No. 767,965. PATENTED AUG. 16, 1904.

J. W. SCOTT.

STOP MECHANISM FOR CARDING MACHINES.

APPLICATION FILED OCT. 22, 1902. RENEWED JULY 21, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1

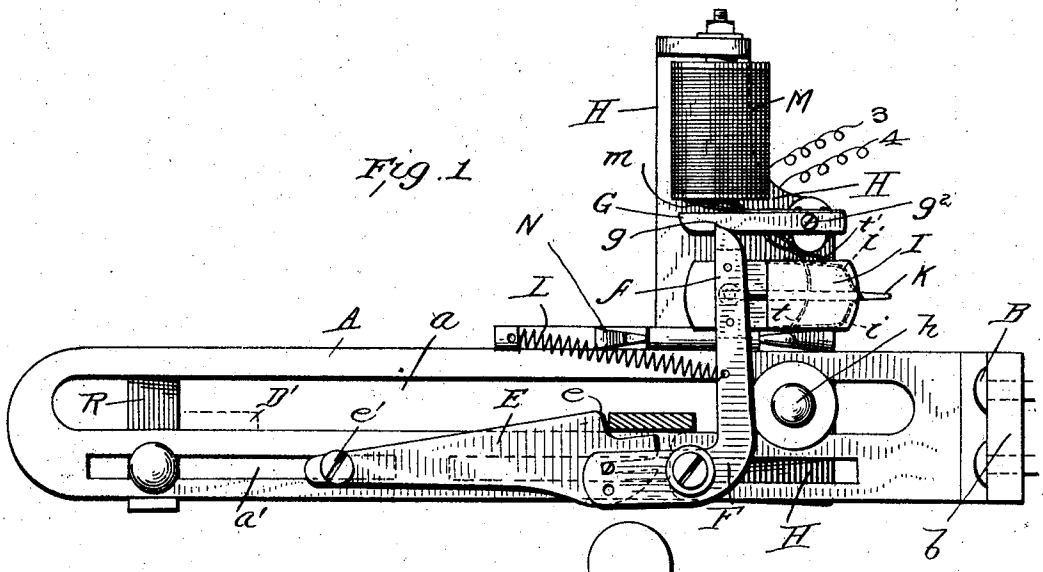


Fig. 2.

