

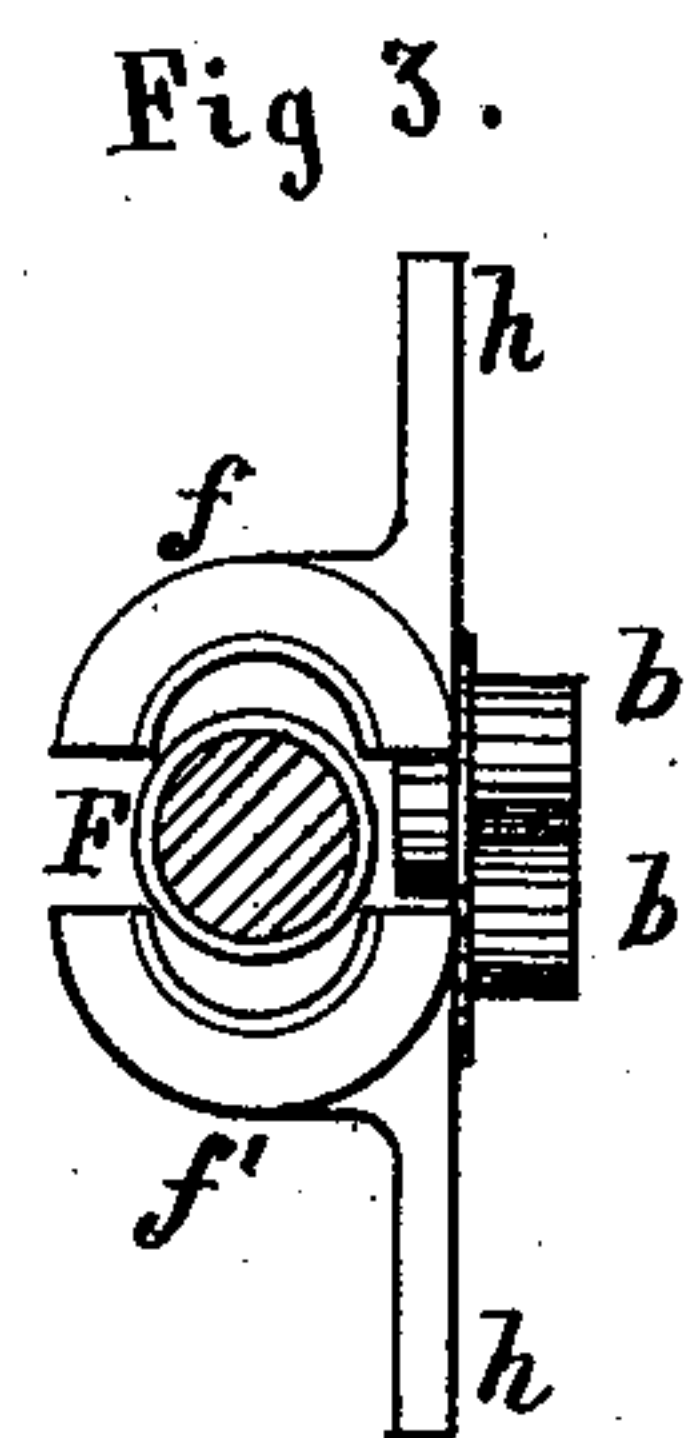
