

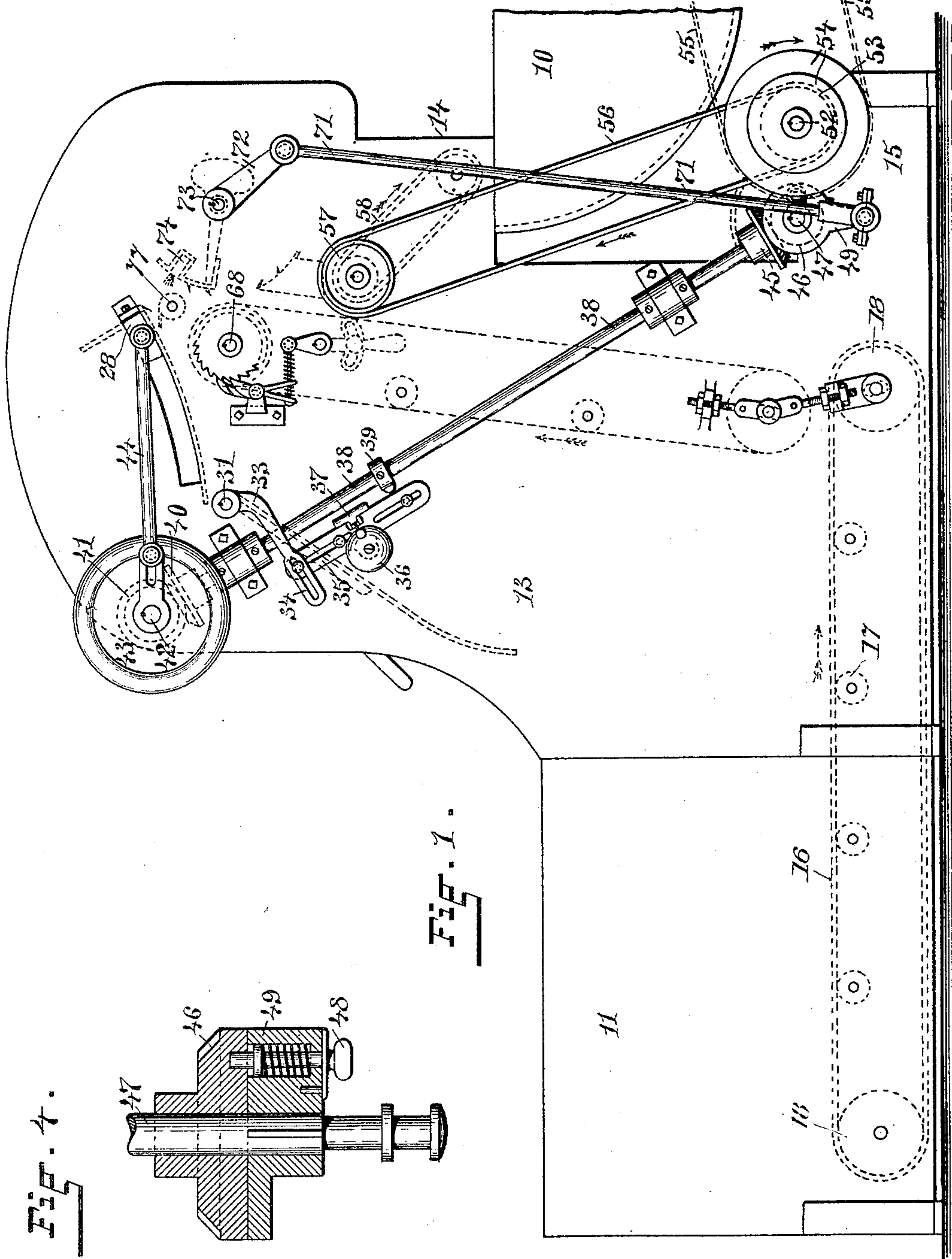
(No Model.)

3 Sheets—Sheet 1.

L. A. PECKHAM.
WOOL WASHING MACHINE.

No. 462,582.

Patented Nov. 3, 1891.



WITNESSES:

Henry J. Miller
Chas. H. Luther Jr.

