

(No Model.)

3 Sheets—Sheet 1.

J. M. BROSIUS.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 421,234.

Patented Feb. 11, 1890.

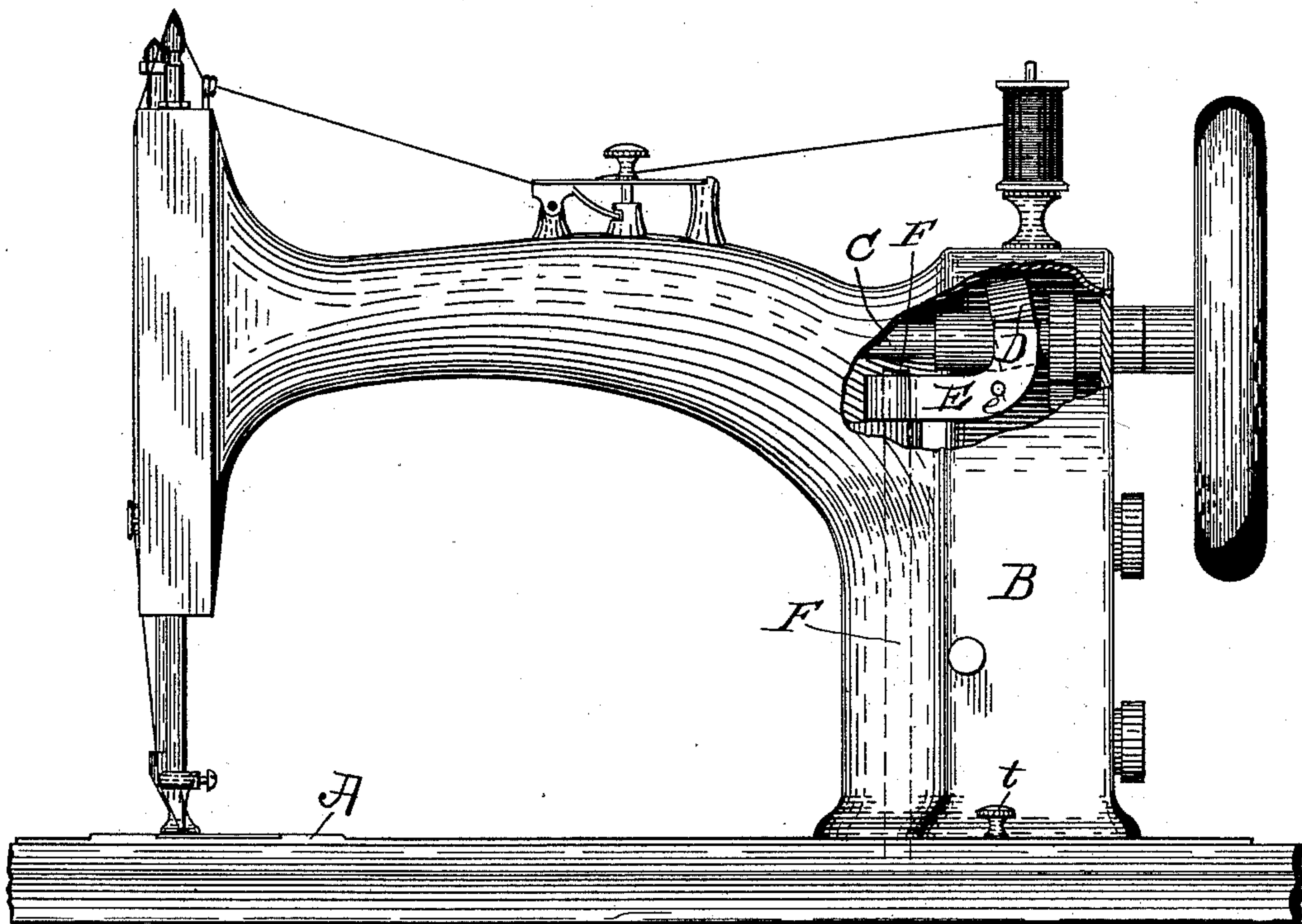


Fig. 1

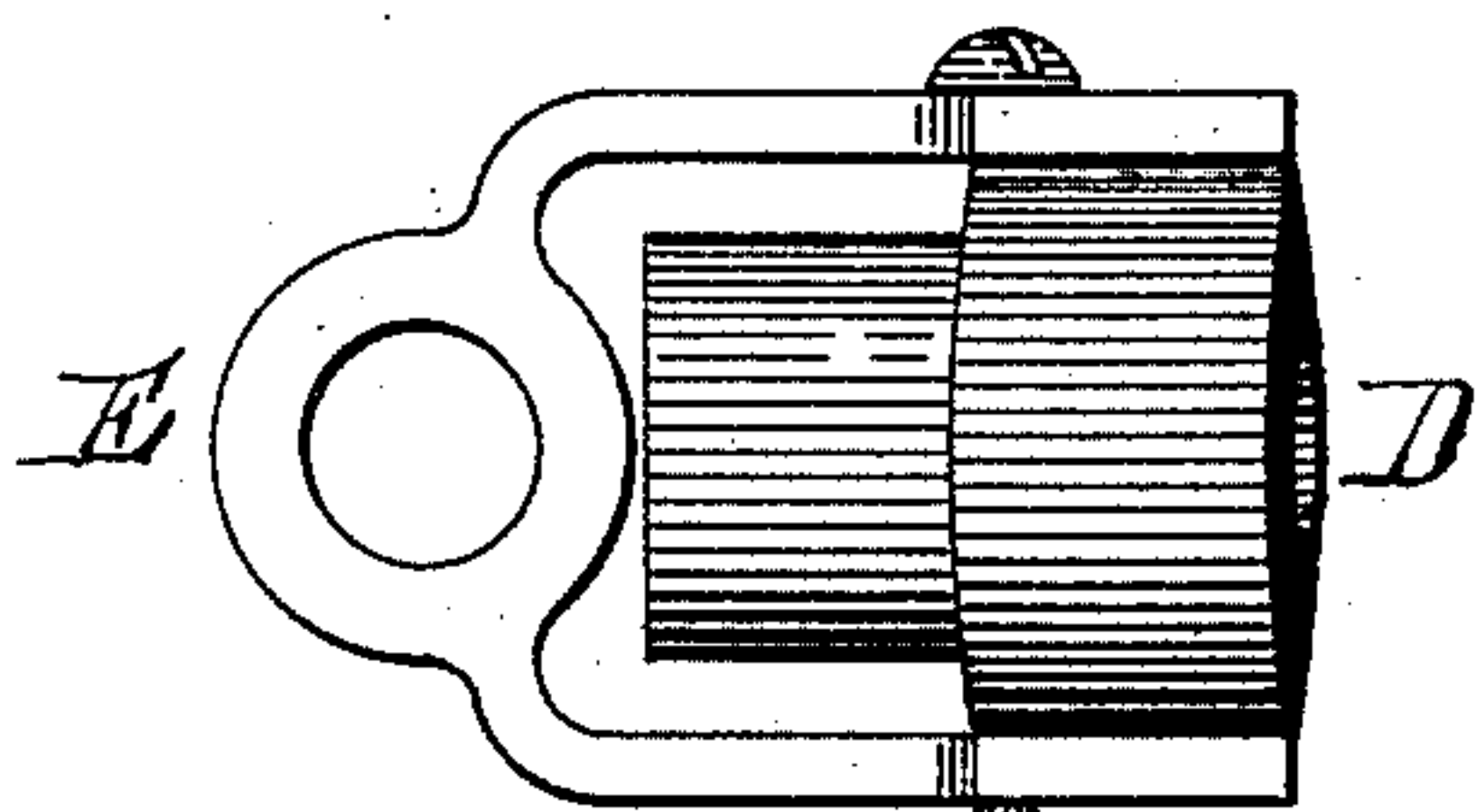


Fig. 2

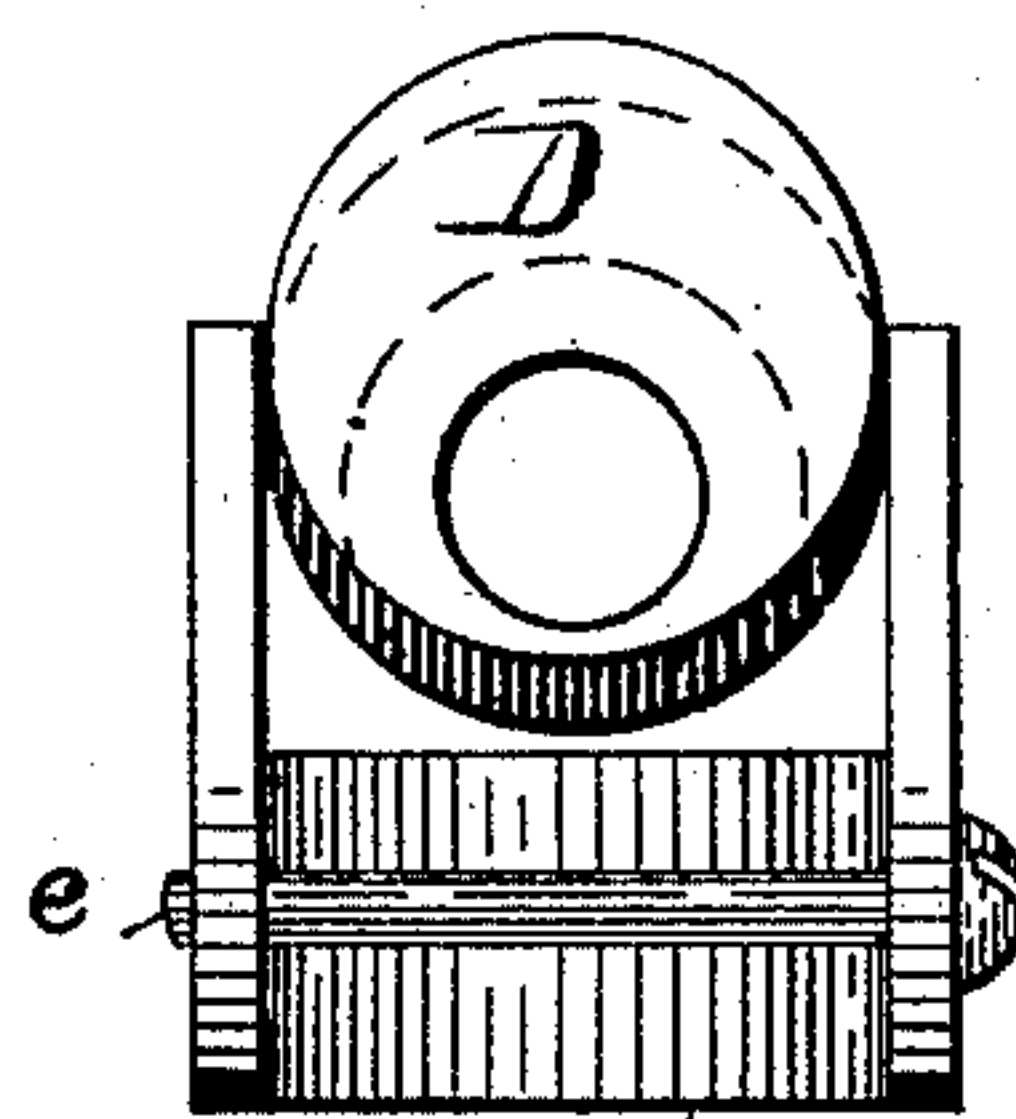


