

F. KOCH & R. BRASS.
Sewing-Machines.

No. 145,215.

Patented Dec. 2, 1873.

FIG. 2.

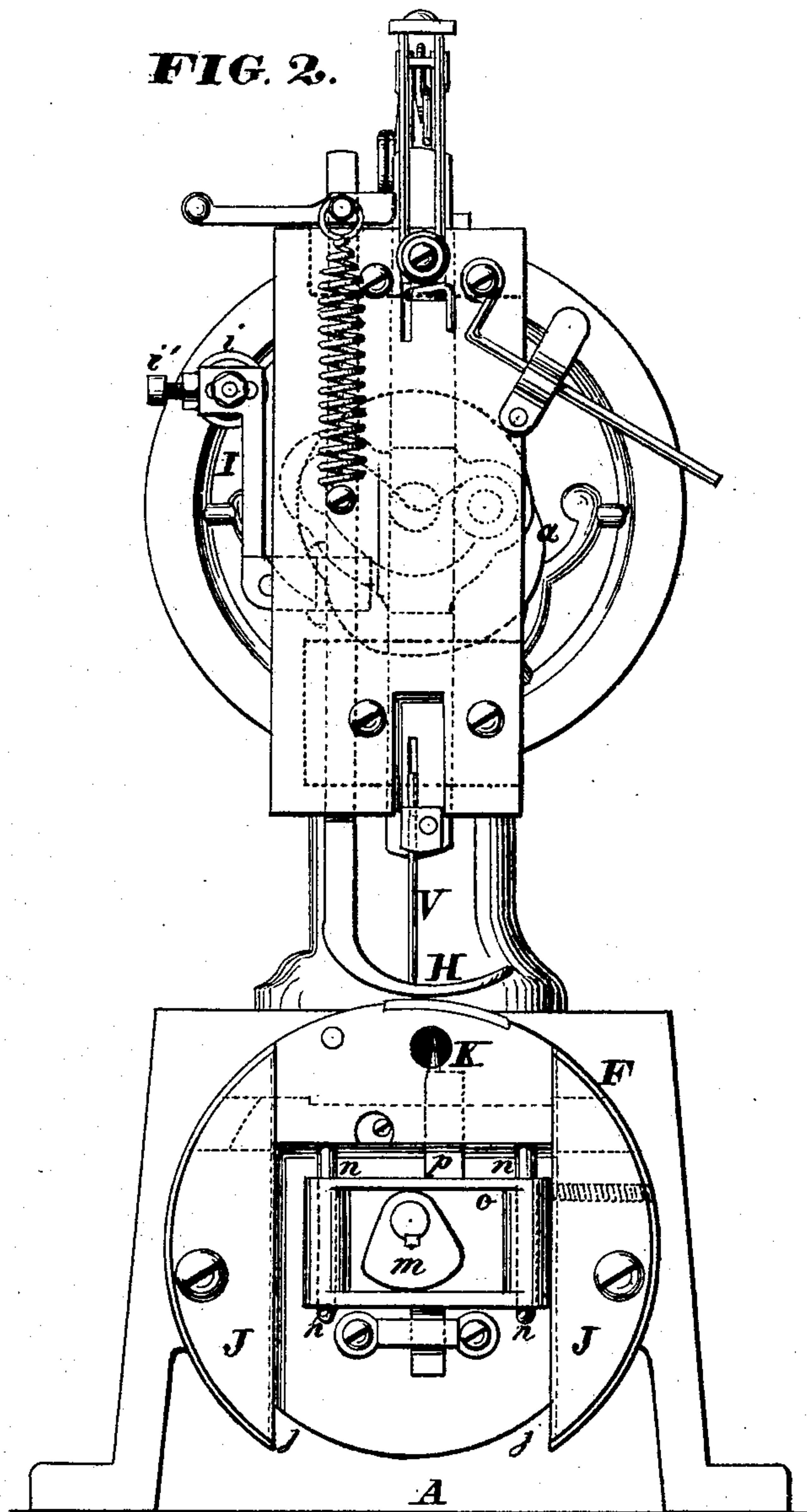
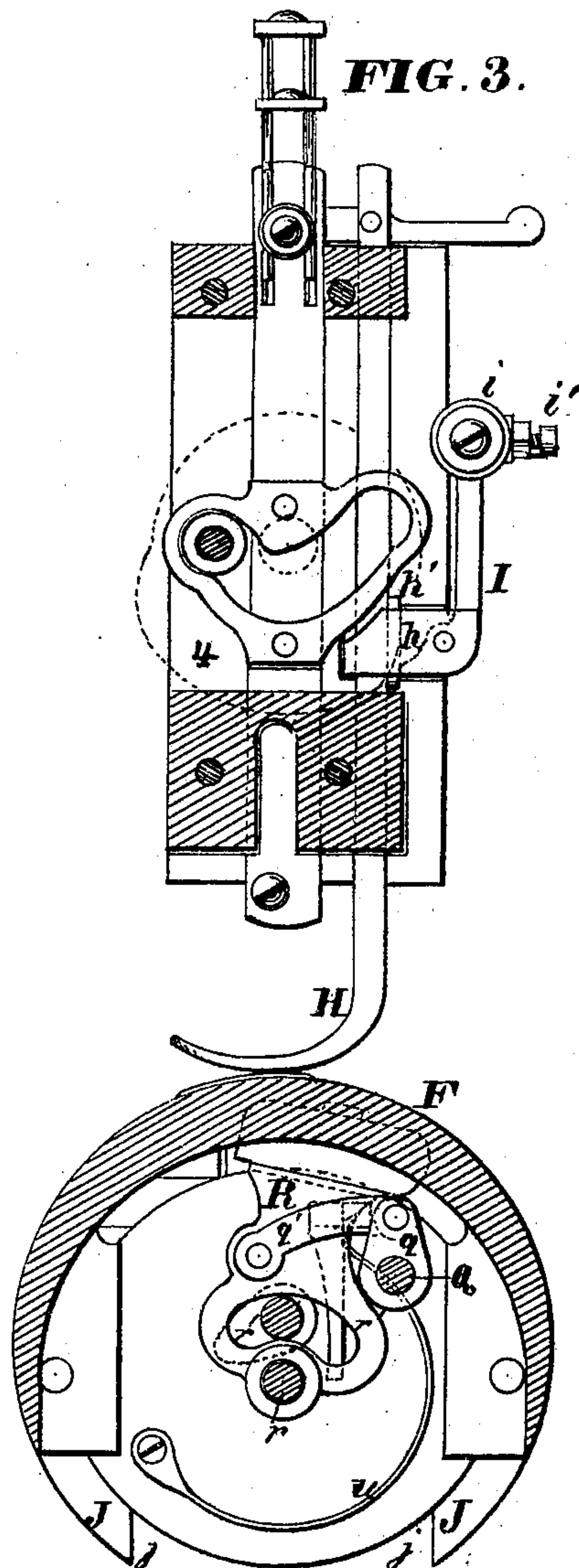


