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J. FLIEDNER

WASTE COLLECTOR FOR CARDING MACHINES

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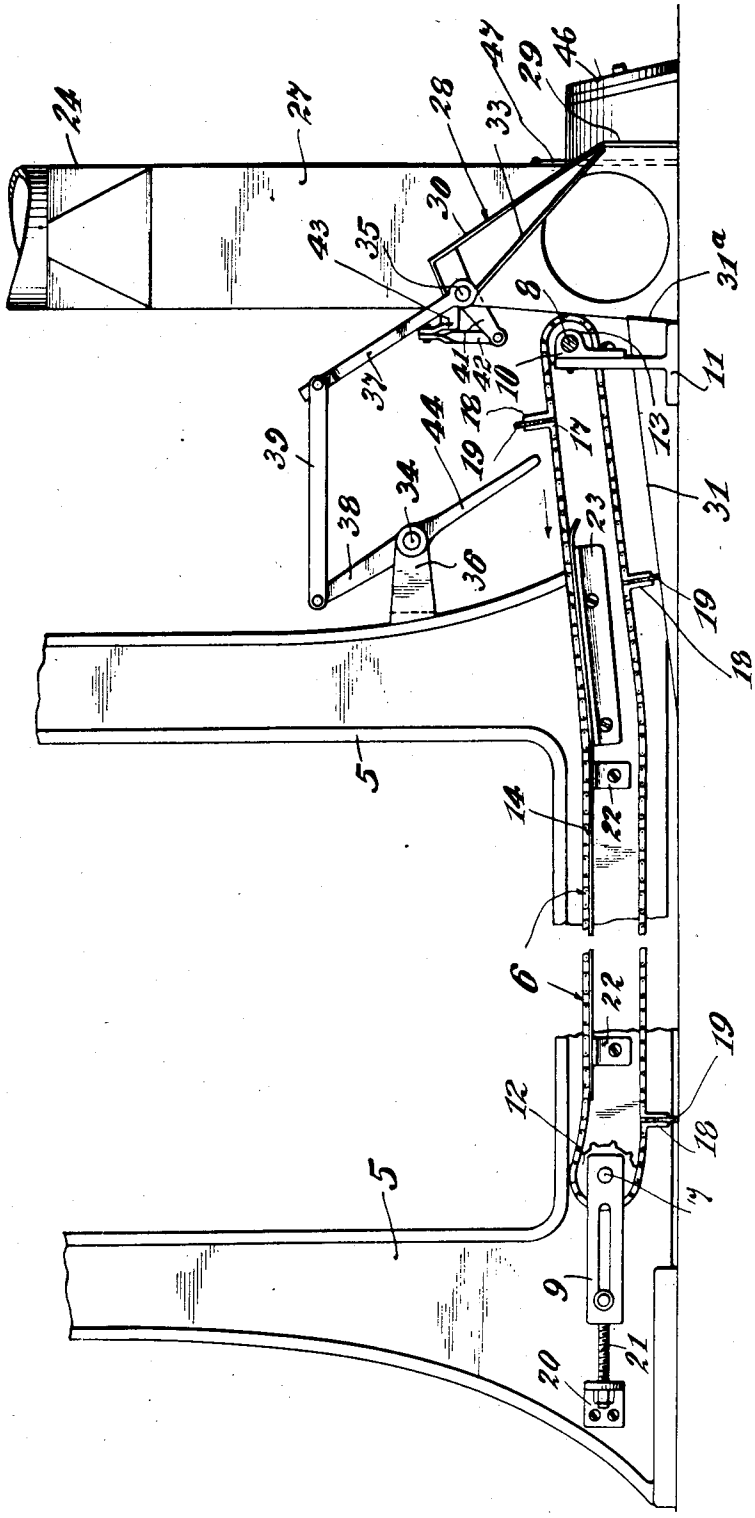


Fig. 1.

