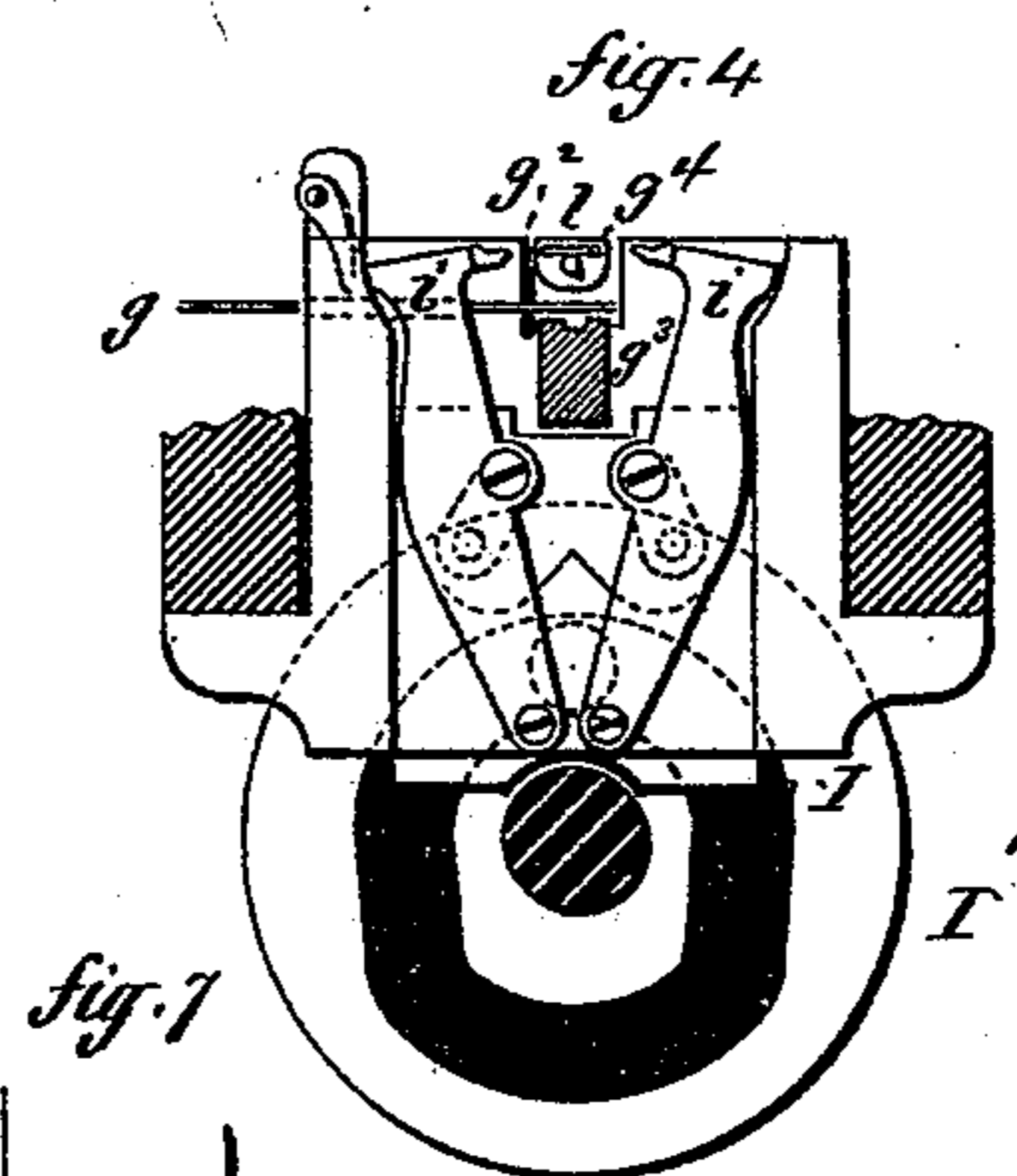
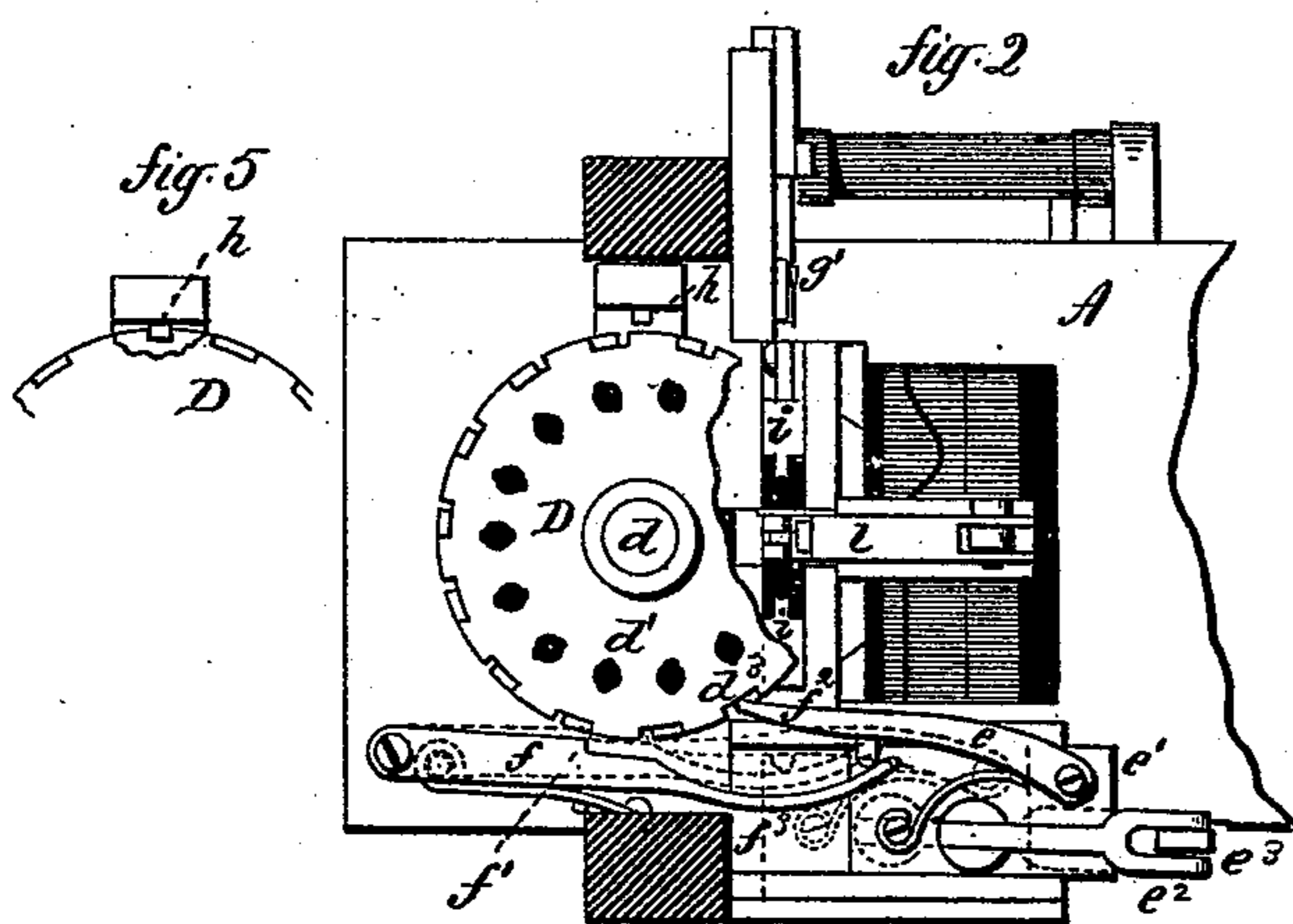