FIG. 3.



WITNESSES:

Geo. L. Ewin
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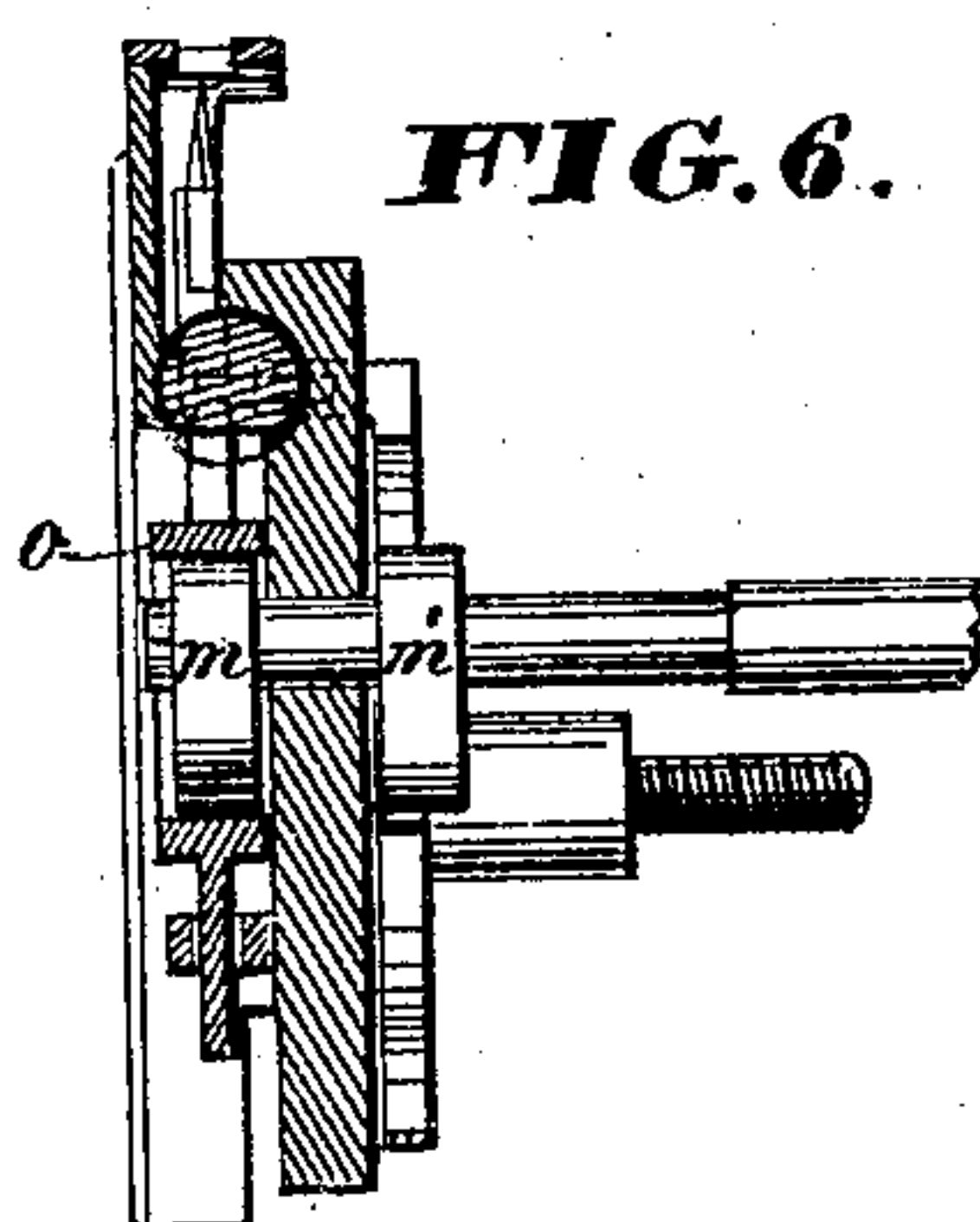
