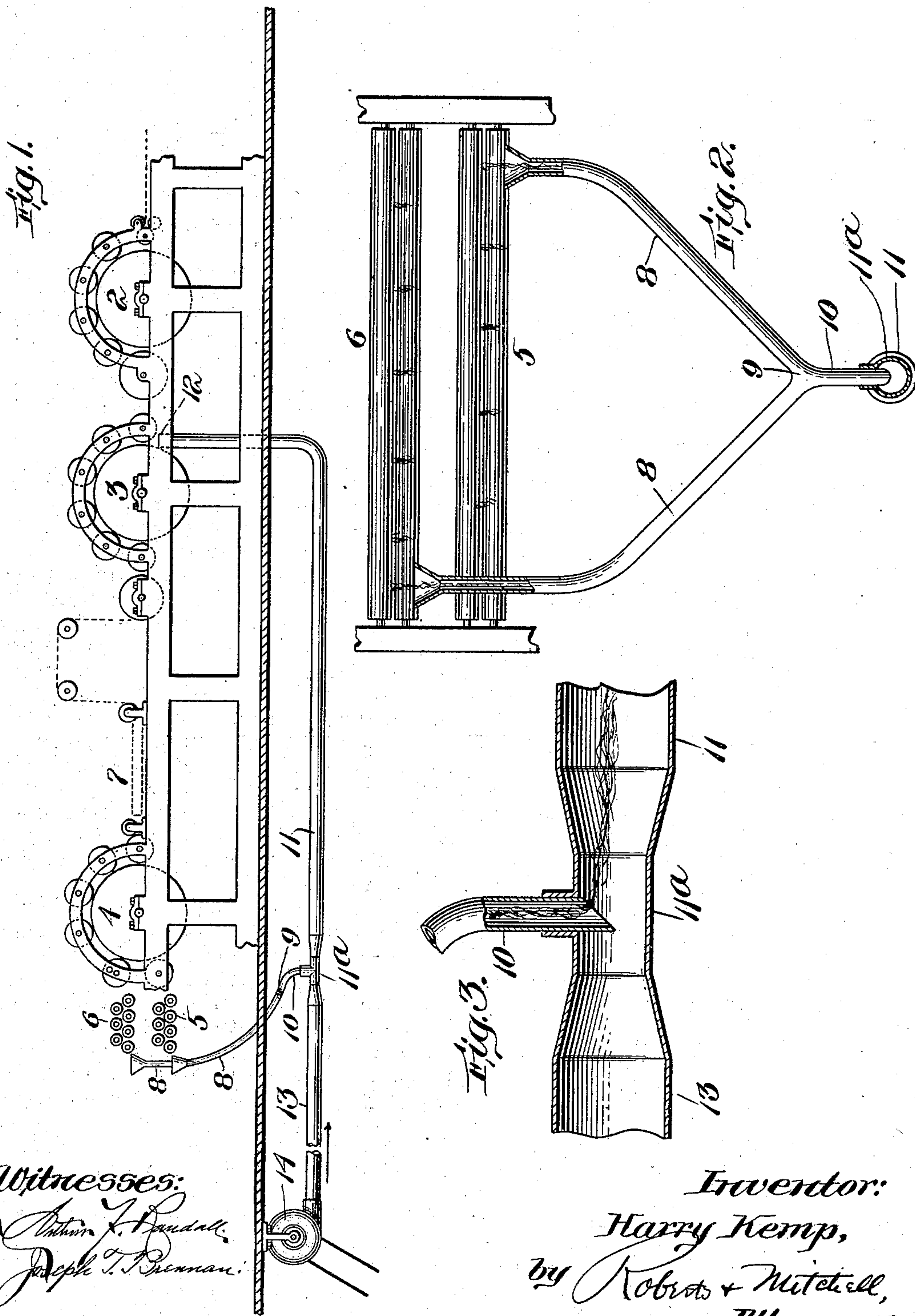


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PATENTED JAN. 12, 1904.

H. KEMP.
WASTE END CONVEYER.
APPLICATION FILED OCT. 4, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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WASTE-END CONVEYER.

SPECIFICATION forming part of Letters Patent No. 749,300, dated January 12, 1904.

Application filed October 4, 1902. Serial No. 125,887. (No model.)

To all whom it may concern:

Be it known that I, HARRY KEMP, a subject of the King of Great Britain, and a resident of Newton, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Waste-End Conveyers, of which the following is a specification.

My invention relates to waste-end conveyers for carding-machines, and is particularly applicable to that class of carding-machines which produce waste side ends or card waste—such, for example, as those machines employing the well-known Apperly feed. In machines of this class two of the side or end strands which are delivered from the condensing-rolls are irregular and defective. In practice it is desirable that these defective side strands be separated from the other perfect strands as they leave the condensing-rolls and be returned to some suitable point, such as the feed or the first or second breaker, to be run through the machine again. Carding-machines have heretofore been equipped with waste-end conveyers for performing this office; but, so far as I am aware, no waste-end conveyer heretofore made has united all the waste-end strands from the delivery end of a carding-machine into a single strand within a single unobstructed pneumatic conduit and carried the united strand unbroken through such unobstructed conduit to the intake end of the machine. Conveyers employing a separate conduit for each waste-end strand are found objectionable owing to the weak and flimsy structure of a single waste-end strand. Such strand will almost invariably break in the pneumatic conduit and “ball up” or form a mass in the pipe as it progresses along the pipe, tending to increase in size until by its friction with the sides of the pipe it stops and clogs the pipe, thus stopping the action of the conveyer. Conveyers have also been constructed and found to be unsuccessful in which a blast-fan or blower for creating a draft through the pipe was located in the conveyer-pipe between the receiving end and the delivery end. The result was that the waste-end strand had to pass through the fan and was cut up by the fan into small parts. The destruction of the strand by chopping it up

caused the material to collect in lumps either in the fan or in the pipe, thus clogging and stopping the action of the conveyer.