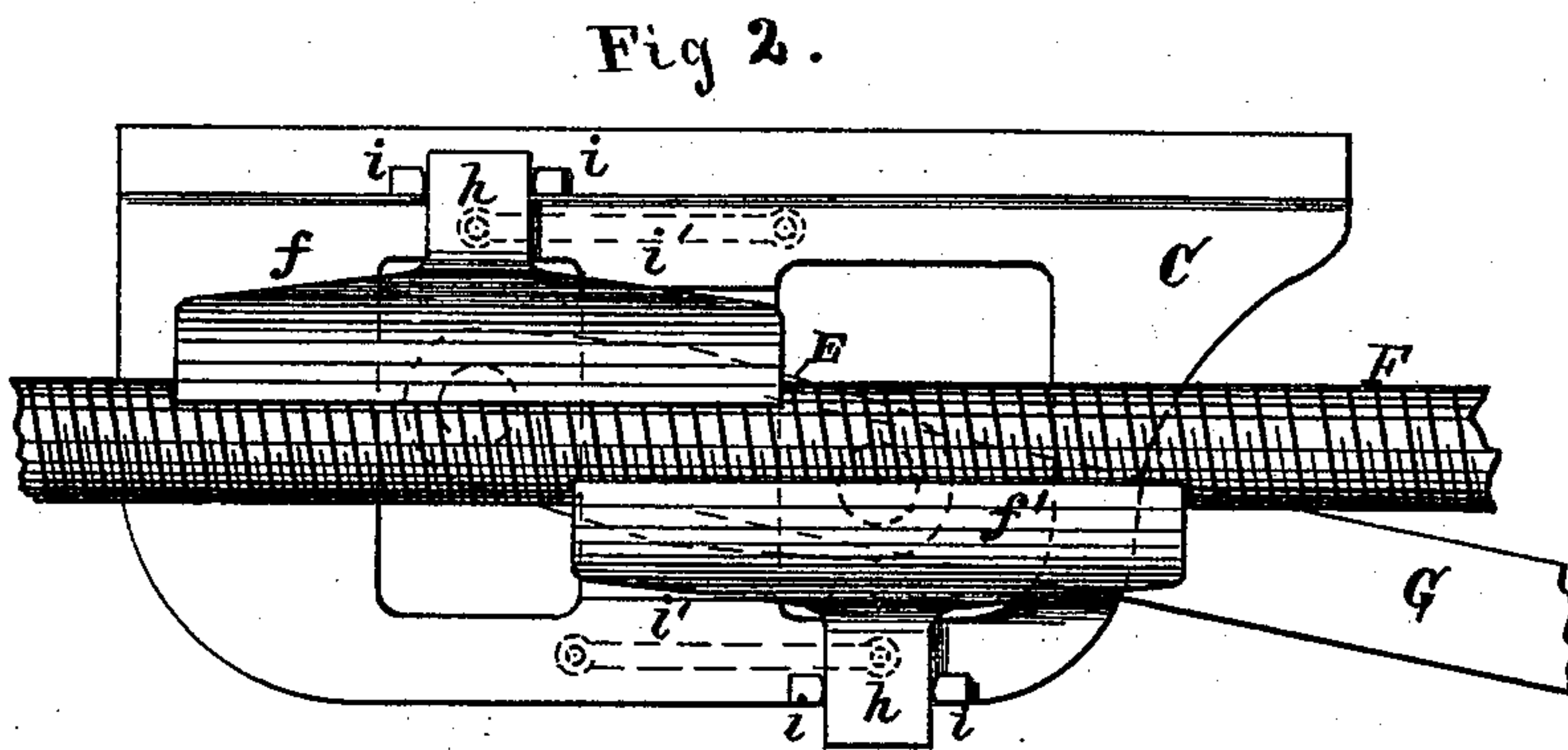