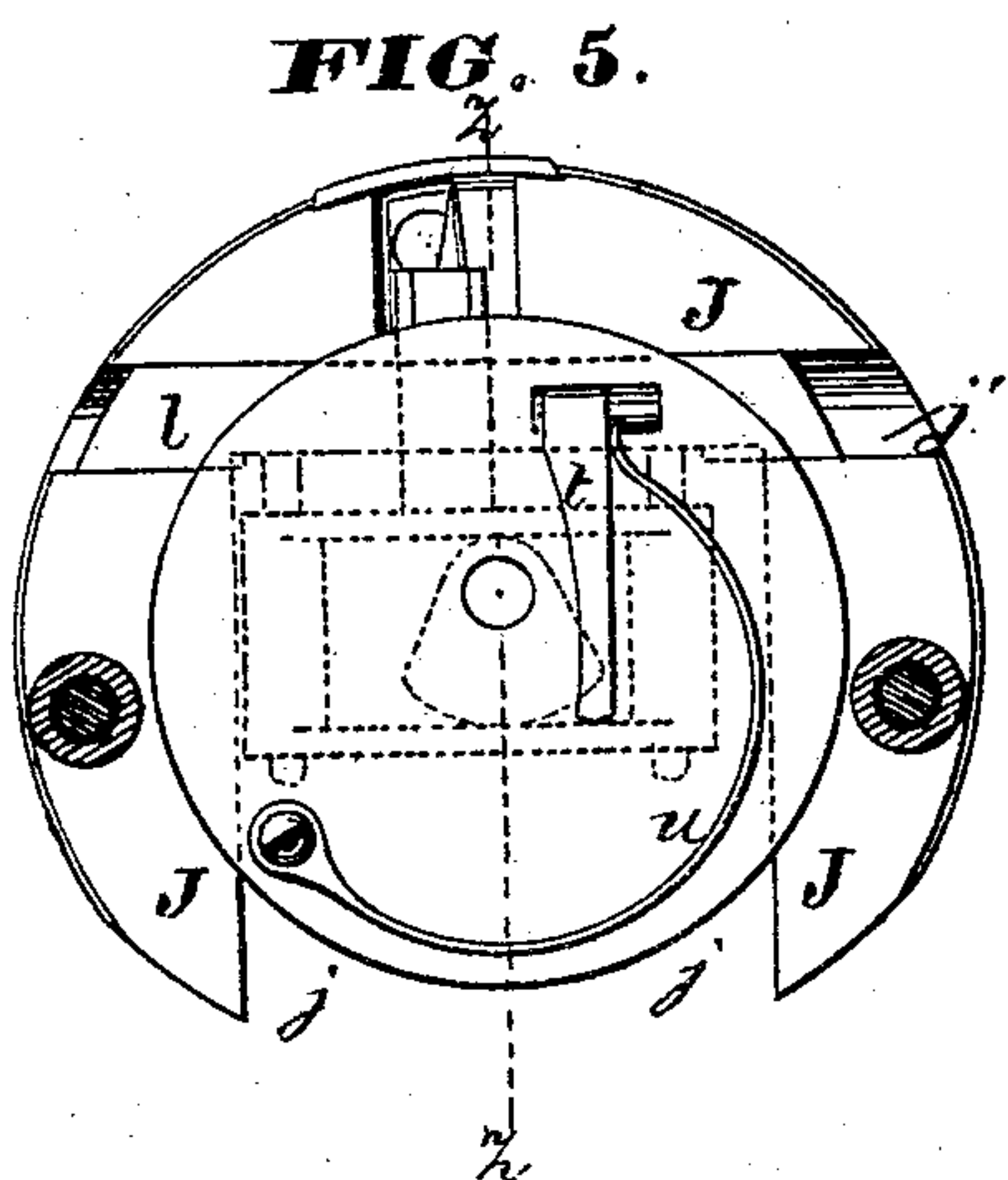
