No. 794,516. PATENTED JULY 11, 1905.

R. KRON.

APPARATUS FOR FEEDING STRIPS OF SHORT FIBER MATERIAL.

APPLICATION FILED AUG. 12, 1904.

Fig. 1.

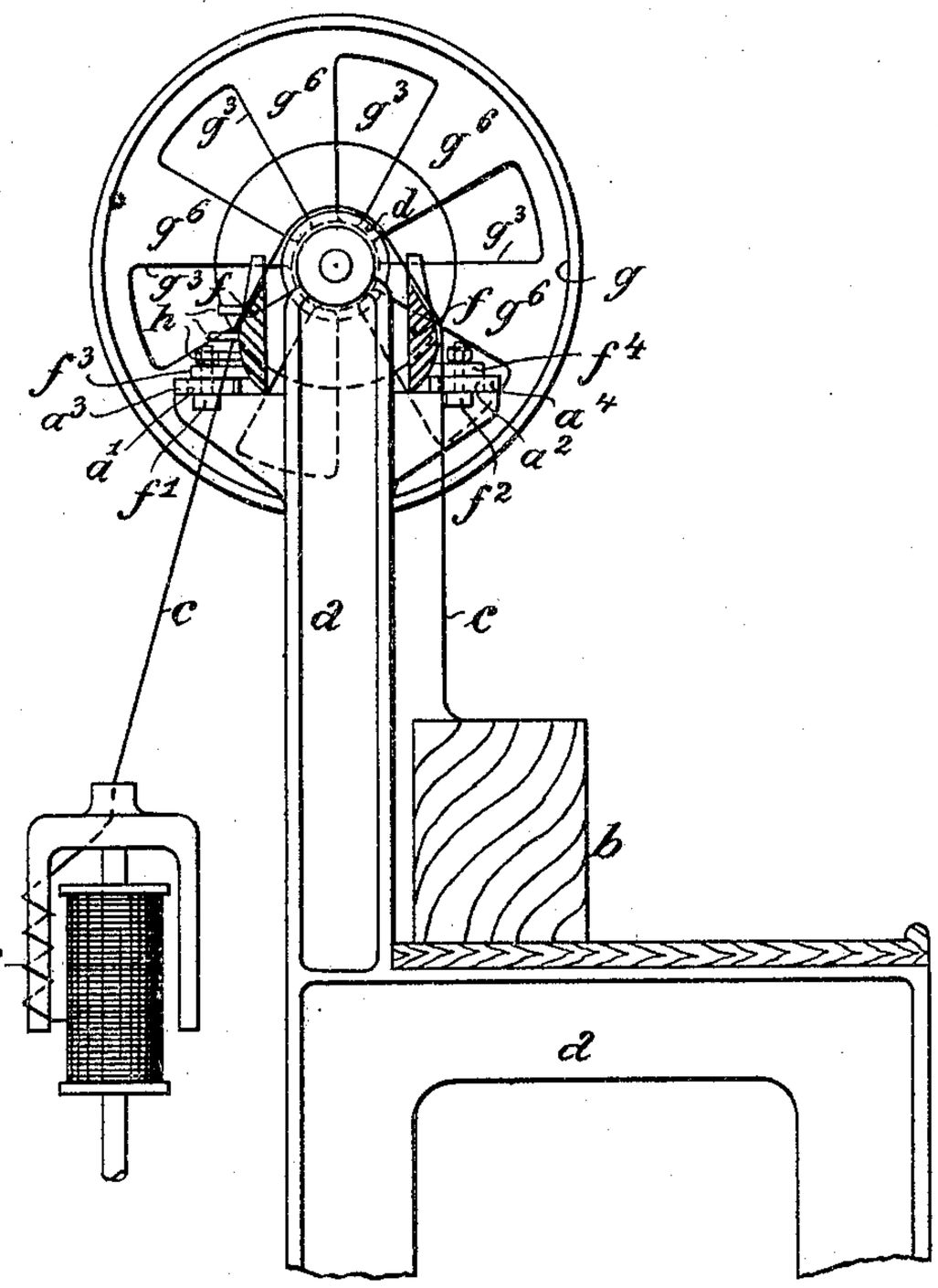


Fig. 4.