Fig. 3

Witnesses

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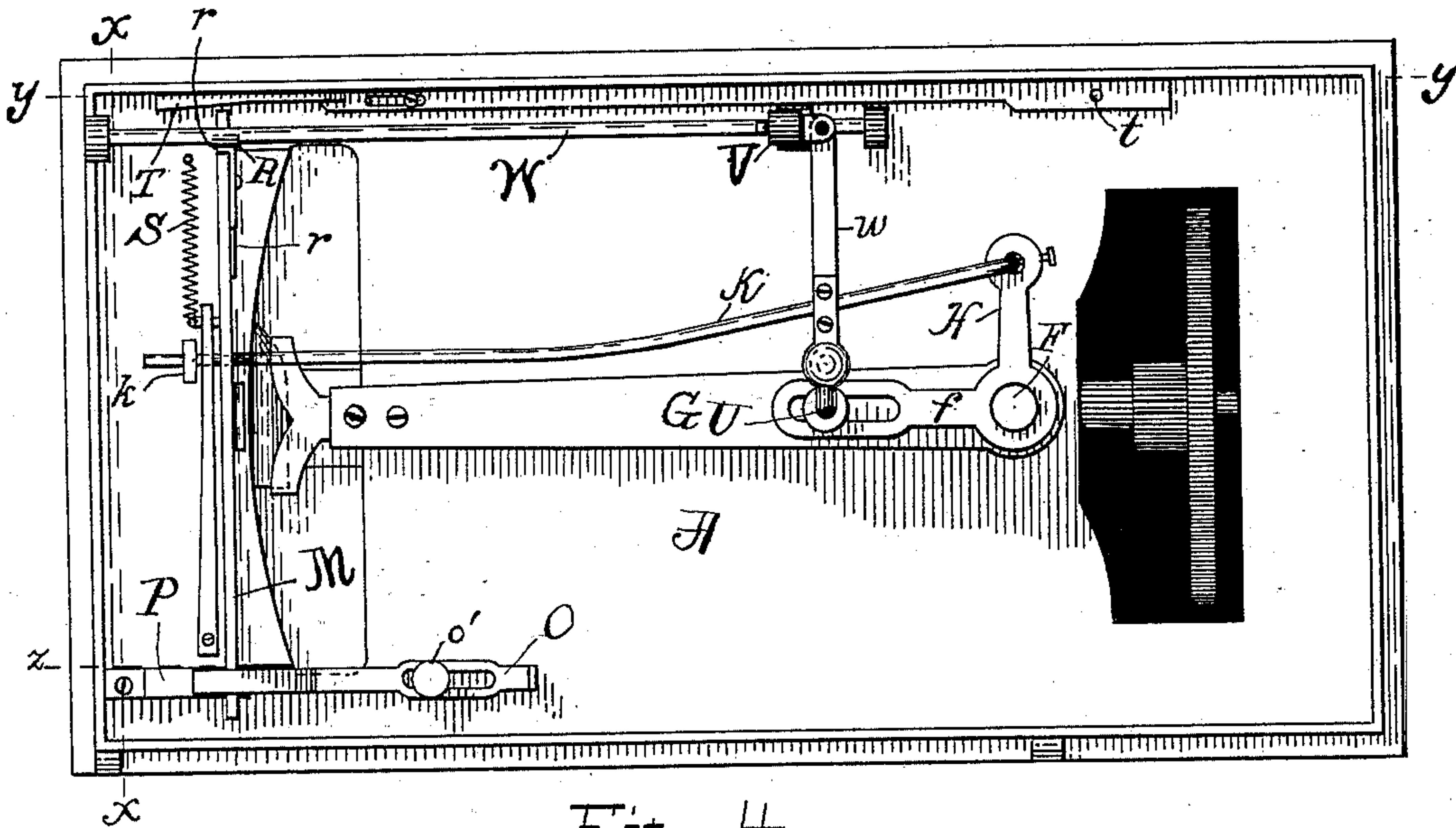


