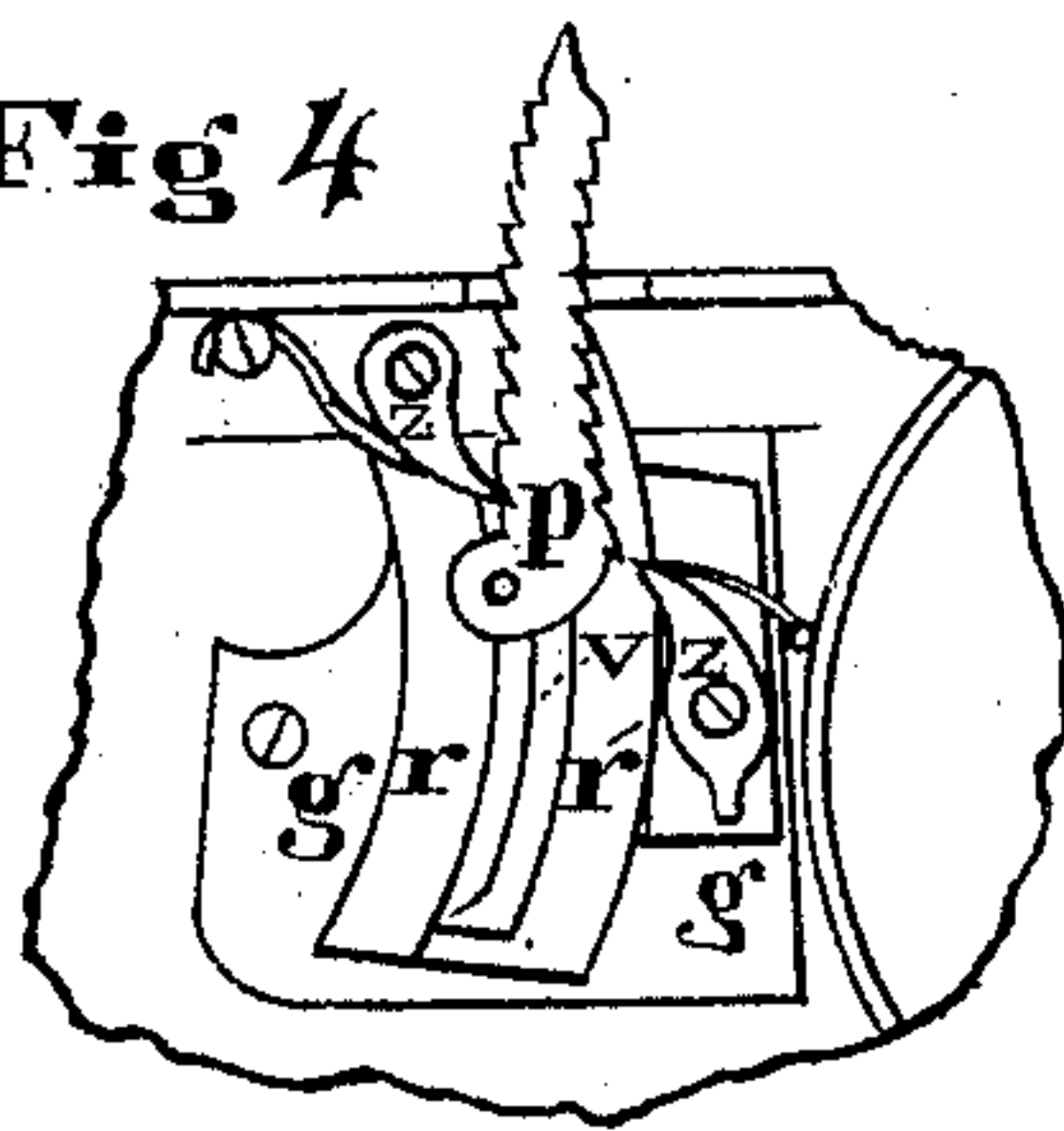
