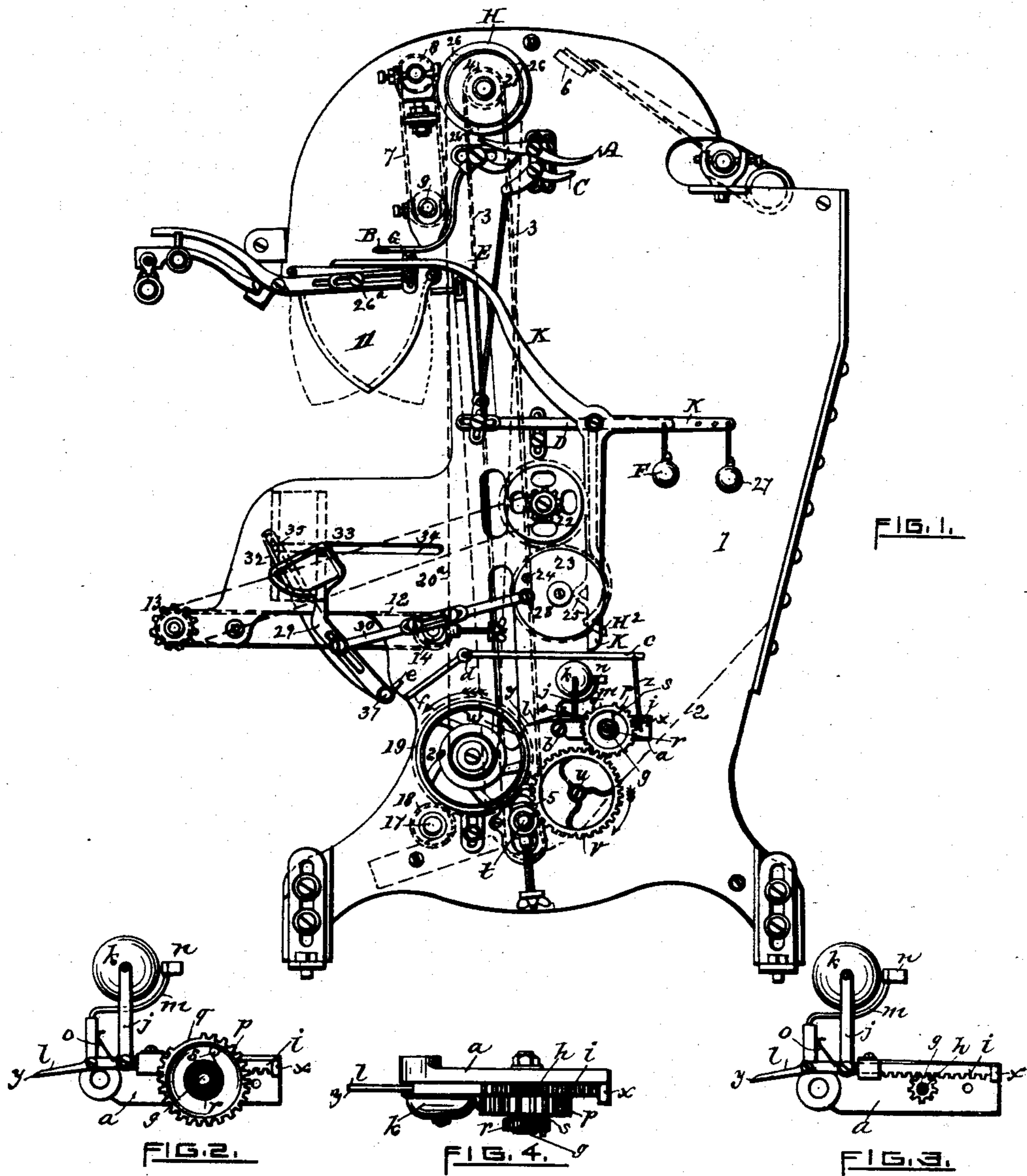


(No Model.)

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MECHANISM FOR FEEDING CARDING ENGINES.

No. 414,361.

Patented Nov. 5, 1889.



WITNESSES.

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MECHANISM FOR FEEDING CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 414,361, dated November 5, 1889.

Application filed February 8, 1889. Serial No. 299,219. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. ALLISON, a citizen of the United States, residing at Pascoag, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Mechanism for Feeding Carding-Engines, &c., of which the following is a specification.

My invention relates to an improved attachment which is to be applied to the feeding mechanism shown and described in the patents of the United States, Nos. 216,373, 196,424, and 180,533, to which reference is made for a more extended description than is given in this specification; and the object of my improvement is to secure a greater degree of uniformity in the feeding or delivery of wool or other fibrous material to carding or other engines than heretofore; and it consists in the combination, with the feeding and delivering portions of the mechanism, of an attachment adapted to sound an alarm upon the failure of the requisite supply in the scale from a lack of the proper quantity of material in the box or receptacle into which it is thrown.

