July 21, 1931. E. STUTZ-BENZ 1,815,743

STOPPING DEVICE FOR SPINNING AND DOUBLING MACHINES

Filed Sept. 5, 1928 3 Sheets-Sheet 1

Fig. 1

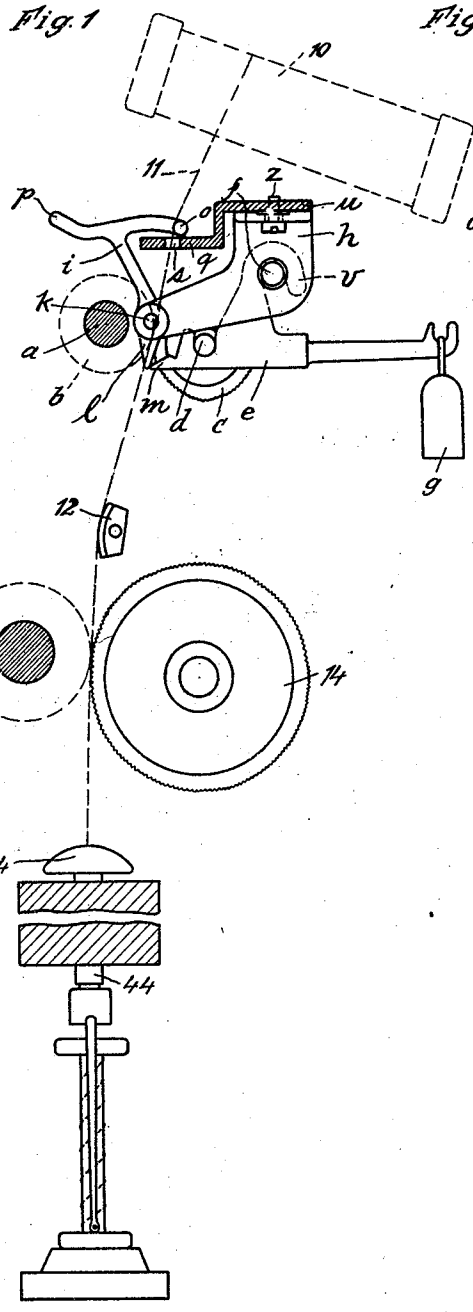
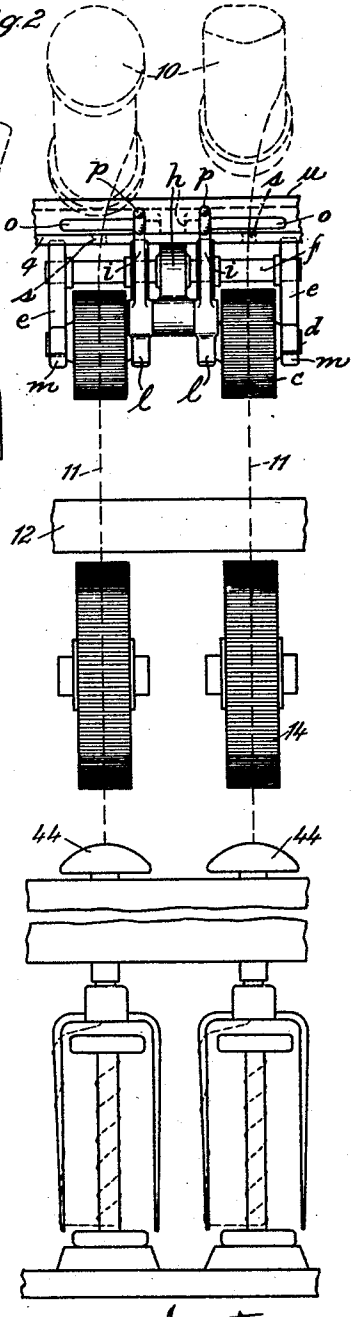


