

No. 618,687

Patented Jan. 31, 1899.

HALPERN

OVEREDGE SEWING MACHINE.

(Application filed Apr. 4, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

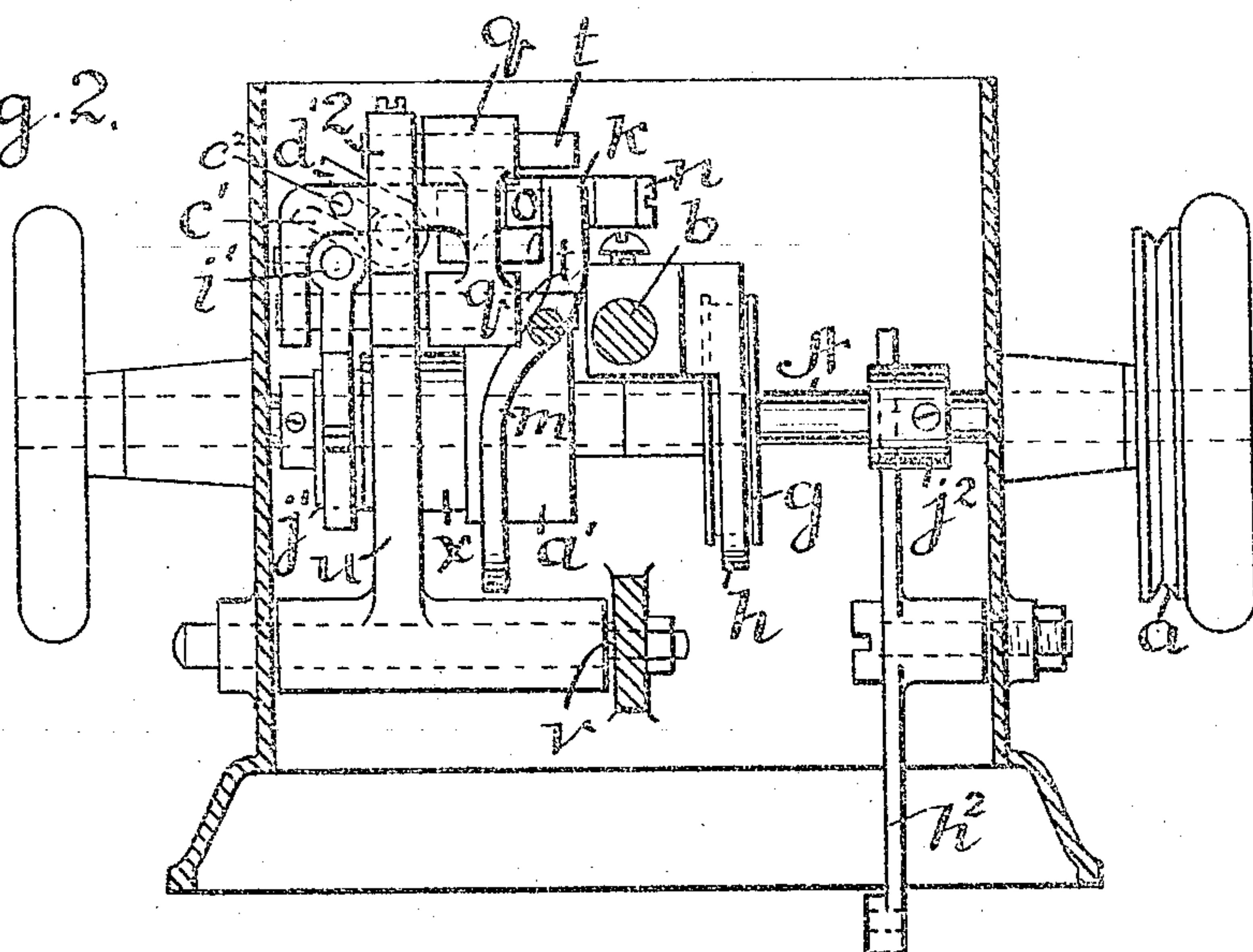
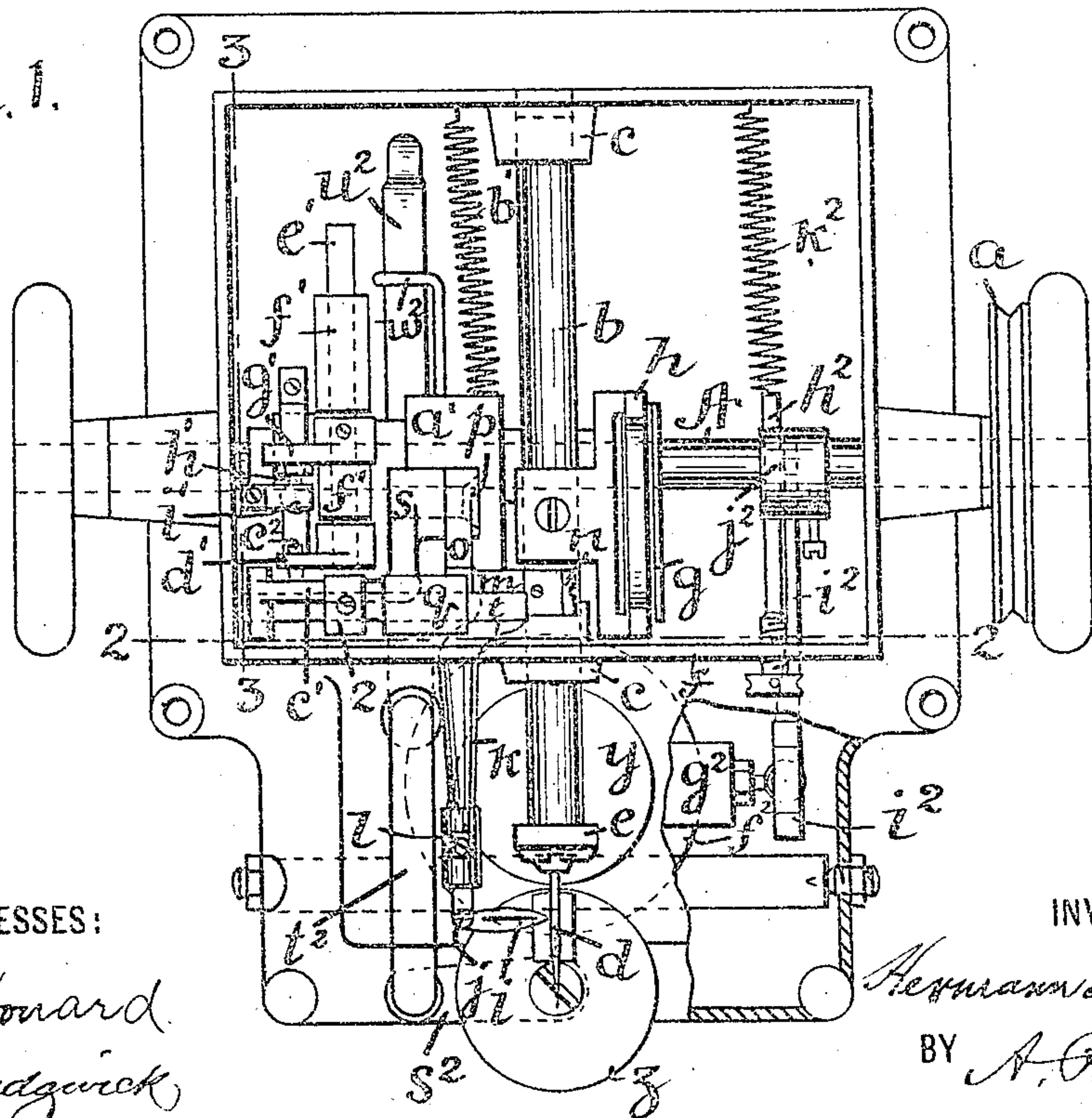