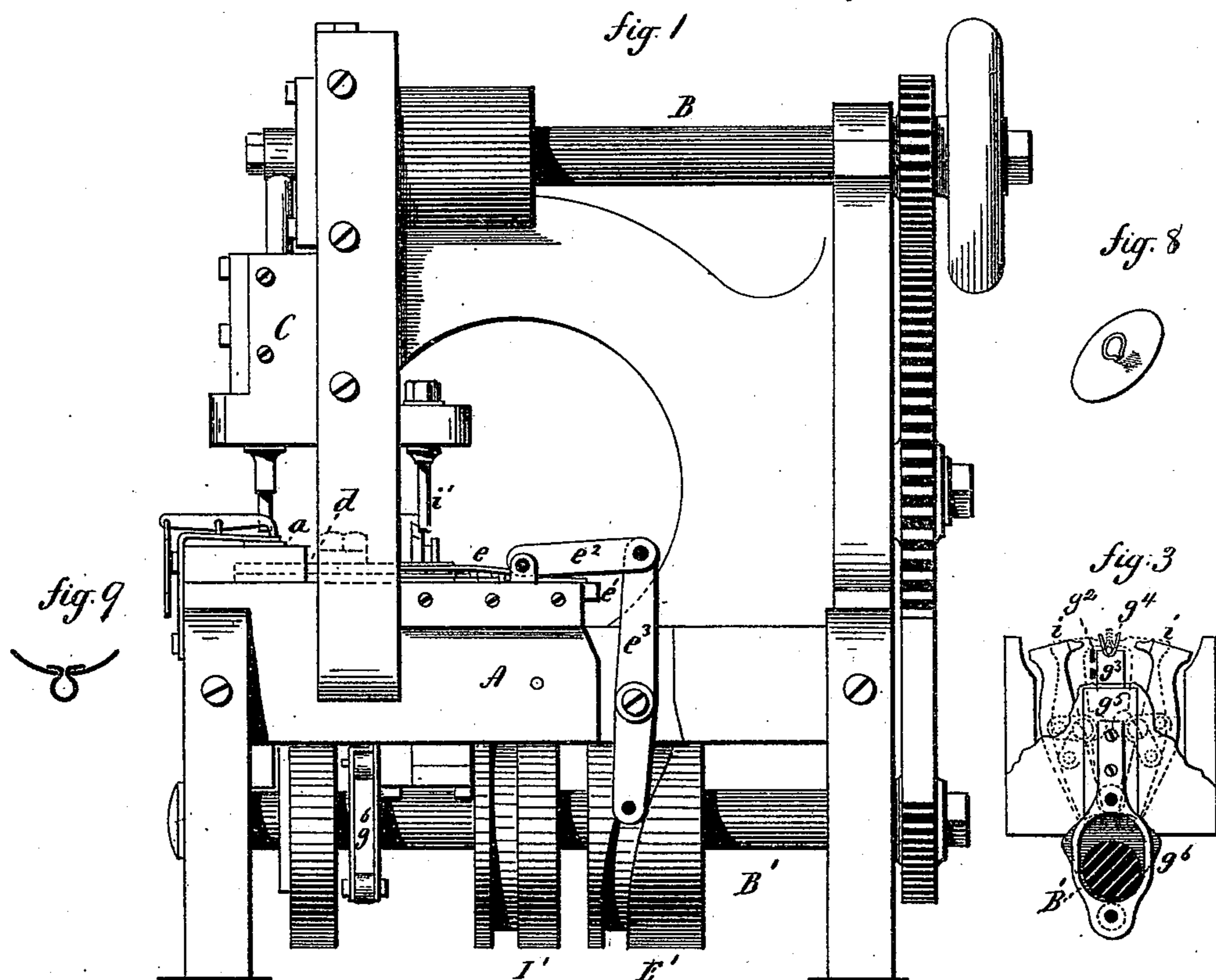