Fig. 4

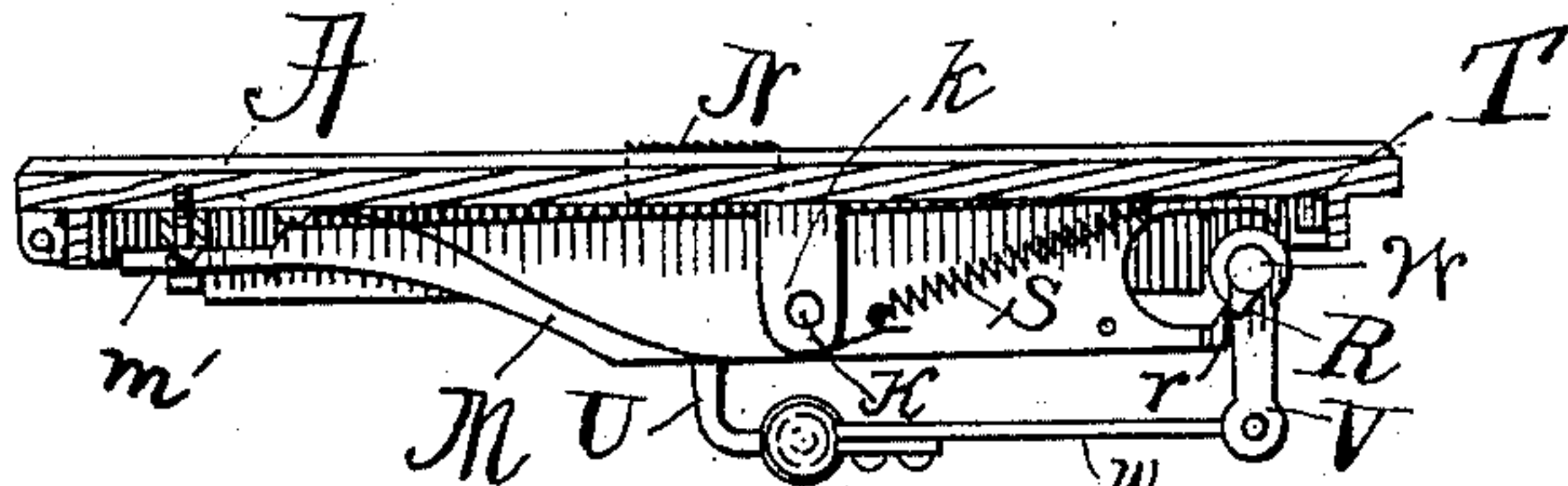


Fig. 5

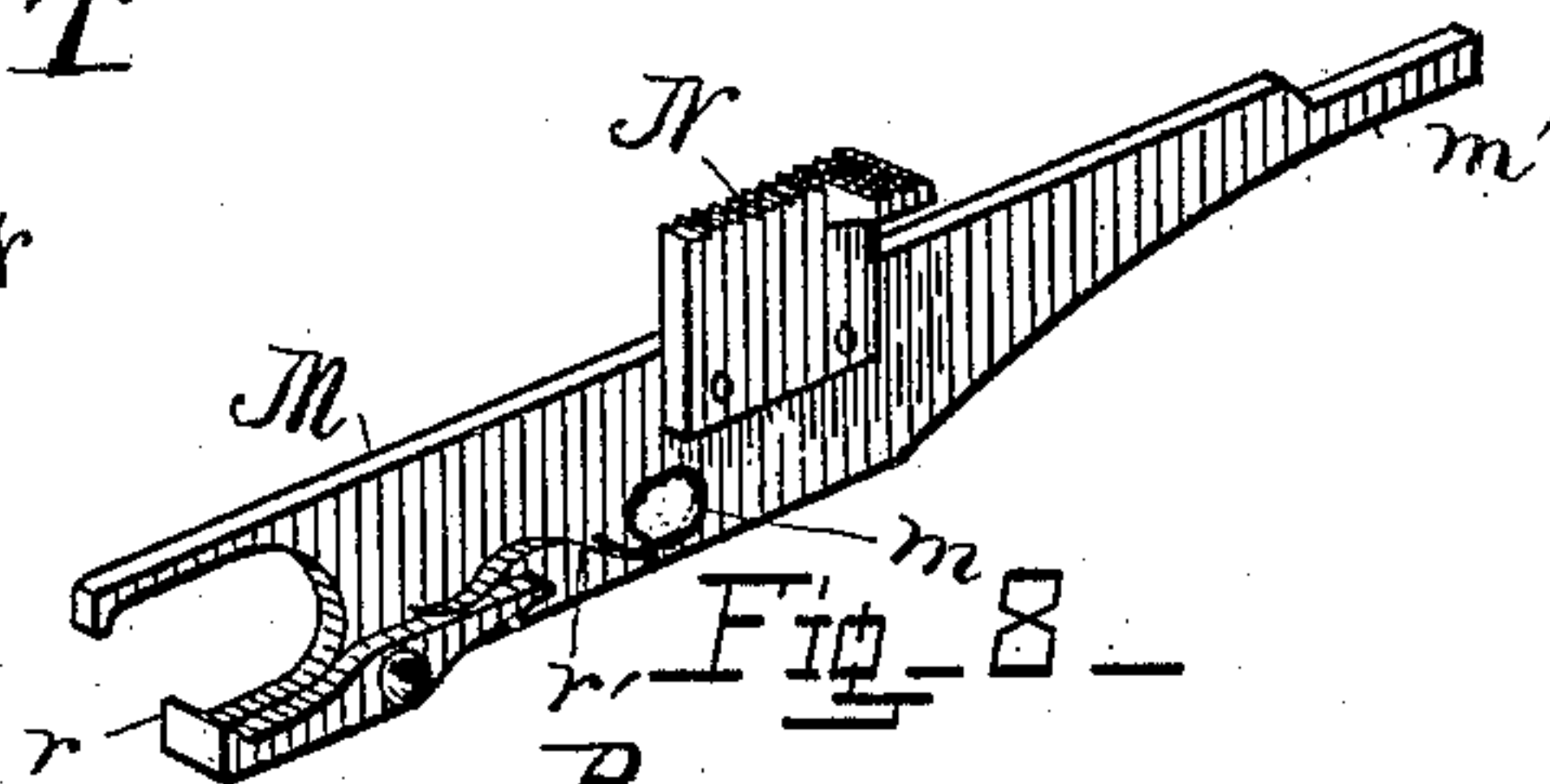


Fig. 8

