 1. Adjacent its front edge the catch member 19 has a pair of laterally extending projections 19a which cooperate with the hook members 18 in a manner described below. Furthermore, adjacent its rear edge the catch member 19 is formed with a pair of slots into which the bottom free ends of a pair of levers 20 respectively extend, these levers 20 being pivotally carried by the side walls of the support 1. Thus, as is evident from Fig. 2, a pivot pin 21 carried by the support 1 turnably supports the lever 20 which extends along the outer face of the side wall of the support 1, this lever 20 being located between the side wall of the support 1 and the side wall of the cover member 14.

The side walls of the cover member 14 each carry at their inner faces a pair of levers 22 and 23, these pairs of levers being located in the spaces between the side walls of the cover member 14 and the side walls of the support 1 and the arm 4. Thus, as is evident from Fig. 2, a pivot pin 24 which extends between and is carried by the side walls to the cover member 14 turnably supports next to the inner side face of each side wall the pair of levers 22 and 23 which overlap each other. A wire spring 25 is coiled about the pivot pin 24 and has its free ends in engagement with each pair of levers 22 and 23 to urge the same toward each other, and the movement of each pair of levers 22 and 23 toward each other is limited by a stop pin 26 carried by each side wall of the cover member 14 and located between the levers 22 and 23, as indicated most clearly in Fig. 2.

The operation of the above described structure will be understood by referring to Figs. 2-5. If it is assumed that the arm 4 and cover member 14 are being turned back toward their operating position, then during such movement they will have the position shown in Fig. 2 except that the cover member 14 will be located closer to the arm 4. It will be noted that in this position of the parts the slots of catch member 19 into which the free bottom ends of the levers 20 extend are so short that the levers 20 prevent further movement of the member 19 to the left, as viewed in Fig. 2. Thus, as the cover member 14 and the arm 4 turn down toward their operating position, the lower end portions of the hook members 18 will move downwardly alongside of the catch member 19 just behind the projections 19a thereof. The edges 18c of the hook members 18 will engage the projections 19a and prevent movement of the catch member 19 to the right, as viewed in Fig. 2. As may be seen from Fig. 3, because the catch member 19 cannot move to the right the levers 20 remain in the position shown in Fig. 3 and thus the levers 23 engage the levers 20 and the spring 25 becomes biased to urge each lever 23 in a clockwise direction, as viewed in Fig. 3. The levers 22 cannot turn in a counter-clockwise direction, as viewed in Fig. 3, because they engage the stop pins 26. Thus, when the parts are in this position with the arm 4 and cover member 14 approaching their operating position the springs 25 are biased to act on the levers 23 to urge the latter to turn the levers 20 in a counterclockwise direction as viewed in Fig. 3 for urging the catch member 19 to the right, as viewed in Fig. 3. When the parts have reached their operating position, the operator presses down on the cover member 14 to move the latter together with the arm 4 slightly below their operating position, so that the projections 18b of the hook members 18 move slightly beneath the projections 19a. It will be noted

5

from Fig. 1 that the underside of the top wall of the cover member 14 engages the top ends of the screws 6, so that downward pressure applied by the operator to the cover member 14 is transferred to the arm 4. As soon as the projections 18b become located slightly beneath the projections 19a, the spring 25 is free to turn the lever 23 in a clockwise direction, as viewed in Fig. 3, so as to turn the lever 20 in a counterclockwise direction and thus shift the catch member 19 from the position of Fig. 3 to that of Fig. 4, and then upon release of the cover member 14 the springs 11 urge the arm 4 upwardly so that the projection 18b becomes located in front of the projection 19a, and thus the top rolls carrying arm is releasably locked in its operating position. The parts are shown in Figs. 1 and 4 in the position which they take when they are in the operating position of the drawing mechanism.