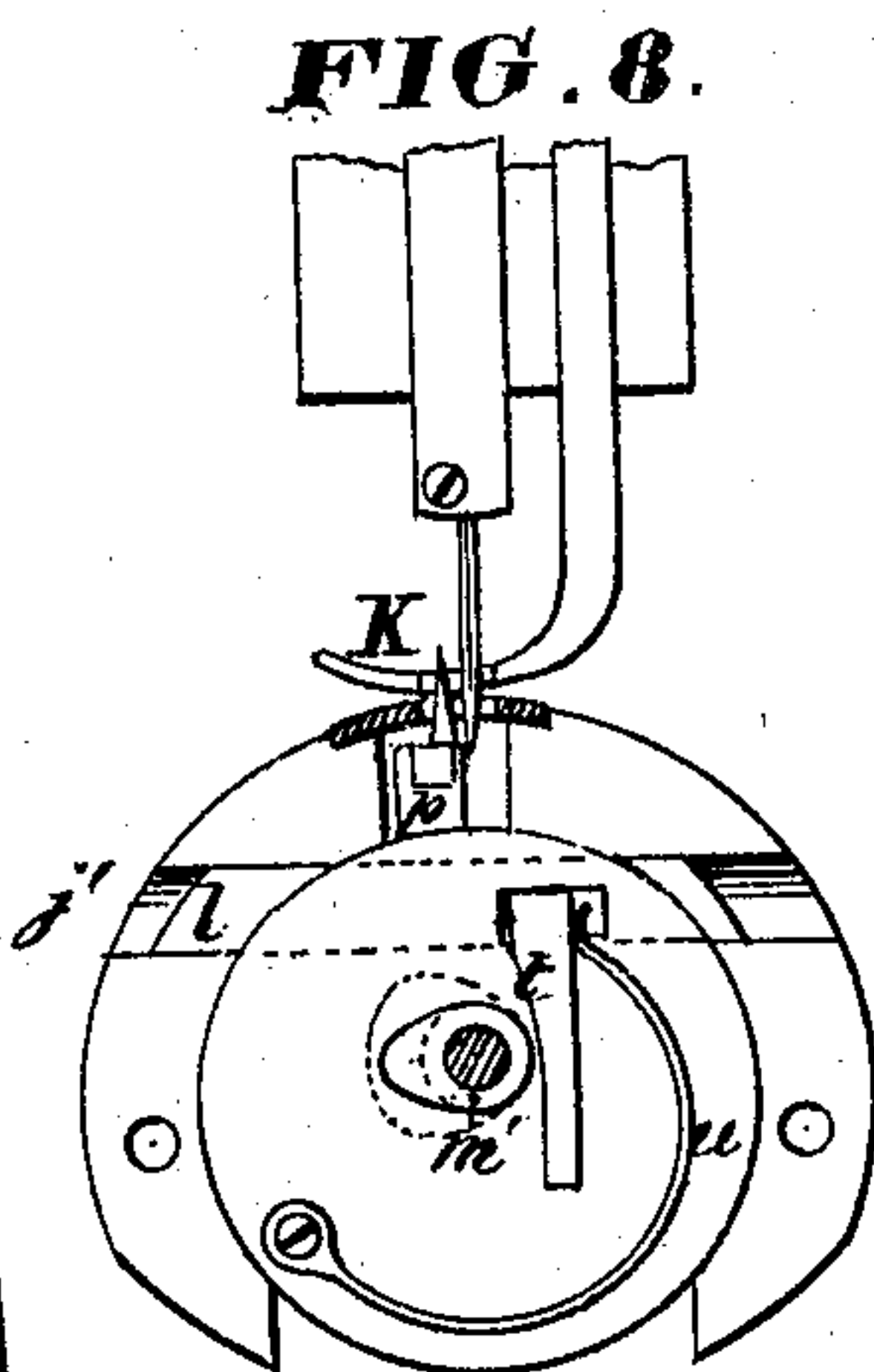
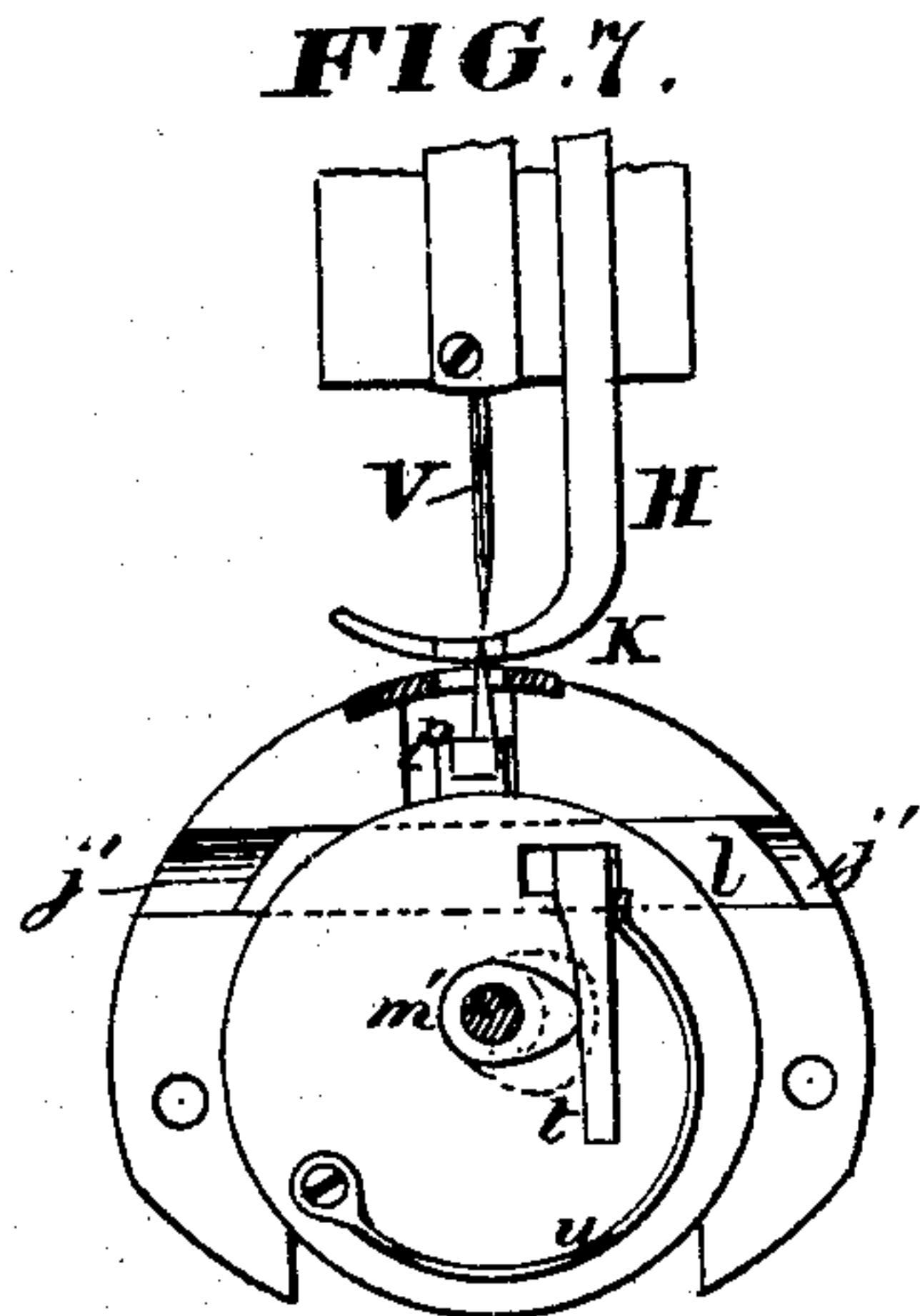
