No. 746,322. PATENTED DEC. 8, 1903.

M. H. GALLAGHER.

FEED ROLL ATTACHMENT FOR CARDING MACHINES.

APPLICATION FILED MAR. 1, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

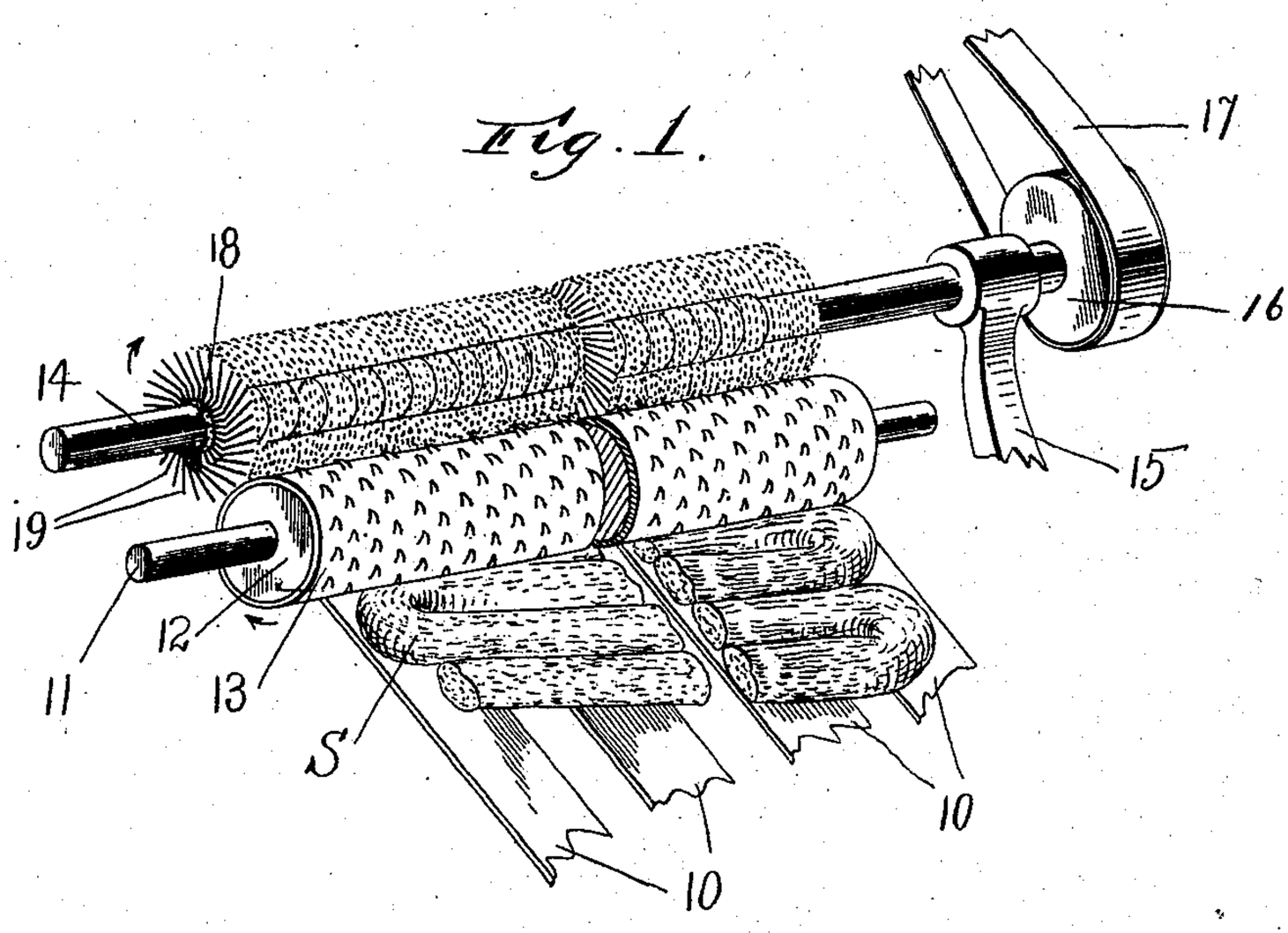


Fig 2.