Fig. 2



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STOPPING DEVICE FOR SPINNING AND DOUBLING MACHINES

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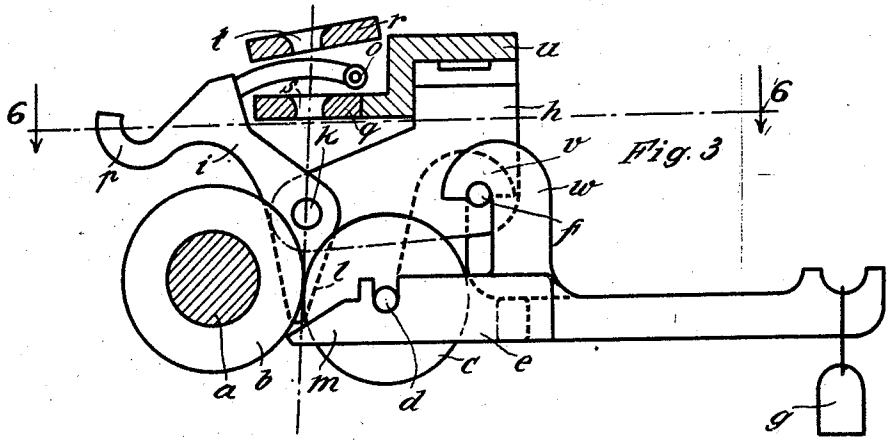