If it is now desired to release the arm 4 for movement to its rest position, then the operator simply shifts the cover member 14 to the right, as viewed in Fig. 4, so that it now has the position shown in Fig. 5. This movement of the cover member 14 to the right causes the springs 25 to be biased to turn the levers 22 which engage the levers 20 in a counterclockwise direction as indicated in Fig. 5. Now, with the arm 4 in the position of Fig. 5, the operator need only depress the cover member 14 together with the arm 4 slightly in order to locate the projections 18b beneath the projections 19a, and this action allows the springs 25 to turn the levers 22 so that the levers 20 turn in a clockwise direction to shift the catch member 19 from the position of Fig. 5 to that of Fig. 2, and while maintaining the cover member 14 in its rearwardly shifted position shown in Fig. 5, the operator need only allow the springs 11 to expand so that the catch member 19 does not cooperate with the hook members 18 and the latter move upwardly beyond the catch member 19. Then the operator can easily raise the arm 4 together with the cover member 14 to their rest position. As soon as the operator releases the cover member 14, the spring 17 turns the member 16 shown in Fig. 1 to shift the cover member 14 back to its position where the pivot pin 3 engages the right ends of the slots 15.

It is apparent from the above description that with the structure of the invention the operator can very easily lock or release the top rolls carrying arm 4 while using only one hand. The levers 22 and 23 form a pair of lever means for cooperating with the lever means 20 to cause the latter to shift the catch means 19 in the desired direction, and wire springs 25 form a spring means for biasing the lever means 22 and 23 in the desired direction. The cover member 14 in addition to serving its function as a cover also acts as a manually operable biasing means permitting the operator to bias the spring means in the desired direction. If desired, the catch member 19, for example, may be provided with an index at one of its side edges or at both of its side edges which cooperates with another index at another side face of a side wall of the support 1 in order to visually indicate to the operator when the parts are either locked or released, so that the operator can tell very quickly and easily whether the arm 4 is securely locked in its operating position.

The embodiment of the invention which is illustrated in Figs. 6 and 7 differs from that of Figs. 1-5 in that the support 1 does not carry a movable catch means, and the embodiment of Figs. 6 and 7 also differs in further respects from the embodiment of Figs. 1-5 as will be apparent from the description which follows. In this embodiment of the invention the top rolls carrying arm 4 is formed in its top wall with a cutout across which a member 28 extends, this member 28 being fixed to the arm 4. The cross member 28 has an upwardly bulged top wall of substantially semi-circular configuration, as is evident from Fig. 6. Before the ends of the cross

6

member 28 are fixed to the side walls of the arm 4, this member 28 is passed through a hook means 27 which has a pair of side hook members located next to the inner side faces of the side walls of the arm 4. The side walls of the hook means 27 are formed with openings through which the member 28 passes, and the top wall 27c of the hook means 27 is bulged in correspondence to the curvature of the top wall of the cross member 28, so that the hook means 27 can freely rock on the arm 4, as is evident from Fig. 6. The top portion of the hook means 27 is formed as a channel and has downwardly extending front and rear walls respectively formed with cutouts 29 and 30 through which the elongated free end portion of the leaf spring 31 passes, the right end of the leaf spring 31, as viewed in Fig. 6, being carried by a pin 32 which extends between and is carried by the opposite side walls of the arm 4.

A lever 33 passes through a cutout in the top wall of the arm 4 and is pivotally supported over the leaf spring 31 by a pin 34 which extends between and is carried by the opposite side walls of the arm 4. As is evident from Fig. 6, the bottom end portion of the lever 33 has a camming edge of a configuration which causes the lever 33 to curve the leaf spring 31 downwardly when the lever 33 is turned from the position of Fig. 6 to that of Fig. 7.

The side walls of the hook means 27 are shaped as hooks at their bottom ends and have upwardly extending projections 27a and curved edges 27b. The side walls of the support 1 have curved front edges 1a and downwardly extending projections which cooperate with the hook means 27 to retain the arm 4 in its operating position when the parts have the position indicated in Fig. 6.