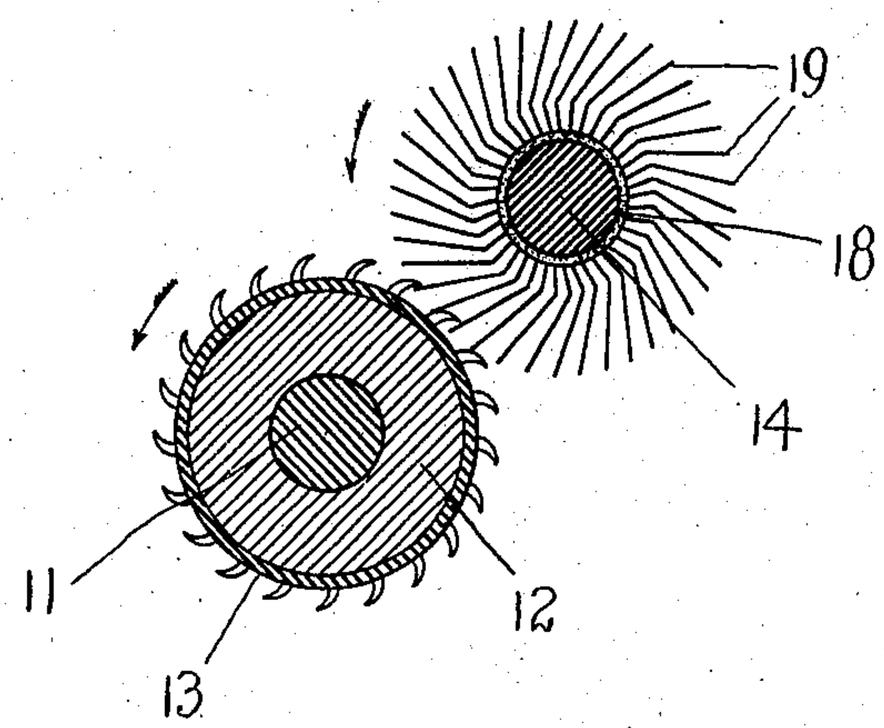
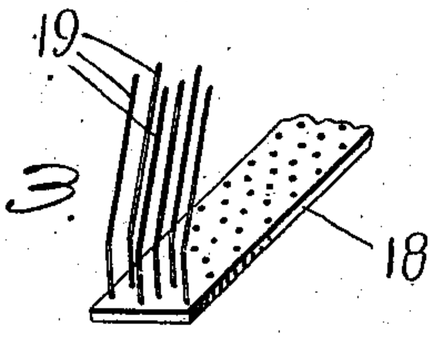


Fig. 3.



Witnesses.
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M. E. Regan.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