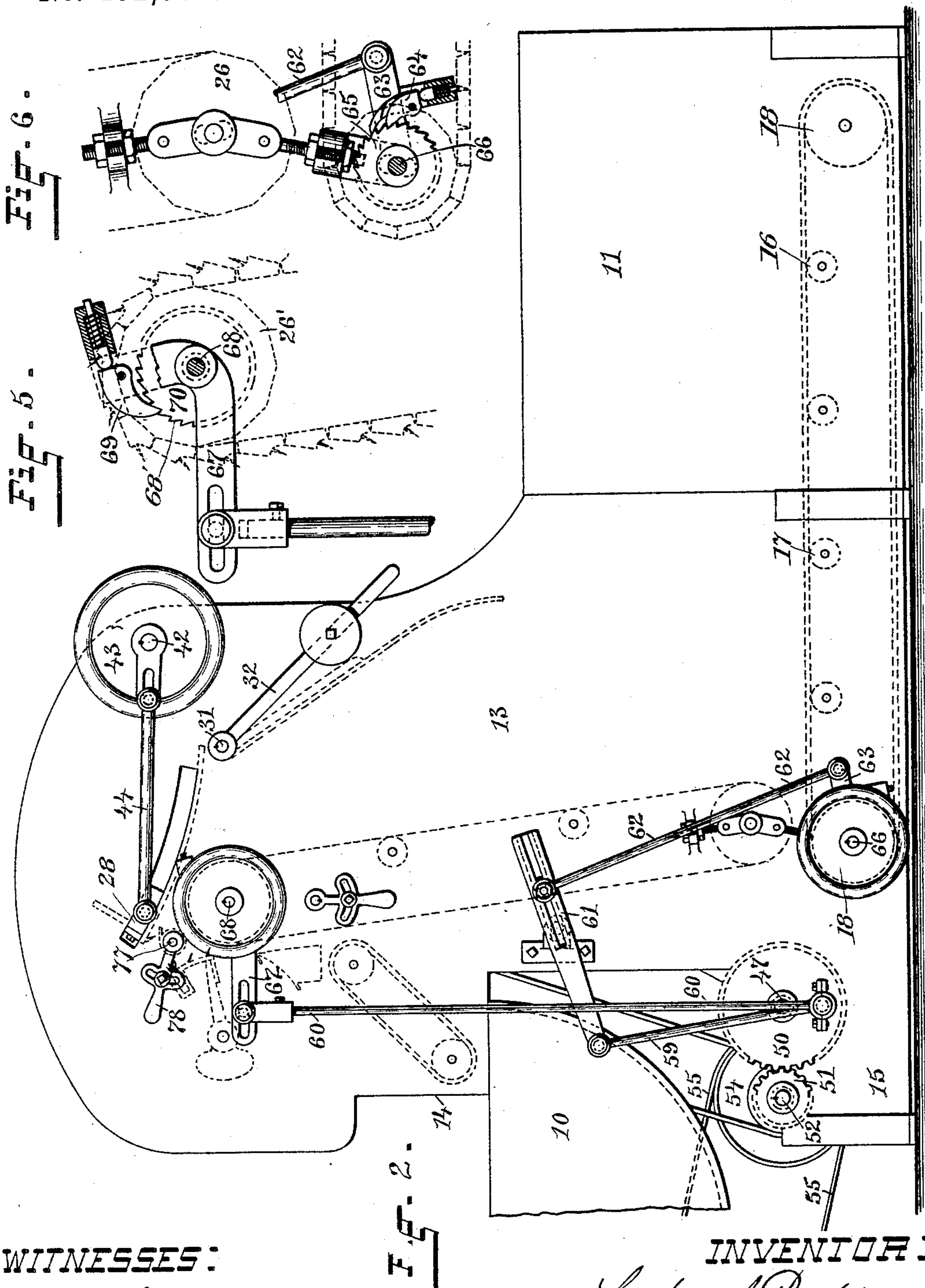
INVENTOR:

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Attys

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Fig. 8.