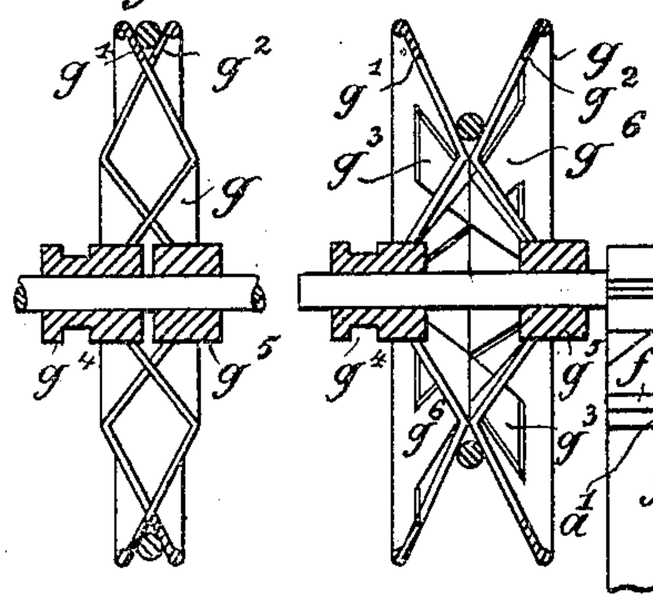
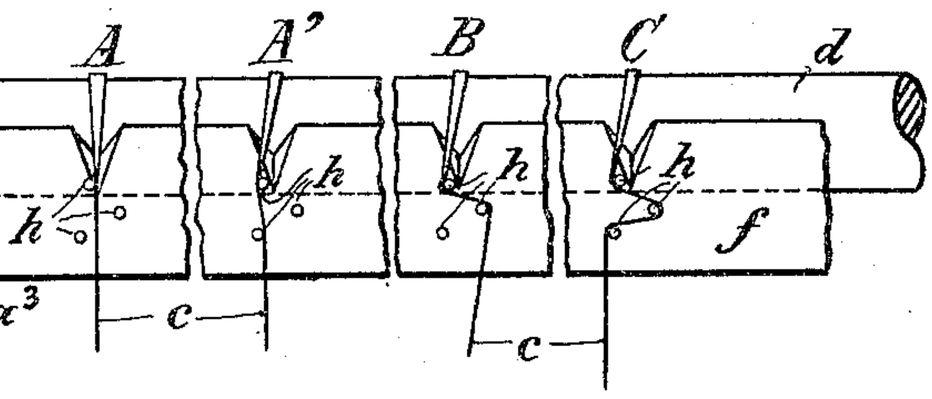


Fig. 2.



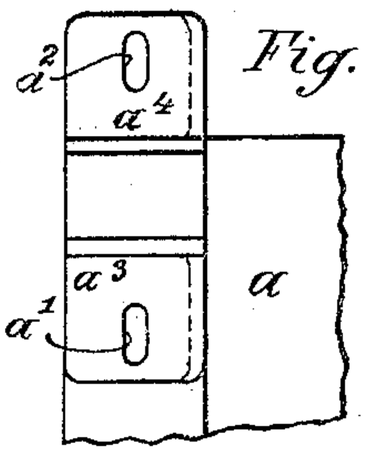


Fig. 3.

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No. 794,516. Patented July 11, 1905.

UNITED STATES PATENT OFFICE.

RUDOLF KRON, OF GOLZERN, GERMANY.

APPARATUS FOR FEEDING STRIPS OF SHORT-FIBER MATERIAL.

SPECIFICATION forming part of Letters Patent No. 794,516, dated July 11, 1905.

Application filed August 12, 1904. Serial No. 220,466.

To all whom it may concern:

Be it known that I, RUDOLF KRON, a citizen of the Republic of Switzerland, and a resident of Golzern, Kingdom of Saxony, German Empire, have invented a new and useful Apparatus for Feeding Ribbons or Strips of Short-Fiber Material to Spinning, Twisting, or Like Machines, of which the following is a specification.

