(Model.)

2 Sheets—Sheet 1

E. PRIDMORE.

Tripping Device for Harvesters.

No. 239,339. **Patented March 29, 1881.**

Fig. 1.

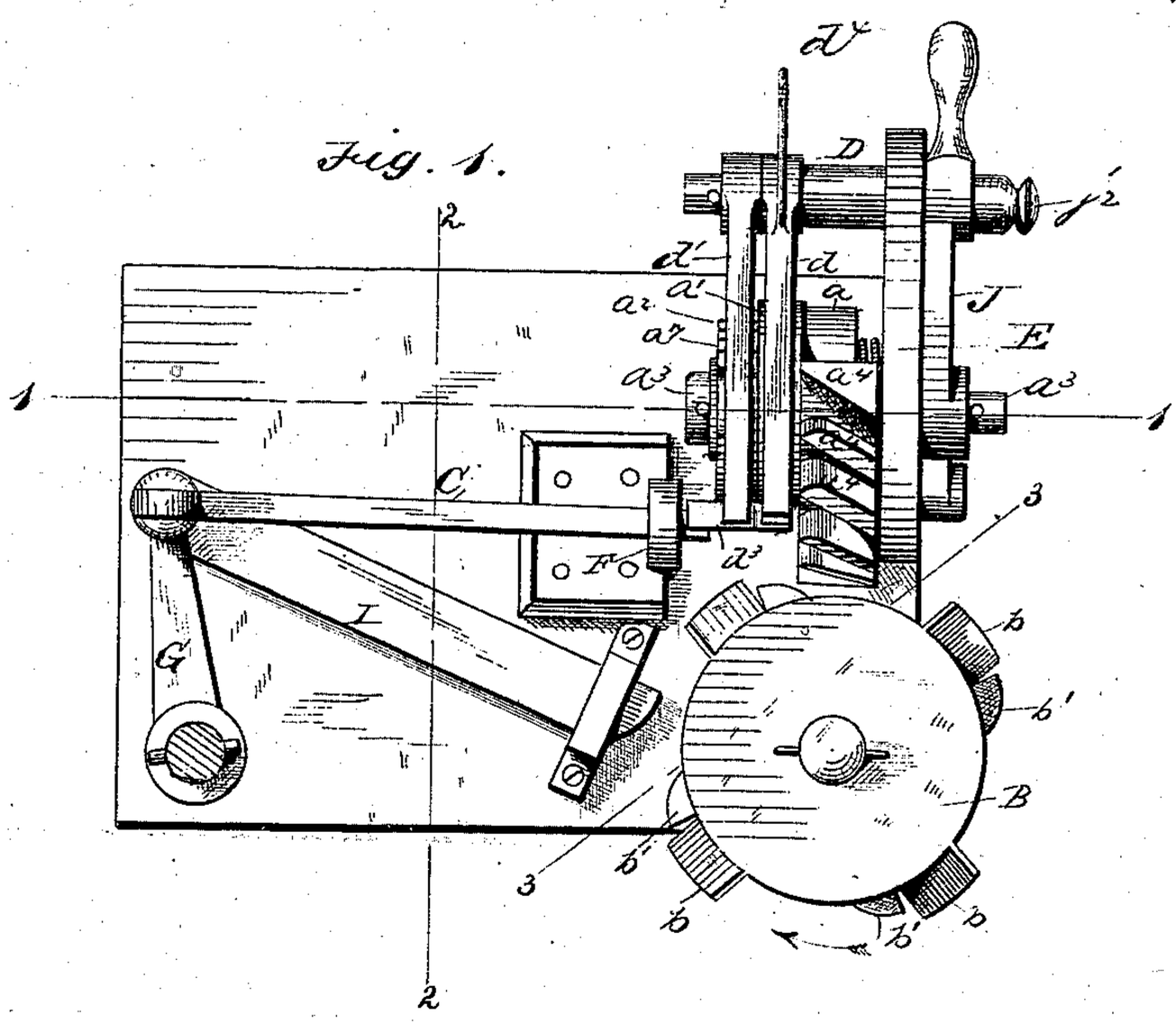


Fig. 2.