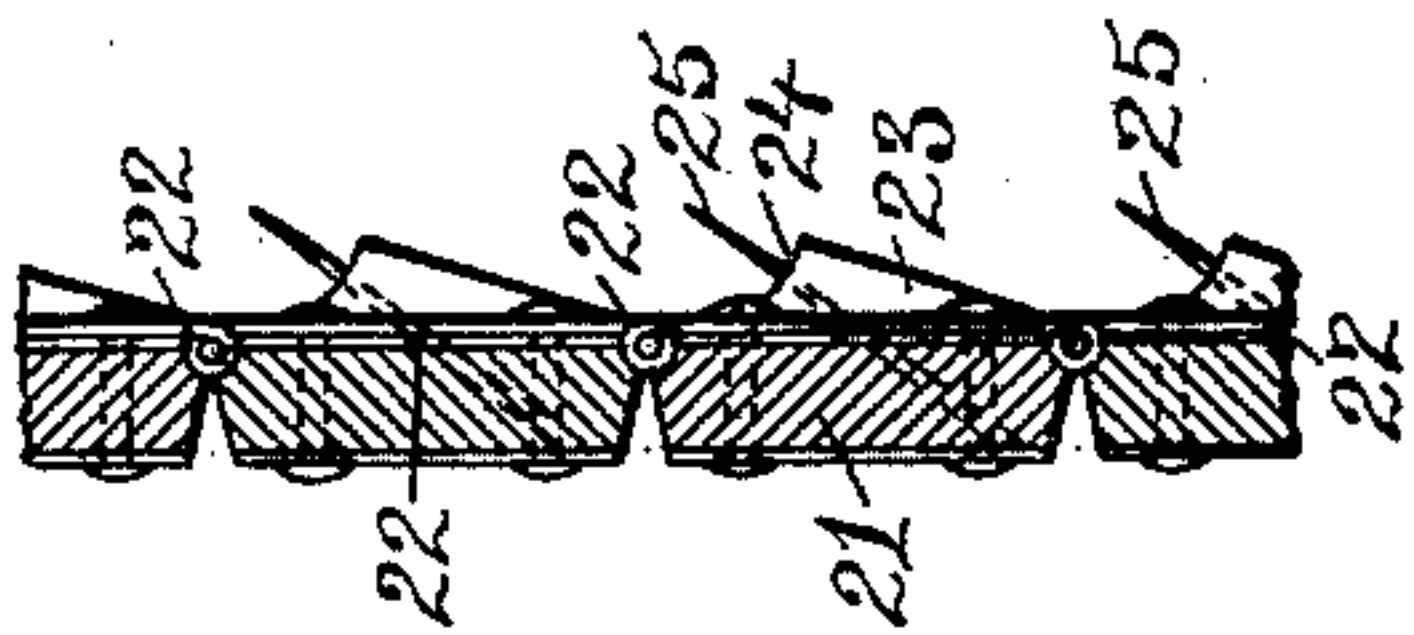


Fig. 7.