Fig. 3

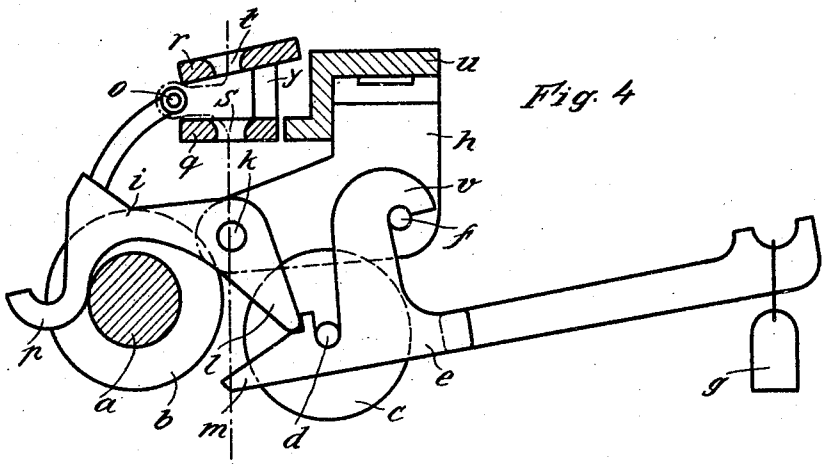


Fig. 4

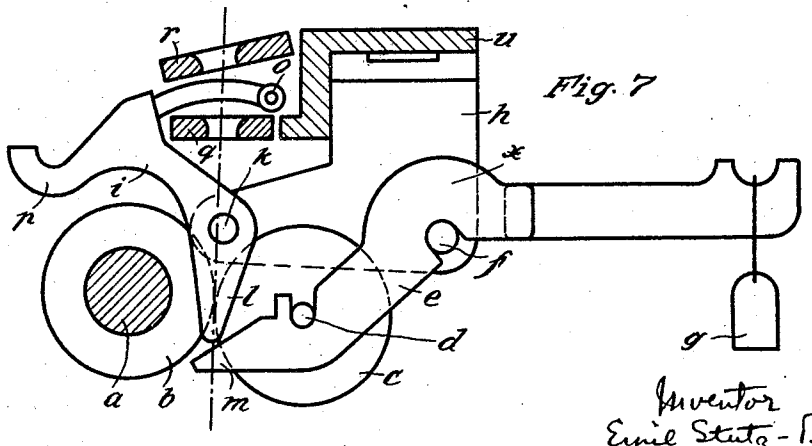


Fig. 7

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STOPPING DEVICE FOR SPINNING AND DOUBLING MACHINES

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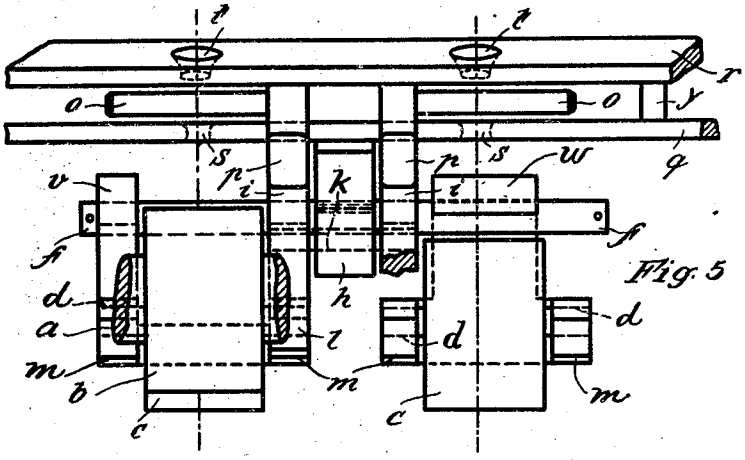


Fig. 5

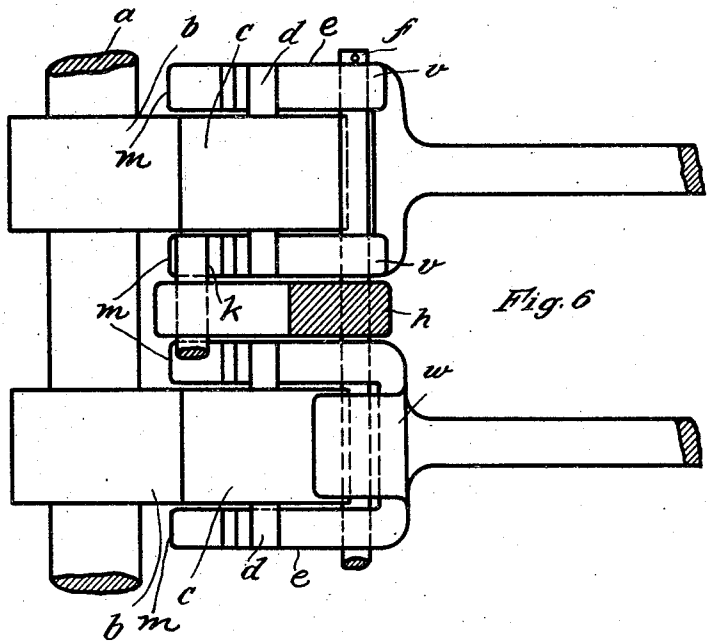


Fig. 6

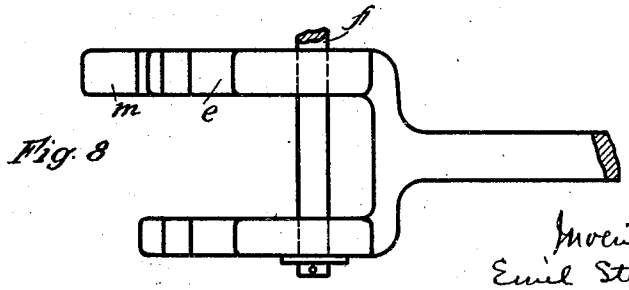


Fig. 8

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Patented July 21, 1931 1,815,743

UNITED STATES PATENT OFFICE

EMIL STUTZ-BENZ, OF LANDSBERG-ON-THE-WARTHE, GERMANY

STOPPING DEVICE FOR SPINNING AND DOUBLING MACHINES

Application filed September 5, 1928, Serial No. 304,102, and in Germany September 26, 1927.

My invention relates to improvements in stopping devices for spinning, doubling and similar textile machines.