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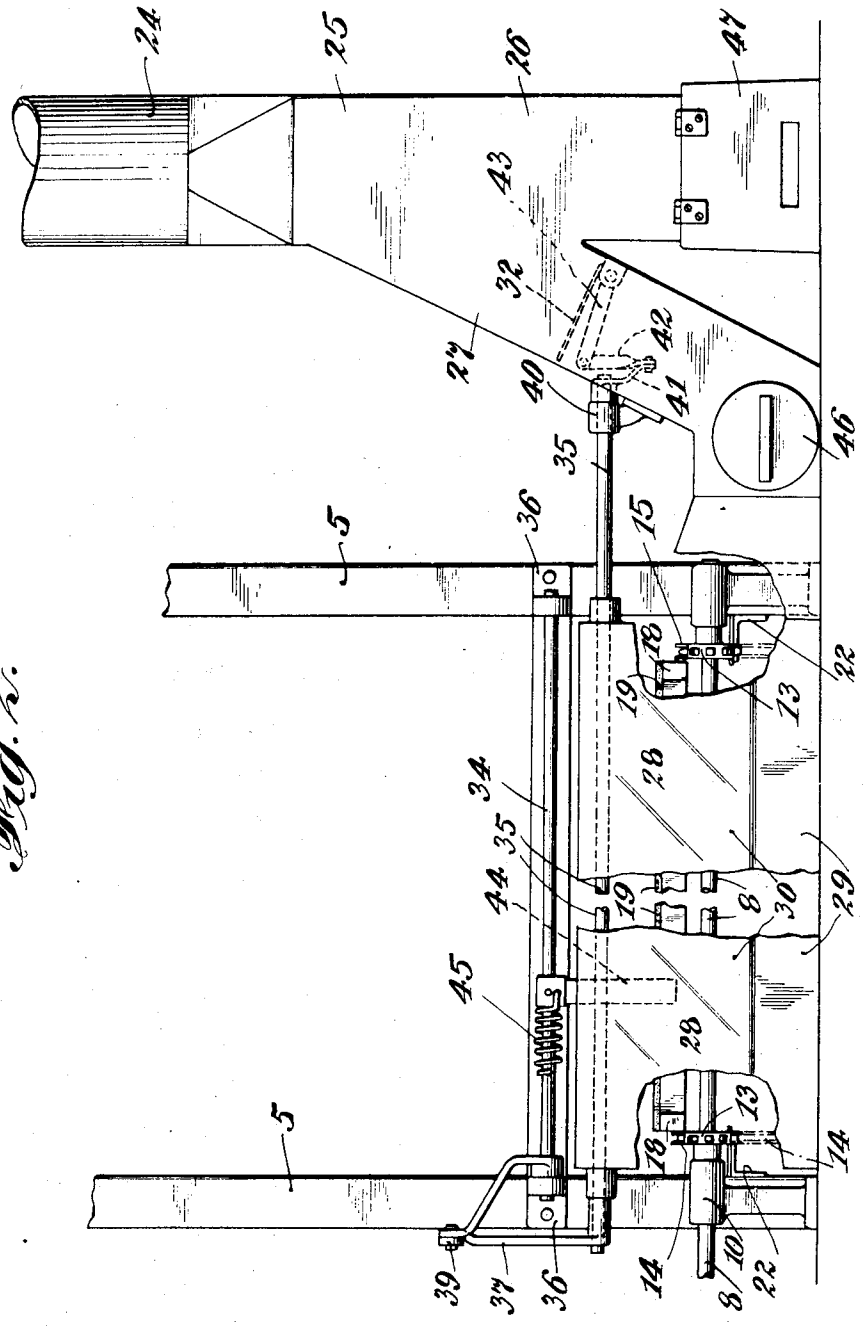


Fig. 2.

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UNITED STATES PATENT OFFICE.

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WASTE COLLECTOR FOR CARDING MACHINES.

Application filed January 2, 1926. Serial No. 78,752.

My invention relates to improvements in waste collectors for carding machines and other apparatus employed in the preparation of fibrous material.

