

W. H. TAYLOR.
Apparatus for Slotting Metal.

2 Sheets—Sheet 1.

No. 233,952.

Patented Nov. 2, 1880.

Fig. 1.

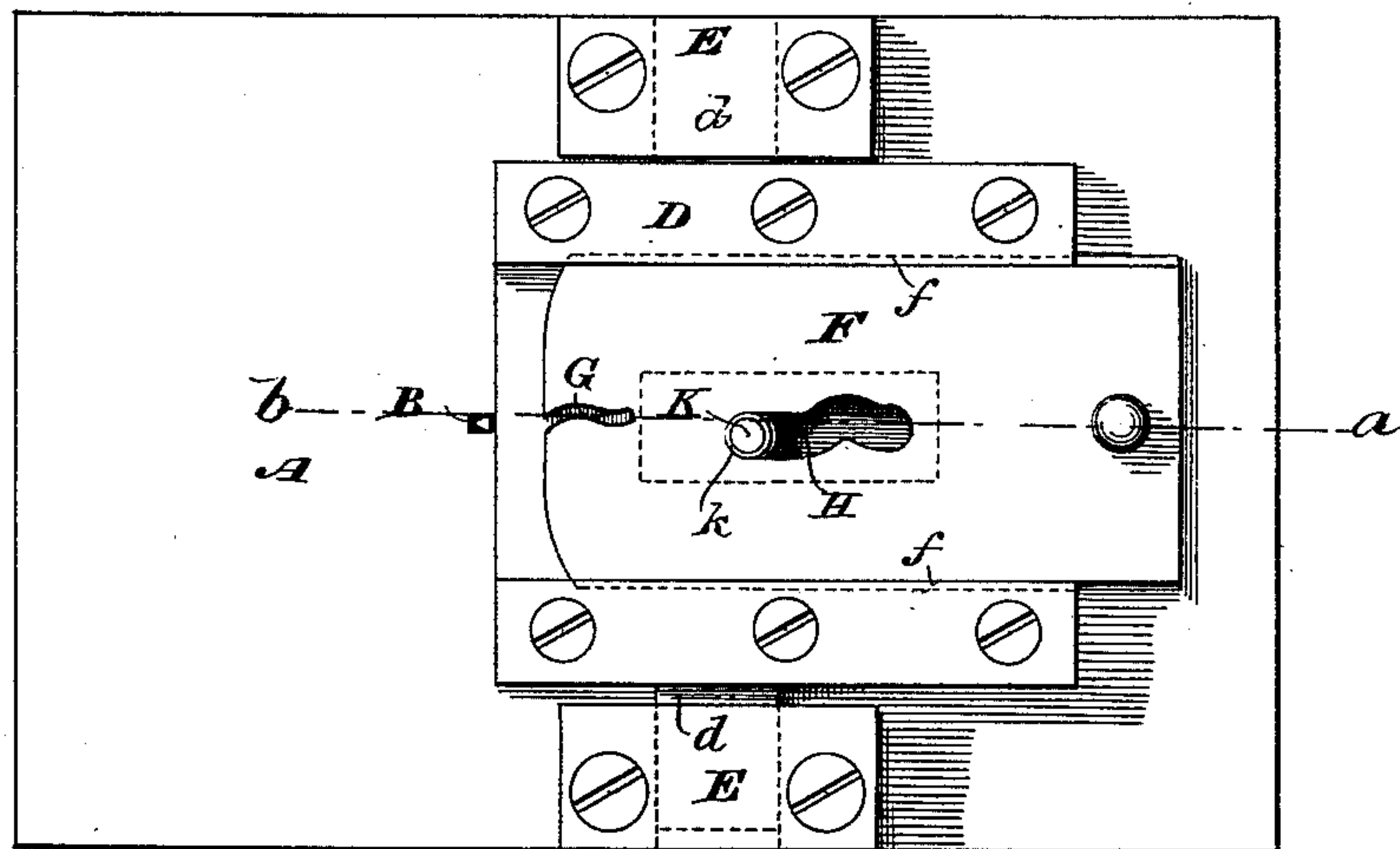
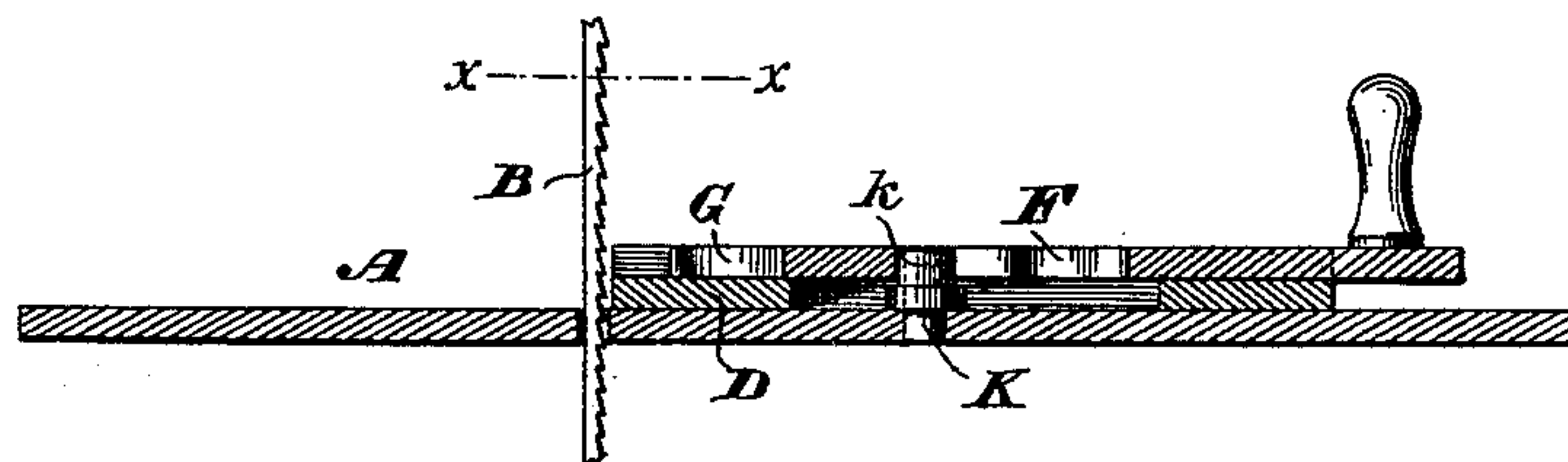