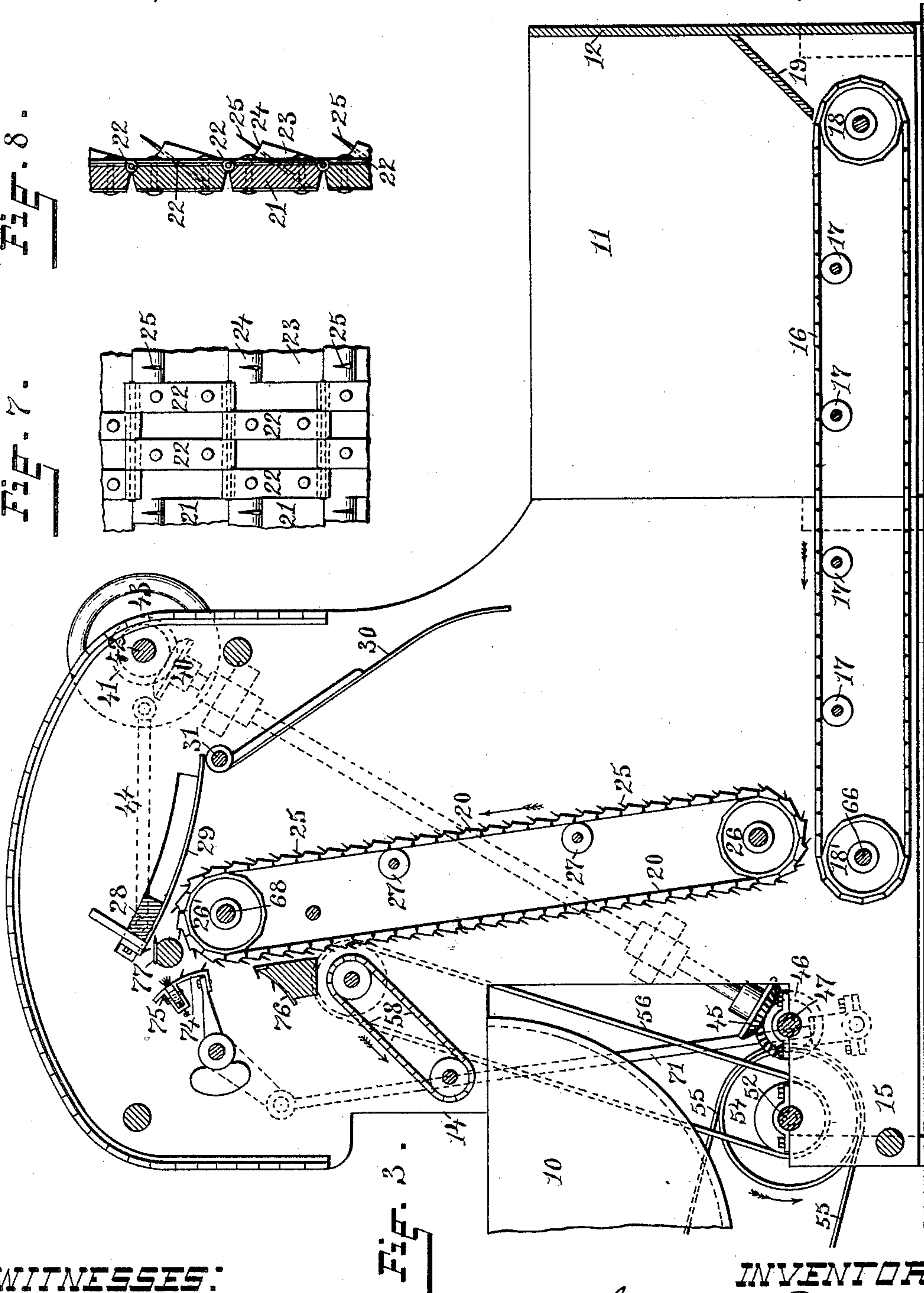
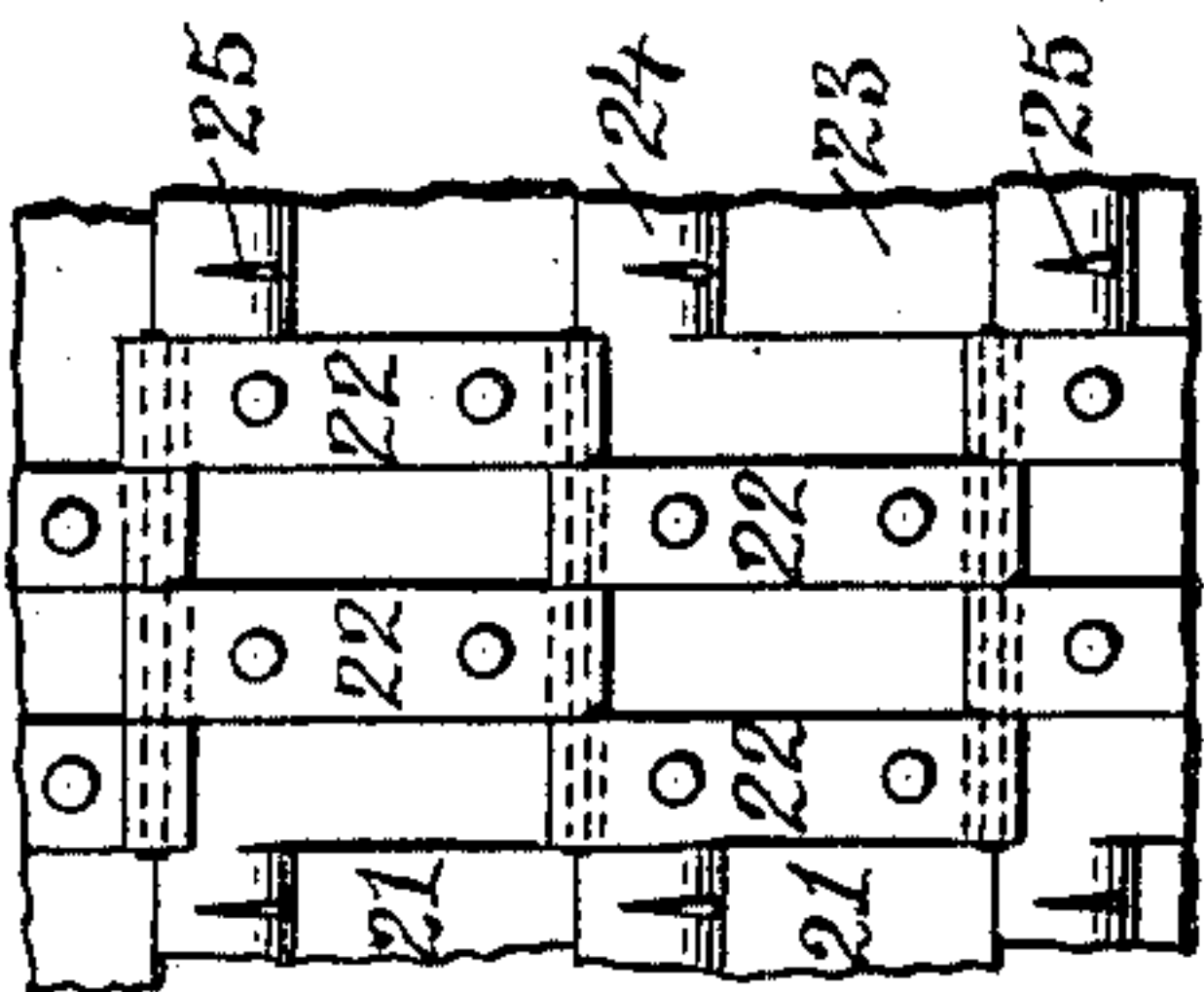


