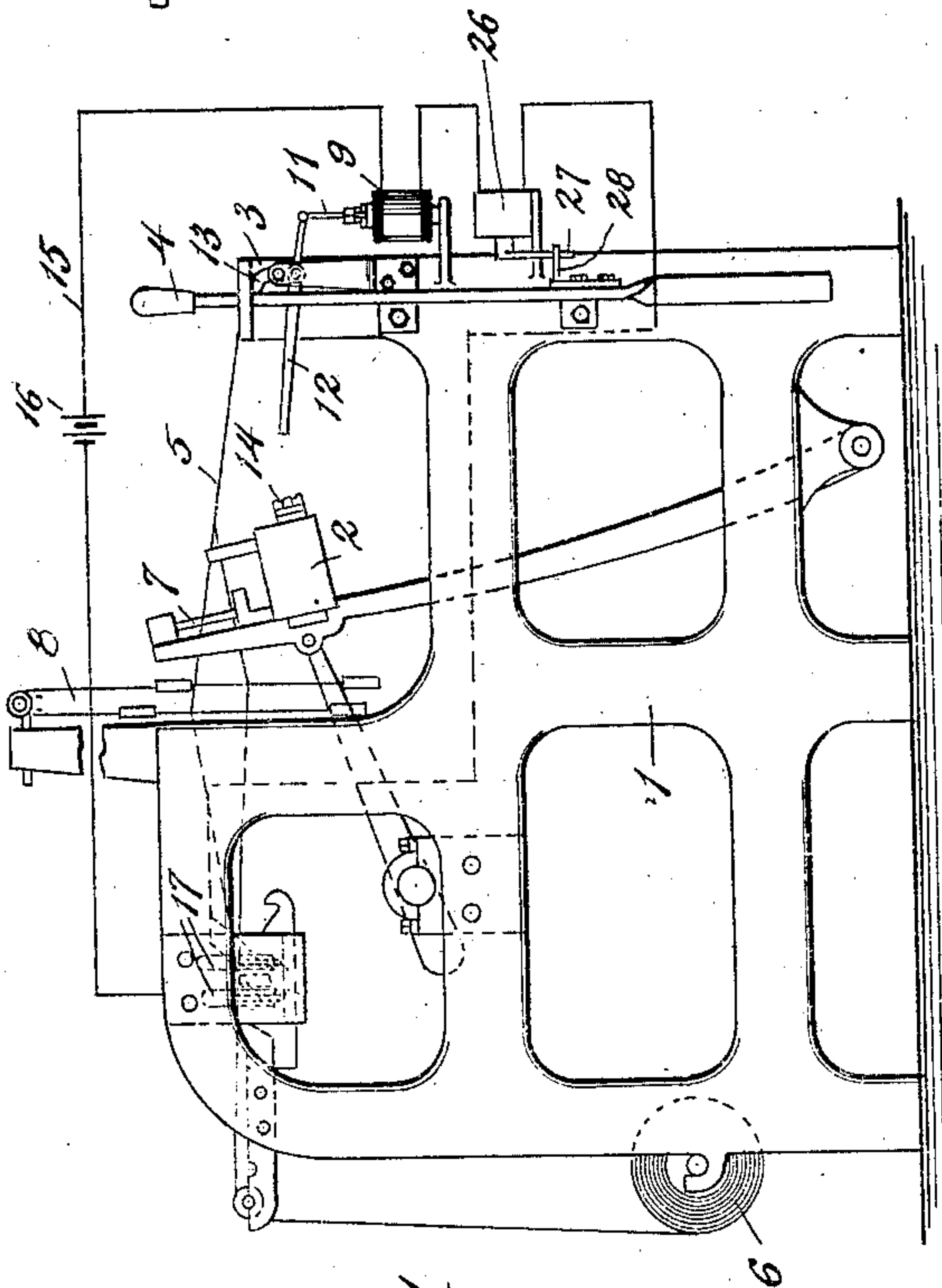