Fig. 2.



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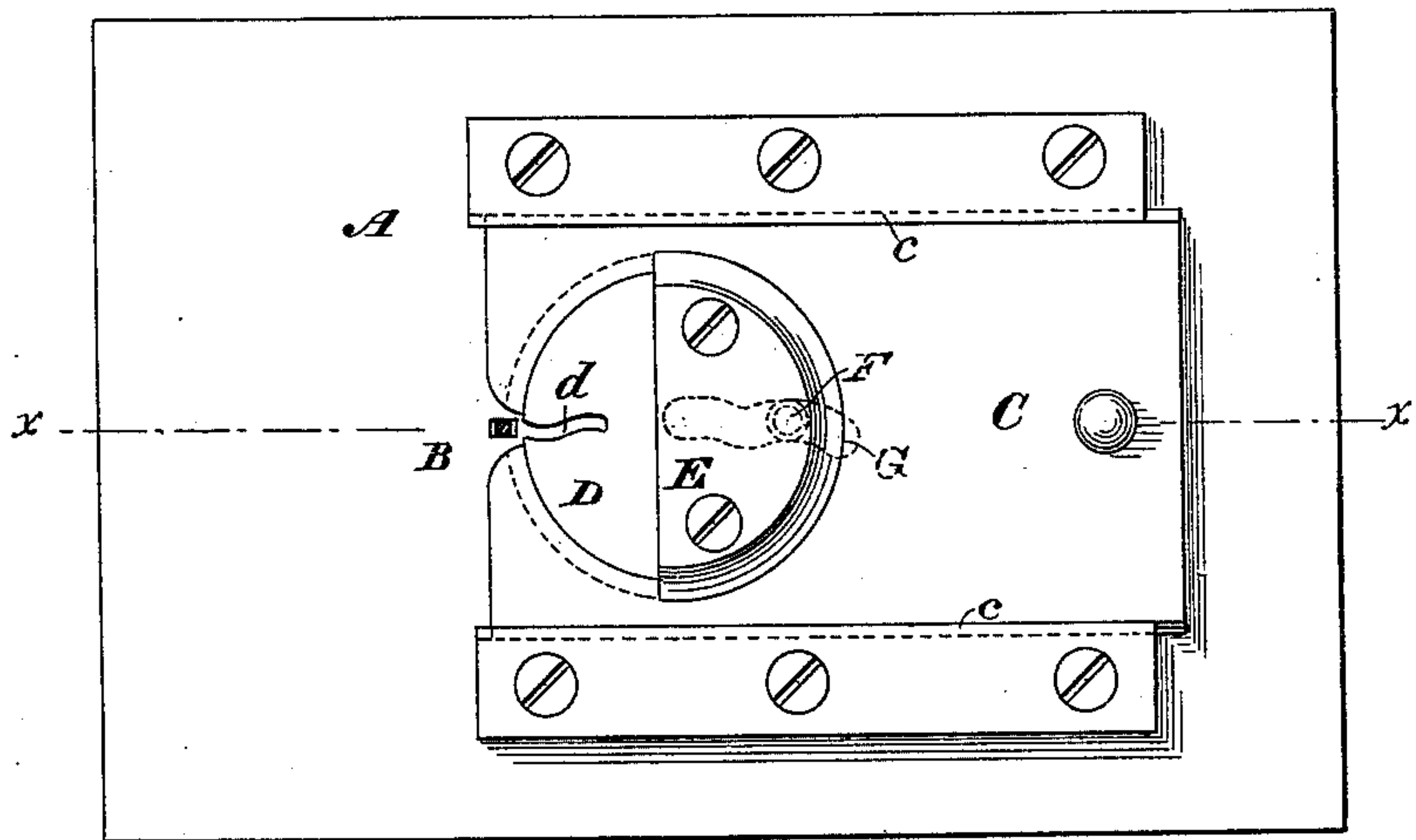