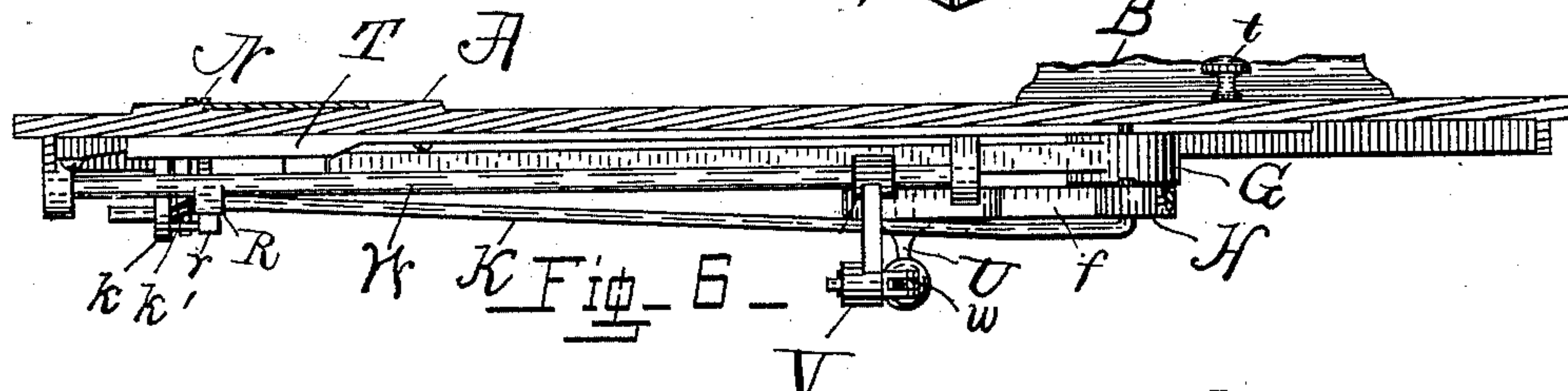


Fig. 6

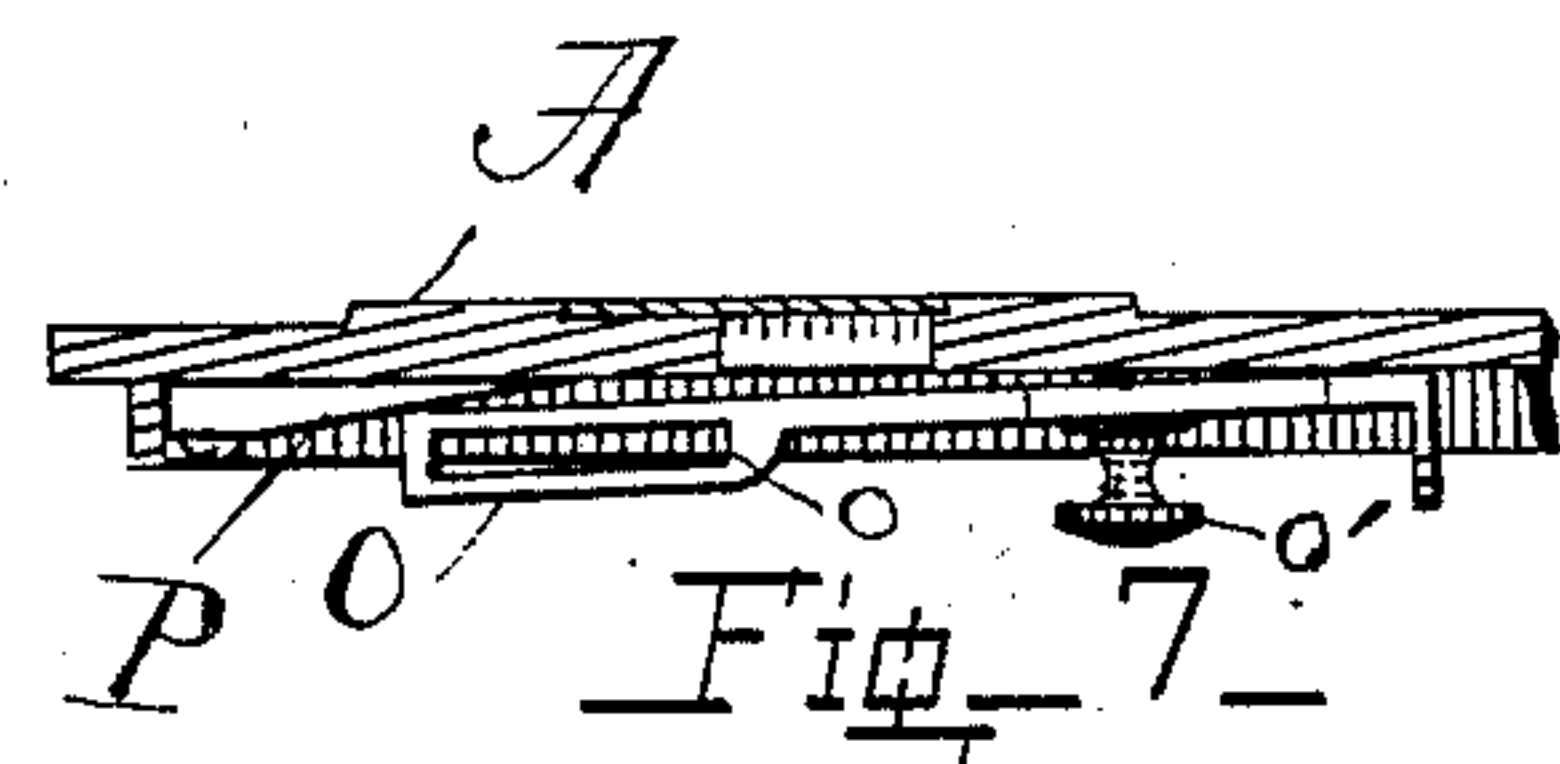


Fig. 7

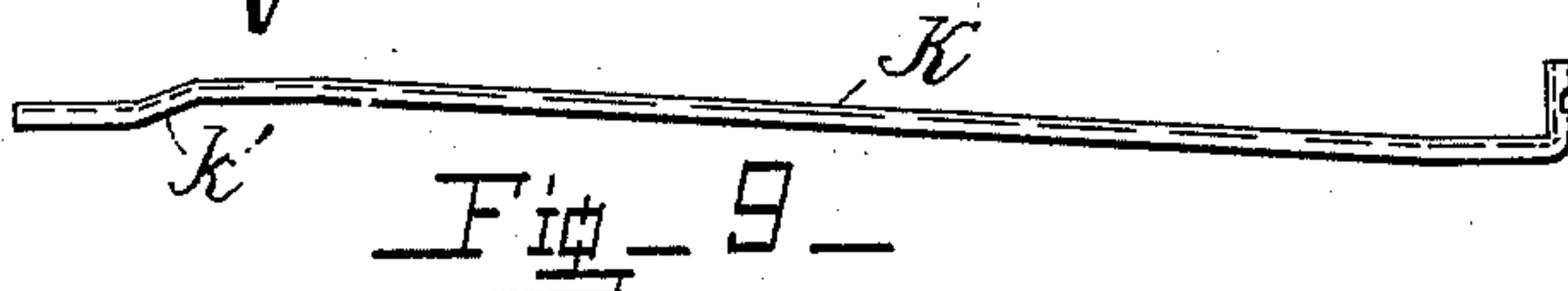