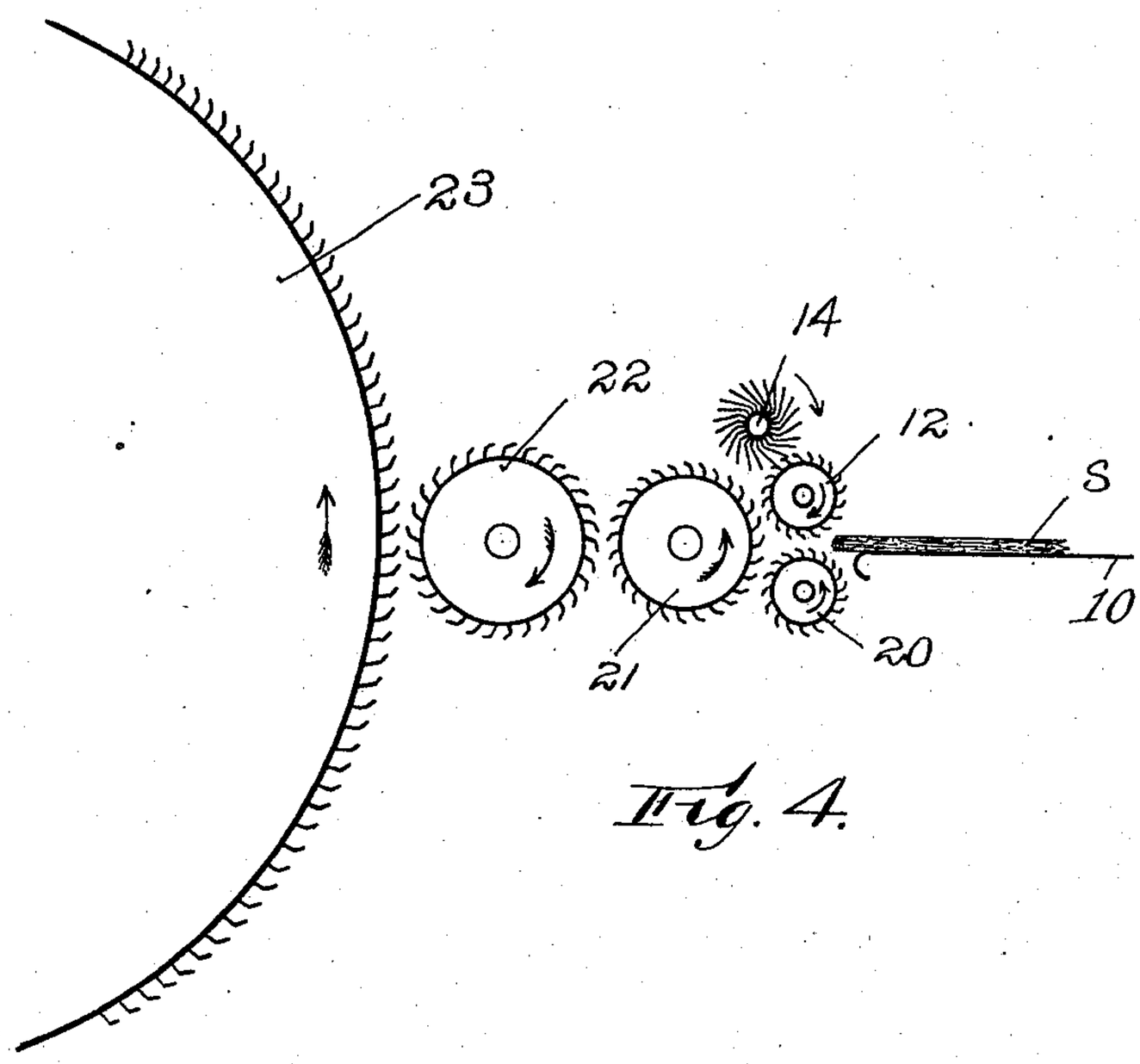

Fig. 4.

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UNITED STATES PATENT OFFICE.

MICHEAL H. GALLAGHER, OF SPENCER, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND ALLEN L. TAFT, OF SPENCER, MASSACHUSETTS.

FEED-ROLL ATTACHMENT FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 746,322, dated December 8, 1903.

Application filed March 1, 1902. Serial No. 96,203. (No model.)

To all whom it may concern:

Be it known that I, MICHEAL H. GALLAGHER, a citizen of the United States, residing at Spencer, in the county of Worcester and State of Massachusetts, have invented a new and useful Feed-Roll Attachment for Carding-Machines, of which the following is a specification.

This invention relates to an attachment for a carding-machine which has been especially designed with a view of improving the action of the feeding-in device which feeds the stock to the machine.

The especial object of this invention is to provide a cleaning attachment for preventing the stock from accumulating between the teeth of the feeding-in roll of the carding-machine.

To this end the invention consists of the parts and combinations of parts as hereinafter described and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of sufficient parts of a carding-machine to illustrate the application of my invention thereto. Fig. 2 is an enlarged sectional view of a feeding-in roll and the cleaner which coöperates therewith. Fig. 3 is an enlarged perspective fragmentary view of the clothing employed on the cleaning-roll, and Fig. 4 is a diagrammatic view illustrating the relation of my feed-roll attachment to other parts of a carding-machine.

In the use of that class of carding-machines in which the stock is fed into the machine by a toothed feed-roll serious difficulties have been encountered, because of the stock clogging or filling up the space between the teeth of the feed-roll.

In practice if the stock which is to be carded is allowed to accumulate or fill the space between the teeth of the feed-roll the feed-roll will gradually increase in diameter, in some cases the successive layers of stock being packed onto the feed-roll so tightly as to strain the parts of the machine, seriously interfering with its successful operation, and in all cases where stock is allowed to accumulate upon the feeding-in roll of a carding-machine the stock will be fed into the machine in bunches or hardened lumpy sections, which will prevent the production of the best class of work. On account of this difficulty it sometimes happens that the operation of an entire plant has to be stopped to clean off the feed-rolls.

The especial object of my present invention is therefore to provide a cleaning attachment for the feed-roll of a carding-machine which will prevent the particles of stock from adhering thereto, so that by the use of my attachment a better grade of work can be produced and a saving will be made of the stock which has heretofore been wasted or injured by being matted onto the feed-roll.

To this end my attachment for carding-machines consists, essentially, of a special form of cleaning-roll arranged to coöperate with the feed-roll of a carding-machine.

The cleaning-roll which I employ is covered or formed by a special fillet of narrow card-clothing having comparatively long flexible teeth, which cleaning-roll is driven at higher peripheral speed than the speed of the feeding-in roll, so that the card-clothing teeth will engage the rear faces of the teeth of the feeding-in roll and will efficiently brush out and clean the feeding-in roll to prevent the accumulation of stock thereon.

Referring to the accompanying drawings for a detail description of an attachment for a carding-machine constructed according to my invention, 10 designates the feeding-in belts for carrying the stock S-up into position to be engaged by the feed-roll.

The feed-roll of a carding-machine as herein illustrated consists of a shaft 11, carrying a core 12, provided with a toothed covering 13.