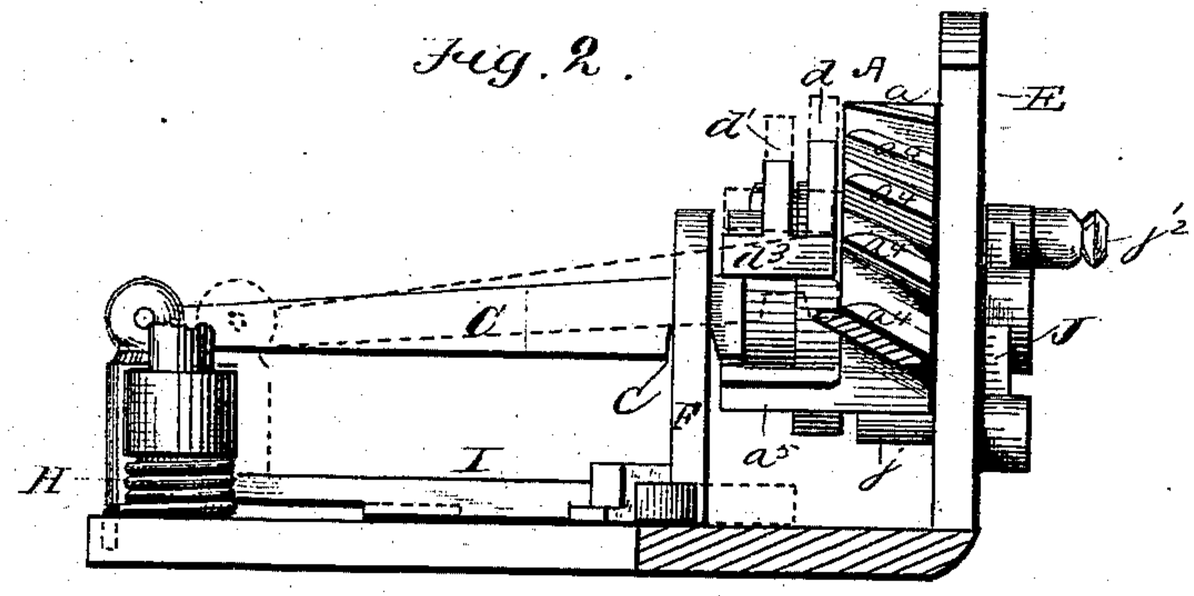
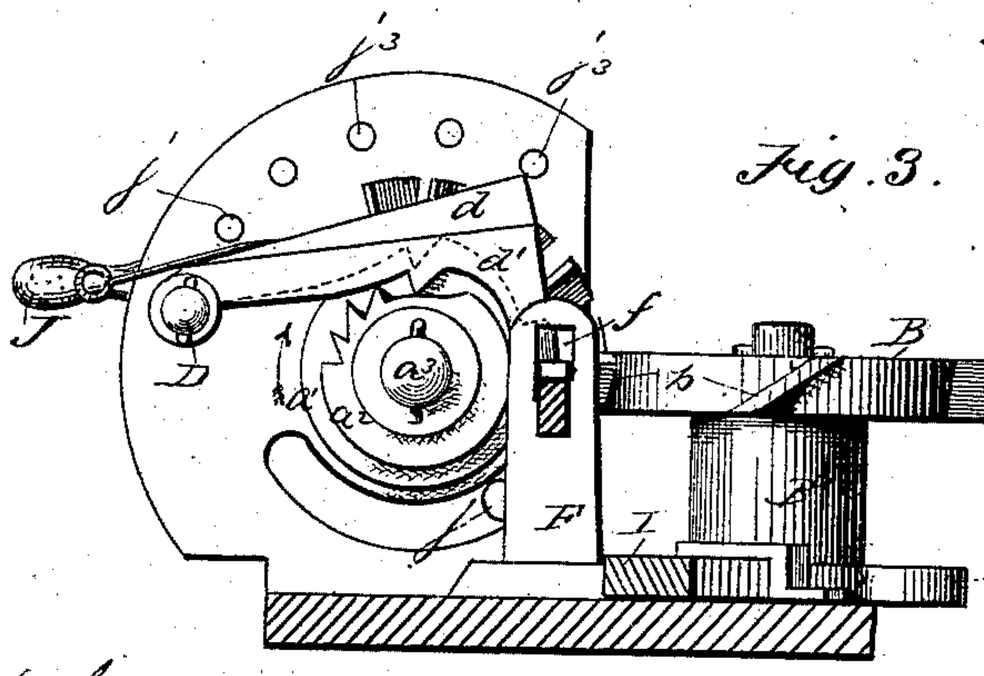