Processes are known according to which fine roving is supplied to spinning-machines in the form of cross-spools inserted or placed without any spool-shell within receptacles being at rest and the threads are fed to a special feeding-roller or to finishing-rolls by means of a cylinder. In such an apparatus the necessary feeding and finishing rolls arranged at the side of the cylinder mentioned control the speed of feeding. Furthermore, devices arranged for spinning and twisting machines are known to adjust the tension of the threads in close proximity to the spools. In these devices the threads before running onto the spools pass onto several guide-rails, preferably three rails arranged parallel one to another. The middle rail is adjustable, whereas the first and third rails are at rest. These devices are intended to render possible by a peculiar arrangement of the spools to the three guide-rails the production of dense thread-coils on the spools. In such devices hooks are provided acting as thread-guides and by which the threads are delivered or fed directly to a rail or batten, producing the desired brake or friction action. In those devices the brake or checking action is effected by a zigzag-like guiding of the threads, so that all threads are checked in a uniform manner. Finally, it may be stated that spooling-machines are known in which adjustable strap or cord pulleys for the change of the speed of the rotating shafts of such machines are provided. Such known devices are mainly provided for dry yarns or threads. If, however, moist ribbons or strips of short-fiber material to be spun shall be supplied to spinning or twisting machines provided with finishing-rolls, tension-rollers, creels, cans, and the like, the known feeding apparatuses, some of which are characterized at the beginning of the description as to their construction and operation, cannot be employed.

The feeding apparatus according to the present invention possesses in face of the known devices of a similar kind the following advantages and main characteristics: first, drawing off the strips or ribbons loosely or freely from coils or any like suitable sources of supply without the application of any mechanical check or tension device in the unwinding of the strips; second, immediate feed of the ribbon by means of a friction feed roller or rollers capable of being adjusted or regulated during working of the apparatus; third, a slight checking of the strips by means of adjustable rails or battens as they run to or before they reach the feed-roller; fourth, a stronger checking of the strips by means of thread rails or battens provided with check-pins as the strips run off or are delivered from the feed-roller.

Finishing-rolls are not employed with the feed apparatus arranged according to the present invention. On the contrary, the strips or ribbons supplied from the feed-roller only run direct to the spinning device, so that the feed or supply is effected by the roller mentioned.

From the regulating device mentioned above the feeding device arranged according to the present invention and to be used for spinning purposes differs in that the moist ribbons or strips are checked not only at a short distance in front of the feed-roller, but both in front and in rear thereof, by means of the thread-rails, arranged separately and independent one from another. These thread-rails may be adjusted on both sides—*i. e.*, in front and in rear—of such feed-roller to check the ribbons during the motion of the apparatus. In the device according to the present invention the checking of each separate ribbon or strip is effected by special check-pins.

The invention will be understood from the following description, accompanied by drawings, in which one form of feed apparatus embodying same is represented.

Figure 1 shows a transverse section, and Fig. 2 a longitudinal elevation; Fig. 3, a plan

of part of the frame of the feed apparatus, showing one of the means for adjusting the rails or battens; Fig. 4, a section of a driving-pulley formed of two parts or halves capable of being adjusted during the working of the apparatus.

In this apparatus the ribbons or strips may be obtained from any suitable source of supply. In the example represented they are obtained from coils *b*, carried on a table or support *a*, and are drawn off loosely and freely—that is to say, without the application of any mechanical check or tension—and are led over the feed-roller *d*. The strips or ribbons *c* are carried forward over this feed-roller *d* by the friction existing between them and the surface of said roller, and they are thence led around the flier of the spindles *e* of the machine. The spun yarn is wound on these spindles in the usual way. As this feed apparatus works with a single feed-roller *d* only, the loose ribbons *c* coming from the wound or "magazine" rolls are not drawn or stretched, and their feed is effected by adhesion only. The speed of the feed-roller *d* can be adjusted for any thickness of thread, and the motion thereof is derived from the driving mechanism of the machine.

