

(No Model.)

E. McCORMICK.
WASTE END DISPOSER.

No. 581,995.

Patented May 4, 1897.

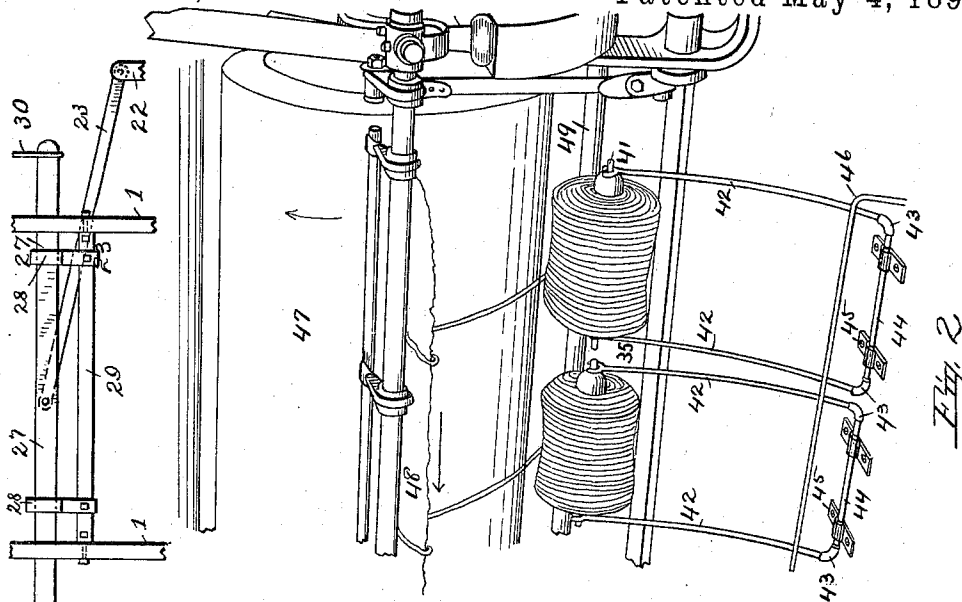


Fig. 2.

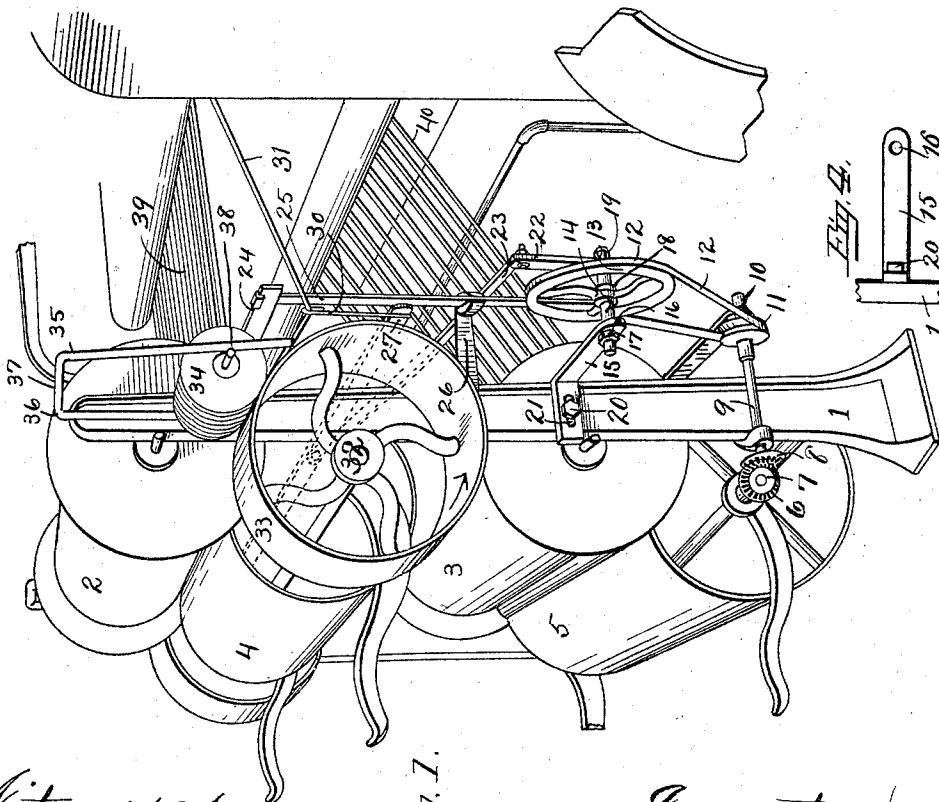


Fig. 1.