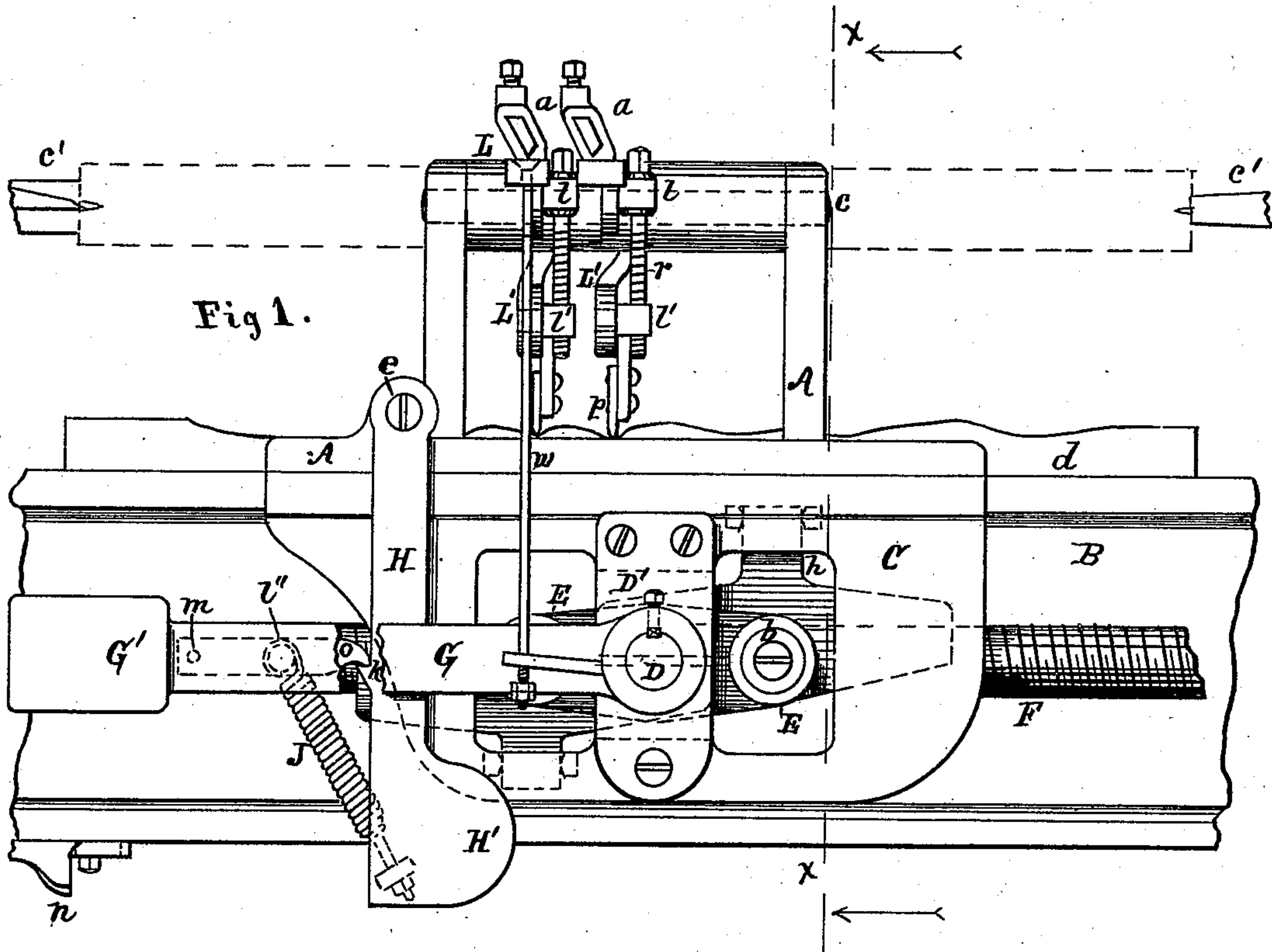
(No Model.)