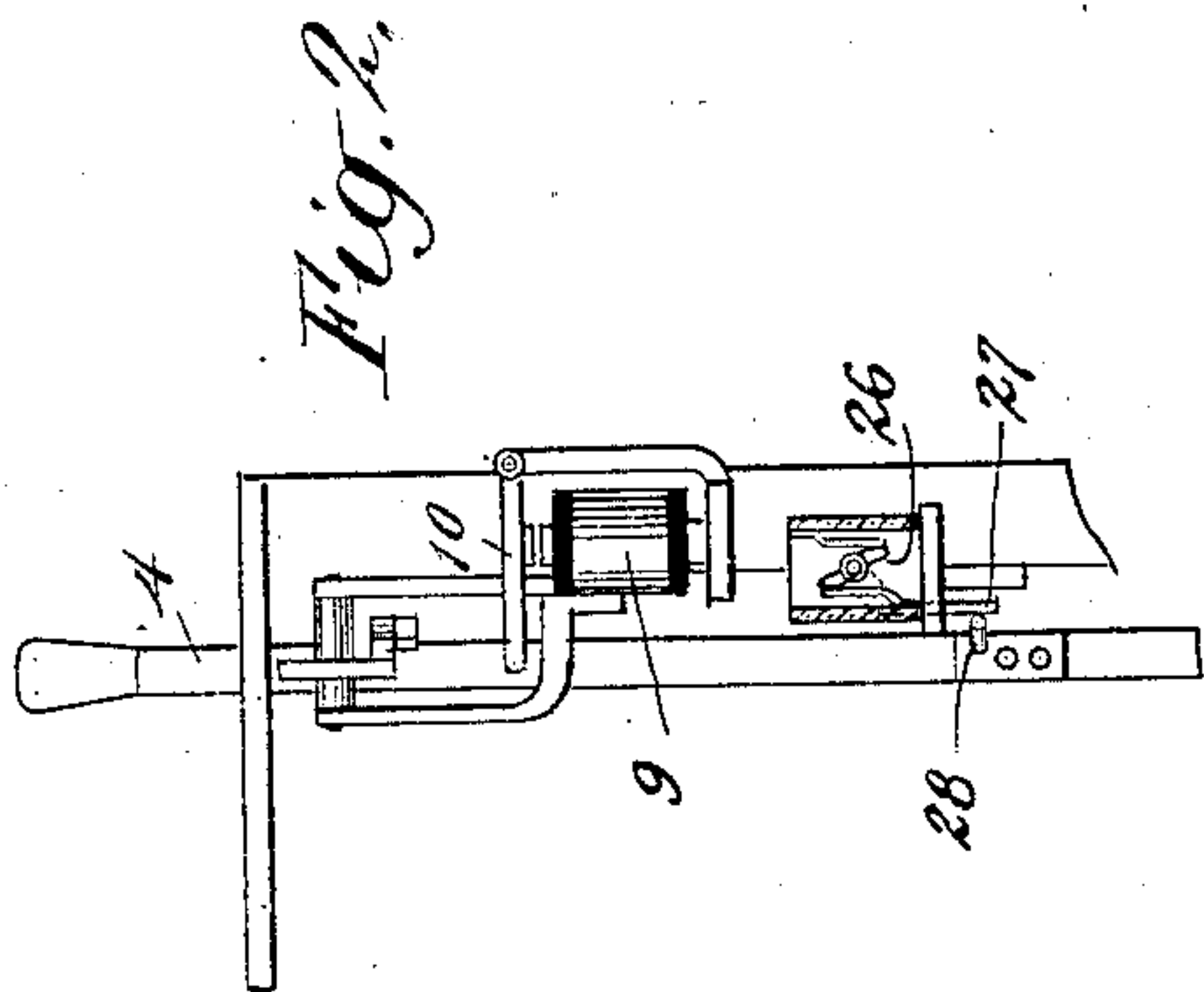