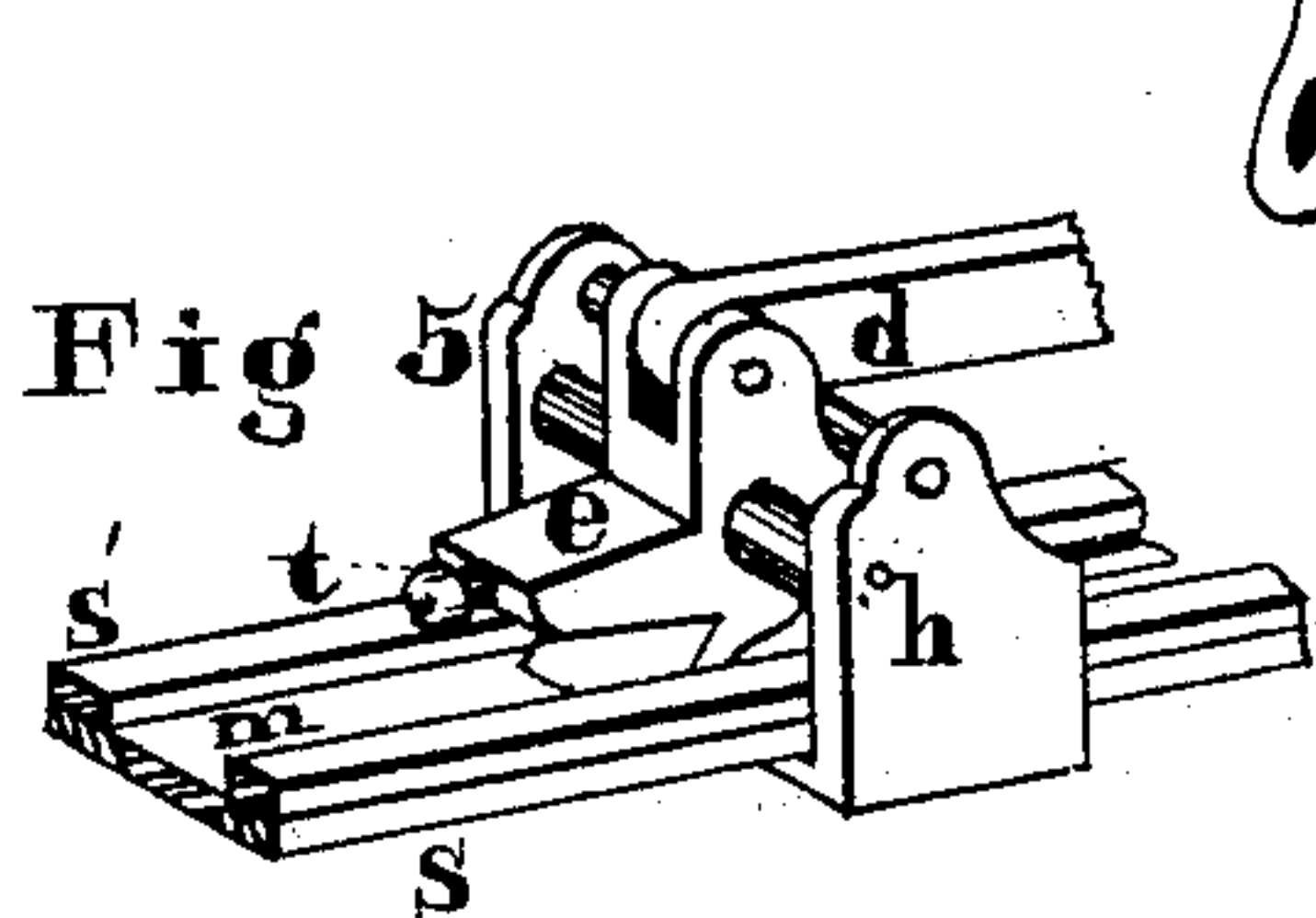
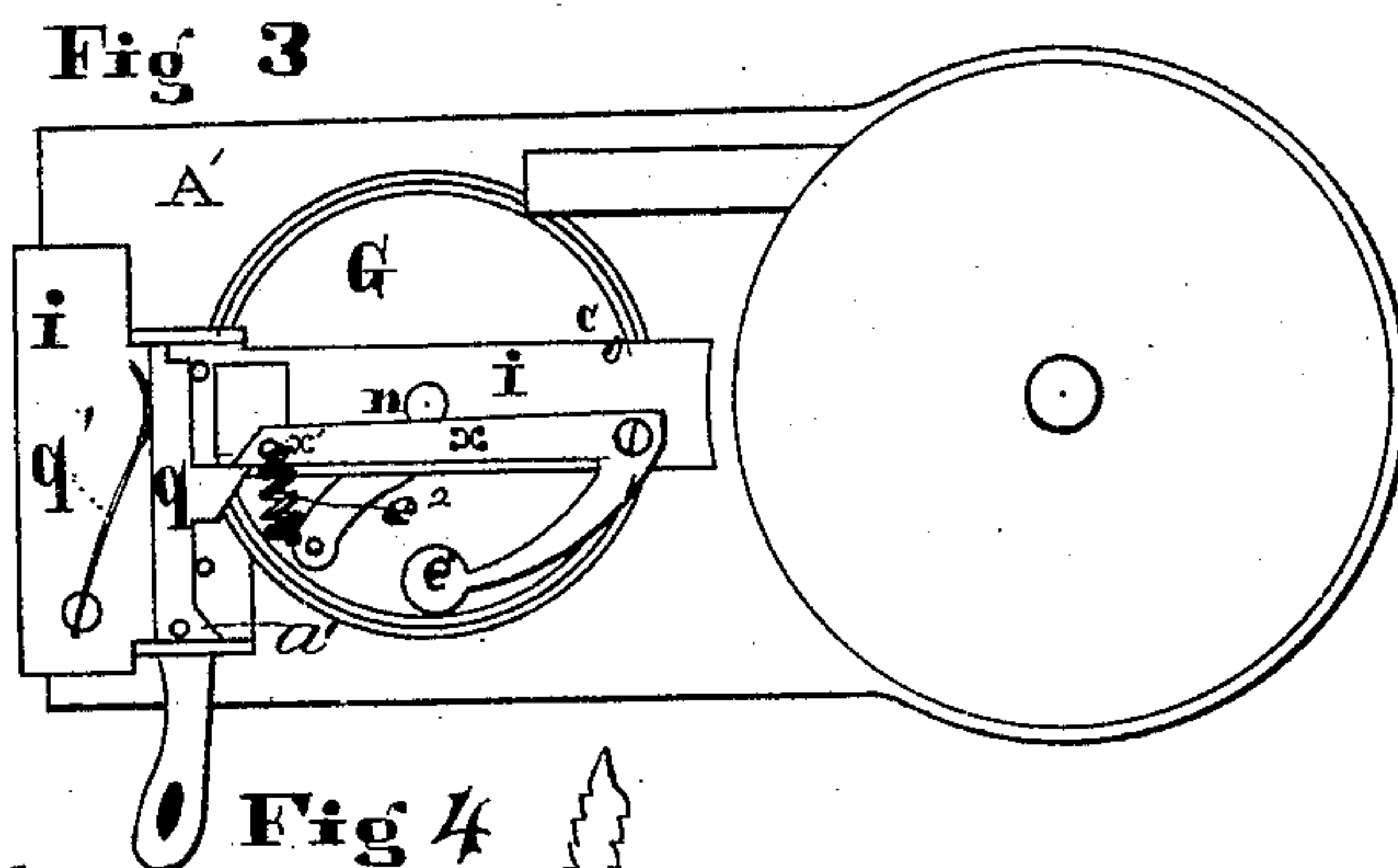