2 Sheets—Sheet 1.

F. H. CLEMENT.
LATHE.

No. 429,603.

Patented June 10, 1890.



Witnesses:
J. E. McKelvey
G. L. Southard

Inventor:
Frank H. Clement

(No Model.)

2 Sheets—Sheet 2.

F. H. CLEMENT.
LATHE.

No. 429,603.

Patented June 10, 1890.

Fig 4.

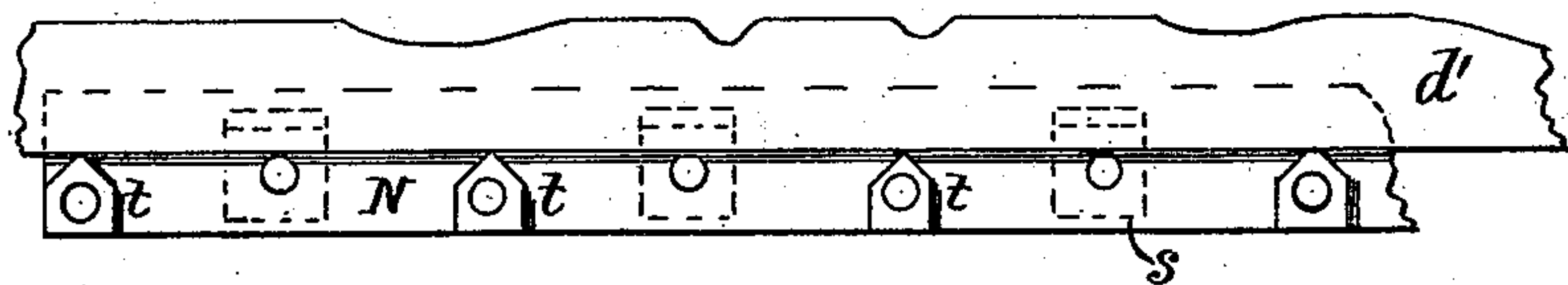
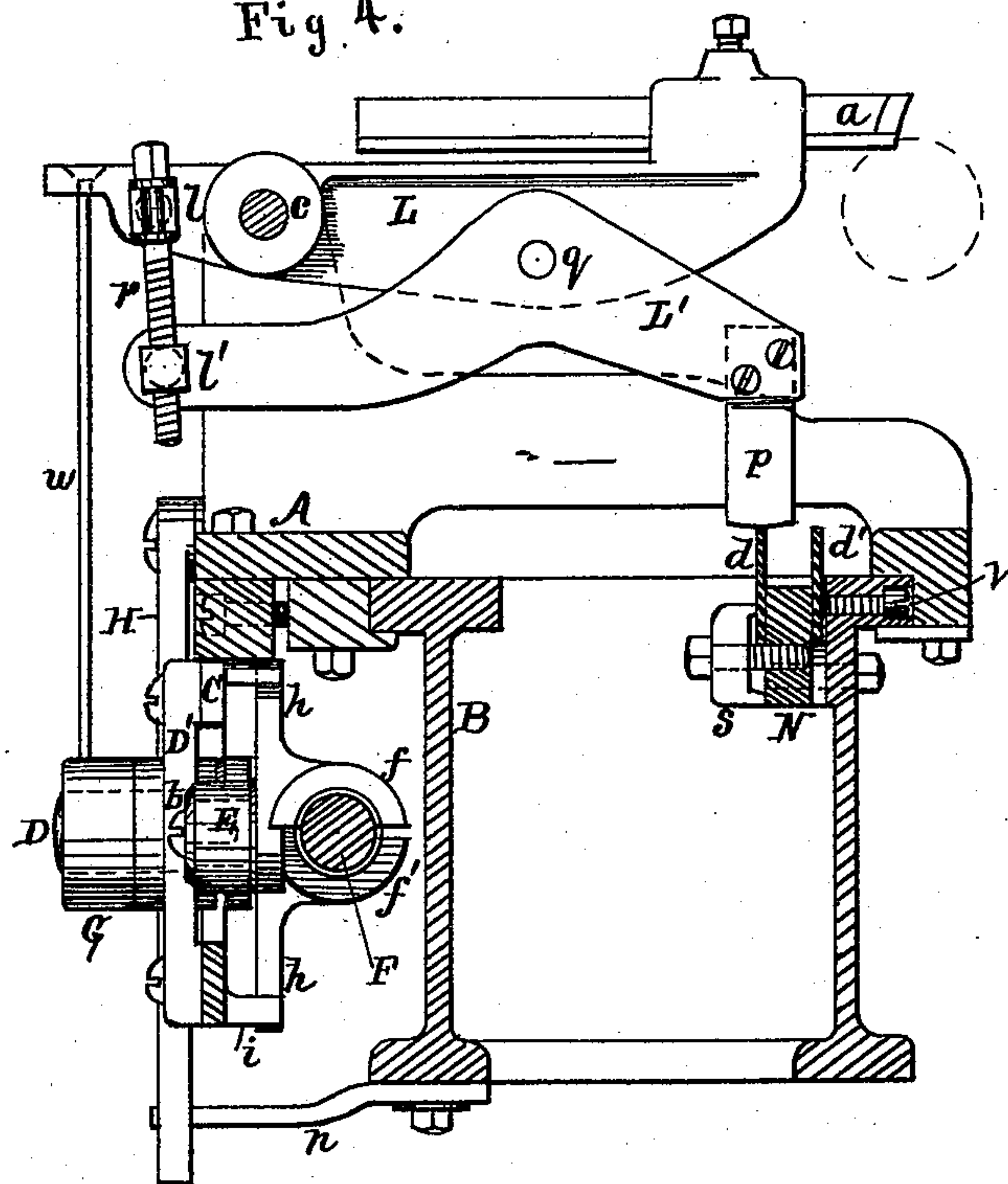
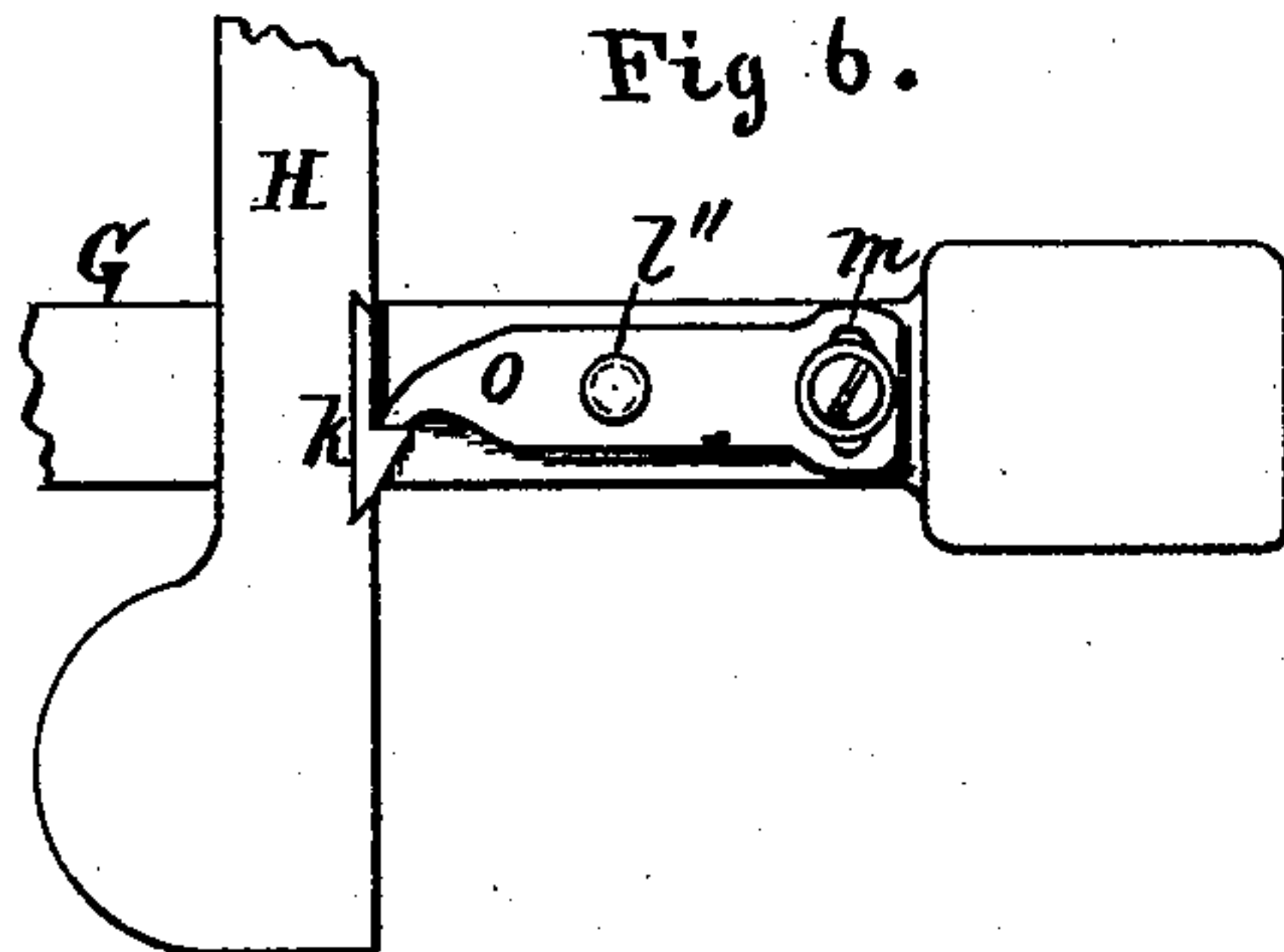