The drive of the feed-roller *d* is preferably effected by means of a strap or cord pulley *g*, Fig. 2, capable of being adjusted by any suitable means during working, so as to drive the feed-roller *d* at a greater or less speed, as desired. For this purpose the strap-pulley may consist of two halves g' g^2, as shown clearly in Figs. 2 and 4. Each such half of pulley is formed of a disk of double triangular section and provided with radial openings g^3, Fig. 1. These disks are rigidly connected to hubs g^4 g^5, capable of being adjusted on the shaft of the feed-roller *d*. Both disks are so arranged one in face of another that the radial openings of one disk are situated in front of the full parts g^6 of the other disk, so that if both disks are moved mutually the full parts of one disk intersect the radial openings of the other disk. In consequence of this adjustment of the two disks on the shaft of the feed-roller *d* the strap or cord pulley *g* is varied in diameter to drive the feed-roller *d* at a greater or less speed.

On each side of the feed-roller *d* is disposed a thread rail or batten *f f* to check or brake the strips *c* before they pass onto the feed-roller *d* and after they leave the same, the said rails or battens *f* being for this purpose so disposed as to divert the strips *c* to a suitable extent from their direct travel onto and from the feed-roller *d*. The greater this deviation the greater is the checking or braking effect obtained, and for this purpose the rails or battens *f f* are adjustable. This adjustment of the battens may be obtained by slots a' a^2, provided in the upper side parts a^3 a^4 of the frame *a*, and by bolts f' f^2, provided with nuts and inserted in the protruding parts f^3 f^4 of the battens *f f*. On moving the protruding parts f^3 f^4 of the battens *f f* on the upper side parts a^3 a^4 of the frame *a* and by fixing the battens by means of the screw-bolts f' f^2 the distance of the battens from the feed-roller *d* may be varied, if necessary.

The feed-roller *d* and the rails or battens extend over the entire length of the machine, and consequently the check on all the strips *c* is exactly the same. In order, however, to be able to still further check to any desired extent each individual strip *c* as it is delivered from the feed-roller *d*, check pins or pegs *h* may be provided on the rail or batten *f* at the delivery side of the feed-roller *d*, round one or more of which pins *h* the strips *c* may pass. These check-pins may, if desired, be also employed on the rail or batten *f* at the forward or entrance side of the feed-roller *d*.

If the checking or braking action of both battens *f* is sufficient, the strips *c* run freely between the check-pins *h*, as shown in Fig. 2 at A. If such checking action of the strips *c* running off shall be increased, such strips are passed around one pin *h*, as shown in Fig. 2 at A′, or around two pins *h*, as shown in Fig. 2 at B, or around three pins *h*, as shown in Fig. 2 at C.

In the case of strips which have to be spun relatively dry it may happen that their adhesion to an ordinary or plain feed-roller *d* would be insufficient. To meet this point, the feed-roller *d* may be provided with a cover or coating of rubber, varnish, or equivalent material adapted to increase this adhesion.

What I claim is—

1. In a feed apparatus for machines for spinning or twisting moist ribbons or strips of short-fiber material, the combination with a single feed-roller for drawing off the ribbons or strips from their source of supply, of adjustable thread rails or battens arranged one in front of the feed-roller for checking the strips before passing onto said roller and another behind said roller for checking the strips after leaving said rollers, substantially as described.

2. In a feed apparatus for machines for spinning or twisting moist ribbons or strips of short-fiber material, the combination with a single feed-roller for drawing off the ribbons or strips from their source of supply, of battens behind and in front of said roller, means for adjusting the position of said battens toward and from the feed-roller and a cover or coating of adhesive material applied to the roller, substantially as described.

3. In a feed apparatus for machines for spinning or twisting moist ribbons or strips of short-fiber material, the combination with a single feed-roller for drawing off the ribbons or strips from their source of supply, of adjustable thread rails or battens arranged in front of and behind such roller for checking

the strips and check-pins provided on one or both of said thread rails or battens, substantially as and for the purpose described.

4. In a feed apparatus for machines for spinning or twisting moist ribbons or strips of short-fiber material, the combination with a single feed-roller for drawing off the ribbons or strips from their source of supply, of adjustable thread rails or battens arranged in front of and behind such roller, check-pins provided on one or both of said thread rails or battens, means for adjusting their positions behind and in front of the feed-roller and a cover or coating of adhesive material applied to said roller, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 30th day of July, 1904.

RUDOLF KRON.

Witnesses:
OTTO H. KNOOP,
GEARY HEUPINZER.