To improve the construction of waste-end conveyers, particularly so as to overcome the above-noted objectionable features, and to provide a waste-end conveyer in which the pipe will not become clogged or closed in the above manner are the main objects of my invention.

To these ends my invention consists in a waste-end conveyer for carding-machines comprising a number of conduits for receiving the waste-end strands from the delivery end of the carding-machine which unite in a single unobstructed conduit and means for maintaining a draft through said conduits toward the discharge end of the conveyer.

In the best form of my invention the short receiving-conduits converge to a short single conduit, and at the junction of the receiving-conduits with the single conduit the separate waste-end strands are brought together, and thereby united in a single strand of much greater strength than a normal strand, and the discharge end of the single conduit is within a larger unobstructed main conduit, through which a draft is maintained by a fan connected with the main conduit at a point back of the junction of the single short conduit therewith.

By the above improved construction I effectually prevent the waste-end strand from breaking and from clogging the conveyer.

In the accompanying drawings, which illustrate one embodiment of my invention, Figure 1 is an elevation of a carding-machine equipped with a waste-end conveyer constructed in accordance with my invention. Fig. 2 is a detail view showing the condensing-rolls and the receiving ends of the conveyer on an enlarged scale. Fig. 3 is a detail view, on an enlarged scale, of a portion of the main unobstructed conduit, hereinafter described.

Having reference to the drawings, 2 represents the main cylinder of the first breaker of a carding-machine; 3, the main cylinder of the second breaker; 4, the main cylinder of the finisher, and 5 and 6 the usual two banks of condensing-rolls. In connection with the

third breaker or finisher 4 it is common practice to use what is known as the "Apperly" feed, (represented in Fig. 1 at 7,) which causes a waste-end strand to be delivered from one bank of condensing-rolls, as 5, at one end thereof and another waste-end strand to be delivered from the other bank of condensing-rolls, as 6, at the opposite side of the machine, as will be clear from Fig. 2.

Below the points at which the waste-end strands leave the condensing-rolls 5 and 6 are arranged the flared mouths of two comparatively short receiving-conduits 8 8, which unite at 9 in a single comparatively short conduit 10, communicating at its lower end with a main conduit 11, which is unobstructed from this point to its discharge end 12. The other end of conduit 11, back of the junction of conduit 8 therewith, is connected by a conduit 13 with a blast-fan 14, operated in any suitable manner to create and maintain a draft through conduit 11 toward its discharge end. Conduit 9 at its lower end projects into a restricted portion 11^a in conduit 11 and well toward the center of conduit 11 and on its lee side relatively to the direction of the draft through conduit 11. The end of conduit 9 is beveled, so that its discharge-opening faces in the direction of the movement of the conveying current. The draft through conduit 11, accelerated by the restriction at the point 11^a, will by suction create and maintain a draft down through conduit 9 and receiving-conduits 8 into and joining the draft in conduit 11. The suction in pipe 9 is assisted by facing its discharge-opening in the direction of the movement of the draft in main conduit 11.

The operation of my improved waste-end conveyer is to draw the waste-end strands into and through the receiving-conduits 8, and as they come together in the conduit 9 they are joined or united in a single abnormal strand, which is very much stronger than either separate normal strand. From conduit 9 the strengthened strand emerges into conduit 11, through which it has an unobstructed passage to the discharge end 12 thereof, where it is returned to any desired intake-point of the machine, as the second breaker.

Of course it is obvious that my invention is applicable to carding-machines other than those employing the Apperly feed and that the discharge end 12 may be arranged to deliver at any desired point, either at the ma-

chine or elsewhere. It will be observed that conduits 9 and 11 constitute an unobstructed passage-way or conduit for the jointed strands, into which the separate weak strands are led, and thereby joined by two or more receiving-conduits 8. A waste-end conveyer constructed in accordance with my invention by uniting the several weak strands into a single relatively strong strand and conveying the united strand unbroken through an unobstructed conduit to an intake-point entirely obviates the objectionable clogging which is characteristic of the forms of waste-end conveyers heretofore known.

What I claim is—

1. A waste-end conveyer for carding-machines, comprising a plurality of conduits to receive the separate waste-end strands; a single unobstructed main conduit to which said receiving-conduits deliver and in which the separate waste-end strands are united to form a relatively stout strand; and means outside of said conduits, but communicating therewith, for producing draft through said conduits toward the discharge end of the conveyer; whereby an uninterrupted passage from the delivery end of the carding-machine to the receiving end is provided, a continuous single strand formed of several waste-end strands is delivered in unbroken condition at the discharge end of the conveyer, and massing or balling of the broken strands in the conduits is avoided.

2. A waste-end conveyer, comprising two receiving-conduits 8, 8, which unite in a common delivery-conduit 10 having a beveled lower end; an unobstructed main conduit 11 into which said delivery-conduit 10 projects; a blower 14; and a conduit 13 connecting said blower 14 with said conduit 11 in rear of the projecting delivery-conduit 10; whereby an uninterrupted passage from the delivery end of the carding-machine to the receiving end is provided, a single continuous strand formed of the several waste-end strands is delivered in unbroken condition at the discharge end of the conveyer, and massing or balling of broken strands in the conduits is avoided.

Signed by me at Boston, Massachusetts, this 27th day of September, 1902.

HARRY KEMP.

Witnesses:

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