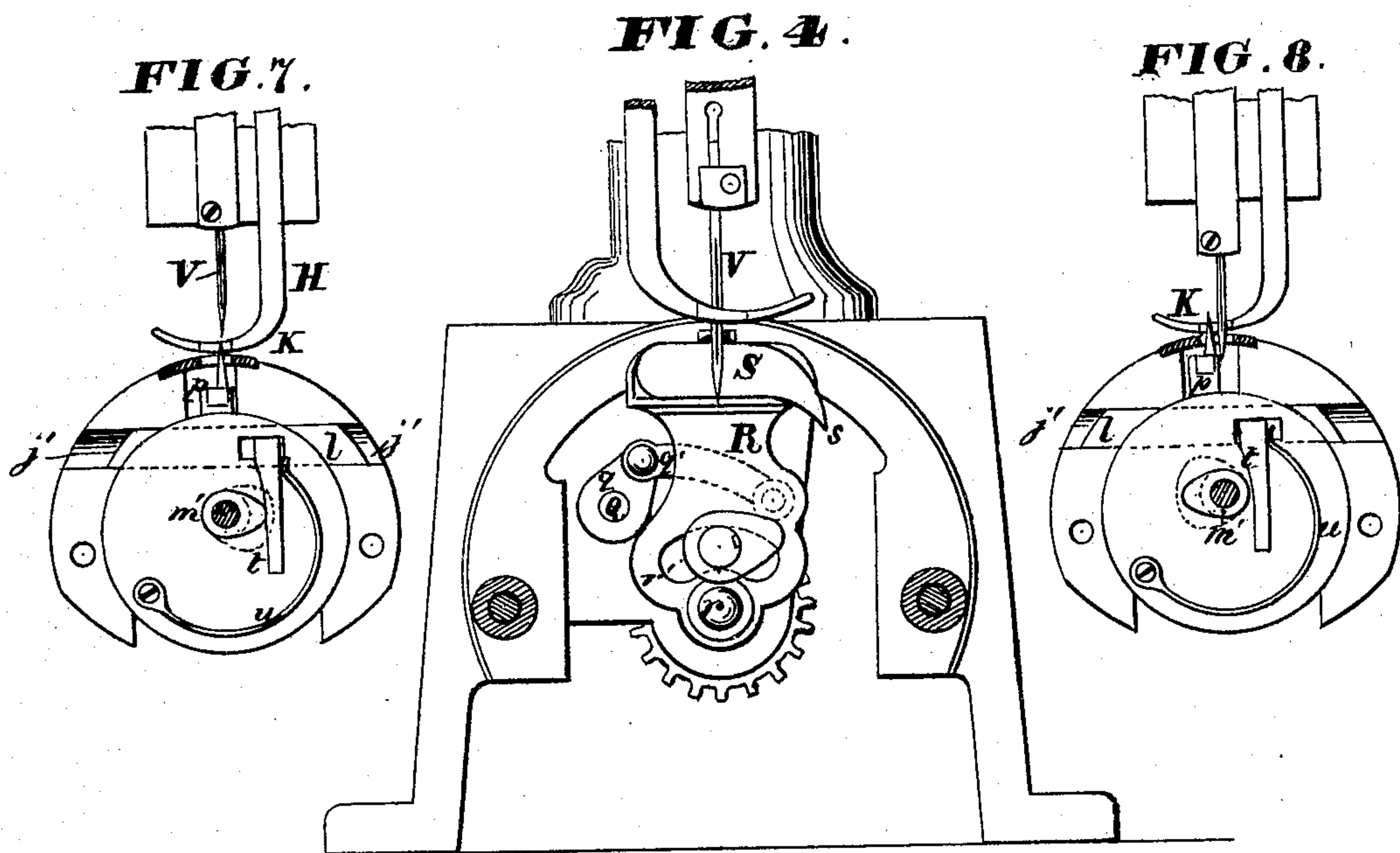
INVENTOR:

