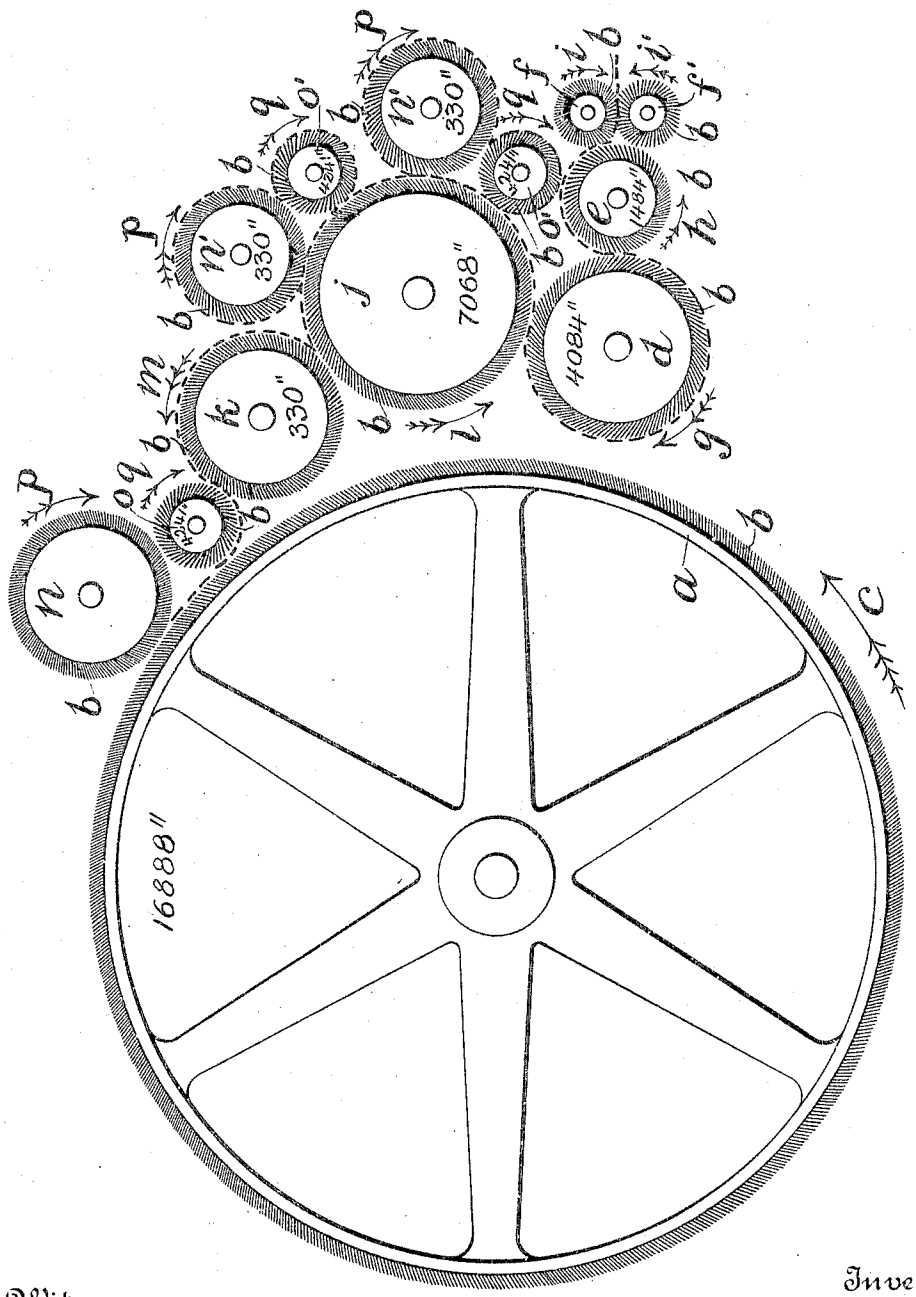
No. 789,479. PATENTED MAY 9, 1905.

C. M. BARBER.

FEED FOR CARDING ENGINES.

APPLICATION FILED OCT. 1, 1903.



Witnesses
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No. 789,479. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

COLONEL MOSES BARBER, OF MONSON, MASSACHUSETTS.

FEED FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 789,479, dated May 9, 1905.