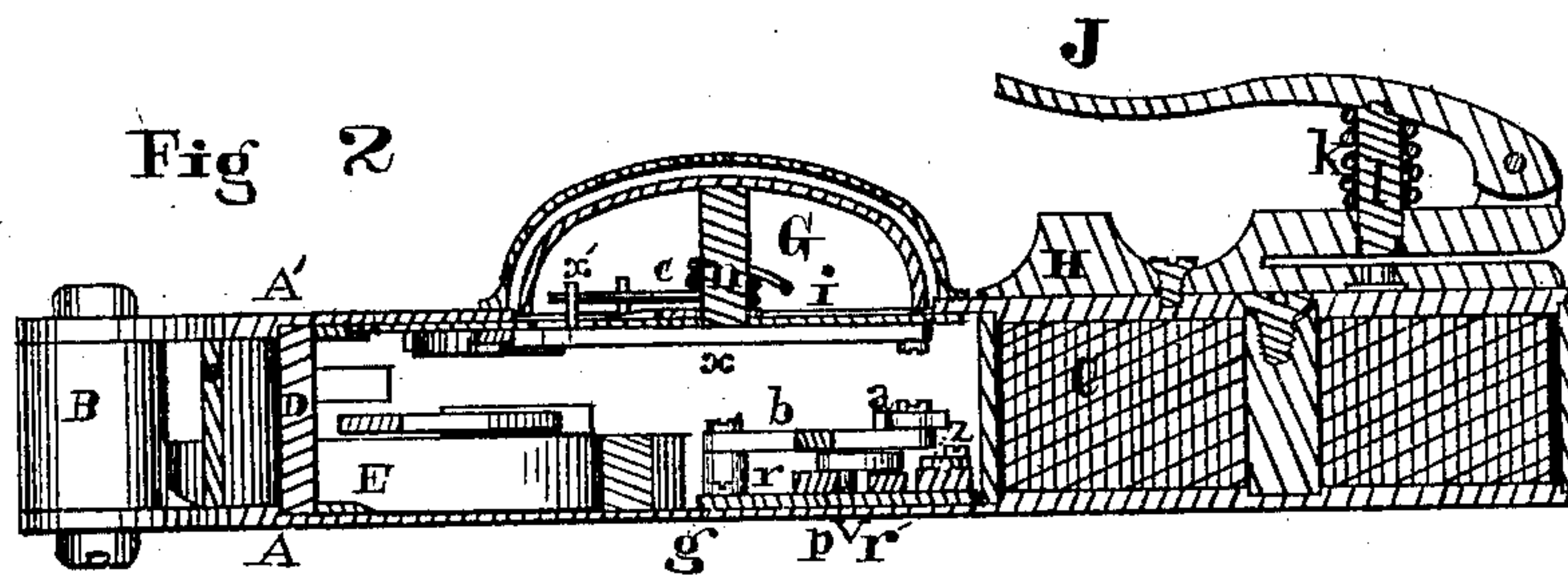