Fig. 9

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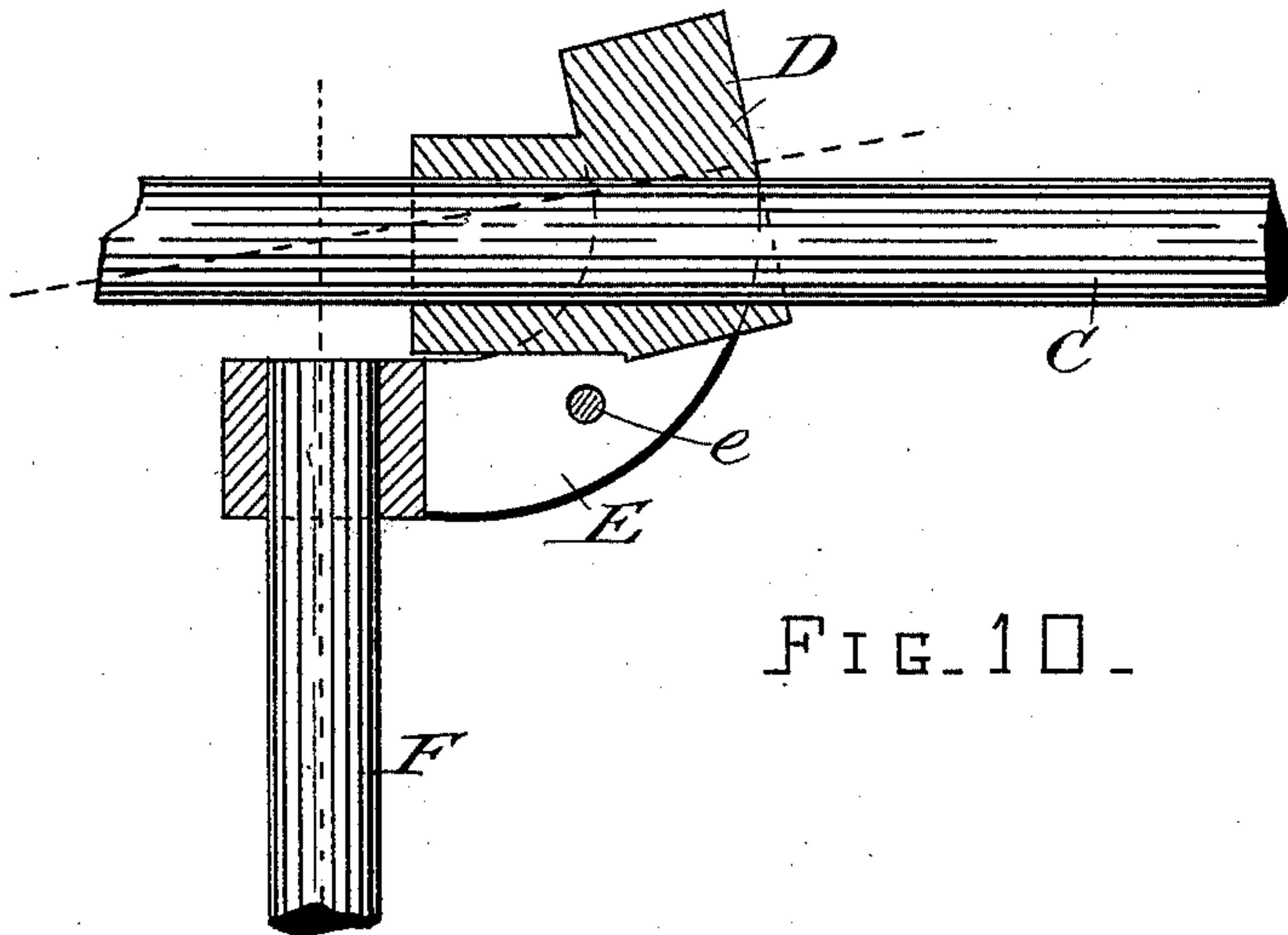