Fig. 3.

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UNITED STATES PATENT OFFICE.

LUTHER A. PECKHAM, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF
ONE-HALF TO CHARLES FLETCHER, OF SAME PLACE.

WOOL-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 462,582, dated November 3, 1891.

Application filed November 5, 1890. Serial No. 370,369. (No model.)

To all whom it may concern:

Be it known that I, LUTHER A. PECKHAM, of the city of Providence, in the county of Providence and State of Rhode Island, have
5 invented a new and useful Improvement in Wool-Washing Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming
10 part of this specification.

In wool-washing machines as heretofore constructed the wool is fed into the machine by an endless apron, on which a quantity of wool is deposited, and then separated and fed
15 to the wool-washing machine by an attendant. The efficiency of the wool-washing machine is almost entirely dependent on the vigilance, industry, and judgment of this attendant, whose duty it is to loosen and spread the wool
20 evenly across the apron and to regulate the supply exactly to the capacity of the machine. In practice it is found that a wool-washing machine does not perform the full amount of work, owing to the irregularity of
25 the feeding of the wool and the imperfect opening of all the wool.

The object of this invention is to feed the wool to the washing-machine by mechanical means so as to dispense with the hand-labor
30 and secure a continuous regular feed.

Another object of this invention is to mechanically open and spread the wool so as to present the same to the rakes in the washing-machine in the best possible condition.

35 Another object of the invention is to increase the efficiency of a wool-washing machine.

Another object of this invention is to thoroughly mix the desired grades or qualities of
40 wool before the wool enters the washing-machine, and thus more thoroughly intermix the different grades in washing the wool.

To these ends my invention consists in the peculiar and novel construction of a carrying-
45 apron and a stripper by which the wool is delivered to the wool-washing machine.