(No Model.)

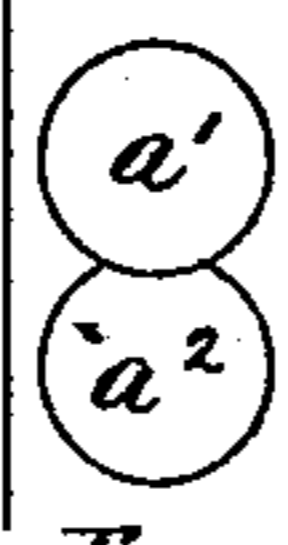
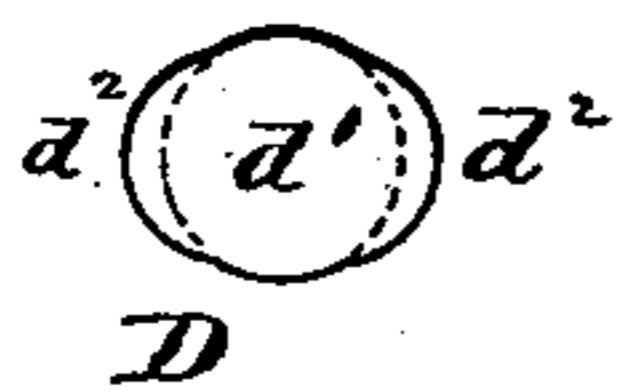
F. C. CANNON.
Machine for Making Button Backs.