Fig. 1.



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(Application filed Apr. 4, 1896.)

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2 Sheets—Sheet 2.

Fig. 3.

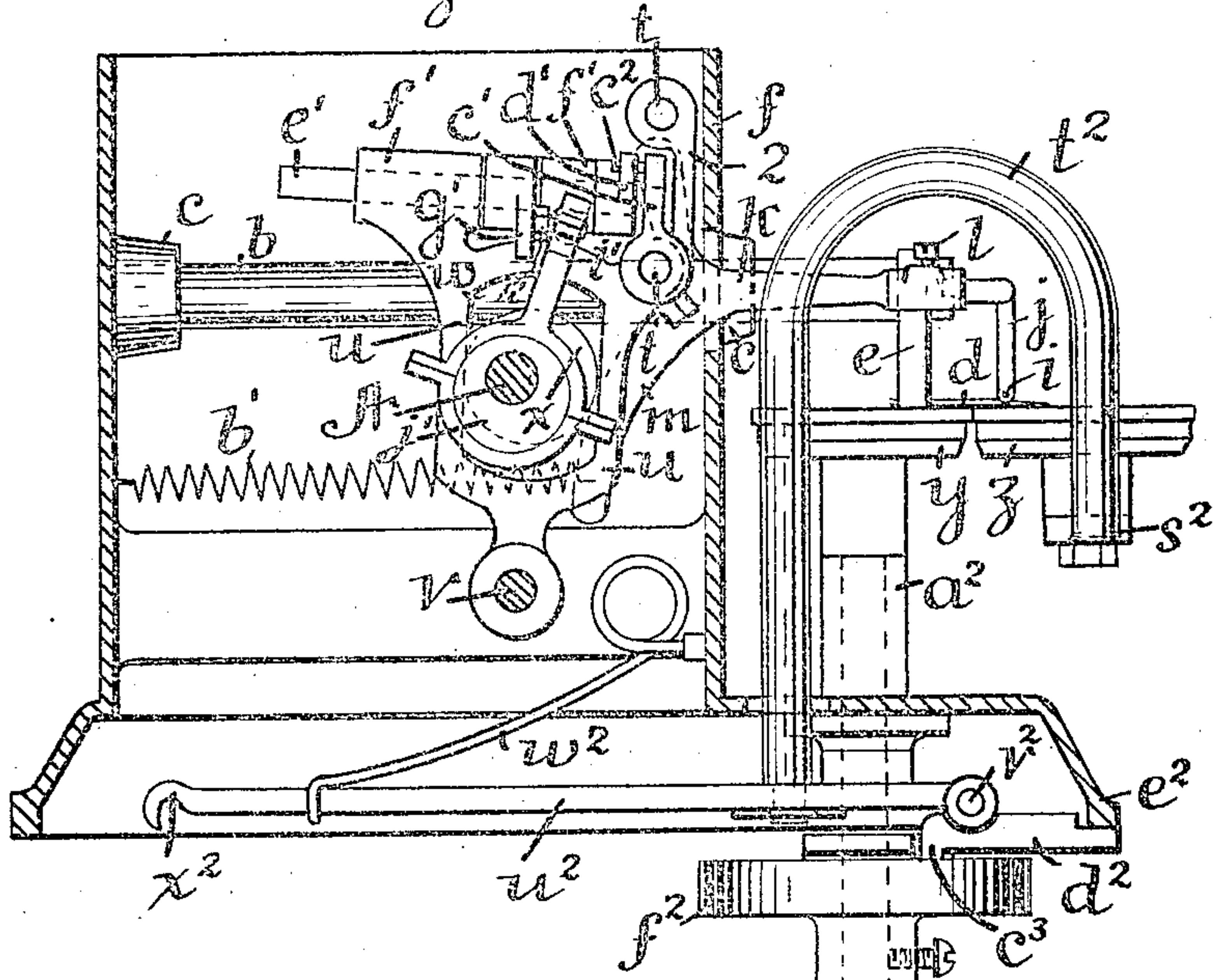


Fig. 5.