The embodiment of Figs. 6 and 7 operates as follows: Assuming that the parts have the operating position indicated in Fig. 6 and that it is desired to move the arm 4 to its rest position, then the operator simply turns the lever 33 from the position of Fig. 6 to that of Fig. 7 so that the spring 31 is curved as indicated in Fig. 7. While the leaf spring 31 is thus curved and the parts still have the position indicated in Fig. 6, the curvature of the leaf spring 31 causes its left free end portion to move upwardly away from the bottom edge of the cutout 29 and causes the leaf spring 31 to press downwardly on the bottom edge of the cutout 30, so that in this position of the parts the leaf spring 31 is biased to turn the hook means 27 in a clockwise direction, as viewed in Fig. 6, about the curved upper face of the cross member 28. Thus, when the parts have this position, the operator need only press downwardly upon the arm 4 in order to move the projection 27a below the projection of the side walls of the support 1, and then the leaf spring 31 will immediately turn the hook means 27 to the position of Fig. 7. Now the operator can release the arm 4 and move the same upwardly to its rest position.

When the operator desires to return the arm 4 to its operating position, he returns the lever 33 from the position of Fig. 7 to that of Fig. 6, and now the leaf spring 31 engages the bottom edges of both cutouts 29 and 30 and urges the hook means 27 to a position where it extends straight down from the arm 4. Thus, with the parts in this position, when the arm 4 is returned to its operating position, the curved edge 27b at each side of the hook means 27 simply rides along the curved edge 1a at each side of the support 1, and thus the hook means 27 is turned against the influence of the spring 31 until the operator presses down on the arm 4 to locate the projection 27a just beneath the projection of the hook portion formed at the front edge of each side wall of the support 1, and then the spring 31 immediately turns the hook means 27 beneath the catch means formed by the front portions of the side walls of the support 1, so that now when the operator releases the arm 4 the lock structure will cooperate so as to have the position indicated in Fig. 6, and the arm 4 will be securely main-

tained in its operating position against the force of the springs 11 which are compressed to urge the top rolls downwardly against the bottom rolls.

Thus, with the embodiment of Figs. 6 and 7 the catch means is affixed to and in fact integral with the support 1 while the hook means is movable with respect to the arm 4, and the spring means 31 may be biased by the manually operable member 33 so as to urge the hook means either from its locking position toward its release position or from its release position toward its locking position.

The embodiment of Figs. 8-10 differs from that of Figs. 1-5 only with respect to the structure which cooperates with the catch means to shift the latter between its locking and release positions. Otherwise the structure of Figs. 8-10 is identical with that of Figs. 1-5. Thus, referring to Figs. 8-10, it will be seen that the catch means is in the form of a catch member 38 slidably guided in cutouts formed in the opposite side walls of the support 1, in the same way that the catch means 19 is supported for shifting movement. At its front edge, the catch member 38 has a pair of lateral projections 40 which cooperate with the hook members 18 in the same way as the lateral projections 19a. Intermediate its ends the catch member 38 is formed with a slot 39 into which a pair of leaf springs 35 and 37 extend. These leaf springs 35 and 37 extend freely through an elongated cutout formed in the top wall of the arm 4, so that the leaf springs 35 and 37 are free to shift longitudinally with respect to the arm 4, and the top ends of the leaf springs 35 and 37 are fixed to the underside of the top wall of the cover member 14 by any suitable means such as the rivets indicated in Figs. 8-10. The side walls of the arm 4 respectively carry pins 36 which overlap the spring 35 and are located between the latter and the spring 37, although, if desired only one pin 36 may be provided connected to one of the side walls of the arm 4 or a single pin 36 extending between and carried by both of the side walls of the arm 4 may be provided. The bottom free ends of the leaf springs 35 and 37 extend freely into the elongated cutout 39 formed in the catch member 38, and as is evident from Figs. 8-10.