Application filed October 1, 1903. Serial No. 175,358.

To all whom it may concern:

Be it known that I, COLONEL MOSES BARBER, a citizen of the United States of America, residing at Monson, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Feed for Carding-Engines, of which the following is a specification.

My invention relates particularly to improvements in feed mechanism for finisher-cards and second breakers and is as applicable to one as the other.

In this invention I locate the tumbler out of direct working relation or operative conjunction with the main cylinder and introduce, between said tumbler and said main cylinder, a small cylinder and a doffer with or without associated workers and strippers, all as hereinafter set forth.

The object of my improvement is to provide a feed of the class specified which increases the amount of material that can be successfully handled by the machine in a given time and improves the quality of the drawing if the machine is a second breaker or of the roving if the machine is a finisher-card. The increase in quantity results from the accelerated speed which it is possible to give a machine equipped with my feed mechanism, and the improvement in quality is brought about by working the lumps out of the web and getting the same into good condition—that is, making an even web of it—before delivery to the main cylinder. The machine can be run at least twenty-five per cent. faster with this feed mechanism than without it and will successfully handle a lower grade of stock for a given size of yarn.

A further object of my invention is to provide a practicable and efficient feed mechanism with which to accomplish the above-mentioned object which is simple and comparatively inexpensive and may be applied to an old as well as a new machine.

Heretofore it has been necessary to run the second breaker and the finisher-card at a comparatively low rate of speed, and the web could not be worked down to the desired degree of evenness, but would be more or less lumpy and rough after passing through either machine, at least very much more uneven than when my feed is used, which successfully overcomes these disadvantages.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which a side view of the feed is shown as applied to the main cylinder of a finisher-card or second breaker.

It will be understood that the several rotary members, including the main cylinder, are suitably supported or journaled and driven by belts, gears, &c., in any convenient manner, such supporting and driving means differing more or less in different machines.

The main cylinder of the machine is represented at *a*, and its periphery is covered with wire teeth *b*, as are the peripheries of the other rotary members described below. The directions given to the teeth *b* vary, as will be seen upon reference to the drawing, those on one member taking a different direction from those on an associated member perhaps, the object being to arrange the teeth so as to handle the stock to the best advantage. The cylinder *a* revolves in the direction of the arrow *e*. With this cylinder a tumbler *d*, leader *c*, and feed-rolls *f* and *f'* are employed, as usual, only the members are so arranged as to leave considerable space between the tumbler and cylinder, for the former is not used to deliver the stock directly to the latter, as formerly. The tumbler *d* revolves in the direction of the arrow *g*, the leader in the direction of the arrow *h*, and the rolls *f* and *f'* revolve in the directions of the arrows *i* and *i'*, respectively.

A cylinder *j*, herein termed "small" or "auxiliary" cylinder to distinguish it from the main cylinder *a*, is provided, also a doffer *k*, the two members being revolved in the directions of the arrows *l* and *m*, respectively. The cylinder *j* operates in conjunction with the tumbler *d* and the doffer *k* in conjunction with said cylinder *j*.

The first worker *n* is located in substantially its usual position relative to the main cylinder *a*, and the associated stripper *o* operates in conjunction with said worker, the doffer *k*, and the main cylinder. The first worker *n* revolves in the direction of the arrow *p* and

the stripper o in the same direction, as indicated by the arrow q.

If desired or when found necessary, one or more workers n' may be arranged to operate in conjunction with the auxiliary cylinder j and a corresponding number of strippers o', each operating in conjunction with the associated worker n' and the cylinder j. The workers n' may be a little smaller than the first worker n, but revolve in the same direction, as indicated by adjacent arrows p. The strippers o' differ in no material respect from the stripper o, and they all revolve in the same direction.

With one exception the rotary members are so positioned that the outer ends of the wire teeth b on each just barely clear the adjacent ends of the wire teeth on the operatively-associated member or members. The exception is found in the arrangement of the feed-rolls f and f', such arrangement providing for the intermeshing with each other of the wire teeth b on said rolls.