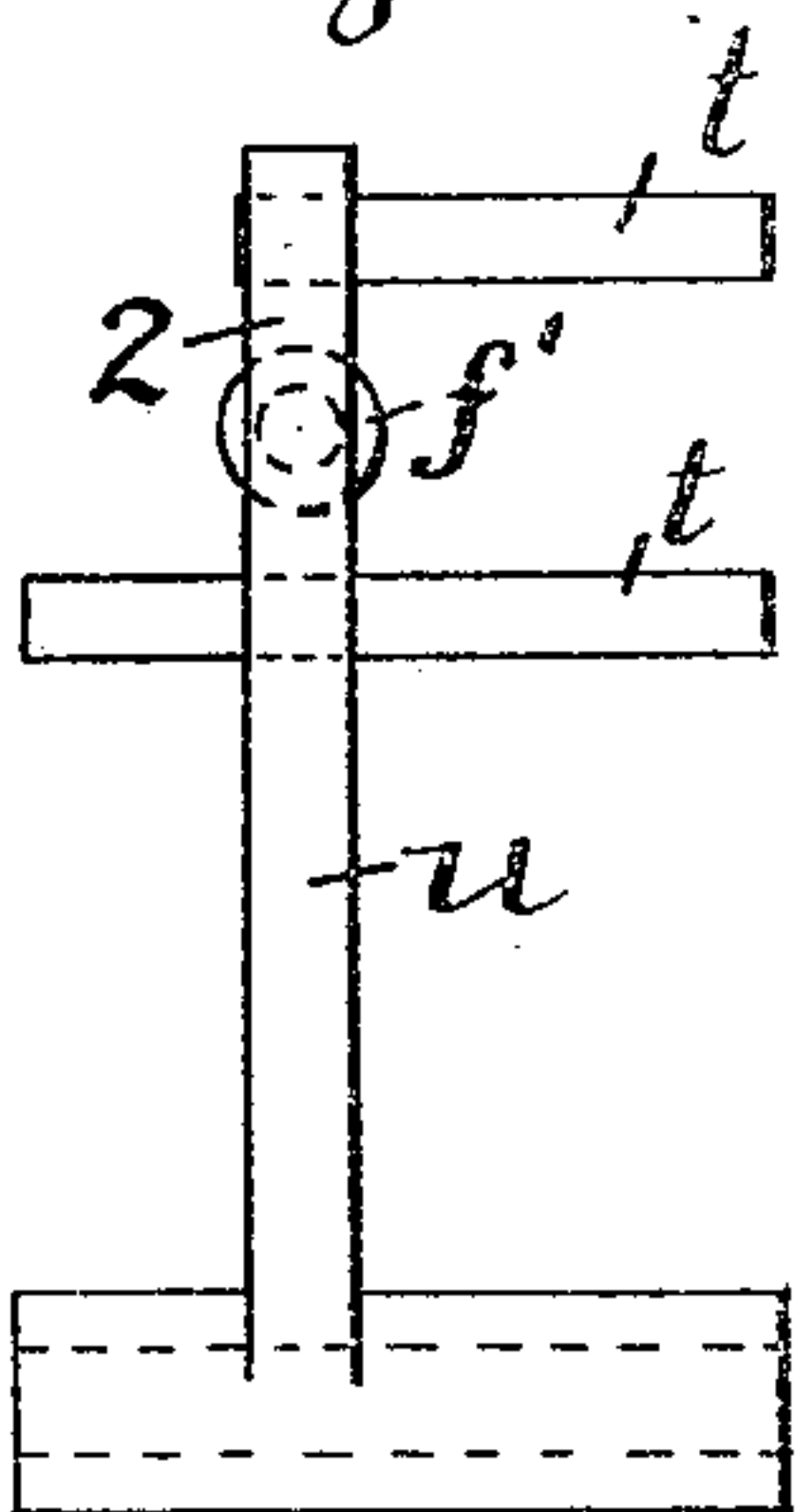


Fig. 4.