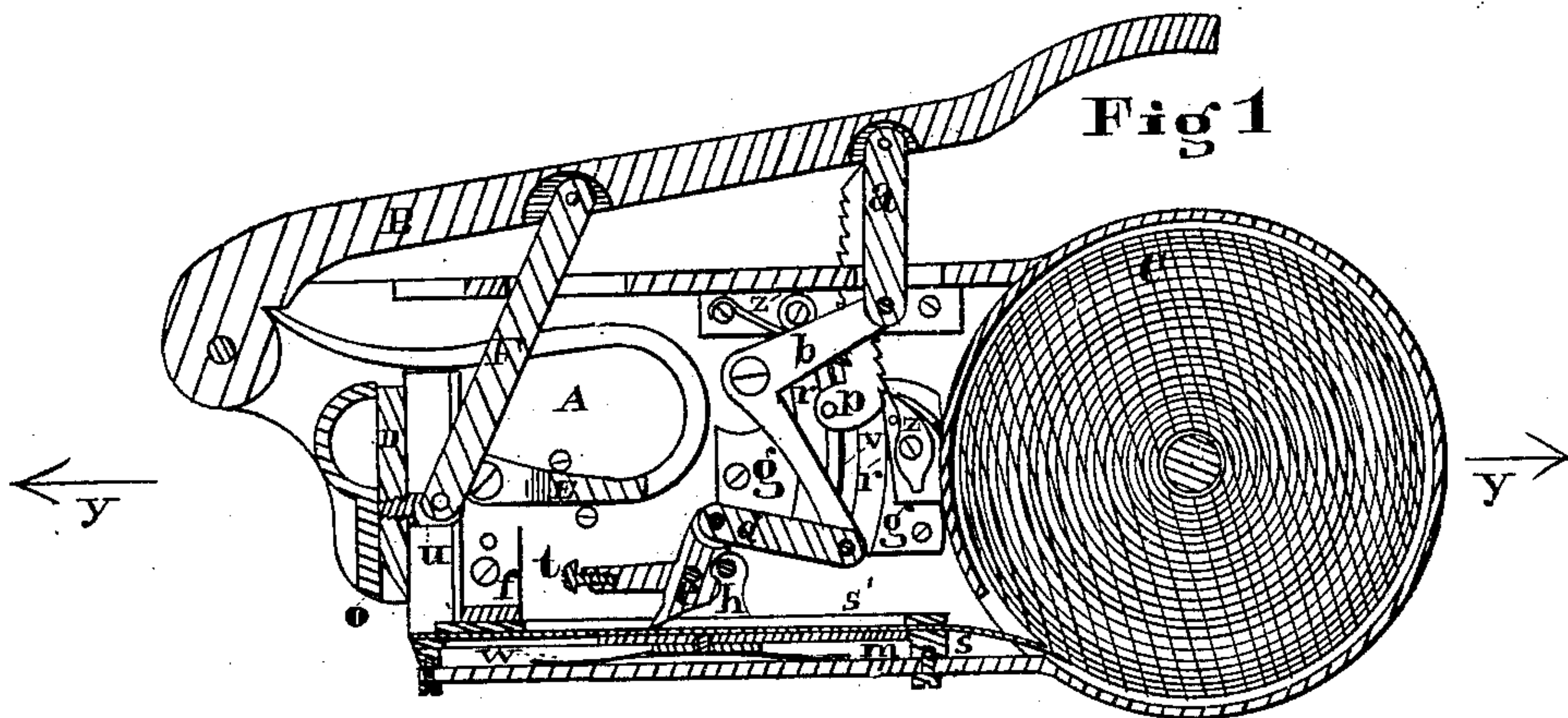