The covering of the feed-roll may consist of a sheet-metal shell having integral teeth or projections, or, if preferred, the covering of the feed-roll may consist of heavy card-clothing having short curved diamond wire teeth. These parts may be of any of the usual forms of construction employed in carding-machines and need not be herein described at length.

My attachment for cleaning the feed-roll so as to prevent the accumulation of stock thereon, as herein illustrated, consists of a shaft 14, which is mounted in bearings 15 and which

is rotated at a comparatively high rate of speed by a pulley 16, which may be driven by belt 17 from any suitable source of power, preferably from the shaft of one of the higher-speed rolls of the carding-machine itself. Wound spirally upon the shaft 14 is a narrow card-clothing fillet 18. Set into the fillet 18 are long wire teeth 19, the fillet 18 preferably being only wide enough to receive the single staple forming two of the teeth 19, the successive staples through the fillet 18, however, being preferably staggered with respect to each other, as shown in Fig. 3.

In practice I have constructed my cleaning-roll so that the length of the teeth 19 form the greater part of the entire diameter of the cleaning-roll, and I have driven the cleaning-roll in the same direction, but at higher peripheral speed than the speed of the feeding-in roll, so that the teeth 19 will engage the rear sides of the teeth of the feeding-in roll and will efficiently brush out any shreds of stock which adhere thereto, the speed of the cleaning-roll being sufficient to throw the stock thus cleaned out back into the machine. By means of this construction instead of permitting the stock to mat on the feed-roll the stock adhering to the feed-roll will not be wasted or injured, but will be carried into the machine.

In Fig. 4 of the drawings I have illustrated the relation of my feed-roll attachment to other parts of a carding-machine. As shown in this figure, my attachment is applied to the upper feed-roll. Coöperating with the upper feed-roll is a feed-roll 20, which receives the stock upon the points of its teeth. From between the feed-rolls 12 and 20 the stock is received upon the points of the teeth of a licker-in roll 21. From the licker-in roll 21 the stock is received upon the points of the teeth of the tumbler 22, and from the tumbler 22 the stock is received on the points of the teeth of the main cylinder or swift 23. These parts, as illustrated in Fig. 4, are shown coöperating substantially in the same manner as in the ordinary carding-machines, which are especially employed for carding wool stocks. From this figure it will be seen that in the feeding of the stock into the machine all card-clothing, except the card-clothing of the upper feed-roll, receive the stock upon the points of their teeth—that is to say, the lower feed-roll, the licker-in, the tumbler, and the swift all receive the stock upon the points of the teeth of their card-clothing, while the upper feed-roll alone receives the stock upon the heels of its teeth. It is on this account that the greatest difficulty is encountered by the accumulation of stock upon the upper feed-roll, and in practice my attachment is especially designed for clearing out and keeping the upper feed-roll clean, while at the same time none of the stock accumulating on the upper feed-roll is allowed to become wasted or matted together—that is to say, in practicing my invention my attachment is applied to a feed-roll in which the teeth are rearwardly inclined with respect to their direction of motion, while my cleaning attachment is covered with long-toothed card-clothing, the teeth of which are also rearwardly inclined with respect to their direction of motion and move oppositely to the teeth of the feed-roll at the point of engagement, being driven at a considerably higher peripheral speed, so as to brush out the top feed-roll, throwing the stock accumulating thereon back into the machine, although not acting to remove the same in a continuous fleece or layer.

I am aware that changes may be made in practicing my invention by those who are skilled in the art without departing from the scope thereof as expressed in the claims. I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a carding-machine, the combination of a feed-roll, means for delivering stock to the feed-roll so that it will be received on the heels of the carding-teeth of the feed-roll and will pass beneath said feed-roll, and a cleaning-roll coöperating with the feed-roll, and having a point of engagement therewith on the rear side of the feed-roll above the center line thereof, whereby stock cleaned out of the feed-roll will be thrown back into the machine and not wasted.

2. In a carding-machine, the combination of a feed-roll having carding-teeth which are rearwardly inclined with respect to the direction of rotation of said roll, means for delivering stock to the under side of the feed-roll, so that the same is received on the heels of the carding-teeth thereof, and a cleaning-roll turning in the same direction as the feed-roll and having long flexible teeth rearwardly inclined with relation to the direction of rotation of said cleaning-roll, the point of engagement of the cleaning-roll with the feed-roll being at the rear side of the feed-roll and above the center line thereof, whereby stock brushed out of the feed-roll will be thrown back into the machine and not wasted.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MICHEAL H. GALLAGHER.

Witnesses:

LOUIS W. SOUTHGATE,

PHILIP W. SOUTHGATE.