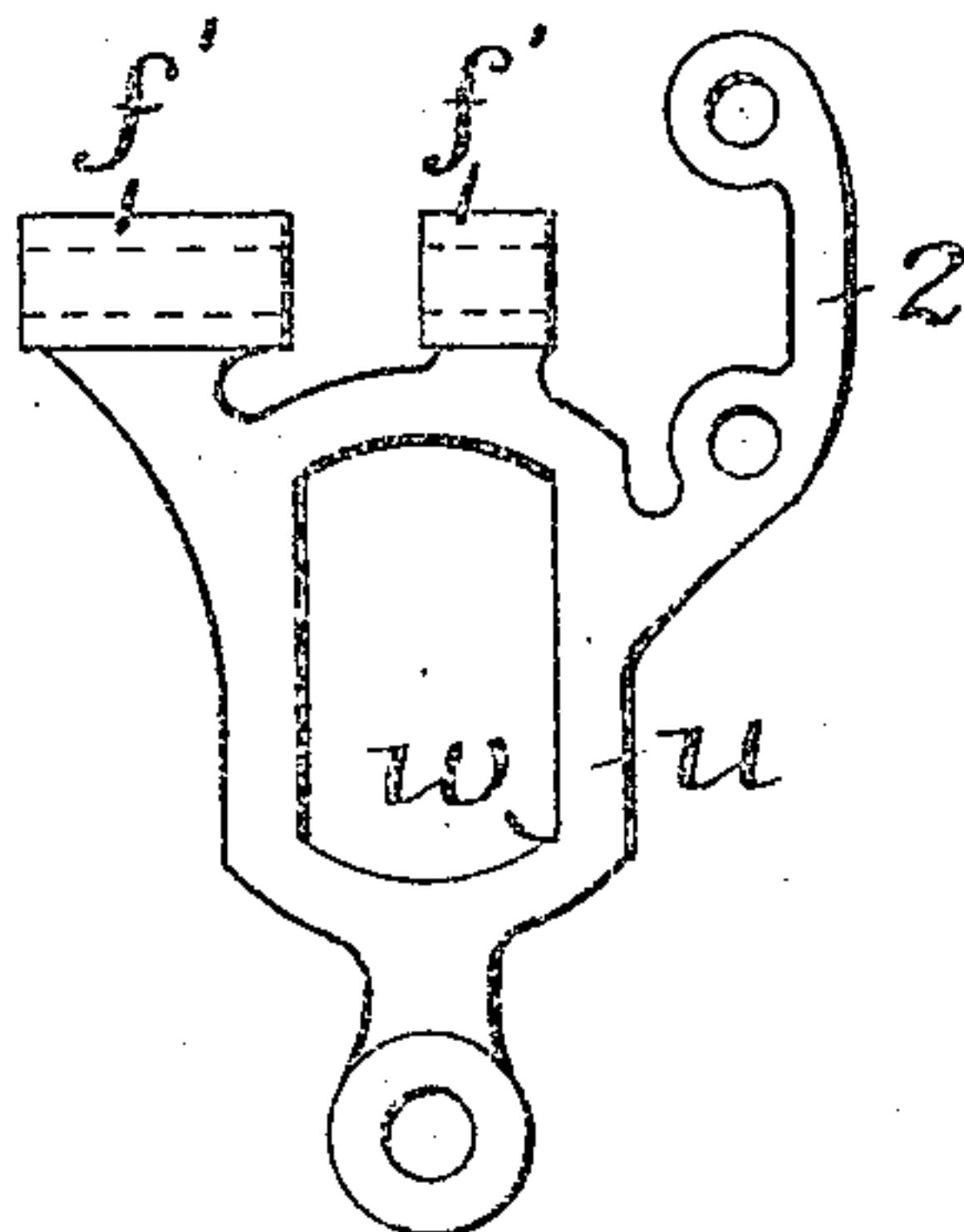


Fig. 6.

Fig. 7.