No. 829,479.

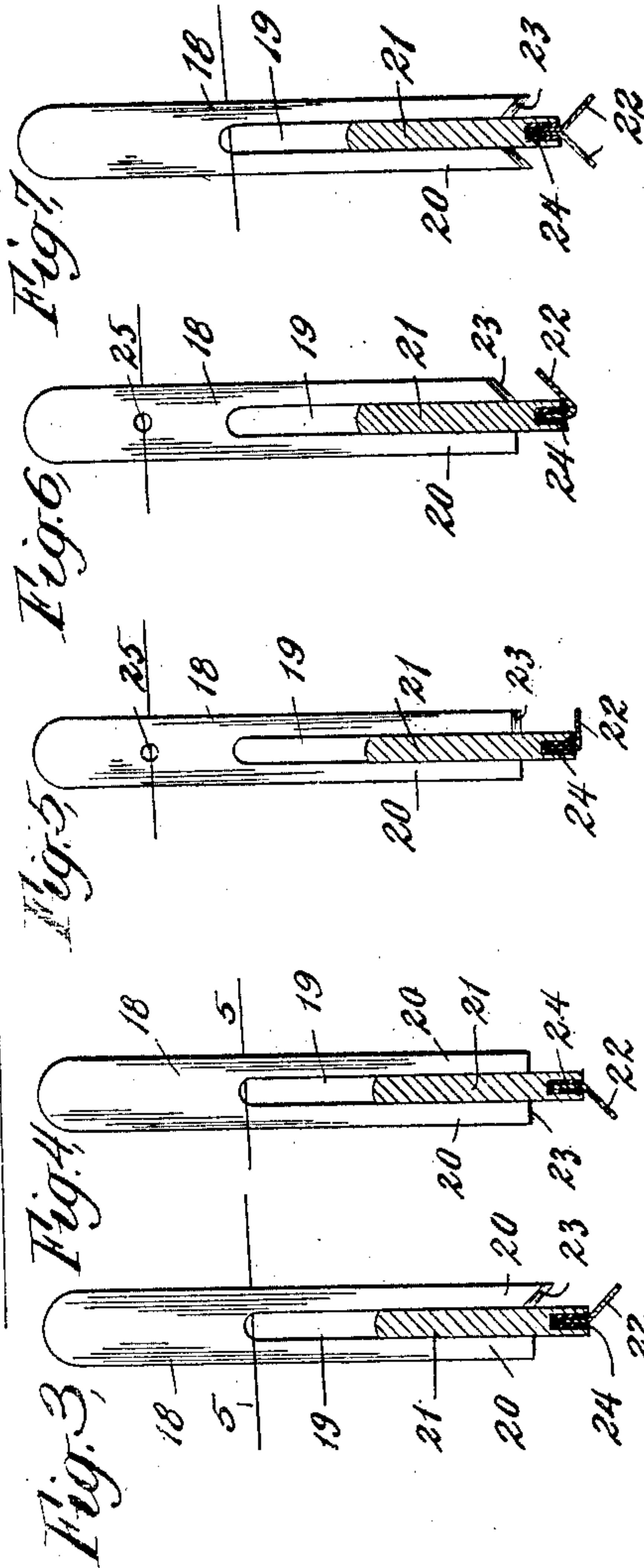
PATENTED AUG. 28, 1906.

A. MANN.
WARP STOP MOTION FOR LOOMS.
APPLICATION FILED SEPT. 15, 1905.



WITNESSES:

Fig. 1
A. S. Williams
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INVENTOR

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UNITED STATES PATENT OFFICE.

ALBERT MANN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO KIP-
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OF NEW YORK.

WARP STOP-MOTION FOR LOOMS.

No. 829,479.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed September 15, 1905. Serial No. 278,555.

To all whom it may concern:

Be it known that I, ALBERT MANN, a citizen of the United States, and a resident of the city of Bridgeport, State of Connecticut, have invented certain new and useful Improvements in Warp Stop-Motions for Looms, of which the following is a specification.

The present invention relates to a warp stop-motion for looms, and more particularly to a form of terminal included in the controlling-circuit.

The object of the invention is to provide a terminal in which the annoyances and dangers due to the accumulation of lint shall be reduced to a minimum, particularly in such cases where it is desired to provide a contact below the warp.