More precisely it comprises means for conveying waste material along the floor immediately beneath a carding machine or any kind of textile machinery where there may be droppings of dirt, dust, or waste, and depositing said material within close proximity to automatically-operated suction means.

During the operation of feeding material to a carding machine, more or less waste, including scraps of metal and other heavy objects, are unavoidably deposited upon the underlying portion of the floor. Heretofore it has been the practice to stop the machine while the operator removes or withdraws the accumulated waste, either by hand or implements in the form of rakes, or the like. Obviously under such conditions the output of the particular machine is considerably reduced.

Primarily the object of my invention resides in the provision of means for continuously and automatically removing the deposits from underneath a carding machine or the like and finally conveying said deposits to a suitable remote point.

Another object is to provide automatically controlled means for intermittently creating a strong suction for the final removal of the waste material.

A further object is to obviate the loss of time on the part of the operator and coincidently to increase the output of the machines.

Still further objects and advantages of my invention will become apparent as the description unfolds, and in order that the same may be better understood reference is had to the accompanying drawings forming a part of this specification.

In said drawings:

Figure 1 is a side elevation of my improved waste collector together with a portion of the supporting frame of a carding machine; and

Fig. 2 is an end elevation of the same as viewed from the right of Fig. 1.

Referring now more in detail to the drawings, numeral 5 denotes the lower portion of the supporting frame of a carding machine, which comprises the two vertically spaced members indicated in Fig. 2.

The conveying means of my device, denoted generally by the numeral 6, operates between said vertical members, and comprises essentially horizontal shafts 7 and 8, the former being journalled in the adjustable block 9, while the latter is supported in bearings 10, secured to brackets 11, positioned forwardly of the machine, as indicated in Fig. 1. Each of said shafts 7 and 8 is provided with a pair of sprockets wheels, 12 and 13, respectively, connected by chains 14 and 15, which include special links 17 having upstanding ears 18, to which are secured cross-pieces or scraper-members 19. On inspection of Fig. 1 it will be observed that I have provided three scraper members substantially equally spaced along the chains 14 and 15, though, of course, it is to be understood that their number may be increased or diminished according to conditions.

The above discloses the essential elements of my conveying means. However, in order to adjust said means I provide a take-up device comprising the block 9 which is secured to brackets 20, by means of the adjustable screw 21. Thus the position of said scraper members 19 may be readily adjusted to lightly pass over the floor beneath the carding machine. Further, in order to prevent undue slackage of the top portion of the chains I provide angle brackets 22 and 23, secured to the frame members, the top flanges of said brackets thus supporting said chains as clearly shown in Fig. 1. Means for rotating the conveyor is applied to the shaft 8, said conveyor moving in the direction of the arrow, whereupon any waste material is caught by said scraper members and deposited in a suction device which will now be described.

Conveniently positioned adjacent the side of the carding machine is a vertical tube 24, leading to a point of disposition of said waste material. Said tube 24 is mounted upon a casing 25, which comprises vertical and obliquely disposed branches 26 and 27 (see Fig. 2), resting on the floor, the latter being continued to a point in front of the conveying device, to form the housing 28 composed of a rear wall 29 and a slanting top portion 30, the front portion thereof being open as noted in Fig. 1.

As previously pointed out, the waste material is carried along the floor by means of the scraper members 19, and in order that said material may be placed at a point best adapted to be acted upon by the suction, the forward end of said conveyor is slightly elevated and the incline 31 provided directly beneath, whereby the contacting scraper members carry the waste material to the forward end of said incline and deposit the same within the housing 28. The vertical face 31ª of said incline 31 thus prevents any scattering of said material.

Heretofore in this specification I have referred to means for intermittently creating a suction to carry away the waste material, said means being automatically timed and operated by the conveyor. To this end, I provide a closure 32 within the oblique branch 27 and a shutter 33 pivotally mounted in the housing 28, both operable through a mechanism controlled by the travel of said scraper members 19.