No. 230,236.

Patented July 20, 1880.



Witnesses
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UNITED STATES PATENT OFFICE.

FRED. C. CANNON, OF NEW HAVEN, CONNECTICUT.

MACHINE FOR MAKING BUTTON-BACKS.

SPECIFICATION forming part of Letters Patent No. 230,236, dated July 20, 1880.

Application filed March 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRED. C. CANNON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Machines for Making Button-Backs; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact
10 description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, side view; Fig. 2, sectional plan; Figs. 3, 4, and 5, detached views; Figs. 6 and
15 7, enlarged diagrams illustrating operation; Fig. 8, perspective view of the back of the button; Fig. 9, section of the button-back complete.

This invention relates to an improvement in
20 machines for making that class of button-backs which are formed from a disk of metal with an eye made from a loop of wire, its two ends inserted through a perforation in the back and then bent or turned down onto the inside of
25 the disk, to hold and support the eye, and such substantially as seen in Fig. 8; and the invention consists in the combination and arrangement of parts, as hereinafter described, and particularly recited in the claims.

30 A is the bed of the machine; B, the driving-shaft, supported in suitable bearings, and to which power is applied in any convenient or known manner. At the forward end of the frame a vertical slide, C, is arranged, carrying
35 a second slide, operated from the driving-shaft B in the usual manner for double-acting presses, too well known to require further description in this specification.

The punches in the respective slides operate
40 to cut and shape the back in the usual manner, cutting it out and forcing it down through a die, *a*. Beneath the die *a* is a rotating disk, D, arranged to revolve in a horizontal plane around a pivot, *d*, in rear of the die *a*, and so
45 that a portion of its surface travels beneath the die *a*, as indicated in broken lines, Fig. 1. This disk is perforated at regular intervals, on a line concentric with the pivot, with perforations of the diameter corresponding to the size
50 of the disk from which the back is to be formed, and at each operation one of the perforations

in the disk is presented beneath the die *a*, so that the disk cut from the sheet or strip will be forced through the die into the corresponding perforations in the rotating disk D, and
55 when one has been so introduced the disk D is rotated one point, and a second perforation presented, and so on, the perforations successively receiving a blank from the die.

The strip of metal from which the blanks 60 are to be cut is introduced transversely across the machine above the die. In presenting the blank it frequently occurs that the feed will not be sufficient to present the required length of the strip, so as to get a full blank—as, for
65 instance, as seen in Fig. 7. E represents the strip of metal. Suppose the first blank had been cut, as at *a'*, complete and perfect. If, for the next blank, *a''*, the strip be not fed quite far enough, then one side of that blank will be
70 imperfect, as shown, and this blank will be useless, although, as ordinarily constructed, the machine would carry it along and introduce the eye and discharge it with perfect
75 back, necessitating a subsequent assorting of the backs. To avoid this imperfection of work and discharge imperfect blanks before the eyes are introduced, I cut away or elongate the perforations *d'* in the disk D, as indicated in Fig.
80 6, (broken lines showing the perfect circle and shape of the disk,) in a line at right angles to the direction of the strip, as at *d''*, leaving the complete diameter only in the line of the strip; hence if the blank *a''* should be forced onto the
85 perforations *d'* in the disk, that part of the blank which is cut away or imperfect would prevent contact with the sides of the perforation sufficient to support it, and it would at once drop through and pass out of the machine
90 to waste. It will be understood and seen that this imperfection or cut-away of the blank must always be at the same point; hence this cutting away or elongation of the perforations in the disk enables the machine to automatically
95 discharge imperfectly-formed blanks.

The intermittent rotating movement required for the disk D is imparted to it through a pawl, *e*, arranged on a slide, *e'*, to which a reciprocating movement is imparted by a cam, *E'*, on the shaft B', which is connected by gearing 100 with the shaft B, the said slide being connected to the cam by levers *e'' e'''*, each movement of

the slide causing the pawl e to engage with one of the notches d^3 in the disk D, and as the slide is pressed forward, as indicated by broken lines, Fig. 2, the pawl will advance the disk D one point.