Fig. 3.



Attest,
W. H. H. Knight,
W. Blackstock.

Inventor,
Edward Pridmore
By Hill & Church
His Attys

(Model.) 2 Sheets—Sheet 2.

E. PRIDMORE.

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Fig. 4

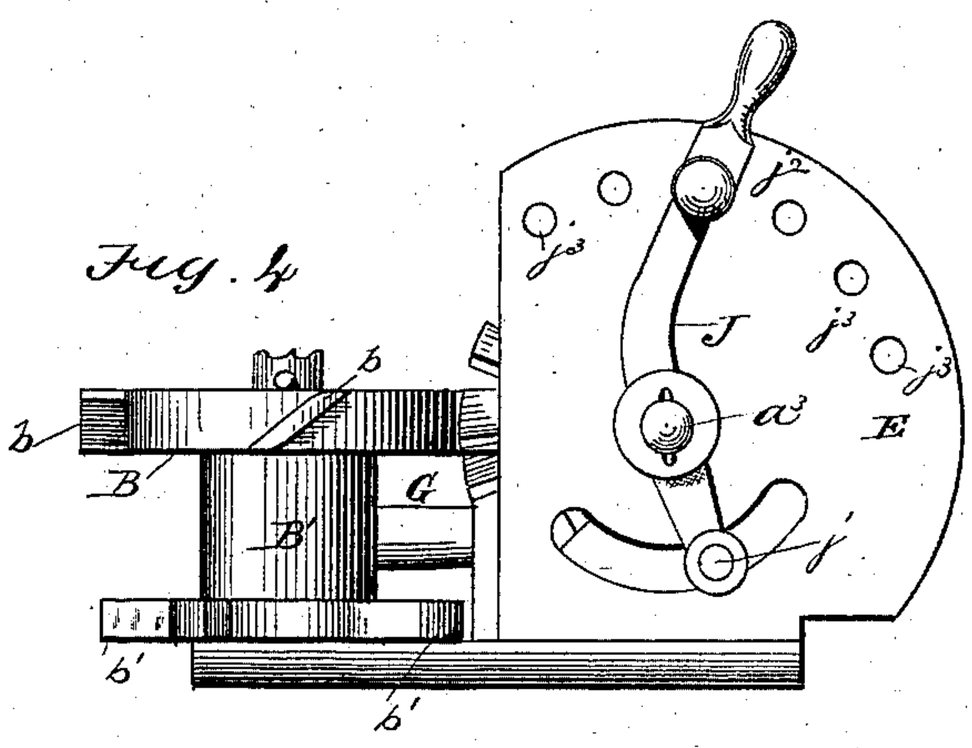


Fig. 7.

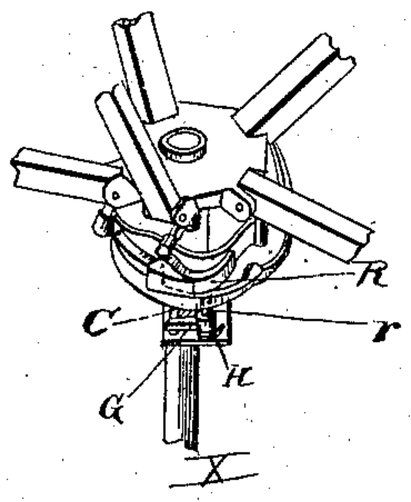


Fig. 5.