Fig 5.

Fig 6.



Witnesses:

J. E. McKelvey
G. C. Southard

Inventor:

Frank H. Clement

UNITED STATES PATENT OFFICE.

FRANK H. CLEMENT, OF ROCHESTER, NEW YORK.

LATHE.

SPECIFICATION forming part of Letters Patent No. 429,603, dated June 10, 1890.

Application filed September 13, 1889. Serial No. 323,834. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. CLEMENT, a citizen of the United States, residing in the city of Rochester, State of New York, have
5 invented certain new and useful Improvements in Automatic Lathes, of which the following is a specification.

My invention relates to lathes for turning regular forms automatically; and it consists,
10 mainly, in certain improvements in the traveling carriage and the parts connected therewith, whereby greater efficiency in operation and durability are obtained, as hereinafter fully described.

15 In the accompanying drawings, Figure 1, Sheet 1, is a front elevation of the carriage, feed-works, and tool-stocks, with a portion of the bed and feed-screw. Fig. 2 is a reversed elevation of the apron, showing the feed-nut
20 disengaged from the screw. Fig. 3 is a section of the screw-shaft showing the nuts in end elevation. Fig. 4, Sheet 2, is a transverse section at the line *x*, Fig. 1, showing the tool-stocks and other parts in elevation. Figs. 5
25 and 6 are reversed elevations of the form-bar and feed-nut lock, respectively.

A, Figs. 1 and 4, is a carriage fitted to slide on suitable ways on the bed B, having apron C bolted to it for the purpose of attaching the
30 automatic feed mechanism.

F is the feed-screw, having bearings on the bed B and driven in any convenient manner.

LL are chisel-stocks pivoted to the carriage on the pin *c* and arranged to follow a form *d*,
35 fastened to the lathe-bed.

The stick to be turned is revolved at a high speed upon centers *c' c'*, carried on suitable head and tail stocks in the usual manner.

The above parts are old and well known,
40 and it is to details hereinafter described that my invention relates.

Near the center of the face of the apron there is a gudgeon D, having a bearing on the front plate D' of the apron and carrying at
45 its inner end the oscillating lever E. To its outer extremity is keyed the weighted lever G. Near each extremity of the lever E there is a bearing to receive the gudgeons *b*, Figs. 3 and 4, which project from the halves *f f'* of
50 the shear-nut. These halves are fitted to the feed-screw by threading or by pouring soft metal in recesses provided in them, as shown

in dotted lines, Fig. 3. Wings *h* project from the back of the halves *f f'*, and are fitted to move easily between bosses or stops *i*, Fig. 2, 55 on the apron, the contiguous faces of which are slightly rounded, as indicated. The office of these guiding-stops is to retain the position of the half-nuts parallel, or nearly so, to the screw while being thrown in or out. The
60 centers of the gudgeons *b* are preferably located on or near the center line of the screw when the half-nuts are in mesh, (as they are shown in Figs. 1 and 4,) and at the center of the half-nuts longitudinally, and the wings *h* 65 vertically over and under these points; but such position is not absolutely essential.

From a stud or pin *e* on the carriage depends a vertical hanger H, having a projecting hook *k*, and upon the lever G there is a
70 corresponding latch O, adjustably secured thereto by means of a central stud *l'* and clamping-screw *m*, moving in a slot in the latch, as shown in Fig. 6. The hanger H is counterweighted on one side at H', so as to 75 force it into engagement with the latch O; but to insure such engagement instantaneously there is a spring J, attached to the lever G and to a lug on the lower end of the hanger H in any convenient manner, connecting the
80 two at an angle of about forty-five degrees, so that the spring acts about equally on both.

It will be seen from the foregoing that when the lever G is held up in the position shown in Fig. 1 by the latch O and hook K the halves 85 of the shear-nut will be in mesh with the feed-screw; but when the hanger H is pushed to the right the spring J and counter-weight G' force the arm G downward and open the halves *f f'* of the shear-nut, as indicated in Figs. 2 90 and 3, thus stopping the carriage. The hanger H is tripped when the carriage arrives at the end of its movement by a suitable stop *n*, Fig. 1, secured to the lathe-bed.

It will be seen that since the opening and 95 closing of the nut are done by means of the joints D *b* the friction is much less than by the old method of sliding the half-nuts in a vertical way, and they are more sure to be opened by the weight G' when the hanger H is tripped. 100 There is, furthermore, very little wear on these joints compared to the slide, and the halves cannot cramp and stick when being opened or closed. By means of the adjustable latch

O the wear of the latter and hook K, as well as the diametrical wear on the screw and nut, can be compensated—an important matter on all such lathes.