The mechanism referred to above comprises horizontal shafts 34 and 35, the former being suitably journalled in brackets 36 attached to the frame of the machine, while the latter is rotatably secured to said housing 28. One end of said shaft 35 is provided with a crank 37 which is connected to the offset crank 38 on shaft 34 by means of a link 39. The other end of said shaft 35 is journalled in a bearing 40 on the branch 27 and is provided with a crank 41 for operating said closure 32 through the medium of links 42 and 43, as clearly shown in Fig. 2. Intermediate the ends of said shaft 35 is secured the shutter 33. As clearly shown in the drawings said shaft 34 is also provided with a downwardly directed arm 44.

The description of the operation of the device made hereinbefore, stopped at the point of depositing the waste material in the housing 28. Assuming that the scraper-member 19 has just deposited the material in said housing; this scraper-member has now passed around the sprocket wheel 13, and is positioned directly in front of the arm 44 (see Fig. 1), whereupon its continued forward travel strikes said arm 44 and through the medium of the mechanism above described, operates said shutter 33 to closed position, abutting said vertical face 31ª of the incline 31, thus closing the open front of said housing 28. Similarly motion is communicated to the closure 32, swinging the same into open position whereupon the suction in said tube 24 is communicated to the housing 28 with the result that the waste material therein is caught up and discharged through said tube. Continued travel of said scraper member 19 finally releases the arm 44, which under the influence of the spring 45 returns to its normal position as shown in Fig. 1, thereby replacing the shutter 33 and closing the tube 24 by the closure means 32. The next scraper-member has now advanced with another quantity of waste material and deposited the same within the housing 28. The device is timed so that the next succeeding scraper member is ready to deposit its load just after the closing of the tube 24 and the opening of the housing 28 by the return of shutter 33 to its normal position. Upon inspection of Fig. 1 it will be observed that during the closing of said shutter 33 its lower edge is always spaced sufficiently from the bottom of the housing 28, in order to clear the small quantity of waste material deposited therein.

Clean-out holes 46 and 47 are provided for the removal of the heavier particles of waste material, which the suction is not sufficient to carry through to the point of disposition of the mass of waste material, clean-out hole 46 being provided particularly for removing scraps of metal, which will usually be deposited in incline branch 27.

I claim:

1. The combination with the supporting frame of a machine, of material conveying means positioned at the base thereof, suction means adjacent to said conveyor and means intermittently controlling the suction exerted on said material deposited by said conveying means.

2. The combination with the supporting frame of a machine, of material conveying means positioned at the base thereof, suction means comprising a casing adapted to receive the material deposited by said conveying means, and means intermittently controlling the suction exerted upon said material.

3. The combination with the supporting frame of a machine, of a conveyor adapted to carry waste material deposited from said machine, suction means adjacent to said conveyor embodying a housing in communication with said suction means and positioned at the discharge end of said conveyor, and means operated by said conveyor for creating a suction within said housing.

4. The combination with the supporting frame of a machine, of a conveyor embodying scraper-members adapted to carry waste material deposited from said machine, a suction conduit adjacent to said conveyor, a housing secured to said conduit, and means co-acting with said scraper-members for closing said housing and establishing communication between said suction conduit and said housing.

5. The combination with the supporting frame of a machine, of an adjustable conveyor embodying scraper-members adapted to carry waste material deposited from said machine, a suction conduit adjacent to said conveyor, a housing secured to said conduit and presenting its open face portion adjacent to the discharge end of said conveyor,

and means co-acting with said scraper-members for closing the open portion of said housing and establishing communication between said suction conduit and said housing.

6. The combination with the supporting frame of a machine, of a conveyor embodying scraper-members adapted to pass lightly over a floor and carry waste material deposited from said machine, a suction conduit adjacent to said conveyor, a casing comprising vertical and oblique branches positioned below said suction means, a housing communicating with said casing and positioned in front of the discharge end of said conveyor and having an open face portion, a shutter pivotally mounted in said housing, a closure mounted in said casing and means co-acting with said scraper-members for operating said shutter and opening said closure, thereby establishing communication between said housing and said suction means.

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