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WITNESSES:

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UNITED STATES PATENT OFFICE.

FRIEDRICH KOCH AND ROBERT BRASS, OF BROOKLYN, ASSIGNORS TO
JOHN BOYLE, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **145,215**, dated December 2, 1873; application filed
September 23, 1873.

To all whom it may concern:

Be it known that we, FRIEDRICH KOCH and ROBERT BRASS, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

This invention relates to a machine for sewing bags and other cylindrical objects. To adapt it to receive such objects, the bed is constructed in semi-cylindrical form; and, to adapt it to sew close to the bottom or closed end of the bag, the feeding and stitching mechanisms are arranged to work within or in connection with a recessed and perforated plate, forming the end of the bed. The feeding is effected by an awl passing upward through the fabric, and arranged to work in connection with a radial shuttle-carrier, oscillating shuttle, and a needle descending in line with the awl after the latter has fed the work. The shuttle is constructed with a down-turned nose or point, to adapt it to engage the loop while working in a curved path. To provide a bearing for the upward pressure of the awl, the presser is locked in position, as the awl descends, by a cam bearing against an adjustable roller upon a clamping-lever, the adjustability of the roller being essential, to adapt the parts to work together with proper effect.

In the accompanying drawings, Figure 1 is a side elevation of the machine, with the bed in longitudinal section. Fig. 2 is a front elevation of the same. Fig. 3 is a transverse section taken in the two planes indicated by the line *w w*, Fig. 1. Fig. 4 is a transverse section at *x x*, Fig. 1. Fig. 5 is a transverse section at *y y*, Fig. 1. Fig. 6 is a longitudinal section at *z z*, Fig. 5. Fig. 7 is a section at *y y*, Fig. 1, showing the positions of the parts when the awl is receding from the fabric and the needle is entering it. Fig. 8 is a section in the same plane, showing the position of the parts when the needle has descended and the awl has been moved horizontally and been driven up again into the fabric, in readiness for feeding it when the needle has been withdrawn.