C. H. NYE & H. E. FESSEL.
CONDUCTORS' PUNCH AND REGISTER.

No. 176,984.

Patented May 2, 1876.



Attest
George J. Murray
E. D. Grafton.

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their atty.

UNITED STATES PATENT OFFICE.

CHARLES H. NYE AND HENRY E. FESSEL, OF CINCINNATI, OHIO, ASSIGNORS
TO HENRY NYE, OF SAME PLACE.

IMPROVEMENT IN CONDUCTORS' PUNCHES AND REGISTERS.

Specification forming part of Letters Patent No. **176,984**, dated May 2, 1876; application filed
July 13, 1875.

To all whom it may concern:

Be it known that we, CHARLES H. NYE and HENRY E. FESSEL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Railroad-Conductors' Punch and Ticket-Register, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings:

Our invention consists, first, in a peculiar arrangement of devices for feeding paper from a coil in uniform lengths to the cutting mechanism; second, in an arrangement of knives for severing the coupons from said coil; third, in a combination of devices to secure uniform lengths of the coupons severed, and to prevent more than one coupon being severed without sounding an alarm-bell; fourth, in an arrangement of devices for striking the bell as each coupon is severed; fifth, in a peculiar canceling-punch, attached to the outside of the case which contains the above devices; and, sixth, in arranging all of the above parts in a neat compact instrument that can be conveniently handled, and by which the operations of canceling the tickets, feeding the paper, severing the coupons, and sounding the signal can be performed simultaneously.