In order that the movement of the disk D may not go beyond a certain and the required point for the perforations to coincide with the die, a stop-pawl, f , is arranged with a shoulder, f' , which falls into one of the notches forward of the one with which the pawl e engages, and before the movement of the pawl is completed, and so that the shoulder of the notch, when the movement is complete, will strike the shoulder f' and bring the disk to a dead stop.

It is necessary, before another advance can be made, that the shoulder f' should be turned away from the shoulder of the notch in the disk. To do this a stud, f^2 , is made stationary on the slide e' , and a curved arm, f^3 , formed on the pawl f , extending outside the stud f^2 , so that when the slide is drawn back, as seen in Fig. 2, the pawl f will be turned away from the notch in the disk; but as the slide advances the curve of the arm f^3 permits the pawl to turn toward the disk so as to engage the notch in the disk at the proper time, as indicated in broken lines. A dead-stop is also necessary to hold the disk while the slide e' is returning for a new engagement. This consists of a dead-stop, h , arranged in the usual manner for such stops, and so as to fall into a close-fitting notch in the edge of the disk, when it is in its proper position, and hold firmly until the time comes for the next advance, when the stop gives away. This device is so well known that further description is unnecessary.

The eye-making device is arranged in rear of the disk and cutting and forming punches, and immediately beneath one of the perforations in the carrying-disk D. The wire (represented as g , Fig. 4,) is introduced through any suitable wire-feeding mechanism, g' , the requisite length passing through a cutter-die, g^2 , and over the end of a vertically-reciprocating former, g^3 , and so that as the former g^3 rises it will cut from the wire the requisite length for one eye or shank, and will present it beneath the end of a spindle, g^4 , which is the shape of the interior of the eye, and, pressing the wire against the spindle g^4 , will turn the two ends of the wire up around the spindle, because of a corresponding cavity in the upper surface of the former g^3 , as seen in Fig. 3. Then a pair of vibrating jaws, i , one upon each side, are forced forward, as seen in broken lines, Fig. 3, bringing the two ends together around the spindle g^4 , and leaving them

vertical position, (see Fig. 3,) and immediately beneath a perforation in the disk D above. Then, when a perforated blank is presented above the eye thus formed, a punch, i' , above, which is attached to the slide C, descends, forces the blank from the disk onto the formed eye below, and at the same time forces its way between the ends of the wire, turning them outward and forcing them down upon the inside of the disk, as seen in Fig. 9. Then a slide, l , advances and forces the then completed back from off the spindle g^4 , and delivers it from the machine.

The former g^3 is attached to a slide, g^5 , operated by a cam, g^6 , on the shaft B'. (See Fig. 3.)

The jaws i are operated by a slide, I, in connection with a cam, I', on the shaft B', as seen in Fig. 4; but no claim is made to these jaws, as they are similar to jaws in previous machines for the same purpose.

The elongated perforations in the disk D may be employed in other machines where a punched disk is introduced in like manner, to be transferred for subsequent operation, and in which it is desirable that imperfectly-cut disks should be automatically discharged.

I claim—

1. In combination with dies for punching blanks from sheet metal, the perforated carrying-disk having the perforations arranged to receive the blanks cut from the die, the said perforations being elongated in a direction substantially transverse to the path of the strip from which the blanks are cut, substantially as and for the purpose described.

2. The combination of the cutter-die g^2 , vertically-moving former g^3 , spindle g^4 , and jaws i , all arranged and operated substantially as and for the purpose described.

3. The combination of the cutter-die g^2 , vertically-moving former g^3 , spindle g^4 , and jaws i , with carrying-disk D and punch i' , substantially as and for the purpose described.

4. The combination of the perforated carrying-disk and its intermittent feeding device, the punch and the die which cut and place the blank in the disk, with the vertically-reciprocating punch i' above and eye-forming mechanism below the said carrying-disk, arranged as described, so that said punch i' first places the blank upon the shank of the eye, then, by the continued movement, bends the ends of the eye down upon the blank to complete the back, substantially as described.

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Witnesses:

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