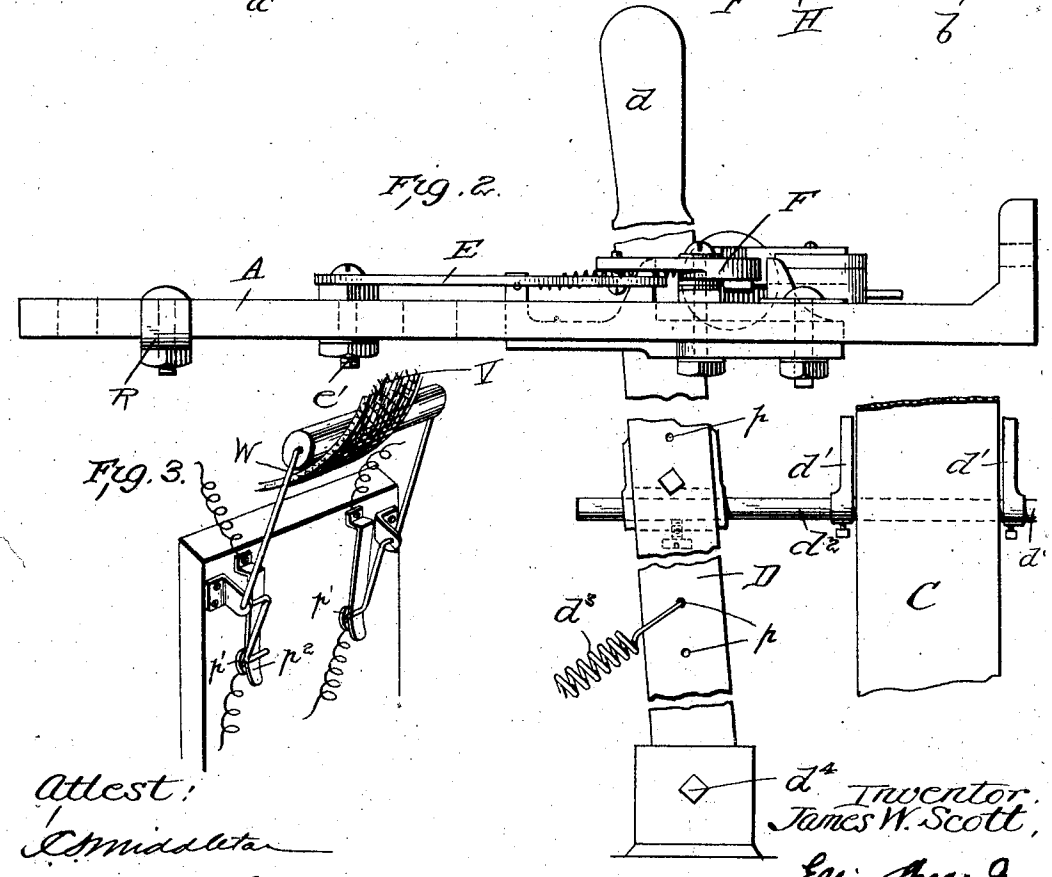


Fig. 3.

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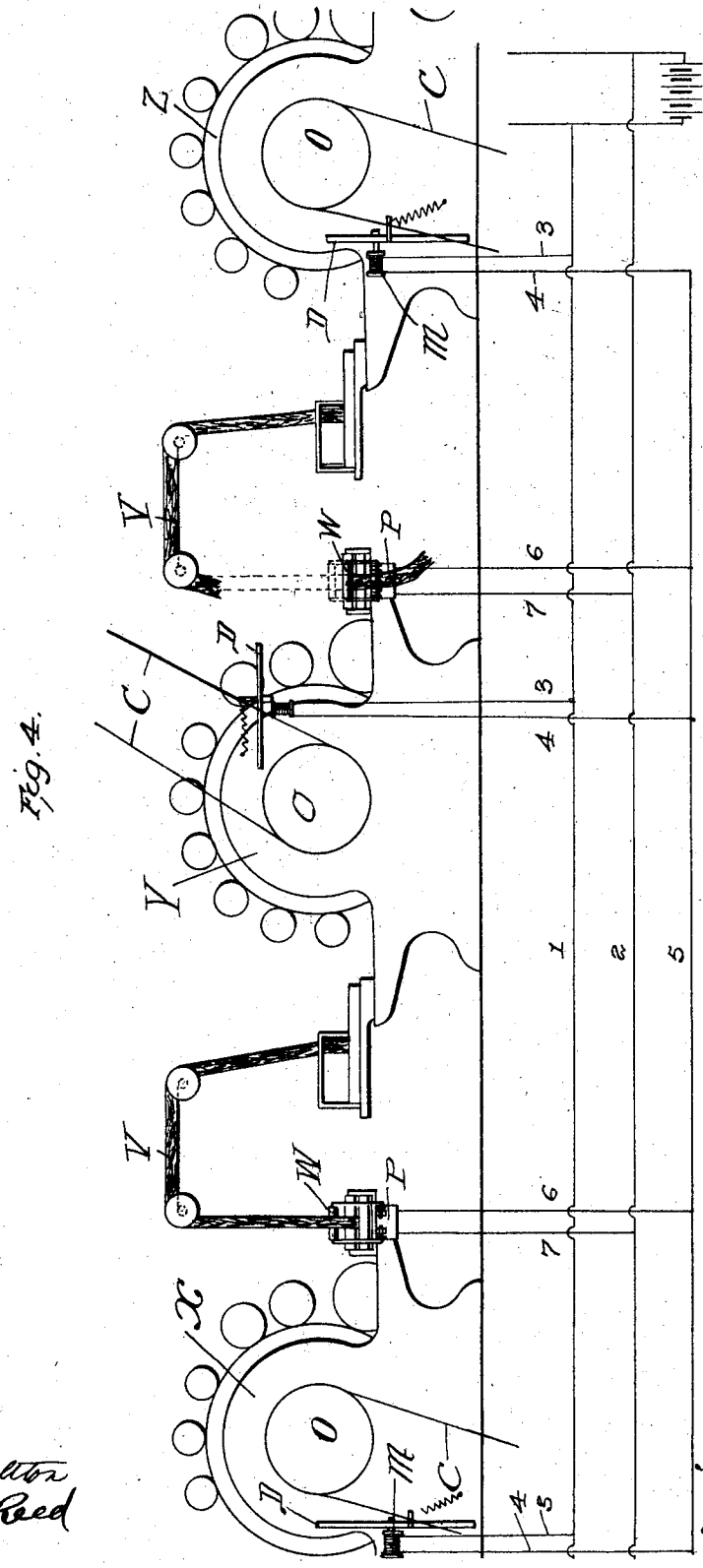


Fig. 4.

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No. 767,965. Patented August 16, 1904.

UNITED STATES PATENT OFFICE.