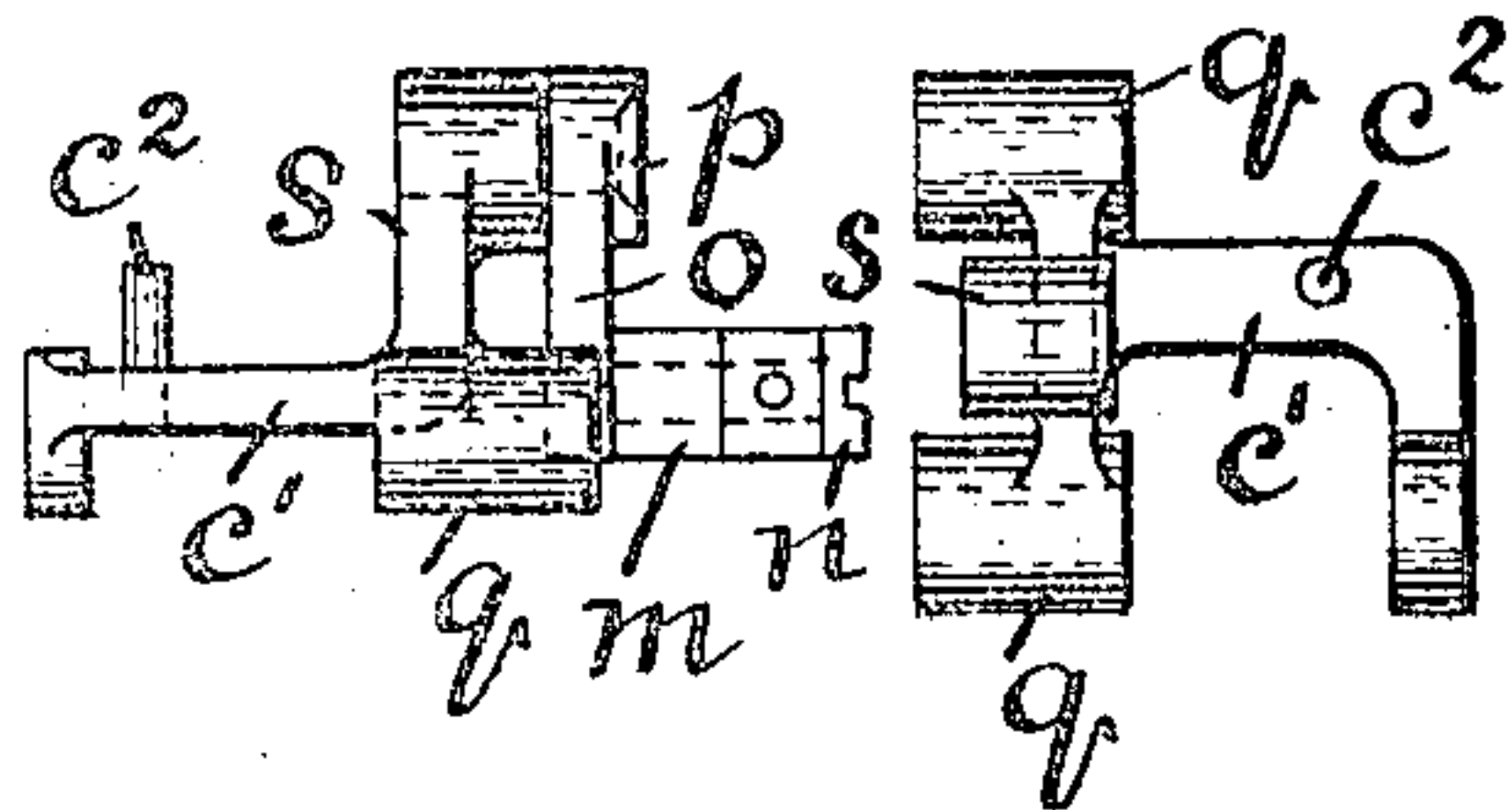


Fig. 8. Fig. 9.

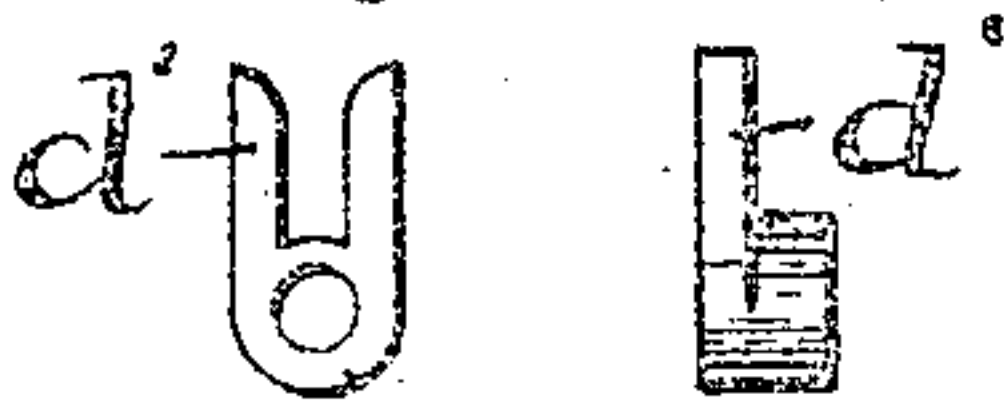
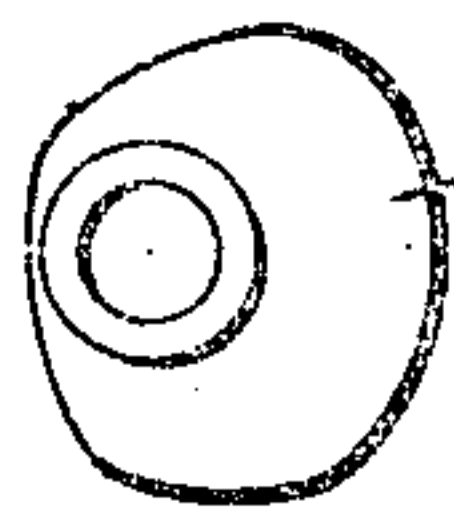