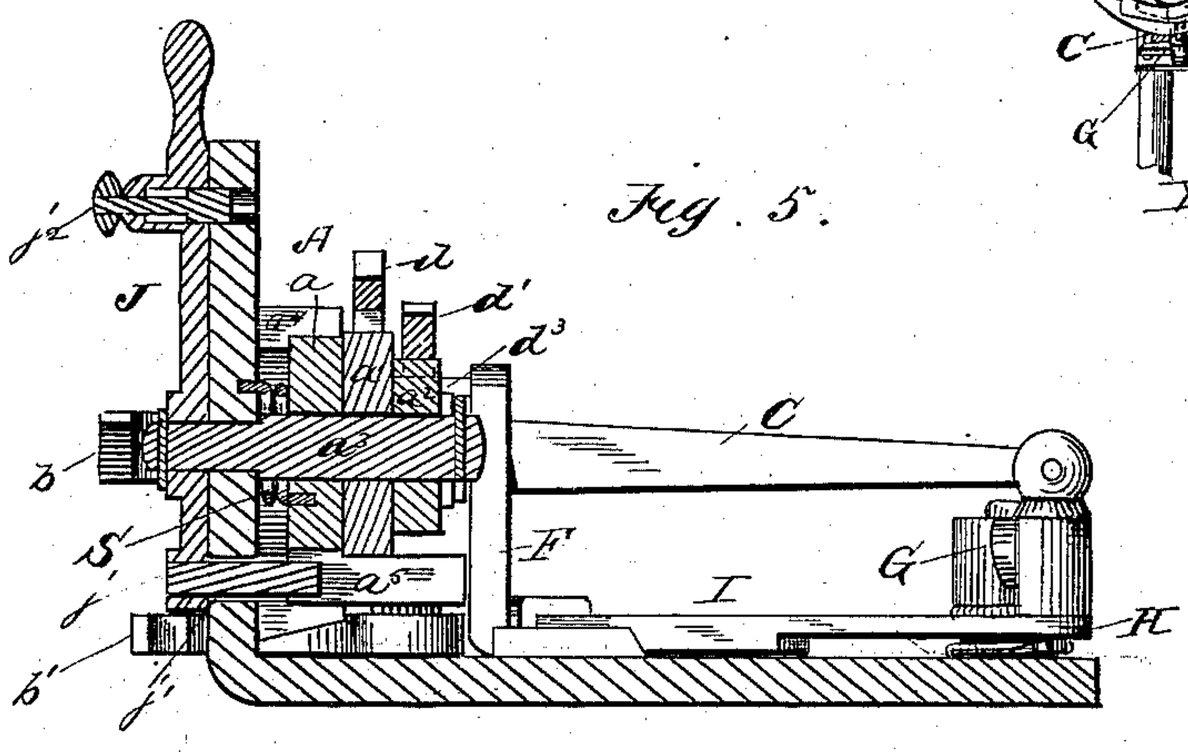
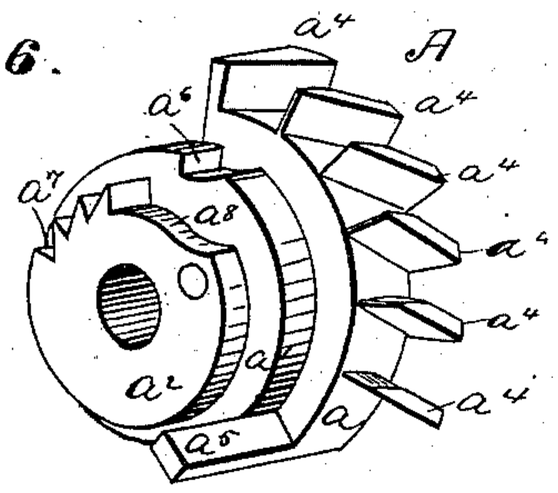


Fig. 6.