Witnesses.
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EDWARD McCORMICK, OF GROVELAND, MASSACHUSETTS.

WASTE-END DISPOSER.

SPECIFICATION forming part of Letters Patent No. 581,995, dated May 4, 1897.

Application filed December 5, 1895. Serial No. 571,109. (No model.)

To all whom it may concern:

Be it known that I, EDWARD McCORMICK, a citizen of the United States, and a resident of Groveland, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Waste-End Disposers, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to an improvement in waste-end disposers as applied to the disposing of the waste end made in using the Apperly feed in woolen finisher-cards; and the objects of my improvements are to do away with the complicated and expensive waste-end conveyers now used and supply a simple mechanism for winding the waste end on large spools which may be readily removed and placed in a position where the waste end unwinds itself into stock as it leaves the card. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my mechanism attached to the side of the finisher-card, and Fig. 2 is a front view of the spools as they rest in my supporting mechanism and unwind into the stock as it comes off the doffer. Fig. 3 is a partial elevation of the machine, showing the vibrator-guide 27 and the brackets in which it is adapted to reciprocate. Fig. 4 is a detail view of the arm 15.

Similar numerals refer to similar parts throughout the views.

1 is the standard of the rack supporting the spools 2 and 3 and the drums 4 and 5 of a woolen finisher-card of the ordinary form and description, and hence no part of my invention.

6 is the usual gear on the end of the drum-shaft 7, meshing into the usual gear 8, driving the usual vibrator-shaft 9, on the end of which is fixed the usual vibrator 10 for vibrating the threads on woolen finisher-cards using the Apperly feed, and hence no part of my invention. On the vibrator-shaft 9 I have placed the grooved pulley 11, from which runs a belt 12 over a larger pulley 13, which turns on a stud 14, which projects from the arm 15. The arm 15 is provided with a suitable hole

16, through which the stud 14 passes, and the stud 14 is secured in the hole 16 by the nut 17 pressing against the arm 15. The stud 14 is provided with a shoulder 18, against which the pulley 13 rests and is prevented from sliding off by the nut 19.

The arm 15 is suitably secured to the standard 1 by means of the bolt 20, which passes through a slot 21 in the right-angled part of the arm 15, which slot is made of such a length as to permit of the necessary adjustment.

Upon the pulley 13 the crank 22 is suitably secured, and this crank-shaft 22 actuates the vibrator-rod 23, which vibrator-rod 23 is distinct from the usual vibrator-guide 24 and rod 25, which is suitably pivoted at its center in the ordinary manner in the arm 26.

The vibrator-rod 23, which I have introduced, is intended to actuate the vibrator-guide 27, which is suitably pivoted to the end of the vibrator-rod 23 near its center. The vibrator-guide 27 slides at each end through square brackets 28, which are attached at each end of the wooden cross-piece 29 of the usual form used to connect the two standards of the spool-rack and lies under and below the drum 4 in Fig. 1.

The vibrator-guide 27 carries at each end the wire hook 30, which passes around the waste end 31 as it comes from the rolls of the card.

32 is the pulley generally used on the spool-rack, which I have increased in size by placing over its periphery the broad band 33, of iron or other suitable material. On this band 33 rests by its own weight the spool 34 in such a manner as to tend always to fall were it not prevented by the uprights 35 and 36, which are connected by the cross-piece 37 and against which presses the ends of the axle 38 of the spool in the manner shown.

The standards 35 and 36 and the cross-piece 37 are formed all of one piece of metal bent at right angles, as shown. The inner end of the standard 36 is rigidly secured to the rack-standard 1.

39 and 40 represent the threads coming from the rolls of the card. When the spool 34 is filled up, the waste end 31 is broken and the spool 34 is lifted off the band 33 and placed in the fork 41 of the standards 42,

which fit into the curved ends 43 of the rods 44, which are attached to loops 45, secured to the floor.

Across the standards 42 and as near the bottom as may be desired is the rod 46 to support the spool-bearing standards in a convenient position for removing and replacing the spools.

47 is the doffer on the first breaker-card, 10 and 48 represents the stock as it comes from the doffer.

49 is a shaft underneath the doffer, which while ordinarily present, as a vibrator-shaft, is in my invention increased in size by winding 15 leather or other material around it in order to give the necessary speed in unwinding the waste end onto the doffer and into the stock as it is being turned over by the doffer-comb.

The revolution of the drum 5 causes the bevel-gear 6 on the end of the drum-shaft 7 to turn, thus causing the bevel-gear 8, which meshes into the bevel-gear 6, to turn in the ordinary manner the vibrator-shaft 9 and 25 actuate the vibrator 10.