Fig. 2.

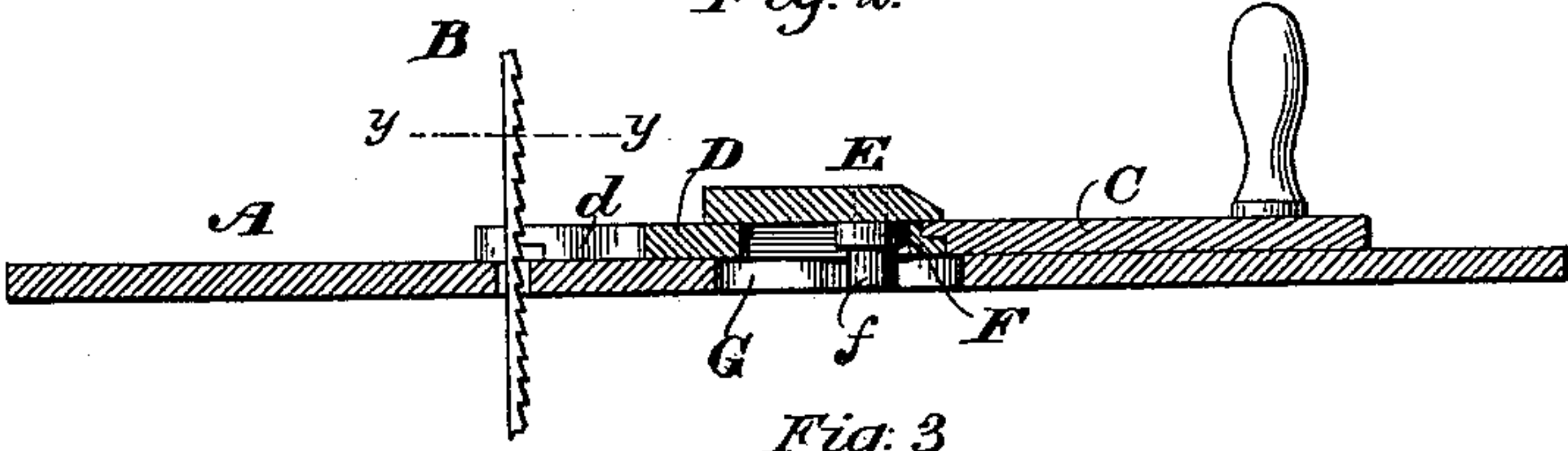


Fig. 3.