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W. W. Knight.
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Inventor,
Edward Pridmore
By Hill & Church,
His Attys.

UNITED STATES PATENT OFFICE.

EDWARD PRIDMORE, OF BROCKPORT, NEW YORK, ASSIGNOR TO THE JOHNSTON HARVESTER COMPANY, OF SAME PLACE.

TRIPPING DEVICE FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 239,339, dated March 29, 1881.

Application filed August 18, 1880. (Model.)

To all whom it may concern:

Be it known that I, EDWARD PRIDMORE, of Brockport, in the county of Monroe and State of New York, have invented a certain new and Improved Tripping Device for Reaping and Binding Machines, &c.; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top-plan view of the invention; Fig. 2, a view showing in full lines the position of the parts just before the latch-bar is tripped, and in dotted lines the same after the latch-bar has been tripped; Fig. 3, a view, taken on line 2 2, Fig. 1, showing particularly the means for arresting the forward movement of the tripping-wheel; Fig. 4, a view of the means for regulating the throw of the tripping-wheel; Fig. 5, a sectional view, taken on the line 1 1, Fig. 1, and Fig. 6 a perspective view, of the tripping-wheel; and Fig. 7 is a view showing the application of the invention to a harvester-rake.

Similar letters of reference in the several figures denote the same parts.

This invention has for its object to provide improved tripping mechanism for controlling the operation of harvester-rake switches, and also for use on grain-binding machines and elsewhere where applicable, which mechanism can be set to operate at regular intervals and more or less frequently, and can also be thrown into or out of action at will.

To this end the invention consists in the construction of the various parts of the mechanism, and the several combinations and subcombinations of the same, all of which I will now proceed to describe.

In the drawings, A represents what I denominate the "tripping-wheel," B the actuating-wheel, and C the latch-bar.

The tripping-wheel A consists of three parts, a a' a^2, made separate and secured rigidly together, or formed in one piece, as preferred, and mounted upon a fixed shaft, a^3. The part a is provided with a series of peripheral teeth or cogs, a^4, inclined to the axis of the wheel, and with which corresponding inclined teeth or cogs b on the actuating-wheel B are adapted to engage, as will be presently explained. Part a is further provided with a lug, a^5, which projects from it laterally parallel with the shaft a^3, and extends beyond the outer face of the part a^2. Part a' is of cylindrical form, and has a single peripheral notch, a^6, for the engagement of a pawl, d, mounted on a shaft, D. Part a^2 is of smaller diameter than part a', and is provided with four, more or less, peripheral ratchet-teeth, a^7, and with which engages a pawl, d', also mounted on shaft D, and also has a portion, a^8, cut away, as shown in Figs. 3 and 6. The pawl d' has a cross-bar, d^3, at its end, upon which the end of the pawl d normally rests. From this arrangement it follows that when the pawl d' is raised, the pawl d is lifted with it, although, on the other hand, the raising of pawl d does not disturb pawl d'. A spring, S, coiled about the shaft a^3, and connected at one end to the part a, and at the other end to a plate, E, operates to throw the tripping-wheel forward in the direction indicated by the arrow in Fig. 3.

The actuating-wheel B is preferably connected to a hollow shaft or hub, B′, and when rotated in the direction of the arrow, Fig. 1, its inclined teeth b engage successively with the inclined teeth a^4 of the tripping-wheel, and rotate the latter backward, step by step, against the tension of the spring S, the pawls d d' assisting in this operation.

The latch-bar C is articulated to a vibrating arm, G, and its forward end passes through a slot or opening, f, in a standard, F, and is provided with a notch, c, which, when the latch is retracted, engages with the standard, as shown in Fig. 2. A spring, H, is applied to the vibrating arm G, to project the latch-bar forward when the notch is released from the standard, and a slide-bar, I, actuated by cam-arms or projections b' on the lower part of the hollow shaft or hub B′, serves as means to retract and reset the latch-bar. Any other preferred arrangement for retracting the latch-bar may be employed if desired.