If the thread breaks at the flyer arm or adjacent portions of a spinning or doubling frame, the material fed to the flyer, being no longer consumed, accumulates on the spinning bench or rail and passes into the reach of the adjacent spinning devices, where it causes further thread breakages, if the attendant does not quickly interrupt the supply by knocking off the sliver ahead of the supply cylinder. This knocking off and the subsequent reintroduction of the material between the supply cylinder and the draw or feed roller involve a considerable expenditure of labor and thus reduce the production. Special stopping or knocking off mechanisms have therefore been provided, and in a specific construction the draw roller is lifted off the supply cylinder by levers or other control means from the inside of the machine.

The known stopping devices have certain disadvantages: some of them fail to function by not interrupting the supply quickly enough, others are expensive and badly accessible so that in case of breakdowns, such as are caused by the entanglement of fibres, a considerable expenditure of time and labor is necessary before work can be resumed.

A simple and inexpensive stopping device is according to my invention obtained by journaling the draw or feed roller in a preferably open rocking frame, fork or the like, adapted to be swung downwards or backwards and to thereby remove the draw roller from the supply cylinder. Preferably a lever located in front of the frame is employed for the purpose, which is depressed by the operator and which, by means of a detent, rocks the frame and thereby removes the feed roller.

A further feature of my invention is, that in front of the feed mechanism for the spinning material to the supply cylinder is provided a peculiar reliably acting clamping device, which is adapted to be operated simultaneously with the draw roller operating arm.

Some embodiments of my invention will now be described with reference to the drawings affixed hereto and forming part of my specification. The drawings illustrate in

Fig. 1 a side elevation of the essential parts of a spinning machine or frame and my improved stopping device,

Fig. 2 a front elevation of the machine, with the supply rollers omitted for the sake of clearness,

Fig. 3 my improved stopping or knocking off device on an enlarged scale in slightly modified form and in the spinning position, in side elevation,

Fig. 4 the stopping device substantially according to Fig. 3 except modified in slight details and in operative stopping position,

Fig. 5 a front elevation of Fig. 3,

Fig. 6 a horizontal section through Fig. 3 on line 6—6, with certain elements removed,

Fig. 7 the stopping device in the spinning position with a modified construction of rocking frame, and

Fig. 8 a rocking frame provided at one side only with an inclined plane for actuating the frame by the knocking off arm.

Like parts are indicated by like letters of reference throughout all the figures of the drawings.

Referring to the drawings, *a* is the supply shaft, *b* a supply or delivery cylinder mounted upon it and *c* the cooperating draw roller supported with its journal pins *d* openly in the fork-shaped portion of a bracket *e* having a rearwardly extending arm carrying the weight *g*. This bracket is suspended from bolts *f* by means of hook-shaped open bearings *v*. The suspension bolts are in their turn fixed in brackets *h* fixed by screws *z* on a horizontal rail *u*, running past a number of spindles.

In the brackets *h* are also fixed pivot pins *k* upon which rock the stopping levers *i*. The stopping detent *l* of each lever is located within the reach of the extension *m* of the bracket *e*, which extension is provided with an inclined face as shown.

The side elevations shown in Figs. 3 and 4 show, so far as the main features of the invention are concerned, a similar construc-

tion, except that Fig. 3 shows that the suspension of the bracket *e* from the bolts *f* may, equally well, be effected in a different way. The bolts are here embraced from the front or from the back, for instance for one spindle, by two hooks *v*, one on each side of the draw roller, and for the adjacent spindle by a hook-shaped member *w* located in the central plane of the roller. Fig. 4 in particular shows how in any of the modifications, Figs. 1 to 4, by depressing handle *p* the swinging bracket *e* is depressed whereby the draw roller *c* is separated from the delivery cylinder *b*, which stops the feeding of the material.

From Figs. 1 to 4 it is also obvious, that the special parts necessary for stopping the supply do not interfere with the supply itself and may be clearly and easily accessibly arranged without taking up any considerable amount of space. In particular it should be noted that, as shown in all modifications, the bracket *h* serves as a common support for two adjacent stopping devices. This has firstly the advantage over the prior art devices of gaining more space for the operator to reach between two adjacent pairs of stopping devices, to either untangle accumulated raw material or, if necessary, to unhook the entire rocking frame as described. This is not possible where each stopping device has its individual bracket, and when a large number of such devices must be accommodated within a given length of machine. Secondly, in building the machine, thus only half the number of brackets and finished seats for brackets need be provided on rail *u*, which materially lessens the cost of construction of that part of the machine.