This and other features of the invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a loom, showing the application of the invention thereto. Fig. 2 is a front elevation of the left-hand end of the breast-beam; Fig. 3, a side view of a drop device with my improved terminal in vertical section; Figs. 4, 5, 6, and 7, similar views showing modified forms of terminal.

Similar reference-numerals indicate similar parts in the several views.

Referring to the drawings, 1 designates the frame of the loom; 2, the lay; 3, the breast-beam; 4, the shipper-lever; 5, the warps; 6, the warp-beam; 7, the reed, and 8 the heddles. These parts may be and are of the usual construction and arrangement in looms. The shipper-lever, as usual, occupies a slot in a bracket forming an extension of the breast-beam and engages a shoulder when the loom is running. When freed from this shoulder, a spring shifts said lever to stop the loom, all as will be readily understood. In order to set the shipper-lever free, an electromagnet 9 is mounted below the breast-beam on a bracket, and its armature-lever 10 is connected by a link or wire-rod 11 to one end of a dagger 12. Pivotally supported by pins or studs in a bracket secured to the loom-frame is a knock-off lever 13, attached at its lower end to the dagger 12, and its upper end adapted to engage the shipper-lever 4. When the magnet 9 is energized, the dagger 12 is moved into position to be impinged upon by a bunter 14, mount-

ed on the lay or some other vibrating or moving part of the loom. The impingement of the bunter on the dagger moves the knock-off lever to free the shipper-lever, as will be readily understood.

In order to energize the electromagnet 9, and thus set in motion the loom-stopping devices whenever a warp-thread breaks or becomes unduly slack, a controlling-circuit 15 is employed. This circuit includes the coils of said magnet and a battery or other source of current 16, the circuit-terminals and circuit-closing devices being situated at the point 17.

In this general class of stop-motions a thin metallic drop is suspended from each warp-thread, and these drops, as heretofore constructed and arranged, inclose what has been called a "compound terminal," consisting of a bar electrically connected to one of the lead-wires from the battery or other source of current and a blade set into, but insulated from, said bar and electrically connected to the other lead-wire. The drops are at all times or normally in contact with said bar and held out of contact with the blade by the tension of the warp-threads. When a warp-thread breaks or becomes unduly slack, the drop suspended thereon falls and closes the controlling-circuit by contact with the terminal blade, thus energizing the magnet and setting in operation the stopping mechanism. The present invention relates to the form of compound terminal and will now be described.

Referring to Fig. 3, 18 designates a metallic drop having an open-ended slot 19, so as to provide two depending legs 20. The compound terminal comprises a bar 21, of any suitable conductive material, which extends across the loom and is supported at its ends on the frame and is insulated therefrom. Said bar is electrically connected to one of the lead-wires of the battery and constitutes, therefore, one of the battery-terminals. The bar 21 is of such width that when the drops are normally suspended the legs will embrace said bar in substantially the manner shown, the latter thus serving as a guide for the drops with which they are in constant contact. The lower edge of the bar 21 is grooved, and set into insulation in the groove, as shown, is a blade 22, of con-

ductive material, preferably sheet-copper, which is electrically connected to the other lead-wire and constitutes, therefore, the other terminal of the circuit. The blade 22 extends across the loom and projects laterally at such an angle to the side of the bar 21 as to lie in the path of a falling drop, the movement of such drop being arrested when it contacts with the blade, thus closing the circuit. The normal tension of the warp-threads is sufficient to hold the drops above and out of contact with the blade. The blade 22 may extend at an obtuse angle to the plane of the side of the bar 21, as shown in Figs. 3 and 4, or it may be at right angles thereto, as shown in Fig. 5, or even at an acute angle, as shown in Fig. 6. If set at an acute or obtuse angle, I prefer to incline the lower edge 23 of the leg of the drop which contacts therewith at a corresponding angle, so as to insure good electrical contact by a shearing action when a drop falls. This, however, is not absolutely essential, as the lower contacting edge of the drop may be squared, as shown in Figs. 4 and 5.