The operation of the mechanism is as follows: Motion being imparted to the hollow shaft or hub B′, one of the cam-shaped projections b' strikes the rounded end of the slide-bar I and vibrates the arm G outward, there-

by causing the latch-bar to be retracted until its notch engages with the standard, as shown in Fig. 2. The inclined teeth of the actuating-wheel then, one after another, engage with the successive teeth of the tripping-wheel and cause the latter to be raised or rotated backward against the tension of the spring S. Each time the tripping-wheel is moved, the pawl d' rises and falls in front of the next succeeding ratchet-tooth on the part a^2, and holds the wheel until it is further moved by the next tooth of the actuating-wheel. After all the ratchet-teeth have passed the tooth of the pawl d', and while the cut-away portion a^3 is passing said pawl-tooth, the tooth of the pawl d, which up to this time had been riding upon the smooth portion of the periphery of the part a', drops into the notch a^6, thus holding the wheel at a time when the pawl d' is inoperative for that purpose. At the time when the pawl d engages with its notch the tripping-wheel has moved back till its laterally-projecting lug a^5 lies just below the end of the latch-bar. When, therefore, the next advance of the tripping-wheel is made by the engagement of one of the teeth of the actuating-wheel with its last tooth a^4, the lug a^5 strikes the end of the latch-bar and raises it sufficiently to clear its notch from the standard, and at the same time causes the top of the latch-bar to lift the pawls d' and d, whereupon the spring on the arm G causes the latch-bar to be projected inward, while the spring S operates to turn the tripping-wheel back to its first position, as will be readily understood.

It is obvious that if it were not for the pawl d and notch a^6 there would be nothing to hold the tripping-wheel after it had been lifted by the engagement of the actuating-wheel with its next to the last tooth, and that consequently without such pawl and notch the latch would not be tripped at all, because the lug a^5 would never approach near enough to it. While, therefore, the latch will be regularly tripped so long as the pawl is kept in place, the tripping can be stopped by simply lifting said pawl, so that it will not engage with its notch. This can be done by the attachment of a rod or cord to an arm, d^4, near the pivot of the pawl, and extending said rod or cord to where it can be easily reached by the operator. The mechanism is thus kept under the perfect control of the operator.

In order that the automatic tripping of the latch may be effected more or less frequently in a given time, I have provided means whereby the tripping-wheel can be so adjusted that the actuating-wheel may be made to first engage with any one of the series of teeth a^4, and thus cause the lug a^5 to engage with the latch upon the first, second, or any other movement of the tripping-wheel. The means referred to consist of a lever, J, mounted on the fixed shaft a^3, on the outside of the plate E, having a lateral arm, j, at its lower end, which projects inward through a slot, j', in rear of the lug a^5, and having also a spring-pin, j^2, in its upper end, adapted to engage with one of a series of holes, j^3, in the plate E. By shifting the position of this lever the lateral arm j may be made to arrest the forward movement of the tripping-wheel at any point, so as to present any one of the inclined teeth a^4 first to the action of the actuating-wheel. Other devices may be employed to thus arrest the movement of the tripping-wheel with the same effect. As before stated, this tripping mechanism can be used to control the movements of the switch of a harvester-rake, whether it be a plain or a tail switch, and also on grain-binders and elsewhere where applicable. The device to be controlled is preferably connected to the arm G, though it might be connected either to the slide-bar, or to the latch-bar itself, if desired.

Instead of operating the tripping-wheel by an actuating or driving wheel having inclined teeth, such as herein described, a wheel with ordinary plain teeth, pins, projections, or rollers may be employed with equal effect. In fact, any arrangement that will operate to raise the tripping-wheel step by step will answer the purpose.