Above the contact points of the supply and draw rollers or cylinders there is as a rule in every spinning machine, and as shown in Fig. 1, located a guide rail *q* with the holes *s*, which are usually horizontally reciprocated by about three quarters of the width of the rollers. Above this rail there may, as shown in Figs. 3 and 4 of the drawings, be provided a second rail *r* with holes *t*. If the rail *q* is stationary, as indicated in Fig. 3, the rail *r* will likewise be made stationary. If, on the other hand, the rail *q* performs a side motion, the rail *r* will be made to participate in this motion, which may easily be brought about by connecting the two rails with each other by a web *y*, as shown in Fig. 4.

In the space between the rails *q* and *r* is provided a gripper *o*, which is connected with the lever *i* by an arm. In the normal operation of the spindle the gripper *o* is so located, that it does not interfere with the passage of the spinning material through the holes *t* and *s*; in case the operator has depressed lever *i* to stop material feeding as shown in Fig. 4, the spinning material is drawn into a loop towards the front by the gripper *o* and in this way frictionally clamped against rails *q* and *r*. The substantial difference as compared with the hitherto employed clamping devices resides in the fact, that by the present device the spinning material supplied is deflected from its normally straight path into a loop and held thereby, rather than by pinching of the spinning material employed in the prior art. It will be understood, however, that this second rail *r* is not absolutely necessary and for this reason it has been omitted in the Figs. 1 and 2 of the drawings where a loop may also be formed by gripper *o*, when lever *i* is depressed.

From Fig. 7 of the drawings it will be seen, that the free arm of the bracket *e* which carries weight *g* may also be provided as an extension from the hook portion *v* which rests on supporting bolt *f*.

Fig. 8 of the drawings shows that it is sufficient to provide the extension *m* of the bracket *e* towards the supply cylinder necessary for stopping the supply on one arm of the fork only.

Since the force effecting the forcing back of the draw roller engages below the axis of rotation, a momentum is set up, which forces the bearings of the fork downward. Since, on the other hand, the same stresses are set up during the operation of the spinning machine, the bearings of the fork may be open at the bottom. The bracket with the draw roller *c* may thus be suspended by means of an open bearing, as shown in all modifications, and consequently simply and quickly lifted out of the machine, if spinning material has become wound around the draw roller, and the roller must be cleared of it.

What I claim as my invention is:

1. In a spinning or doubling machine of the character described, a stopping device for the raw material, comprising in combination, a stationary bracket mounted upon a rail extending across the width of said machine, a rocking frame suspended from said stationary bracket and having bearings open at the top, a driven supply cylinder, a draw roller carried by said rocking frame in said bearings and held in contact with said supply cylinder by the weight of said frame, a stopping lever pivoted on the machine, a detent on said stopping lever, and a bevelled extension on said rocking frame in front of said open bearing and extending into the path of said detent when said stopping lever is rocked into stopping position, said detent adapted to swing said frame into a position, in which said draw roller is removed from said supply cylinder to stop the feeding of material.

2. In a spinning or doubling machine of the character described, a stopping device for the raw material, comprising in combination,

a stationary bracket mounted upon a rail extending across the width of said machine, a rocking frame removably suspended from said stationary bracket and having bearings open at the top, a driven supply cylinder, a draw roller carried by said rocking frame in said bearings and held in contact with said supply cylinder by the weight of said frame, a stopping lever pivoted on the machine, means actuated by said stopping lever for clamping the material, a detent on said stopping lever, and a bevelled extension on said rocking frame in front of said open bearing and extending into the path of said detent, when said stopping lever is rocked into stopping position, said detent adapted to swing said frame into a position in which said draw roller is removed from said supply cylinder to stop the feeding of material.