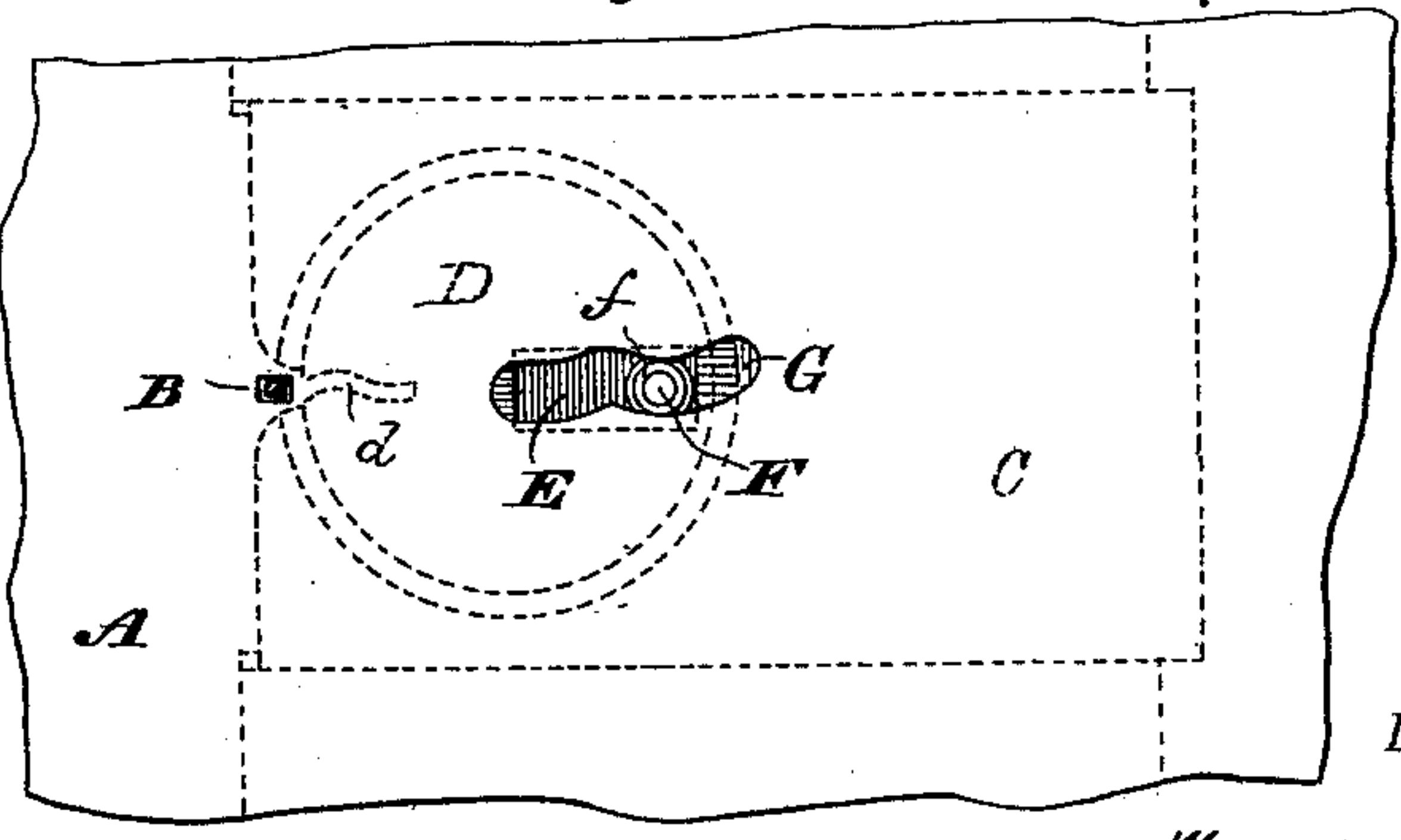


Fig. 4.



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UNITED STATES PATENT OFFICE.

WARREN H. TAYLOR, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE
YALE LOCK MANUFACTURING COMPANY, OF SAME PLACE.

APPARATUS FOR SLOTTING METAL.

SPECIFICATION forming part of Letters Patent No. 233,952, dated November 2, 1880.

Application filed April 8, 1878.

To all whom it may concern:

Be it known that I, WARREN H. TAYLOR, of Stamford, in the county of Fairfield and State of Connecticut, have invented an Improved Apparatus for Slotting Metal, of which the following is a specification.

The principle of my invention is simply that of cutting or sawing into work in devious lines to form irregular or curved kerfs that shall be exactly alike.

The particular purpose I have in view is to form sinuous key-slots in the hubs or cylinders of locks which are adapted for the use of sheet-metal keys with side bits or serrations like the ordinary "security" Yale-lock key.

There are many practical considerations in favor of having the key-blade of such a key grooved or corrugated longitudinally, and there is little difficulty in properly corrugating such a key-blade in the process of manufacture by the use of suitable dies; but the formation of a corresponding keyway in the lock hub or cylinder has heretofore been attended with considerable difficulty; and it is the object of my invention to render it easy and economical to form such keyways that shall be uniform for particular patterns of hubs or cylinders, and that shall neatly fit the respective standard keys.

In the accompanying drawings, Figure 1 of Sheet 1 is a plan view of my apparatus, and Fig. 2 is a section through the line *a b* of Fig. 1. Fig. 1 of Sheet 2 is a plan view of a modification of my apparatus. Fig. 2 is a section of the same through the line *x x* of Fig. 1. Fig. 3 is a plan view of the table or bed-plate, with superimposed parts indicated in dotted lines; and Fig. 4 is a cross-section of the saw-blade.