In applying the invention to a harvester-rake, such, for instance, as shown in Fig. 7, the hollow shaft or hub B, to which the actuating-wheel is connected, is mounted upon the rake-shaft (marked X) so as to turn with it when forwardly rotated. The arm G is connected to the shank r of the rake-switch R, and the tripping of the latch C by the operation of the actuating-wheel, tripping-wheel, and other described parts, causes the spring H to throw the switch open, and allows the roller on the rake-arm to pass through. The closing of the switch, and consequently the resetting of the latch, may be effected by the operation of the rotating cam-projection on the hub of the actuating-wheel and the slide connected to the arm G, as before described; or, if the switch be a tail-switch, such as shown in said Fig. 7, by the roller on the rake-arm acting against the tail of the switch, as will be readily understood.

I claim as my invention.

1. In a tripping mechanism, the combination, with the latch or part to be tripped, of a tripping-wheel, an actuator for moving the tripping-wheel in one direction, step by step, to trip the latch or part to be tripped, and means for preventing a return movement of the tripping-wheel while being operated upon by the actuator, substantially as described.

2. In a tripping mechanism, the combination, with the latch or part to be tripped, of a tripping-wheel, an actuator for moving the tripping-wheel in one direction, step by step, to trip the latch or part to be tripped, means for preventing the return movement of the tripping-wheel while being operated upon by the actuator, and a spring for returning the tripping-wheel to its normal or first position after being released from the detaining means, substantially as described.

3. In a tripping mechanism, the combina-

tion, with the latch or part to be tripped, of a tripping-wheel, an actuator for moving the tripping-wheel in one direction to trip the latch or part to be tripped, means for preventing the return movement of the tripping-wheel while being operated upon by the actuator, a spring for returning the tripping-wheel to its normal or first position after being released from its detaining device, and means for automatically releasing the tripping-wheel from the detaining device as the latch or part is tripped, substantially as described.

4. In a tripping mechanism, the combination, with the latch or part to be tripped, of a tripping-wheel, an actuator for moving the tripping-wheel in one direction, step by step, to trip the latch or part to be tripped, a pawl for holding the tripping-wheel from return movement after each step, except the next to the last step before the tripping takes place, and a second independent pawl for detaining the tripping-wheel after the step next before the tripping takes place, substantially as described.

5. In a tripping mechanism, the combination, with the latch or part to be tripped, of the tripping-wheel, an actuator for moving the tripping-wheel in one direction to trip the latch, the pawls for detaining the tripping-latch, and adapted to be automatically disengaged from the tripping-wheel by the latch as it is tripped, substantially as described.

6. The combination of the latch, its spring-arm, the slide-bar connected to said arm, and the rotating cam projection on the hub of the actuating-wheel, whereby the latch is reset after being tripped, substantially as described.

7. The combination of the tripping-wheel, its spring, and a stop for arresting its forward movement, substantially as described, for the purpose specified.

8. The combination of the tripping-wheel, its spring, the adjustable stop-arm, the lever on which the stop is mounted, and means for locking the lever in different positions, substantially as described.

9. The combination, with the tripping-wheel, of the pawls *d d'*, the former of which is adapted to be thrown out of engagement with the tripping-wheel at the will of the operator, substantially as described, for the purpose specified.

10. The combination of a latch, a reciprocating tripping-wheel, means for moving the tripping-wheel in one direction to trip the latch, and means for moving it in the opposite direction to return it to its first or normal position after tripping the latch, substantially as described.

11. The combination of a latch, a reciprocating tripping-wheel, an actuator for moving the tripping-wheel in one direction, step by step, to trip the latch, and means for returning the tripping-wheel to its normal or first position, substantially as described.

12. The combination of a latch, a reciprocating adjustable tripping-wheel having a step-by-step movement in the direction in which it operates to trip the latch, an actuator for imparting to the tripping-wheel its step-by-step movement, and means for returning the tripping-wheel to its normal or first position, whereby the tripping-wheel is enabled to be set so as to trip the latch in a greater or less number of steps, substantially as described.

EDWARD PRIDMORE.

Witnesses:
H. D. DEWEY,
H. W. JOHNSTON.