3. In a spinning or doubling machine of the character described, a stopping device for the raw material, comprising in combination, a stationary bracket mounted upon a rail extending across the width of said machine, a rocking frame removably suspended from said stationary bracket and having bearings open at the top, a driven supply cylinder, a draw roller carried by said rocking frame in said bearings and held in contact with said supply cylinder by said frame, a guide rail having a guide hole for the spinning material, located above said supply cylinder and draw roller, a stopping lever pivoted on said stationary bracket, said stopping lever carrying a gripper in the shape of a substantially cylindrical member disposed parallel to the cylinder and roller axis, said gripper being located a short distance above said guide rail and adjacent to said material, and a second guide rail located above said first guide rail and said gripper and having a guide hole for the material in line with the guide hole of the first guide rail, said gripper being adapted to loop the material between the two guide rails to clamp the material, when the stopping lever is depressed.

4. In a spinning, doubling or similar textile machine, a stopping device for the raw material, comprising in combination, a stationary bracket mounted upon a rail extending across the width of said machine, a rocking frame removably suspended from said bracket and having bearings open at the top, a driven supply cylinder, a draw roller carried by said rocking frame in said bearings and held in contact with said supply cylinder by the weight of said frame, a stopping lever pivoted on the machine, means operated by said lever for clamping the material, a detent on said stopping lever, a bevelled extension on said rocking frame in front of said open bearing and extending into the path of said detent when the stopping lever is moved into stopping position, a stop on said extension for said detent, said detent when in stopping position adapted to lock said rocking frame in a position, in which said draw roller is removed from said supply cylinder to stop the feeding of material.

5. In a spinning or doubling machine of the character described, a stopping device for the raw material, comprising in combination, a stationary bracket mounted upon a rail extending across the width of said machine, a rocking frame removably suspended from said bracket and having bearings open at the top, a driven supply cylinder, a draw roller carried by said rocking frame in said bearings and held in contact with said supply cylinder by the weight of said frame, a guide rail having a guide hole for the spinning material, located above said supply cylinder and draw roller, a stopping lever pivoted on said bracket, said stopping lever carrying a gripper in the shape of a substantially cylindrical member disposed parallel to the cylinder and roller axis, said gripper being located a short distance above said guide rail and adjacent to said material, and adapted to loop the material between said guide hole and said gripper to clamp the material against said guide rail when the stopping lever is depressed.

6. In a spinning, doubling or similar textile machine, a stopping device for the raw material, comprising in combination, a single stationary bracket mounted upon a rail extending across the width of the machine, two rocking frames suspended closely adjacent to one another on said bracket, one on each side thereof, two driven supply cylinders, a draw roller for each of said cylinders carried by one of said rocking frames, and contacting with its pertaining supply cylinder, and one stopping lever for each frame pivoted on and located at each side of said bracket, for deflecting the pertaining frame to disengage the draw roller from its cylinder, whereby through the close mounting of a pair of independent frames on a single bracket accessibility to each stopping device between adjacent pairs of frames is increased.

7. In a spinning, doubling or similar textile machine, a stopping device for the raw material, comprising in combination, a single stationary bracket mounted upon a rail extending across the width of said machine, two rocking frames suspended closely adjacent to one another on said bracket, one on each side thereof, each of said elements having two extensions with upwardly inclined end faces, one stopping lever for each frame, pivoted on and located at each side of said bracket, one extension of each frame having its face located in the path of the stopping lever pertaining to that frame, two driven supply cylinders, a draw roller for each of said cylinders carried by one of said rocking frames and contacting with its per-

taining supply cylinder, each stop lever adapted to independently deflect its frame for disengaging the pertaining draw roller from its supply cylinder, whereby through the close mounting of a pair of independent frames on a single bracket accessibility to each stopping device between adjacent pairs of frames is increased.

In testimony whereof I affix my signature.

EMIL STUTZ-BENZ.