In Figs. 3 to 6 I have shown but one blade 22, although, if desired, two such blades may be employed, preferably arranged as shown in Fig. 7. The warp may be threaded through the slot 19 so as to rest against the upper wall thereof, as indicated in Fig. 3, or the drops may be provided with thread-apertures 25, as indicated in Figs. 5 and 6. With the present form of drop and compound terminal the accumulation of lint in the slot 19 is not of serious moment so long as it does not accumulate in sufficient quantity to clog and prevent the drop when falling to contact with the blade 22, and in practice it has been found that with this form the cleaning of the drops is not required except at comparatively long intervals. Furthermore, it has been found that lint does not collect to any appreciable extent on the blade 22, especially when the latter is inclined at an obtuse angle, as in Figs. 3 and 4, and a comparatively clean surface is presented to receive a falling drop, the impact of the latter being sufficient to scrape off any lint that may be present. Moreover, in the present arrangement the blade 22 is easy of access and may be readily cleaned by simply passing a cloth over its surface. These features are of advantage in that they provide an arrangement that is feasible for use when it is desirable to have the contact below the warp. A convenient way to construct the compound terminal is to split the lower edge of the bar 21 and set the blade 22 therein, the insulation 24 being preferably wrapped around the upper edge of said blade. Then by hammering the bar 21 the split ends will be brought together so as to compress them about the inserted edge of the blade 22. However, any other suitable

way of supporting the blade may be resorted to.

While I have shown the blade 22 set in the lower edge of the bar 21, I do not desire to be limited to that exact construction, as it is obvious that the blade may be set into the side of the bar so as to project therefrom, the essential feature being that the blade shall project in such manner as to lie in the path of a falling drop. The circuit 15 also includes a switch 26, of any usual or well-known type, having contact-plates by which the circuit may be opened or closed. As here shown, the switch is supported on a bracket and is provided with a switch-lever 27 in contact with and adapted to be moved by a projecting arm 28, secured to the shipper-lever. During the normal operation of the loom the circuit is closed through the switch 26 and at all other points except through the compound terminal at 17. When the circuit is closed at the compound terminal, the shipper-lever is released as above described to stop the loom, and as said lever is shifted the switch-lever 27 is moved so as to immediately after the loom has been stopped break the circuit through switch 26. When the loom is again set in motion, the break in the circuit at the switch 26 will be closed.

What I claim, and desire to secure by Letters Patent, is—

1. A compound terminal for use on looms comprising a bar and a blade set into said bar and insulated therefrom, said blade projecting at an angle to the plane of the side of the bar.

2. A compound terminal for use on looms comprising a bar and a blade set into said bar and insulated therefrom, said blade projecting at an obtuse angle to the plane of the side of the bar.

3. A warp stop-motion for looms comprising drop devices having open-ended slots and adapted to be maintained in normal position by warp-threads, and a circuit-terminal consisting of a bar adapted to enter said slots to serve as a guide for the drops, and a blade secured to and insulated from said bar, said blade projecting from said bar so as to lie in the path of a falling drop.

4. A warp stop-motion for looms comprising drop devices having open-ended slots in the lower part thereof and adapted to be maintained in normal position by warp-threads, a compound circuit-terminal consisting of a bar adapted to enter said slots and with which said drops are in constant contact, and a blade secured to and insulated from said bar, said blade projecting from said bar below the normal position of the drops.

5. In a warp stop-motion for looms the combination of a controlling-circuit for setting in operation the stopping mechanism,

drop devices maintained in normal position by warp-threads, a compound terminal for said circuit consisting of a bar with which said drops are in constant contact, and a
5 blade set into said bar and insulated therefrom, said blade projecting at an angle to the side of the bar so as to lie in the path of a falling drop.

6. In a warp stop-motion for looms the
10 combination of a controlling-circuit for setting in operation the stopping mechanism, drop devices maintained in normal position by warp-threads, said drops consisting of metallic strips formed with an open-ended

slot, a circuit-terminal consisting of a bar 15 adapted to enter said slots and serve as a guide for the drops, and a blade secured to and insulated from said bar, said blade projecting from said bar below the normal position of the drops so as to arrest a falling drop 20 and thereby close the circuit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT MANN.

Witnesses:

L. E. HEBBARD,
A. OAKLEY.