With the revolution of the vibrator 9 the pulley 11, fixed on the said shaft, is also turned and transmits its power by the belt 12 to the grooved pulley 13, revolving on the stud 14, 30 suitably secured in the arm 15. As the pulley 13 revolves it drives the crank 22, actuating the vibrator-rod 23, which slides back and forward the vibrator-guide 27 in the bracket 28, and the vibrator-guide 27 actuates the 35 wire hook 30 at each end of the card in turn.

The operation of winding the waste end 31 on the spool 34 is identical on either side of the rack, with the exception of the power-transmitting device, and hence but one side 40 of the card is shown. As the waste end 31 comes off it is vibrated back and forward by the hook 30 and thus evenly wound on the spool 34. The broad band 33 on the usual pulley 32 rests against the surface of the 45 waste end as it lies rolled up on the card and by its friction turns the spool, which, on account of the broader surface of the band, is of much larger size, hence not so quickly filled up, and therefore practical in its adaptation to a woolen finisher-card. 50

When the spool has become sufficiently large to necessitate a change, the waste end is broken and a new spool is put in its place. The filled spool is then carried by hand or 55 other means and placed in the fork of one of the standards 42. The waste ends on each side being carried to spools at about the same time, it follows that as a rule the spools on each side of the finisher-card become filled at 60 about the same time, and hence two or more standards are used, as shown. When the axle 38 of the spool is placed in the fork 41 of the standard 42, the standards are swung forward by the curved ends 43 of the rod 44, 65 turning in the loop 45. Swinging this forward by the action of the rod and socket 45, the

surface of the waste end on the spool is allowed to rest by its own weight, pulling it down against the enlarged surface of the shaft 49, going in the opposite direction, which un- 70 winds the waste ends from the spool.

The ends of the waste ends are pressed by hand against the doffer 47, which by its revolution tends to continuously carry the waste ends into stock 48 as it passes off to the left, 75 as shown, and in this manner prevent waste which would otherwise occur if it were impossible to so utilize the waste ends in the simple and easy manner provided by my invention. 80

When the waste end is all carried back into the stock again, all that is necessary is to swing back the standards 42 and lift out the empty spool, replacing it with a full one.

In this particular variety of woolen finisher- 85 card the waste end was formerly wound on small spools, which had to be changed every few minutes, and the roving was torn up by hand, making waste, which was carried back at the end of the day to the picker-room and 90 there repicked.

Another method was the use of a pipe conveyer through which, by means of a suction, the waste end was carried back through a pipe to the first breaker-card, where the waste end 95 went into the stock on the card at the feed. This process is costly, and involved the application of more or less piping, blowers to create suction, and other complicated mechanism.

Another great defect of this system is the 100 fact that a small piece of waste getting into the pipe will choke it up, which necessitates the taking down of the pipe and overhauling it, and thus involves a great loss of time and money in the operation of the carding-room. 105

As has been shown, the means I employ are very simple, and when the spool is filled up all that is required to do is to lift it off the broad band on the pulley and carry it to suitably-secured standards opposite the doffer, 110 where the waste end is rolled off the spools again and into the stock.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is— 115

1. The combination with a woolen finisher-card, of a spool suitably supported at each side of said card and adapted to have the waste ends from said card wound thereon, means for rotating said spools and means for 120 guiding the waste ends as they are wound upon the spools consisting of the vibrator-shaft of said card, a pulley rigidly mounted upon said vibrator-shaft, a second pulley driven by said first pulley, a stud carrying 125 said second pulley, a crank secured to said second pulley, a vibrator-guide, brackets for supporting said guide, a vibrator-rod pivotally connected at one end to the said vibrator-guide and at the other end to said crank for 130 the purpose of reciprocating said guide longitudinally in said brackets, and hooks at-

tached to said guide and adapted to ride over the waste ends and guide the same as they are wound upon the spools, substantially as described.

- 5 2. The combination with a carding-machine, of a spool for carrying waste ends, supports for said spool consisting of arms provided with journals at their upper ends in which the axle of said spool rests, said arms being
10 pivoted at their lower ends, and a shaft, driven by said carding-machine and forming a part thereof, against which said spool rests and by which said spool is revolved, said spool being located in proximity to the doffer of the first

breaker-card, so that the waste end having 15 been secured by hand at one end to the stock may be unwound at a uniform rate into the stock as it comes from the doffer, substantially as described.

In testimony whereof I have signed my 20 name to this specification, in the presence of two subscribing witnesses, on this 17th day of September, A. D. 1895.

EDWARD McCORMICK.

Witnesses:

V. H. RAE,

C. F. WILLARD.