In the drawings, Figure 1 is a central vertical section of the instrument, drawn full size, and shows the devices for feeding, severing, and regulating the lengths of the coupons, as well as its construction and shape, the lever being elevated to its highest point. Fig. 2 is a central horizontal section taken through the line *yy* of Fig. 1, showing the upper part of the instrument, the alarm-bell, and canceling-punch. Fig. 3 is an inside plan view of the removable side of the device, to which the bell, its striking mechanism, and the canceling-punch are attached. Fig. 4 is a plan view of the mechanism which regulates the stroke of the lever, (prevents it from being withdrawn after it is started down until it has made its full stroke, and, after it begins to rise, prevents it from being again pushed down until after it has reached its highest point,) the side of the case to which it is attached being shown in broken section; and Fig. 5 is an enlarged perspective view of the paper-feeding devices, the slides and guides

being shown in section at front and broken away at back.

A is the side of the case, to which is permanently attached the rim; the spring E, which returns the lever B to its elevated position after a coupon is severed; angle-piece *f*, to which the guide *s'* is secured; the piece to which the pawl *z'* and its spring are attached; the piece *g*, to which are attached the guides *rr'*; spring *v*, and the piece to which the pawl *z* is attached; the standard to which the crank arm *b* is secured and sustained in position; the standard or shaft around which the coil of paper turns; and the guides which keep the knife D in position.

A' is the other side of the case. It is divided near the front, the front part being secured permanently to the rim and brace-piece O to give strength to the parts of the sides that form the jaws between which the lever B is fulcrumed. To the removable part of A', Fig. 3, is secured externally the canceling-punch and a perforated cap, which covers and protects the bell G. Through this side is a circular opening. Across this opening on the inside, Fig. 3, and extending forward past the line of its joint, is a plate, *i*, to which the bell and all the striking mechanism are secured. As shown in Fig. 3, the hammer *e*¹ is secured to a lever, *x*, pivoted at one end, to which is attached a spring, *e*². A vertical slide, *q*, having an inclined shoulder, *a'*, on its edge, is arranged to move between pins or other guides, and a spring, *q'*, is arranged to press against its opposite edge, so that, as it is pressed down, a shoulder or projection thereon will engage with the end of lever *x*, and thus draw back the hammer. As the slide *q* is pressed still farther its incline *a'* causes it to be moved back away from the end of the lever *x*, thereby releasing the hammer, which, by the action of the spring is caused to strike the bell. The upper end of slide *q* is slotted for the reception of a pin projecting from the side of the hand-lever B, and the parts are so timed and arranged as to cause the bell to sound only when the hand-lever is moved far enough to cause the cutter to cut off a ticket. D is the movable knife or upper blade of the severing-shears, fitted to slide vertically between the sides A and A', and connected to lever B

by pitman F. The lower blade of the shears is formed upon the end of the lower slide-guide *s*. The paper feeding mechanism is composed of carriage *h*, dog *e*, slide *m*, and guides *s* and *s'*, the carriage and its attachments being operated by lever B through links *a* and *d* and crank-arm *b*. The lower guide *s* has feet or projections at each end, and is secured to the lower rim of the case by screws, leaving a space between the rim and guide for the lower part of the carriage and its spring *w* to slide back and forth in. The guides *s* and *s'* are slotted, the inner edges of the slots, in *s*, being beveled so as to form, in connection with *s'*, a groove for the slide *m*, which is dovetailed in cross-section to play back and forth in. The slide *m* is secured to the lower part of the carriage *h*, so as to have a simultaneous movement with it. The dog *e* is journaled between the upright sides of the carriage *h*, and a brace running across, back of the dog *e*, and riveted in the sides of *h*, limits the movement of *e* backward, so as to secure the movement of the carriage back when the lever B is raised. The lower edge of *e* is sharpened or roughened to secure a firm bite of the paper between it and slide *m*. The piece *e* has a projection in front fitted with a set-screw, *t*, for the purpose of regulating the length of the coupons. The head of screw *t* is rounded, so that in the forward movement of the carriage it will strike against and slide up upon the angle piece *f*, and release the paper when the required length has been fed forward. C is the coil of paper printed in coupons consecutively numbered, so that the last coupon cut off will always show the number of fares taken up by the conductor.