The invention further consists in the novel construction of the mechanism for opening the wool, in connection with the carrier and
50 stripper; and

The invention further consists in the pecu-

liar and novel construction of the wool-receptacle, the automatic feeder, and the washing-machine, as will be more fully set forth hereinafter.

Figure 1 is a view of one side of the machine, the operative parts being indicated in broken lines. Fig. 2 is a view of the opposite side of the machine; Fig. 3, a vertical longitudinal section showing the wool-receptacle,
55 the apron forming the bottom of the wool-receptacle, the carrier-apron, the evener, and stripper, in connection with the basin of the wool-washing machine. Fig. 4 is a view, partly in section, of the device for connecting and
60 disconnecting the evener. Fig. 5 is an enlarged view of the ratchet-and-pawl device for operating the feed-apron. Fig. 6 is an enlarged view of the device for adjusting and supporting the drums for the endless aprons.
65 Fig. 7 is a view, and Fig. 8 a section, on an enlarged scale, of the feed-apron.

Similar numbers of reference indicate corresponding parts in the drawings.

The number 10 indicates the end of the
75 basin of the wool-washing machine into which the wool is fed.

11 indicates the sides, and 12 the end, of the wool-receptacle, resting on the floor and extending to a height at which the wool can be
80 conveniently placed into the same, forming a large receptacle into which a considerable quantity of wool may be placed to be delivered automatically to the washing-machine, and wool of different qualities may be thor-
85 oughly mixed before the same enter the washing-machine, and thereby become more thoroughly intermixed in the process of washing than was heretofore possible.

The number 13 indicates the two sides forming the supports of the mechanism and parts
90 of the sides of the wool-receptacle. These sides 13 are formed with the projections 14 extending over the basin of the washing-machine and projections 15 extending under the
95 same.

16 is an endless apron forming the moving bottom of the wool-receptacle. It is supported on the rolls 17 and passes around the rollers 18 and 18'. The inclined shelf 19 ex-
100 tends across the end of the wool-receptacle.

20 indicates the carrier-apron made up of

a series of slats secured together by the hinged plates 22, so as to form an endless apron extending across the width of the wool-receptacle and forming one end of the same.

5 The outer face of each of the slats 21 is formed into the long inclined plane 23, abruptly terminating at the intersection of the shorter, angular, and slightly-concaved surface 24, from which the pins 25 project at or

10 nearly at right angles to the surface 24 and at the required angular direction with reference to the apron required to pick and carry the wool. By this peculiar formation of the slats the wool is prevented from passing be-

15 hind the pins 25 and is not wedged in and held, but is more readily combed off from the carrier-apron 20. The angular faces of the slats are removed on the parts of the slats on which the hinge-plates 22 are secured. The

20 carrier-apron 20 extends around the drums 26' and 26, and the part forming the end of the wool-receptacle is supported on the rolls 27. The wool deposited in the wool-receptacle is carried by the endless apron 16 against

25 the carrier-apron 20 and is carried upward by the same to and over the roller 26'. The reciprocating evener 28, provided with the curved platform 29, combs back any surplus of wool carried up by the carrier-apron 20.

30 This surplus accumulates between the carrier-apron 20, the curved platform 29, and the back 30, secured at its upper end to the shaft 31, at one end of which the weighted lever 32 is secured, which, with the weight of

35 the back 30, presses the wool against the carrier-apron 20. On the opposite end of the shaft 31 the arm 33, provided at one end with the slot 34, is secured. A stud extends from the frame 35 into the slot 34, and as the frame

40 35 is mounted on the side or standard 13 and has capacity to slide on the same the movement of the back 30 and corresponding movement of the arm 33 slides the frame 35 up and down.