When the arm 4 is secured in its operating position, the parts take the position indicated in Fig. 8. Assuming now that it is desired to release the arm 4 for movement upwardly to its rest position, then the operator simply shifts the cover member 14 to the right to the position shown in Fig. 9. Inasmuch as the pin 36 is fixed to the arm 4, the rearward shifting movement of the cover member 14 causes the leaf spring 35 to become biased, as indicated in Fig. 9, to urge the catch member 38 to the left, as viewed in Fig. 9. With the cover member 14 thus shifted rearwardly as indicated in Fig. 9, the operator slightly depresses the arm 14 together with the arm 4, so as to locate the projections 18b slightly beneath the projections 40, and at this time the spring 35 shifts the catch member 38 to the left, so that the projections 40 become located forwardly of the projections 18b, and now, while holding the cover member 14 in its rearwardly shifted position, the springs 11 can expand to move the projections 18b upwardly beyond and to the rear of the catch members 40, so that now the arm 4 is released and may be turned to its rest position. When the operator releases the cover member 14, elements 16 and 17 return the cover member 14 to the position where the right ends of the slots 15 engage the pivot pin 3. When the cover member 14 together with the arm 4 are returned to their rest position, the spring 37 enters the cutout 39 and engages the rear edge thereof to become biased to shift the catch member 38 to the right back toward its locking position. However, at this time the inclined edges 18c of the hook members 18 engage the projections 40 of catch member 38 to prevent such rearward movement of the catch member 38, and thus, as the arm 4 returns to its operating position the

catch member 38 is prevented from shifting to the right, as viewed in Fig. 10, and the spring 37 is biased to urge the catch member 38 to the right. As soon as the projections 18b move slightly beneath the projections 40, the spring 37 is freed to shift the catch member 38 to the right, and when the operator now releases the cover member 14 the parts again assume the position indicated in Fig. 8 where the cover member 14 together with the arm 4 are securely maintained in their rest position.

It will be noted that with the embodiment of Figs. 8-10 the cover member 14 is actuated by the operator in the same way as the cover member 14 of the embodiment of Figs. 1-5 in order to bias the spring means so as to urge the catch member 38 in the desired direction. The catch member 38 may be provided adjacent its rear edge with a pair of outwardly extending lateral projections which cooperate with lugs extending from the side walls of the support 1 in order to limit the movement of the catch member 38 to the left to its release position, so as to guarantee that the cutout 39 will be positioned properly to receive the springs 35 and 37 when the parts are returned from their rest position to their operating position. Furthermore, the embodiment of Figs. 8-10 may be provided with markings as described above in connection with the embodiment of Figs. 1-5 for visually indicating to the operator when the parts are securely locked in their operating position.

It will be understood that each of the elements described above, or two or more together, may also find a useful embodiment in other types of drawing mechanisms of spinning machines differing from the types described above.

While the invention has been illustrated and described as embodied in releasable lock devices for drawing mechanisms of spinning machines, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. In a drawing and weighting mechanism of a spinning machine, in combination, a stationary support; a top rolls carrying arm turnably carried by said stationary support for movement between an operating position extending over the drawing plane and a rest position turned upwardly away from said operating position; pressure means in said top rolls carrying arm for applying weighting pressure to said top rolls; hook means carried by said arm for movement therewith and extending downwardly therefrom adjacent to said support; a catch means movably carried by said support for movement between a locking position engaging said hook means for maintaining said arm in said operating position thereof and a release position releasing said hook means to release said arm for movement from its operating to its rest position; first lever means turnably carried by said support and engaging said catch means for moving the same between said positions thereof when said first lever means turns in opposite directions, respectively; an elongated member extending along said arm and being carried by said support for shifting movement longitudinally of said arm between a pair of end positions; second lever means turnably carried by said elongated member and engaging said first lever means when said cover member is in one of its end positions; third lever means turnably carried by said elongated member and

engaging said first lever means when said cover member is in the other of its end positions; and spring means engaging said second and third lever means for urging said second lever means to turn said first lever means in one direction when said elongated member is in said one end position thereof and for urging said third lever means to turn said first lever means in an opposite direction when said elongated member is in the other of said end positions thereof, said top rolls carrying arm being turnable against the action of said pressure means for releasing said catch means from pressure exerted by said pressure means through said hook means and for thereby enabling said catch means to move freely into said release position or into said locking position depending upon in which direction said catch means are being urged by said spring means.