Figure 1 is an end elevation of the feeding mechanism to which my attachment is applied. Figs. 2, 3, and 4 are detail views illustrating my improvement, Fig. 2 being a side elevation; Fig. 3, the same, with one of the gears removed; and Fig. 4 an under view.

In the accompanying drawings, 1 is the box or receptacle into which the wool is thrown, in the bottom of which is a grating of parallel rods. (Shown by dotted lines 2.) In the rear of box 1 is the lifting-apron (shown by dotted lines 3) carried by rolls 4 and 5 and provided with teeth. To prevent this apron from carrying forward the wool in lumps or bunches, a reciprocating or vibrating comb 6 is employed. To clear the teeth of apron 3 a stripping-apron 7, operated by rolls 8 and 9, is used, and 11 is the scale into which the wool is deposited by the stripping-apron 7. The scale in its general arrangement is described in Letters Patent No. 196,424, to which reference is made. At certain intervals this scale is caused to discharge its contents upon the feed-apron, (shown by dotted lines 12,) and operated by rolls 13 and 14. The various

motions of the machine are obtained from driving-shaft 17. Changeable gears 18 connect with gear-pulley 19, which operates apron-roll 4 by means of belt 20^a. By changing gears 18 and 19 the speed of the lifting-apron 3 is altered at will, or this may be done by changing pulleys 20 21, or in any ordinary way. The rollers 8 and 9 are operated by suitable band-pulleys or other gearing (not shown) from the shaft of the rollers 4 or 5 of the lifting-apron, so that the stripping-apron has a motion slightly faster than the lifting-apron.

When a sufficient weight of wool has been deposited on the scale, the delivery of wool thereto is stopped by the following mechanism until the wool is discharged from the scale and the wings are again closed.

A is a lever operated by lever B, whose longer end rests on a pin G, attached to the weighing-scale. When the scale turns its balance and carries down with it the pin G, it causes the longer end of lever B to follow it, that end being the heavier. In so doing the stop-lever A becomes tilted and catches in one of the teeth of the clutch H or other mechanism for arresting further delivery of wool or other fibrous material.

22 is a change-gear which regulates the discharging of the scale through the gear 23, provided with a pin 24, which latter at each revolution comes in contact with the projecting part 25 of lever K. This lever, pressing on pin 26^a, causes the wings of the scale to open, as shown by dotted lines, and to discharge the wool. When the pin 24 has passed the projection 25 of lever K, it then comes in contact with the projecting end H² of lever D, and thus, pulling on wire E, tilts lever C, which in turn forces the stop-lever A out of contact with one of the teeth 26 of clutch H. The balance-weight 27 returns the lever K to its original position after it has been operated upon by pin 24, and in like manner the weight F returns the levers C D to position.

28 is a pin or stud attached to gear-wheel 23 and operating the pusher-lever 29 by connection 30, which is adjustable by set-screws and stops or equivalent mechanism. The pusher-lever 29 is attached to one end

of shaft 31, and on the other end of said shaft is a plain slotted lever. (Shown in dotted lines at 32.)

33 is a pin attached to the pusher (shown by dotted lines) and working through a slot 34 in the frame of the machine. On the other side of the machine a corresponding slot, but of greater length, carries the pin (shown at 35 in dotted lines) at the other end of the pusher. The pusher-lever 29 has an opening in which the pin 33 rests, of such a form that during a portion of its movement it does not operate the pusher. The lever 32 at the other side of the machine moves the pusher in advance of the lever 29 before the latter comes into contact with pin 33, thus imparting to the pusher the diagonal position.

In the practical operation of machines heretofore constructed as above described it has been found impossible to produce the desired uniformity of the sliver unless the wool or other material was kept at about a certain height in the box or receptacle 1, and in order that the machine attendant may be able in all cases to maintain a proper quantity of material in the box I have provided an indicating attachment, which serves to sound an alarm whenever the amount of wool or other material in the scale is deficient, and thus give notice to the attendant that the machine requires his immediate attention. My said attachment is provided with an arm *a*, which is pivoted to the end frame of the feeding mechanism upon the stud *b*, and is connected by means of the rod *z* to the lever *c*, which is pivoted to the said frame upon the stud *d*. Upon the end of shaft 31 is placed the arm *e*, which is to be so set relatively to the pusher-lever 29 as to be caused to engage with the end *f* of the lever *c*, and thus cause the elevation of the outer end of the arm *a* upon the completion of the backward vibration of the pusher-lever. The arm *a* will thus be raised, once and for a short time only, during each to-and-fro movement of the lever 29.