Some idea of the relative speeds of the different rotary members may be gathered from the following; but it is to be distinctly understood that such speeds must vary considerably in different machines and for different grades of stock. Assuming that the main cylinder a makes one hundred and twelve turns per minute, the auxiliary cylinder j should make about two hundred and fifty and the doffer k only about fifteen. The workers n and n' revolve about as fast as the doffer k. The strippers o and o' are speeded up to about four hundred and fifty revolutions, while the feed-rolls f and f' turn very slowly, the speed of the two latter varying, however, according to the weight of stock per yard which they are to run through. The leader e runs faster than the feed-rolls f and f' and the tumbler d still faster than said leader, but not as fast as the auxiliary cylinder j. The numbers on the drawing designate the approximate surface speeds of the several members upon which such numbers appear, the calculations being based upon the figures given in the preceding paragraph and the sizes of the members. Although relatively correct, at least approximately so, these speeds will of course greatly vary, and I do not desire or intend to be unduly restricted to or by them.

The general operation of my feed mechanism will be understood from the foregoing, especially if reference be had to the heavy broken line in the drawing which marks the course of the web; but a brief detailed description will be here given first without reference to the strippers o' and workers n', which may be omitted from the construction without impairing the efficiency of the invention under many conditions. The stock is drawn between the feed-rolls f and f' and delivered to the tumbler d by the leader e in the regular manner, as heretofore. Instead of delivering the web of stock, which is lumpy, coarse, and uneven, directly to the main cylinder the tumbler d delivers it to the rapidly-revolving auxiliary cylinder j. The cylinder j in turn delivers the web to the slow-running doffer k, and from the latter the swift stripper o transfers it to the main cylinder. From this point on the web receives the usual treatment. By the time the web reaches the main cylinder the lumps have been worked out of it, and it is finer and more even, so that the resulting drawing or roving, as the case may be, will finally produce a better grade of yarn, the operation taking very much less time than formerly. The stripper o takes the web from the first worker n, which has taken it from the cylinder a, and returns it to said cylinder, as well as delivering to the cylinder a from the doffer k.

With very coarse stock and under some circumstances one or more strippers o' and workers n' may be used in conjunction with the auxiliary cylinder j. Each stripper o' takes the web from the cylinder j and delivers it to the associated worker n', which returns the web to said cylinder, the object of this extra manipulation of the stock being the same as that of the general operation hereinbefore described—that is, to quickly reduce said stock to proper condition before delivery to the main cylinder, because after such delivery there is no opportunity or provision for doing this work thoroughly and speedily.

Although I have shown and described a preferred form and arrangement of my feed, it is obvious that more or less change therein may be made without departing from the nature of my invention, and I desire to include in and cover, broadly, by my claims any and all departures from such form or arrangement, variation in size or speed of members, and other changes which fall within the scope of said invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in feed mechanism of the class specified, with the main cylinder and a stripper in operative conjunction therewith, of a tumbler out of direct operative conjunction with said main cylinder, an auxiliary cylinder in operative conjunction with said tumbler and adapted to revolve in an opposite direction thereto, and a doffer in operative conjunction with said auxiliary cylinder and stripper and adapted to revolve in the same direction with the auxiliary cylinder.

2. The combination, in feed mechanism of the class specified, with the main cylinder, of a tumbler out of direct operative conjunction with said cylinder, an auxiliary cylinder in operative conjunction with said tumbler and adapted to revolve faster than the same, a doffer in operative conjunction with said auxiliary cylinder and adapted to revolve slower than either the tumbler or auxiliary cylinder,

and means to deliver stock from said doffer to said main cylinder.

3. The combination, in feed mechanism of the class specified, with the main cylinder, and a tumbler out of direct operative conjunction therewith, of a series of rotary members forming an indirect means of delivery between said tumbler and main cylinder, comprising a comparatively rapidly revolving auxiliary cylinder, a comparatively slowly revolving doffer and a comparatively rapidly revolving stripper, and one or more workers and strippers in operative conjunction with said auxiliary cylinder.

4. The combination, in feed mechanism of the class specified, with the main cylinder, of a tumbler out of direct operative conjunction therewith, an auxiliary cylinder in operative conjunction with said tumbler and adapted to revolve faster than the same, one or more workers and strippers in operative conjunction with said auxiliary cylinder, a doffer in operative conjunction with the auxiliary cylinder and adapted to revolve slower than either the tumbler or auxiliary cylinder, and means to deliver stock from said doffer to said main cylinder.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

COLONEL MOSES BARBER.

Witnesses:

ALLEN WEBSTER,

F. A. CUTTER.