p is a ratchet-arm notched on both edges. The upper end is journaled in the lever B. In its lower end is a guide-pin projecting inward, which is kept in contact with the guides *r* and *r'* by the spring *v*. The spring *v* is mortised into the piece *g* at its center, the two ends being free; the lower end is inclined toward the guide *r* and the upper end toward the guide *r'*. As the arm *p* is pressed down by the lever B, the spring *v* keeps it in contact with the pawl *z'*, which allows only a downward movement until its pin passes the lower end of spring *v*, when the pin is pressed against the guide *r'* and arm *p* kept in contact with pawl *z*, which allows only an upward movement of the arm until the pin passes the upper end of spring *v*, when it is again pressed against the guide *r*, and the arm *p* released from pawl *z*, and again brought under the action of pawl *z'*. Each of the pawls *z* and *z'* are pressed against the ratchet-arm by a wire spring pressing against their backs, and their movement forward limited by pins in front of each.

The cancelling punch is composed of piece H, lever J, cutter *l*, and coiled spring *k*. The piece H is perforated vertically to receive cutter *l*, and slotted horizontally at its front end,

to receive the tickets to be punched, and having lugs projecting upward at its front, between which the lever J is journaled. To the lower side of lever J is secured the punch or cutter *l*, and around the cutter is a coiled spring, *k*, its base resting upon piece H and its top against lever J. Its office is to throw the lever up after a ticket is punched. On the lower side of piece H, and opposite punch *l*, is a transverse groove to permit the pieces punched from the tickets to drop out.

Operation: The punch is held by the conductor in his right hand, the thumb resting upon lever B, and the second finger upon lever J. As he receives a ticket it is passed with his left hand into the slot in piece H, when, by a movement of the thumb and finger, the levers B and J are pressed down, the ticket punched, a coupon fed forward and severed, and the alarm sounded simultaneously. When the levers are released from pressure the springs E and *k* return them to their elevated position.

As the lever B begins to move down, the roughened edge of the dog *e* is pressed upon the paper, which is now held firmly between dog *e* and slide *m*. The carriage now moves forward, carrying the paper with it. When a sufficient length, or one coupon, has been projected over the lower shear edge the set-screw *t*, striking upon the stop *f*, slides up and releases the paper. As the lever is pressed farther down the knife D severs the coupon, and the arm *q* releases the striker *x*, which is thrown against the bell G by spring *c*.

We claim—

1. The combination of feeding mechanism, composes of guides *s* and *s'*, carriage *h*, slide *m*, and dog *e*, when operated in the manner described.

2. In a conductor's punch, the combination of cutting mechanism, composed of movable blade D, sliding between guides in the sides A and A', lower shear-blade formed upon the forward end of slide *s*, pitman F, stud-pin *u*, and lever B, as shown and described.

3. The combination of ratchet-arm *p*, pawls *z* and *z'*, spring *v*, and guides *r* and *r'*, for regulating the stroke of the lever B, substantially as shown and described.

4. The pivoted hammer-lever *x*, with the spring *e'* and the slide *q*, having the incline *a'* and spring *q*, all arranged to operate substantially as described.

5. The registering and canceling punch above described, composed of mechanism for feeding paper from a coil, severing coupons from the same, regulating the stroke of lever B for sounding a signal as each coupon is severed, and for canceling the tickets, the whole constructed substantially as described.

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Witnesses:

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GEO. J. MURRAY.