

No. 898,330.

PATENTED SEPT. 8, 1908.

J. H. & G. A. CROWTHER.

WASTE SAVING DEVICE.

APPLICATION FILED JUNE 9, 1906.

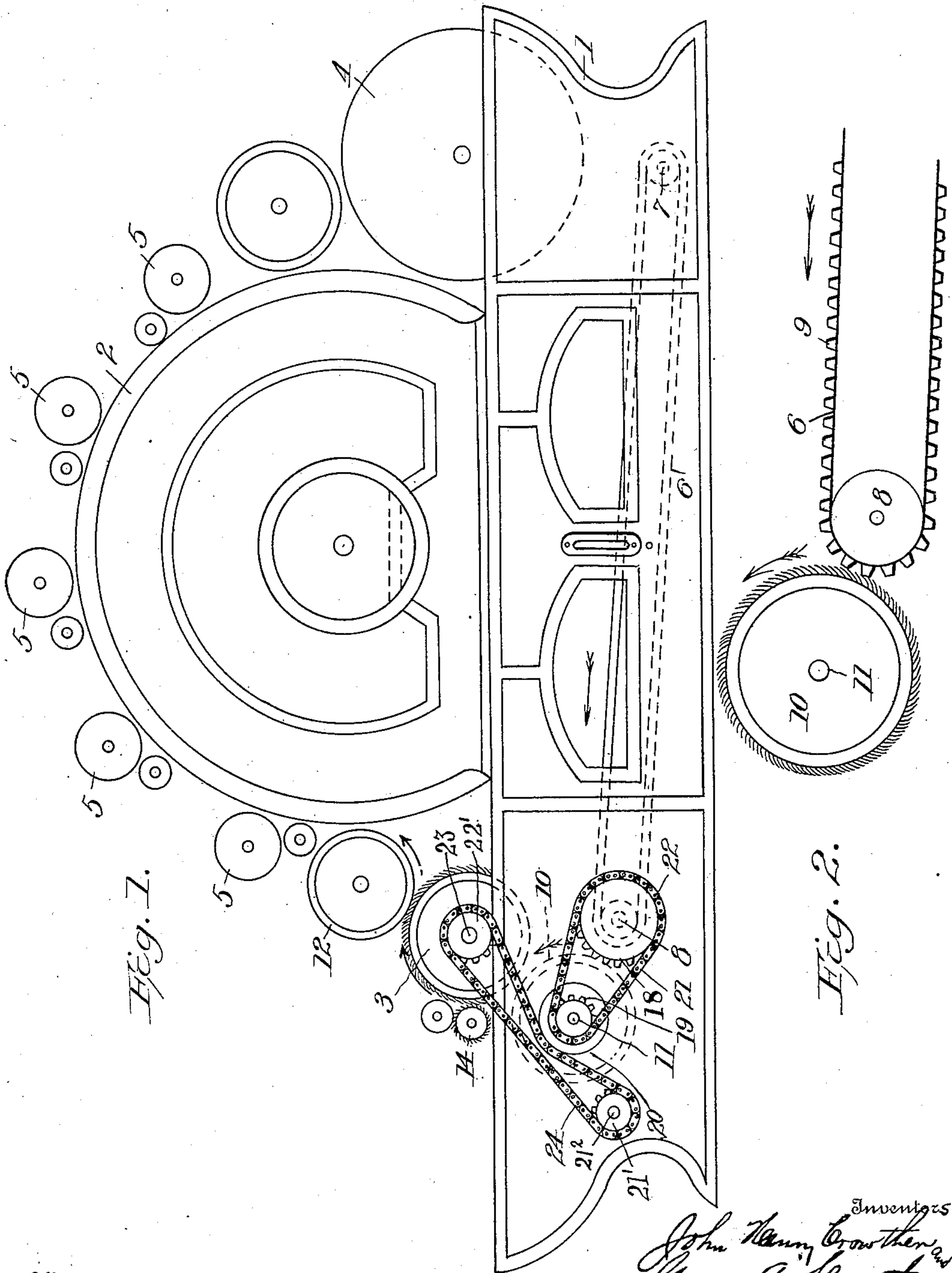


Fig. 1.