2. In a drawing and weighting mechanism of a spinning machine, in combination, a stationary support; a top rolls carrying arm turnably carried by said stationary support for movement between an operating position extending over the drawing plane and a rest position turned upwardly away from said operating position; pressure means in said top rolls carrying arm for applying weighting pressure to said top rolls; hook means fixedly carried by said arm for movement therewith and extending downwardly therefrom adjacent to said support; a catch means movably carried by said support for movement between a locking position engaging said hook means for maintaining said arm in said operating position thereof and a release position releasing said hook means to release said arm for movement from its operating to its rest position; first lever means turnably carried by said support and engaging said catch means for moving the same between said positions thereof when said first lever means turns in opposite directions, respectively; an elongated cover member extending along and covering said arm and being carried by said support for shifting movement longitudinally of said arm between a pair of end positions; second lever means turnably carried by said cover member and engaging said first lever means when said cover member is in one of its end positions; third lever means turnably carried by said cover member and engaging said first lever means when said cover member is in the other of its end positions; and spring means engaging said second and third lever means for urging said second lever means to turn said first lever means in one direction when said cover member is in said one end position thereof and for urging said third lever means to turn said first lever means in an opposite direction when said cover member is in the other of said end positions thereof, said second and third lever means being turnably carried by said cover member for turning movement about a common axis, said top rolls carrying arm being turnable against the action of said pressure means for releasing said catch means from pressure exerted by said pressure means through said hook means and for thereby enabling said catch means to move freely into said release position or into said locking position depending upon in which direction said catch means are being urged by said spring means.

3. In a drawing and weighting mechanism of a spinning machine, in combination, a stationary support; a top rolls carrying arm turnably carried by said stationary support for movement between an operating position extending over the drawing plane and a rest position turned upwardly away from said operating position; pressure means in said top rolls carrying arm for applying weighting pressure to said top rolls; hook means fixedly carried by said arm for movement therewith and extending downwardly therefrom adjacent to said support; a catch means movably carried by said support for movement between a locking position engaging said hook means for maintaining said arm in said operating position thereof and a release position releasing said hook means to release said arm for movement from its operating to its rest position; first lever means turnably carried by said support and engaging said catch means for moving the same between said positions thereof when said first lever means turns in opposite directions, respectively; an elongated cover member extending along and covering said arm and being carried by said support for shifting movement longitudinally of said arm between a pair of end positions; second lever means turnably carried by said cover member and engaging said first lever means when said cover member is in one of its end positions; third lever means turnably carried by said cover member and engaging said first lever means when said cover member is in the other of its end positions; spring means engaging said second and third lever means for urging said second lever means to turn said first lever means in one direction when said cover member is in said one end position thereof and for urging said third lever means to turn said first lever means in an opposite direction when said cover member is in the other of said end positions thereof; and stop means carried by said cover member for movement therewith and located between said second and third lever means for engaging said third lever means to prevent the same from acting on said first lever means when said cover member is in said one end position thereof and for engaging said second lever means to prevent the latter from acting on said first lever means when said cover member is in said other end position thereof, said top rolls carrying arm being turnable against the action of said pressure means for releasing said catch means from pressure exerted by said pressure means through said hook means and for thereby enabling said catch means to move freely into said release position or into said locking position depending upon in which direction said catch means are being urged by said spring means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,508,964	Naegeli	May 23, 1950
2,525,647	Burnham et al.	Oct. 10, 1950
2,717,426	Noguera	Sept. 13, 1955

FOREIGN PATENTS

711,425	Great Britain	June 30, 1954
---------	---------------	---------------