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STOP MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 767,965, dated August 16, 1904.

Application filed October 22, 1902. Renewed July 21, 1904. Serial No. 217,452. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. SCOTT, a citizen of the United States, residing at Warren, Knox county, Maine, have invented certain new and useful Improvements in Stop Mechanisms for Carding-Machines, of which the following is a specification.

This invention relates to stop-motions, and more particularly to that class of stop mechanisms designed to be used in connection with carding-machines to automatically stop one or more of the cards of a series upon the breaking of the sliver, it involving for the most part improvements on the releasing mechanism for a belt-shipper shown in Letters Patent No. 706,261, granted to me August 5, 1902, and for certain circuit-closing and cut-out connections therefor. It is desirable in this class of releasing devices in which a spring-pressed shipper is held by a catch that the catch be so constructed and arranged with reference to the releasing mechanism that the latter be relieved from any binding or strain which might hinder the freedom of the releasing movement. This is particularly desirable when such releasing mechanism is electrically operated, as in the form here shown, and when so operated that its connections with the other members of the series be of such nature that one or more shippers may be operated independently of each other by the movement of one of the circuit-closers in any part of the circuit and that the circuit be maintained through said shipper-releasing mechanisms only for the shortest time possible in which to secure a complete movement of the parts, thereby effecting an immediate restoration of the releasing-catch to its position to engage the tripping-levers and a great saving in the batteries. To this end, therefore, the notched arm which holds the spring-actuated shipper in operative position is so pivoted and connected to a tripping-lever which forms a part of the releasing mechanism that said tripping-lever is entirely free from the influence of the heavy spring which moves the shipper and exerts no other strain on the armature, which, with its catch, forms the release, than that of its own comparatively light moving spring. By interposing in the circuit of the magnet which controls the releasing mechanism an automatic cut-out operated instantaneously upon the movement of the armature and by properly connecting these individual magnets and cut-outs with the product-sustained circuit-closers on the respective machines a break in the sliver on any one of the machines will operate the releasing mechanism of the shippers on all the members of the series and at the same time each magnet branch of the circuit will be automatically cut by the movements of its releasing mechanism independently of the other magnet branches.

Other objects secured by the detail of structure and arrangement of parts will be apparent from the following description, reference being had to the accompanying drawings, of which—

Figure 1 is a plan view of the catch and releasing mechanism for the shipper. Fig. 2 is a side view of the same. Fig. 3 is a view of the circuit-closing device normally sustained by the sliver, and Fig. 4 is a diagram elevation of a carding series equipped with the stop mechanisms as specified.

In the drawings, in which like characters indicate corresponding parts throughout, A indicates a bracket, having slots a a', adapted to be fastened by bolts B and flange b to a card in proximity to its driving-belt C. A lever D, having a hand-grasp at d, adjustable belt-fingers d' on an adjustable arm d^2, and a strong actuating-spring d^3, is pivoted at d^4 to the floor or part of the machine and is guided in the slot a of the bracket A. The spring d^3 tends to throw the lever D toward the left, as indicated at D', Fig. 1, and thereby shifts the belt C onto the idle pulley, it being held in operative position by the shoulder e on the catch-arm E, which is adjustably pivoted at one end by a bolt e' through the slot a'. At the other end it is connected by a slot-and-pin connection to the short arm of a belt-tripping lever F, so that the pressure of the lever is borne entirely by its pivot e'.

The lever D is found to be a very simple and effective form of shipping means; but obviously any other actuated shipper might be substituted therefor or it might be employed to move a clutch or any other stopping or re-

versing mechanism instead of the belt-shipper shown.

The belt-tripping lever F is adjustably pivoted in the slot a' and lies with its short arm in a substantially straight line with the catch E and with its long arm across the slot a in which the lever D is guided and forming a stop therefor. It is beveled at the end of its long arm f to rise under and be caught by the notch g on the outer face of the armature G, which is pivoted at g^2 to a supporting-plate H, adjustably held on the bracket by a bolt h in the slot a. A leaf-spring m tends to keep the armature down and away from the magnet.

The plate H carries the magnet M and the cut-out I, which is a perforated block having plates $i\ i$ fastened to its sides and bending over its end to form spring-lips. These plates $i\ i$ are interposed in the circuit-wires 3 4, the former connecting at t to one plate and the latter joining the other plate at t' to the magnet.

A circuit-closing plug K, connected by an insulated pivot with the long arm f of the tripping-lever F and guided in the perforation of the block I, normally stands between the lips of the plates $i\ i$ to complete the circuit. Upon the release of the armature-catch the plug K is withdrawn to break the magnet branch of the circuit by the movement of the lever F under the influence of the spring L. R is an adjustable stop for the lever D, and N is a stop on the plate H to limit the movement of the lever F. p represents holes in the lever D for the adjustment of the belt-shipper arm and the spring d^3.