Fig. 10.



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HERMANN A. KLEMM, OF NEW YORK, N. Y.

OVEREDGE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,687, dated January 31, 1899.

Application filed April 4, 1898. Serial No. 676,324. (No model.)

To all whom it may concern:

Be it known that I, HERMANN A. KLEMM, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Overedge Sewing-Machines, of which the following is a specification.

My invention consists of improvements in apparatus for actuating the needle and looper, whereby the operations will be performed to better advantage, especially in the matter of timing the looper relatively to the needle, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of my improved overedge sewing-machine with a part in horizontal section. Fig. 2 is a sectional elevation on line 2 2 of Fig. 1. Fig. 3 is a sectional elevation on line 3 3 of Fig. 1. Fig. 4 is a side elevation of the rocking arm which carries the cross-head on which the looper-bar is carried and by which the lengthwise and lateral motions of the looper are produced. Fig. 5 is a front elevation of said rocking bar. Fig. 6 is a plan view, and Fig. 7 is a rear elevation, of the cross-head. Figs. 8 and 9 are details of the crank mechanism carried on the rocking arm to effect the lateral reciprocations of the cross-head. Fig. 10 is a diagram of the side of the cam that effects the up-and-down movements of the looper.

A represents the main driving-shaft, to which motion is applied in the direction indicated by arrow 1 by a belt working on the pulley a.

b is the needle-bar, mounted in bearings c above shaft A, to reciprocate horizontally and transversely to said shaft for carrying the needle d by the pendent arm e, extending forward of the front side of the case f, in which most of the working parts are inclosed. The eccentric g, carried on shaft A and working between the horns h, attached to the needle-bar, reciprocates the needle-bar in uniform forward-and-backward movements.

i represents the looper. It ranges transversely to the line of the needle and over the needle, being at its heel attached to the end of a pendent bar j of the outer extremity of the looper-carrying bar k, on which it is adjustable forward and backward, being held in

fixed position by the set-screw l. Inside of the front plate of the case the looper-bar k is attached to the hanger m, which is pivoted at its upper end to the pin n, carried by the crank-arm o, the hub of which is secured by a pivot-screw p to an arm s, extending horizontally rearward from a laterally-sliding cross-head q, carried on a pair of slideway-rods t, carried on the branch 2 of the rocking arm u, one above another, said rocking arm being pivoted at v and having a slot w, in which an eccentric x on shaft A works to swing the cross-head forward and backward in uniform motions. The hanger m, carrying the looper-bar, being thus pivoted to swing regularly by the movements of rocking arm u to carry the looper forward and backward over the feed-line of the goods between feed-disks y and z, also bears against the face of the cam a' on shaft A. The contour of said cam is such that it swings the hanger on its pivot-pin n at the same time, and thus gives the up-and-down motion of the looper to first depress it for taking the needle-loop after the needle has passed through the goods, then rise to pass backward over the edge seam, then fall again preparatory to withdrawing to cast off the loop, and then rise again to again pass over the edge seam to be again depressed for again taking the needle-loop, these upward-and-downward movements being made at the same time that the looper is made to traverse the seam by the rocking bar u. The spring b', attached to the lower end of the hanger m, retracts said hanger against the cam a' to swing the looper down.