45 Mounted on the frame 35 is the gong 36, provided with a hammer mounted on the hinged spring-plate 37 in the same manner as the hammer on all bells is usually mounted. On the shaft 38, the direction of which is par-

50 allel with the frame 35, the cam 39 is adjustably secured by a clamp-screw. This alarm device is shown clearly in Fig. 1, and is designed to sound an alarm when the quantity of wool between the upper portion of the car-

55 rier-apron 20 and the pivoted and weighted back 30 has diminished, and thus by the inward movement of the back 30 the arm 33 has moved the frame, so that the cam 39 comes in contact with the plate 37, thus giving timely

60 notice that additional wool is required. The shaft 38 is journaled in bearings secured to one of the sides or standards and transmits motion to the reciprocating evener 28 by means of the bevel-gear 40, secured to the up-

65 per end of the shaft 38. The bevel-gear 41 is secured to the shaft 42, which extends trans-

versely across the machine, and the fly-wheels 43 are provided with a stud from which the connecting-rods 44 extend to a wrist-pin on the opposite ends of the evener, as shown in 70 Fig. 1. The lower end of the shaft 38 is provided with the bevel-gear 45, which gears with the bevel-gear 46 loose on the shaft 47, but connected by the spring-pressed locking-pin 48 with the crank 49. The locking-pin 48 is 75 constructed so that it may be withdrawn from the bevel-gear 46 and by a partial rotation be retained in the withdrawn position, as is clearly shown in Fig. 4. By this arrangement the shaft 38 may be stopped. 80

The shaft 47 extends across the machine and is on the opposite side provided with the gear 50, which meshes with the gear 51 on the end of the shaft 52, which shaft also extends across the machine, and is provided 85 at the opposite end with the pulley 53 and the two driving-pulleys 54 of different diameter, from one of which the belt 55 extends to a pulley on the washing-machine, (usually the pulley formerly used to drive the endless feed- 90 apron,) and motion is thus imparted from the washing-machine to the improved feeder. From the pulley 53 the belt 56 imparts motion to the pulley 57, secured to one end of the shaft on which one of the drums supporting 95 the delivery-apron 58 is secured, and thus motion is imparted to the delivery-apron 58 in the direction indicated by the arrow in Fig. 1.

The gear-wheel 50 on one end of the shaft 47 is provided with a wrist-pin, on which are 100 pivoted the connecting-rods 59 and 60. The opposite end of the connecting-rod 59 is pivoted to the lever 61, centrally pivoted on a pin secured to the side 13. One end the lever 61 is slotted, and in this slot a wrist-pin is 105 adjustably secured, from which the connecting-rod 62 extends and is pivotally connected at its opposite end with the ratchet-lever 63. This ratchet-lever 63 carries the pawls 64, which engage with the ratchet-gear 65, secured 110 to one end of the shaft 66, on which the roller 18' is secured and by which the endless apron 16, forming the bottom of the wool-receptacle, is operated. The connecting-rod 60 has its upper end adjustably secured in a slot in the 115 lever 67, fulcrumed on the shaft 68, to which the drum 26' is secured. The opposite arm of the lever 67 carries the ratchet-pawl 69, which engages with the ratchet-gear 70, also secured to the shaft 68, and thus by the oscillation of 120 the lever 67 imparts motion to the shaft 68 and to the carrier-apron 20. A ratchet-gear 68' is also placed on the opposite end of the shaft 68, with which two pawls engage to hold the gear and prevent backlash, as shown in 125 Fig. 1. These pawls can be connected or disconnected.

The rod 71 is connected at its lower end to the crank 49 and at its upper end to the arm 72, secured at its opposite end to the shaft 73, 130 which extends across the machine and has its bearings in the ends or standards 13, and

to this shaft 73 the comber 74, provided with the brush 75, is secured, so that the rotation of the crank 49 imparts oscillating motion to the comber 74, which, passing over the carrier-apron in the direction of the projecting pins 25, combs the wool off from the carrier-apron and delivers the same onto the apron 58, which extends over and delivers the wool thoroughly opened and mixed into the basin 10 of the washing-machine. On the return stroke of the comber 74 the teeth of the same pass between the teeth of the stripper 76, and are thus cleared or stripped of any wool adhering to the same. In a similar manner the evener 28 passes between the teeth on the clearer-bar 77, journaled at each end in the sides or standards 13. This clearer-bar is made adjustable by securing the lever 78 to one end of the same and providing the lever with a segmental slot, in which a clamp-screw is located, by which the lever is secured to the sides 13, and the stripper-bar 77 may be turned on its axis so as to adjust the direction of the row of stripper-pins on the bar with reference to the pins on the evener and secure the stripper-bar firmly in the adjusted position.