Fig. 2.

Witnesses

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WASTE-SAVING DEVICE.

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Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed June 9, 1906. Serial No. 321,080.

To all whom it may concern:

Be it known that we, JOHN HENRY CROWTHER and GEORGE A. CROWTHER, citizens of the United States, residing at Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Waste - Saving Devices, of which the following is a specification.

This invention relates to carding machines.

One object is to provide a carding machine constructed and arranged to accumulate the fiber or short stock falling from the machine during operation and returning the accumulated material to the machine free of foreign matter.

Another object of the invention resides in the provision of a carding machine embodying such characteristics that clogging of the parts thereof is obviated.

A still further object resides in the provision of a machine of the character stated wherein the parts are so arranged and associated with respect to one another as to accumulate and return the usual waste material to the action of the carding elements in a state free of foreign matter, the foreign matter being partially removed from the waste material in the passage of the latter from the doffer to the lick-in end of the machine and the remainder of the foreign matter removed at the point where the waste material is conducted to the feeding mechanism, all being accomplished without pressure upon the material or apron or conveyer and without suction.

In the drawings: Figure 1 is a side elevation of a carding machine embodying the present invention; and Fig. 2 is a detail view of the traveling apron.

Referring now more particularly to the accompanying drawings, the reference character 1 indicates the frame of the machine in which is mounted the main cylinder 2, the lick-in roller or cylinder 3 and the doffer 4, all cooperating with the usual carding workers 5. These elements are all of any well known variety and arranged as usual in machines of the present character.

In carding machines now in general use each card has a cylinder revolving at a certain rate of speed, the object being to carry the stock from the feeding device through the carding points to the doffer. During this carding operation a considerable amount of short stock and dirt falls from the cylinder to the floor. This short stock is either lost

or greatly damaged by reason of its dropping from the carding elements and particularly by reason of its mixing with grease, dirt or other foreign matter. This short stock is generally known as the "waste" and it is customary to gather the same and remove it to the picker room where it is cleaned by a certain process and mixed with other stock, then returned to the carding machine. Aside from the fact that during this process some of the stock is lost, the process in itself entails a considerable amount of labor and results in deteriorating the stock with which the cleaned stock is mixed. Further, the main roll or sliver becomes uneven because it cannot be mixed evenly with the sliver or short stock. By reason of the present invention, all this loss of material and of time, extra labor and unevenness of the main sliver is obviated.

In the present instance, the short stock or waste as it is generally called is prevented from falling to the floor and mixing with the grease or other foreign matter. In other words, the waste, if it falls from the carding elements, drops upon an endless belt conveyer 6, mounted upon an incline on the rolls 7 and 8. This belt conveyer 6, will be hereinafter referred to as a conveyer and reference to the accompanying drawings will disclose that it has transverse slats 9. The conveyer is mounted directly beneath the carding elements and the falling waste drops thereupon and is carried forwardly toward a picker cylinder 10, mounted upon a suitable shaft 11, in advance of the conveyer and not directly over the latter. The picker-off cylinder or roller picks up the waste as it is breaking over the forward end of the conveyer. The picker-off cylinder thus takes up all the waste without pressing against the apron and without suction. The waste is taken up in a far more fluffy state than would be true if the picker-off depended upon pressure against the conveyer in the picking up of the waste. The waste thus fluffy and light is much less likely to clog the machine on its way to the lick-in than a hardened mass picked up by pressure from the upper face of the conveyer.