The purpose of the crank-arm o, to the pin of which, n, the hanger m is pivoted, is to adjust the looper in its relation to the needle vertically, which is done by loosening the pivot-screw p and duly shifting the arm and then tightening the screw.

For effecting the lateral movements of the looper the cross-head q, from which it is suspended by pivot n, is connected by the arm e'; stud-pin e'', with the slotted rocking arm d' of the rock-shaft e', carried in the head f' of the arm u and ranging at right angles to the slideways t of the cross-head and swinging forward and backward in unison therewith. This rock-shaft e' has a crank g', the pin of which, h', is connected by a ball-joint with the

free end of an eccentric-rod i' , mounted on the eccentric j' , carried on the shaft A, whereby lateral motion is communicated to the cross-head for working the looper laterally at the same time that said cross-head vibrates in the forward-and-backward motions for so actuating the looper, and the up-and-down motions of the looper are also produced at the same time through the movements of the hanger m by the cam a' and the spring b' , as before stated. It will be seen that by using the slotted rocking arm d' and the stud-pin of the cross-head working therein for reciprocating the cross-head and so adjusting the slotted arm as to angular relation to the crank-pin the crank-pin is at the point of greatest recession from the axis of the arm when the forward movement of the looper over the needle to catch the loop of the needle-thread begins. The looper will then have accelerated motion when going forward to enter the needle-loop, which is desirable for promptly and certainly engaging the loop, and the time gained in this quick forward movement will be compensated by the slower movement of the latter part of said crossing and the slower movement in the beginning of the return.

The thread-carrying looper i is arranged adjacent to and above the point of contact of the feed-disks and in position at right angles to the vertical plane of the axes of the feed-disks and the point of contact of the faces of the disks.

By means of the foregoing-described operating mechanism the looper receives a sextuple motion in connection with the reciprocating needle.

The geared feeding-disk y is mounted on the upright tubular post a^2 and has a shaft b^2 extending downward through said post and bracket c^3 , attached by an arm d^2 to the base-plate at e^2 for supporting the same in a fixed position to the lower end of the shaft. A concentric ring f^2 is attached suitably for the shaft, being turned by said ring, and the ring is made to turn in a step-by-step motion by a lever g^2 , having forward-and-backward movement imparted to it by the lever h^2 , connect-

ing-rod i^2 , eccentric j^2 on the main shaft A, and the spring k^3 , and a friction-pawl device acting on the inner periphery of said ring, but not shown herein, it being the subject of a claim in the patent granted to me, No. 571,322, to which reference is made for an understanding of the same.

The outer ungeared feed-disk z is mounted on the lateral arm s^2 of the gooseneck-standard p^2 , which is set upright on the lever u^2 , pivoted at v^2 and having the spring w^2 pressing said lever downward, and thereby causing the grip of the feed-disks on the goods being fed to the machine. In practice a suitable foot-treadle fixed on the floor and having suitable connection with the end x^2 of the lever u^2 to lift it by pressure on the treadle will be provided for releasing the grip of the disks on the goods when desired.

Suitable tension devices for supplying the thread to the needle and to the looper will be provided as usual in such machines.

I claim—

In an overedge sewing-machine the combination of a driving-shaft, a horizontally-reciprocating needle-bar and needle and suitable means for actuating said bar by said shaft, a looper-bar and looper relatively arranged with the needle substantially as described, a hanger-bar for carrying the looper-bar, suspended from a pivotal support, a cam and retracting-spring for actuating said hanger to produce the vertical movements of the looper, a laterally-reciprocating cross-head supporting the hanger-bar pivot and imparting the lateral movements to the looper, and a forwardly and backwardly swinging rocking arm carrying the cross-head and imparting like movements to the looper, said rocking arm being actuated by an eccentric on the driving-shaft and an eccentric of the driving-shaft imparting lateral movements to the cross-head, as hereinbefore set forth.

Signed by me, at New York, this 30th day of March, 1898.

HERMANN A. KLEMM.

Witnesses:

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A. P. THAYER.