FIG. 10.

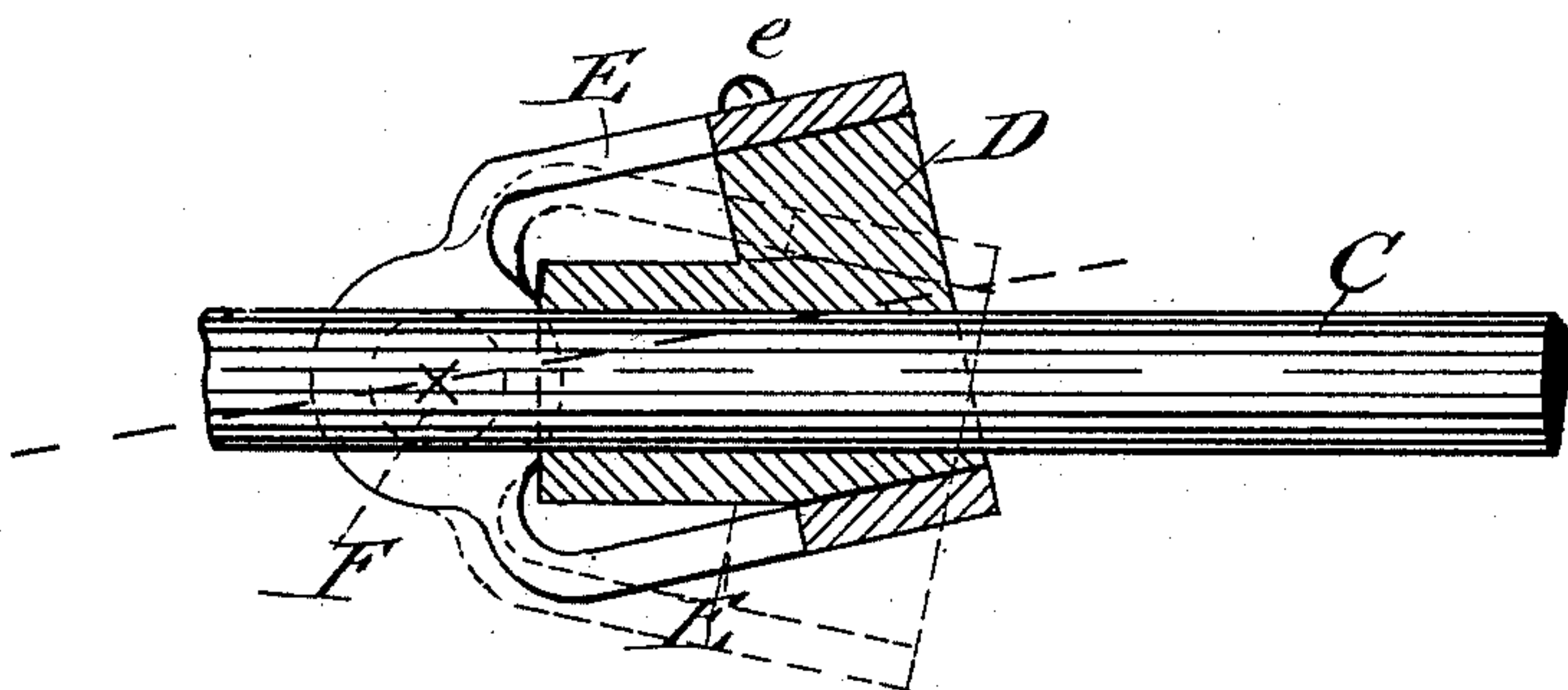


FIG. 11.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN M. BROSIUS, OF ATLANTA, GEORGIA.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 421,234, dated February 11, 1890.

Application filed August 23, 1888. Serial No. 283,554. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BROSIUS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Sewing-Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, references being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of the specification.

This invention relates to the shuttle-moving and cloth-feeding devices, the object being to simplify the construction and improve the operation of these parts. The shuttle is carried on a horizontal oscillating arm beneath the bed-plate. This arm, and also the feeding mechanism, is operated by a shaft extending up through the machine-head. To the upper end of this shaft is attached a bifurcated lever, between the ends of which revolves a cam on the shaft which runs the needle-bar. This imparts an oscillating motion to said shaft. In order that the arms of the bifurcated lever may always bear evenly on the cam, the said cam is inclined on the shaft at such an angle that the axis through its center passes through the points of intersection of the axis of the horizontal and vertical shafts. The operation of this device is hereinafter more fully described.