In the manufacture of woollen cloth or worsted goods inferior wool of short fiber is mixed with wool of longer fiber to secure practical results, the shorter fiber must be so thoroughly mixed and incorporated with the longer fiber that in the process of carding and spinning the shorter fiber will be held by the longer fiber.

By the peculiar construction of my improved automatic feed mechanism the different grades of wool are thoroughly intermixed and incorporated as the wool is supplied to the washing-machine, and during the process of washing this intermixing and thorough incorporating of the shorter with the longer fibers is continued under the most favorable conditions. The wool is placed in large quantities into the wool-receptacle formed by the sides 11, the end 12, and the carrier-apron 20, is carried by the endless apron 16, forming the bottom of the wool-receptacle, against the carrier-apron, combed out, and carried upward by the pins 25 on the carrier-apron. It is mixed and carried backward against the weighted back 30 by the evener 28, and continues to be worked and intermixed, as it is repeatedly raised up by the carrier-apron and combed back by the evener until it passes under the stripper-bar 77, when it is combed off by the vibrating comber 74, and thus thoroughly opened and mixed is delivered into the washing-machine, where it is more thoroughly mixed and the shorter fibers incorporated with the longer while immersed in the washing and scouring liquid. By thus supplying the wool to the washing-machine in the most favorable condition for washing in constantly uniform quantity, a very much larger quantity of wool can be more thor-

oughly washed than was possible with the devices heretofore used to feed the wool to the washing-machine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a wool-washing machine and a wool-receptacle, of a carrier-apron provided with projecting pins, a reciprocating evener and a comber adapted to draw the wool in opposite directions as it passes over the upper drum of the carrier-apron, and mechanism, substantially as described, for operating the same, the whole adapted to open, even, and carry the wool from the wool-receptacle to the washing-machine, as described.

2. The combination, with the wool-washing machine and the wool-receptacle, of a carrier-apron provided with projecting pins, a reciprocating evener provided with the curved platform 29, a hinged and weighted back, a vibrating comber for stripping the wool off the carrier-apron, the stationary strippers, the endless aprons, and mechanism for operating the whole, adapted to raise the wool from the wool-receptacle, mix, even, open, and deliver the wool to the washing-machine, as described.

3. The combination, with the wool-receptacle and the wool-washing machine, of the endless apron 16, forming the bottom of the wool-receptacle, the carrier-apron 20 for raising the wool, the reciprocating evener 28, provided with the platform 29, the back 30, pivoted at its upper end, and the weighted arm 32, the stripper-bar 77, the vibrating comber 74 for combing the wool off the carrier-apron, the stripper 76, the apron 58, and mechanism, substantially as described, the whole adapted to raise, mix, open, and convey the wool from the wool-receptacle to the wool-washing machine, as described.

4. The combination, with the carrier-apron and the pivoted and weighted back 30 of a wool-feeding machine, of an alarm mechanism, substantially as described, controlled by the back and constructed to sound the alarm when the back reaches the predetermined position in swinging toward the carrier-apron, as described.

5. The combination, with the carrier-apron and the back 30 of a wool-feeding machine, of the shaft 31, the weighted arm 32, the arm 33, the frame 35, provided with the gong 36, and the hinged spring-plate 37, operating the hammer, and the shaft 38, provided with the cam 39, constructed to operate the alarm when the wool between the carrier-apron and the back permits the back to reach the predetermined position, as described.

6. In a wool-feeding machine, the combination, with the carrier-apron, the reciprocating evener provided with the platform 29, the vibrating comber, and mechanism, as described, for operating the same, having the crank 49, and the beveled gear 46 loose on the shaft 47,

of the locking device 48, constructed to disconnect the beveled gear 46 and stop the operation of the stripper while the mechanism for conveying and delivering the wool is operated, as described.

5 7. The combination, with the basin 10 of a wool-washing machine, of the sides 13, having the projections 14 extending over the basin and the extensions 15 extending under

the basin, the sides 11 and the end 12, adapted to form a receptacle for wool, and a support for the mechanism of a wool opening and feeding machine, as described.

LUTHER A. PECKHAM.

Witnesses:

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