A indicates a bench or table, through which the saw-blade B works, and on which is secured the carriage. The saw may be either a gig or band saw of the ordinary kind for fine work.

D indicates a carriage-frame, which has lateral guide-arms *d d*, working in guideways E, secured on the surface of the table.

F indicates a carriage plate or platform resting on the frame D and moving in guideways *ff*. In the front end of this plate is a suitable

slot or opening, G, immediately under the position of the work to be slotted, which affords a path for the saw as the plate with the work upon it is advanced. In the center of the plate is a double-curved slot, H, having its forward end elongated in a right line toward the saw, the object of which elongation is to permit the withdrawal of the plate a suitable distance from the saw to conveniently attach and detach the work. The double-curved or sinuous portion of this slot is so shaped on its opposite sides that as the plate advances it may be forced by a fixed guide within the slot to take a devious course corresponding exactly with the form of the slot which it is desired to make in the work.

Fixed in the table, and projecting up through the center of the frame D and into the slot H, is a guide stud or post, K, provided with a friction-roller, *k*, of a diameter nearly the width of the slot, so as to fit nicely within the same and permit the plate F to have a free movement forward and back equal to the length of the slot.

Instead of having the stud fixed in the table-top and the slot formed in the reciprocating platform their positions may be reversed—that is to say, the stud may be fixed in the platform and the slot made in the table-top or bed-plate, and the effect will, of course, be the same.

The power needed is simply such as will operate the saw and advance the plate F and the work. This may be a foot-treadle to operate a gig-saw, and the use of the hand to feed the work; or it may be the employment of machinery to run the saw and suitable gearing to reciprocate the plate F—such, for instance, as reciprocates the table or frame of an iron-planer.

Any suitable work-holder may be employed, and slots may, of course, be formed in other work besides key-hubs.

The operation of this apparatus is as follows: The work being fixed on the front end of the plate F, and the saw being in operation, the plate is slowly advanced and the work pressed against the saw. At the moment when the work reaches the saw the forward motion will have brought the beginning of the sinuous

portion of the slot H in immediate contiguity to the friction-roller *k*, and during the balance of the advance the plate F and work will have a compound movement due to the pressure of the opposite sides of the slot alternately against the friction-roller and the accommodating transverse reciprocating movement of the frame D. When the apparatus is worked by hand the post K operates as a stop to determine the depth of the kerf formed, and also as a stop to limit the movement away from the saw; but when it is operated by power the gearing will, of course, be such as to give the exact forward and backward movements required, so that no material force or pressure will be brought to bear on the post.

It is obvious that several saws might be operated at the same time in connection with the same carriage, the plate F being made wide enough, and, if necessary, one or more guide posts and slots being added.

In the modification of my apparatus shown in Sheet 2 of the drawings I employ a circular instead of a right-angular work-carrier or platform, which is moved by a pin and slot, as above described, the apparatus being the same in principle as, and only different in form from, that above described.

On Sheet 2, A indicates a bench or table, through which the saw B works, and on which is secured the reciprocating carriage or platform C in suitable guideways *c c*. In the front end of the carriage is a slot to form a path for the saw as the work is advanced to it.

D indicates a circular oscillating platform or work-carrier, resting in a corresponding circular aperture in the carriage, each part being shouldered and lapped, as shown, so that the carrier is held in place by the carriage; but this particular means of holding the carrier

in place is not material, as any other suitable mechanical means may be employed. The carrier has a slot, *d*, immediately under the position of the work, which is a continuation of the slot in the front end of the carriage, forming an open way for the saw. On top of the carrier I secure a segmental plate, E, to which is fixed a downwardly-projecting stud, F, that passes through an aperture in the carrier and enters an irregular double-curved slot, G, in the bed-plate or table-top. This stud is provided with a friction-roller, *f*, and it may be secured directly to the carrier, and the segmental plate may be dispensed with.

As already described, in the first form of my machine I make the seat of a contour corresponding to the form of slot I desire to produce in the key-hub or other work to be slotted—that is to say, I give it such a shape on its opposite sides that as the carriage is reciprocated forward and back the sides of the slot will impinge against the stud, which, with its friction-roller, fits it, and oscillate the platform, so that its compound motion will give to the work it carries a resultant motion and direction with respect to the saw that will produce in it a sinuous kerf, such as desired.

What I claim as new and of my invention is—

The combination of the two parts of the carriage moving at right angles to each other, and the guide-stud K and its slot H, substantially as described.

In testimony whereof I have hereunto subscribed my name.

WARREN H. TAYLOR.

Witnesses:

E. D. OGDEN, Jr.,
SCHUYLER MERRITT.