It will now be understood that the picker-off is disposed slightly in advance of the forward end of the conveyer, and that, therefore, there is a small space between the picker-off and the conveyer. This arrangement causes dirt and other foreign matter to

drop between the picker-off and the conveyer when the waste is taken by the former from the latter. The waste is carried by the picker-off in the direction shown by the arrows in the accompanying drawings to the lickerin 3, which takes the waste from the picker-off and carries it upward to the point where it joins the new stock which is fed to the machine between feed rollers 14 which are arranged between the lickerin and the angle stripper 12. The waste being conveyed upward by the lickerin, it is again combed and freed from dirt and lumps by the clothing covered feed roller 14, which revolves adjacent to and in opposite direction to the lickerin. The waste thus reaches the new stock entirely free from dirt and lumps and without clogging the machine. The waste material is formed into a thin uniform "sliver" by the co-action of the picker, lickerin and feed rollers, and is commingled with the main stock being fed between the feed rollers, and by action of the various strippers and workers, the sliver of waste material is uniformly commingled with the main sliver.

On one end of the shaft 8 carrying the forward roller of the conveyer, there is mounted a sprocket wheel 18, arranged for alinement with a sprocket wheel 19, of smaller dimensions, disposed upon the corresponding end of the picker-off shaft 11, there being a large tension wheel 20, disposed upon the latter shaft adjacent the sprocket wheel 19, for co-operation with the endless chain 24, connecting the sprockets 21' and 22', on the shafts 21² and 23, respectively. The rolls or cylinders may have their peripheries provided with wires, bristles, or "clothing" as customary in this art.

What is claimed is:—

1. The combination with a carding machine including the main cylinder, the lickerin and the doffer, of a spaced feeding roller contiguous to the lickerin, an endless conveyer belt arranged to receive the material falling from the doffer, a picker cylinder arranged to receive the material as it breaks over the discharge end of the belt and feed it to the lickerin between the lickerin and the feed rollers.

2. In an apparatus of the class described, a main cylinder, a lickerin at one side of the main cylinder, a doffer at the opposite side of the main cylinder, a conveyer device arranged to receive material falling from said doffer, spaced feed rollers arranged to feed the material to said lickerin, and a picker cylinder arranged to receive the material as it breaks over the discharge end of the conveyer device and feed it to the lickerin between the feed rollers and said lickerin.

3. In an apparatus of the class described, a main cylinder, a lickerin at one side of the

main cylinder, a doffer at the opposite side of the main cylinder, a conveyer device arranged to receive material falling from said doffer, spaced feed rollers arranged to feed the material to said lickerin, and a picker cylinder arranged between the discharge end of the conveyer device and said lickerin and spaced from the conveyer device and with the lower portion of the periphery thereof below the upper line of the conveyer device and the upper portion of the periphery of the picker in position to feed the material to the lickerin between the lickerin and feed rollers.

4. The combination with a carding machine including the main cylinder, the lickerin and the doffer, of a conveyer arranged to receive the material falling from the doffer, and a picker cylinder horizontally spaced from the conveyer to engage the material as it leaves the conveyer and deliver it to the lickerin.

5. The combination with a carding machine, including the main cylinder, the lickerin and the doffer, of a picker cylinder, and an endless conveyer horizontally spaced from the picker cylinder and arranged beneath the doffer to receive the waste material and foreign matter dropping from the doffer and operating to uniformly feed the waste and foreign matter toward the picker cylinder, the latter taking the fluffy waste from the conveyer and restoring it in its fluffy state to the lickerin and permitting the foreign matter to drop through the space between it and the conveyer.

6. The combination with a carding machine, including the main cylinder, the lickerin and the doffer, a conveyer device arranged to receive material falling from the doffer, and a picker cylinder having the lower portion of its periphery operating below the upper line of the conveyer device with the upper portion of its periphery in position to feed the material from the conveyer device to the lickerin.

7. The combination with a carding machine, including the main cylinder, the lickerin and the doffer, of a picker cylinder, and an endless conveyer arranged to receive the material dropping from the doffer and operating to uniformly feed the material in a fluffy state toward the picker cylinder, the latter taking the fluffy material from the conveyer as it breaks over the latter and restoring it in its fluffy state to the lickerin.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN HENRY CROWTHER.
GEORGE A. CROWTHER.

Witnesses:

WM. A. KRAUS,
GEORGE C. BODINE.