The hollow standard and horizontal arm B are secured to a bed, F, the forward part of

which has the form of a segment of a cylinder, and projects horizontally from the frame A in a position to adapt it to receive a bag or other cylindrical article to be sewed. The horizontal driving-shaft C has its bearings in the arm B, and is geared to the vertical shaft D, which in turn drives a feed-shaft, E, beneath or within the bed F. The feed-shaft carries at its end a three-sided cam, *m*, and near its end an elliptic cam, *m'*, the former of which works in and imparts a vertical reciprocating motion to a yoke, *o*, which carries the stock *p* of the piercing and feeding awl K. The yoke *o* is guided in a vertical path by rods *n*, projecting downward from a carriage, *l*, which slides horizontally, being moved forward by the pressure of the elliptic cam *m'* against a rigid arm, *t*, depending from the carriage, and pressed back by a spring, *u*. The shuttle S is reciprocated in a circular path nearly concentric with the shaft E by means of a carrier, R, having its fulcrum at *r*, and operated by a connecting-rod, *q'*, from a crank, *q*, upon the counter-shaft Q, which latter is driven from the feed-shaft E through gearing *e*. The shuttle-carrying arm R is formed with a segmental slot, *r'*, through which the feed-shaft E passes. To adapt the shuttle to enter the loop of the needle-thread with certainty while working in a circular path, it is formed with a downwardly-projecting point, *s*, as shown in Fig. 4. The shuttle is confined within its carrier by a button, U, pivoted to the carrier, and held in its projected position by a spring-pin entering an aperture, *u'*, in the said button, so that a pointed instrument pressed on the end of said pin will force it in, permitting the button to be turned back and the shuttle to be taken out. In order to adapt the machine to form seams close to the end or bottom of cylindrical or tubular objects—as, for example, in sewing the bottoms of bags—we arrange the feeding and stitching mechanism to work within the end plate J, the yoke *o* and cam *m* being contained in a recess, *j*, in the face of the plate, while the carriage *l* slides in a horizontal bore, *j*¹, in its upper part, and the arm *t* and its cam *m'* work in a cavity, *j*², in the back of the plate. The locking of the

presser-foot H, to adapt it to resist the upward pressure of the awl K, is effected at the proper moment by a cam, *a*, which bears against the upper end of a bell-crank lever, I, having at top a friction-roller, *i*, adjustable in position by set-screws *i'*. The bell-crank lever has its fulcrum in a strap, *h*, which embraces the presser-bar H, and the lower end of said lever bears against a plate, *h'*, on the other side of said bar, so as to firmly clamp the latter when the cam *a* bears on the roller *i*.

The needle-operating mechanism, thread-carrying and tension devices, and other parts not herein specifically described, may be constructed and arranged in any usual or suitable manner.

The operation is as follows: The presser H being locked by the cam *a* bearing on the adjustable friction-roller *i* at the upper end of the bell-crank lever I, the awl K is driven up through the fabric. The presser is then released, and the awl receives its forward horizontal movement, feeding the work forward until the awl is brought directly in line with and under the needle V. The needle and awl then descend simultaneously, the needle passing from above into the aperture made and left by the awl, and thereby carrying the pro-

jecting burr down again into the fabric, and so producing an even surface. The loop is formed and caught by the shuttle in customary manner, after which the needle ascends, and the fabric is pierced and fed by the awl, as before.

The arrangement of the feeding device at the extremity of a semi-cylindrical bed is not broadly claimed. A spring holding device for the shuttle-carrier, broadly considered, is also disclaimed. The combination of a piercing and feeding awl, a needle and shuttle, a presser-foot, and a device for locking the same; also, the peculiar presser-lock herein described, excepting the feature of adjustability, are illustrated in our sewing-machine for which Letters Patent were granted May 19, 1873, to the assignee of the present invention.

The following is claimed as new:

The combination, within a semi-cylindrical bed, F, of the piercing and feeding awl K, shuttle S s, slotted oscillating shuttle-carrier R *r'*, and the awl and shuttle operating mechanisms, substantially as set forth.

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Witnesses:

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