5 I have shown in dotted lines in Fig. 2 an equivalent device to the wings *h* and guide-stops *i*, consisting of links *i'*, pivoted to the half-nuts and to the apron C. These links retain the position of the half-nuts similarly
10 to the stops *i*.

The chisel-stocks L as usually made have a foot-piece or rider *p* following the form. This is commonly adjustable vertically on the chisel-stock by clamp-screws in slots for different diameters of work to be turned. This
15 is a troublesome construction, consuming a great deal of time, and, moreover, is not accurate. I therefore make the chisel-stocks in two parts L and L', Fig. 4, pivoted together
20 at *q* at about the center of their length. One extremity of the arm L' carries the rider *p*, and the other is connected to the stock L by a screw *r*. This screw is necked into a slot in the stud *l*, secured to the stock so as to
25 swivel slightly, and is threaded into a similar swiveled stud *l'* on arm L'. Turning the screw thus raises and lowers the pivoting-point *q*, and consequently increases or diminishes the distance between the chisel *a* and the rider
30 *p*, thereby changing the diameter of the work. This adjustment can be made at any time while the lathe is running and the chisel is in the cut or otherwise, as desired, and can be made as exact as required. The range of
35 the screw *r* is such as to admit the largest and smallest work for which the lathe has capacity.

Usually in lathes of this character the forms for guiding the tool-stocks are either screwed
40 upon the top of the lathe-bed or clamped up against the face of it by dogs *s*, as indicated in Fig. 4. It often happens, however, that it is necessary or desirable to use two forms of different shapes guiding separate chisels, in
45 which case they must be far enough apart so that each rider will rise and fall clear of the other form. I therefore provide a separate bar N, Figs. 4 and 5, to one side of which one form is clamped by dogs *s* and suitable screws.
50 Upon the other side there are lugs *t*, a trifle thicker than the form, placed a few inches apart and preferably beveled to an edge, or nearly so, at the top, upon which edges the form *d'* rests. The bar N is bolted rigidly to
55 the bed B of the lathe, and the form is clamped

up tight by means of screws *v*, threaded into the lathe-bed. By this means it is but a moment's work to remove either form, and a flat thin bar can be used for forms easily worked
60 on its edge to the required shape. By means of the lugs *t* large openings are left under the form for the passage of chips and dirt.

In Figs. 1 and 4 I have shown a rod *w*, connecting the chisel-stocks with the drop-lever G by means of suitable lugs formed on them.
65 The object of this is that when the carriage is stopped by the dropping of the lever G the riders are lifted from the forms and the latter preserved from wear when the carriage is on the return-stroke. 70

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic lathe, the combination of a carriage and its feed-screw, an oscillating lever E, with the half-nuts *f f'* pivoted
75 thereon on opposite sides of its central bearing, and suitable guides *i i*, constructed and operating substantially as described.

2. The combination of a lathe-carriage and
80 its feed-screw, oscillating lever E, with half-nuts *f f'* pivoted thereon at opposite sides of its bearing, suitable guides *i i*, and the weighted drop-lever G for operating said half-nuts, substantially as set forth. 85

3. In an automatic lathe, the combination of the pivoted tool-stock L and adjunct arm L', pivoted thereon, the guide or pattern upon which the opposite end of the adjunct arm
90 rests, and the adjusting-screw *r*, engaging one end of both stock and arm and shouldered in its bearings, whereby the parts connected may be adjusted and held at any point without binding-screws or other clamps, substantially
95 as set forth.

4. In an automatic lathe, the combination, with the independently-pivoted chisel-stocks, of two parallel forms *d d'*, the intermediate
100 form-bar N, adjustably secured to the frame, and the clamp for holding the outer form, substantially as described.

5. The combination of the half-nuts *f f'*, oscillating lever E, weighted drop-lever G, and the latch O, swinging upon a pivot *l* and adjustable by means of a slot and clamp-screw
105 *m*, substantially as set forth.

FRANK H. CLEMENT.

Witnesses:

J. E. MCKELVEY,
G. C. SOUTHARD.