The circuit-closer P illustrated in Fig. 3 is substantially the same as that disclosed in my patent hereinbefore mentioned and is merely introduced to make clear that part of this system which in the form here shown is particularly adapted to carding-machines. Briefly, this closer consists of a supporting-block adapted to be fastened on a card, preferably at the drawing-rolls. On this block are one or more circuit-terminals $p'\ p^2$, one, a spring-leaf p^2, overlapping the other, but normally out of contact therewith. A bail W is hinged to the block and is normally sustained by the sliver V; but upon the breaking of said sliver it drops to press the springs p^2 into contact with p'. This form of circuit-closer in the application of the present invention to other than carding-machines might obviously be adapted to be sustained by any thread, fabric, or other product.

In Fig. 4, X, Y, and Z indicate diagrammatically the first and second breaker and finisher of a carding series, the same being connected by belts C and fast and loose pulleys O with the power. The diagram also indicates the connections of the circuit-closer and releasing mechanism with the main circuit. In this one end, 3, of each magnet-circuit is connected to a line 1 having one battery-pole connection, and one end, 7, of each drop-circuit is connected to a line 2 having an opposite pole connection, and the opposite ends, 4 and 6, connect to a free line 5. These magnet and circuit-closer branches 3 4 and 6 7, although separately connected to 5, may be properly considered in pairs as constituting single branches straddling the wires 1 and 2 and connected by the common wire 5 between the magnet and cut-out in each. This of course could be actually done by giving the ends 4 and 6 a common connection with 5. In this operation upon the closing of the circuit by any drop the current passes along the line from one pole, through each magnet-circuit to the third line, and through the circuit-closer to the line from the other pole. Thus when the circuit closes at P' connection is thereby made through the line 1 and sections 3 4 of each magnet branch with the line 5, which, through 6, the closed drop P', and 7, connects with the line 2 of the other battery-pole, each battery branch 3 4 being cut as soon as the magnet is actuated. The entire series may thus be stopped by a break in the sliver in any one machine, and the magnet of any one releasing mechanism may be cut out or connected without making or breaking the circuit in the rest. This is a very desirable condition in many kinds of machinery and one of the greatest practical value and saving in the application of my invention as set forth herein.

The operation of the shipper and releasing mechanism is briefly as follows: The circuit being closed by the breaking of the sliver, the current passes through the lines 3 4, the plates $i\ i$, and plug K to the magnet, which is energized and the armature G attracted, releasing the end of the arm f of the lever F, which is thrown to the left, carrying with it the plug K, which it withdraws from between the lips of the plates $i\ i$ and breaks the circuit, cutting off the magnet and allowing the armature-catch to return to its original position. This movement of the tripping-lever F through its short arm and pin-and-slot connection moves the pivoted stop-arm slightly to disengage the shoulder thereon from the shipping-lever D and allows it to be thrown to the left against the stop R, in which position the belt is on the idle pulley and the machine stopped. The parts will be returned to their original positions upon moving the lever D from this position to the right, as the lever engages the long arm f of the tripping-lever and carries it back till its beveled end, throwing up the released armature, slips under it and is again caught by the notch g, the plug K at the same time closing the circuit and the catch E reset by the bent arm of the tripping-lever. Then upon release the lever D will find the shoulder e and stand locked, as at first. The lever D is also conveniently operated by hand without disturbing the release

by a slight lateral push to clear the shoulder *e* in passing.

This shipping mechanism is of course applicable to any type of power-driven machine and the combination adapted to any series of coöperating machines in which such controlling means is desirable.

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

1. The combination with an actuated shipper, an independently-pivoted catch therefor and a bent tripping-lever to disengage said catch having one arm in the same straight line with the catch and the other arm across the path of said shipper.

2. The combination with an actuated shipper, a catch therefor supported in the direction of actuation of said shipper, a tripping-lever having a connection therewith to positively move the same transversely, said connection being free longitudinally thereof.

3. The combination with a double-slotted bracket, an actuated shipper in one slot and a catch and tripping-lever adjustably mounted in the other slot.

4. The combination with an actuated shipper, a catch therefor, an actuated tripping-lever connected to move said catch, an electrically-operated catch for said lever and a cut-out in circuit therewith having a plug connected to be withdrawn by said tripping-lever.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. SCOTT.

Witnesses:
F. E. MOORE,
C. D. SWAN.