Upon the stud *g*, secured to the pivoted arm *a*, is placed the loose pinion *h*, which engages with the teeth of the rack *i*, which is held in position by means of suitable guides attached to the arm *a*, and is provided with an attached arm *j*, which carries the sounding-bell *k*. To the forward end of the rack *i* is pivoted the alarm-lever *l*, from the upper end of which extends the curved wire *m* to the hammer *n*, which serves to sound the alarm, and to the upper side of the rack *i* is secured the flat spring *o*, which presses against the lever *l* to bring the hammer *n* forward to strike the bell. To the side of the loose pinion *h* is attached the gear *p*, which is preferably without teeth at the part *q*, and to the outer end of the stud *g* is secured the inner end of the helical spring *r*, the outer end of the same being secured to the pin *s* at the side of the gear *p*, so that the resilience of the spring *r*

will suffice to cause the reverse movement of the combined gear and pinion *p h*, the rack *i*, and the attached alarm-lever *l*. Upon the end of the shaft of the roll 5, I place a pinion *t*, having one tooth, and upon a stud *u*, secured to the end frame of the feeding mechanism, is placed the intermediate gear *v*, which engages with the gear *p*, whereby upon the forward movement of the lifting-apron 3 and rotation of the roll 5 a slow, intermittent rotary movement will be imparted to the gear *p*, the intermediate gear *v* being held by friction or other suitable means against reverse movement arising from the resilient action of the spring *r*. Upon the side of the gear 19 is placed a pin *w*, which is adapted to engage with the forward end *y* of the alarm-lever *l* when the rack *i* is carried far enough forward by the rotation of the pinion *h*. The backward movement of the rack *i*, resulting from the resilient action of the spring *r*, is limited by the stop *x*, which is formed at the end of the arm *a*.

The operation of the indicating attachment will be as follows: The scale 11 being in its receiving position, as shown in Fig. 1, and the lever 29 in its extreme forward position, as there shown, then the forward movement of the lifting-apron 3 to feed the material from the box 1 into the scale will cause the revolution of the shaft of roll 5, and the intermediate gear *v* and gear *p* will be moved through a space corresponding to the movement produced by the single tooth in the pinion *t*, thus gradually forcing the rack and the attached alarm-lever forward toward the orbit of the pin *w*; and if the scale is properly filled with wool before the feeding-apron 3 has traveled far enough to cause the forward movement of the rack to such an extent as to place the forward end *y* of the alarm-lever within the orbit of revolution of the pin *w*, then, upon the completion of the backward movement of the lever 29, the arm *e* will engage with the end *f* of the lever *c*, and thus cause the gear *p* to be lifted from engagement with the gear *v*, and then the resilient action of the spring *r* will carry the gear *p* and rack *i*, with the alarm-lever *l*, back to their original position, as shown in Fig. 2, and the feeding will proceed successively without sounding the alarm; but in case the wool should be fed to the lifting-apron 3 so scantily that a greatly-extended movement of the said apron is necessary properly to fill the scale, then the forward movement of the rack *i* will be such as to cause the forward end *y* of the alarm-lever *l* to engage with the revolving pin *w*, and be thus raised against the resilient action of the spring *o*, so that when the pin *w* has progressed far enough in its revolution to clear the end of the lever *l*, the spring *o* will cause the hammer *n* to fly forward and strike the bell *k*, thus giving an alarm which will indicate the point in the action of the machine at which the lifting-apron is not supplying the requisite quantity of material, which lack

should be rectified by the addition of a suitable quantity of material in the feed-box 1. The blank space *q* in the gear *p* serves to prevent the continued forward movement of the rack *i* after the end of the alarm-lever *l* has passed within the orbit of the pin *w*.

I have shown the bell *k* as attached to the rack *i*, so as to move therewith; but the bell can be fixedly attached to the arm *a* or to the end frame of the feeding and delivering mechanism by so arranging the bell that when the alarm-lever *l* is carried forward into engagement with the pin *w* the bell will be in proper position to receive the blow of the hammer.

I claim as my invention—

1. The combination, with the automatic weighing-scale, the lifting-apron, and means for driving said apron, of the alarm-lever geared for forward movement with the lifting-apron, substantially as described.

2. The combination, with the automatic weighing-scale, the lifting-apron, and means

for driving said apron, of the alarm-lever geared for forward movement with the lifting-apron, the spring for producing the backward movement of the alarm-lever, and the tripping-arm for disengaging the alarm-lever from the driving mechanism of the lifting-apron, substantially as described.

3. The combination, with the automatic weighing-scale, the lifting-apron, and means for driving said apron, of the alarm-lever geared for forward movement with the lifting-apron into position for contact with a projection upon the apron-driving means, the spring for producing the backward movement of the alarm-lever, and the tripping-arm for disengaging the alarm-lever from the driving mechanism of the lifting-apron, substantially as described.

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Witnesses:

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