In the accompanying drawings, Figure 1 is a side elevation of a sewing-machine head, part being broken away to show the cam and the bifurcated lever on the vertical shaft of the shuttle-arm. Fig. 2 is a top view of the cam and lever. Fig. 3 is a view at the right-hand end, as shown in Figs. 1 and 2, of the cam and forked lever. Fig. 4 is a view of the bottom of the bed-plate, showing the shuttle-arm and feeding mechanism. Fig. 5 is a section on the line $x x$ of Fig. 4. Fig. 6 is a section on the line $y y$ of Fig. 4. Fig. 7 is a section on the line $z z$ of Fig. 4, showing the mechanism for adjusting the height to which the dog will rise. Fig. 8 is a perspective view of the feeding-arm and dog. Fig. 9 is a view of the rod K. Fig. 10 is a vertical cross-section of the cam and bifurcated lever mounted on

their respective shafts. Fig. 11 is a horizontal section of the cam and lever.

In these figures, like reference-marks indicating corresponding parts in the several views, A is the base-plate, and B is the frame of the sewing-machine head; C, the horizontal shaft by which the needle-bar is driven and to which is attached the cam D. (Shown in Figs. 1, 2, and 3.) The cam D is a section of a cylinder, and is fastened eccentrically on the main shaft, as shown in Figs. 10 and 11. The form of construction shown in the head adapts it to carry a train of gears to connect the operative part with the spring of the motor, and will form with other details (not shown) the subject for a separate application for Letters Patent. The bifurcated lever E (shown in Figs. 1, 2, and 3) is fastened to the vertical shaft F, the bottom end of which is shown in Fig. 4. The inner faces of the arm, which form the lever E, are parallel and adjustable by the screw e . The axial line of said cam, being at an angle to the axis of the shaft, rocks the lever and its shaft F, as shown in Fig. 11. To the bottom end of the shaft F is rigidly fastened the shuttle-carrying arm G, and also the arms H and f . One end of the rod K is inserted in the arm H and the other in a hole in the lug k , attached to or made integrally with the bed-plate A. The bent portion k' of the rod K (best shown in Fig. 9) passes back and forth through the hole in the feed-bar M. It is obvious that the passing back and forth through the hole m of the bent portion of the rod will cause the feed-bar M and the dog N to rise and fall with each movement back and forth of the oscillating arm H. The feed-bar M has on one end an elongation m' , (best shown in Figs. 5 and 8,) that slides in the slot o , Fig. 7, in the guide O o , Figs. 4, 5, and 7. The guide O is slotted for the screw o' , as shown in Fig. 4, and supported on one edge by the wedge-piece P. Its position on the wedge P governs the height of the feed-bar and dog N, inasmuch as the vertical movement of the feed-bar at the point at which the rod passes through it is uniform. The position of the dog is between that point and the end of the feed-bar that slides in the slot o . The horizontally-reciprocating movement of this feed-

bar is produced by the oscillating cam R coming in contact with the pawl *r* on the feed-bar (shown in Figs. 4, 5, and 8) and the pulling-spring S, one end of which is attached to the feed-bar and the other to the bed-plate A—that is to say, when the cam shall have passed in its circular movement to the point that will cause it to slip off the pawl the spring S will cause the feed-bar to return to the position shown, which is against the sliding bar T, that governs the point at which the feed-bar on its backward movement will stop, the end of the bar T being wedge-shaped and having longitudinal movement, and being fastened by the screw *t*, Figs. 1, 4, and 6, in a slot in the bed-plate. The pawl *r*, against which the cam or projection strikes in its oscillating motion, is pivoted to the feed-bar M. The rear end of this pawl is acted upon by a spring *r'*. When the cam or projection R strikes said pawl on its forward motion, it forces the feed-lever back until it slips by the obstruction, the pawl being kept from turning by a pin or projection on said lever. On the return motion of the cam the pawl tips until the cam is by, and is then returned to its original position by the spring. Motion is imparted to the cam R from the arm *f* through the stud U, connecting-rod *w*, arm V, and rock-shaft W. The shaft F imparts a rocking motion to the arm *f*, and in consequence an oscillating motion to the said cam. The arm *f* is also slotted to permit the adjustment of the stud U for the purpose of regulating the throw of the cam. The feed

motion should be so set that the feed-bar will rise and move forward during the time that the needle is out of the cloth, which is while the shuttle is going backward or in the direction opposite that at which it takes the loop.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a sewing-machine, mechanism for reciprocating the feeding-dog, consisting of the arm *f*, carried by the shaft F, the connecting-rod *w*, the arm V, the rock-shaft W, the cam R, the feed-bar M, carrying the dog N and spring-pressed pawl *r*, the spring S, and mechanism for giving a vertical reciprocating movement to the feeding-dog, substantially as shown and described.

2. In a sewing-machine, feeding mechanism consisting of the combination of the levers H and *f*, rigidly attached to the shaft F and oscillating with the shuttle-carrying arm G, the rod K, having bent part *k'*, the lug *k*, the cam R and mechanism connecting it with the arm *f*, the feeding-bar M, carrying dog N and pawl *r* and having extension *m'* and hole *m*, and the adjustable guide O and wedge P, substantially as shown and described, and for the purpose set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN M. BROSIUS.

Witnesses:

A. P. WOOD,
N. P. WOOD.