

No. 721,201.

PATENTED FEB. 24, 1903.

G. H. KLEINERT.
ADJUSTABLE TOOL HOLDER FOR PLANERS, &c.
APPLICATION FILED DEC. 2, 1901.

NO MODEL.

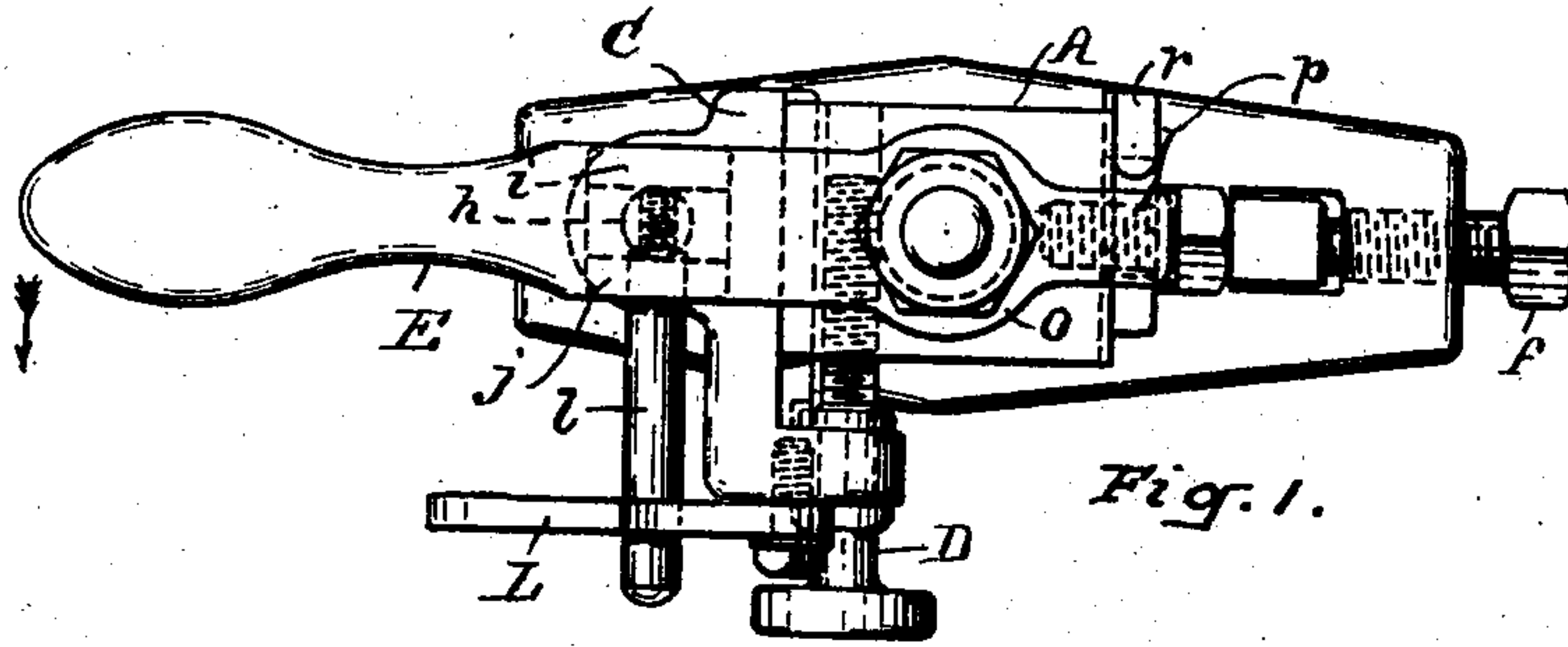


Fig. 1.

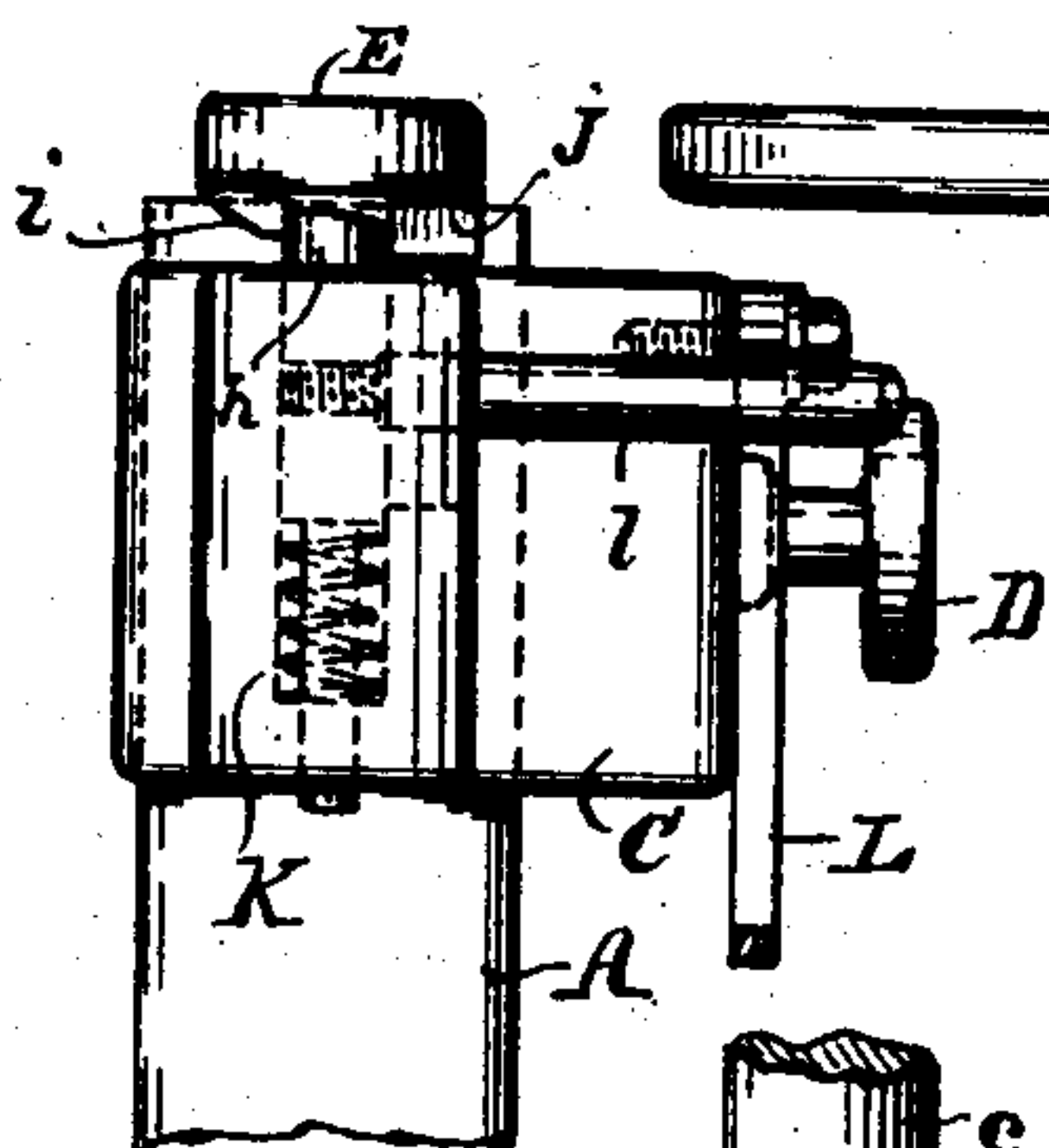


Fig. 5.

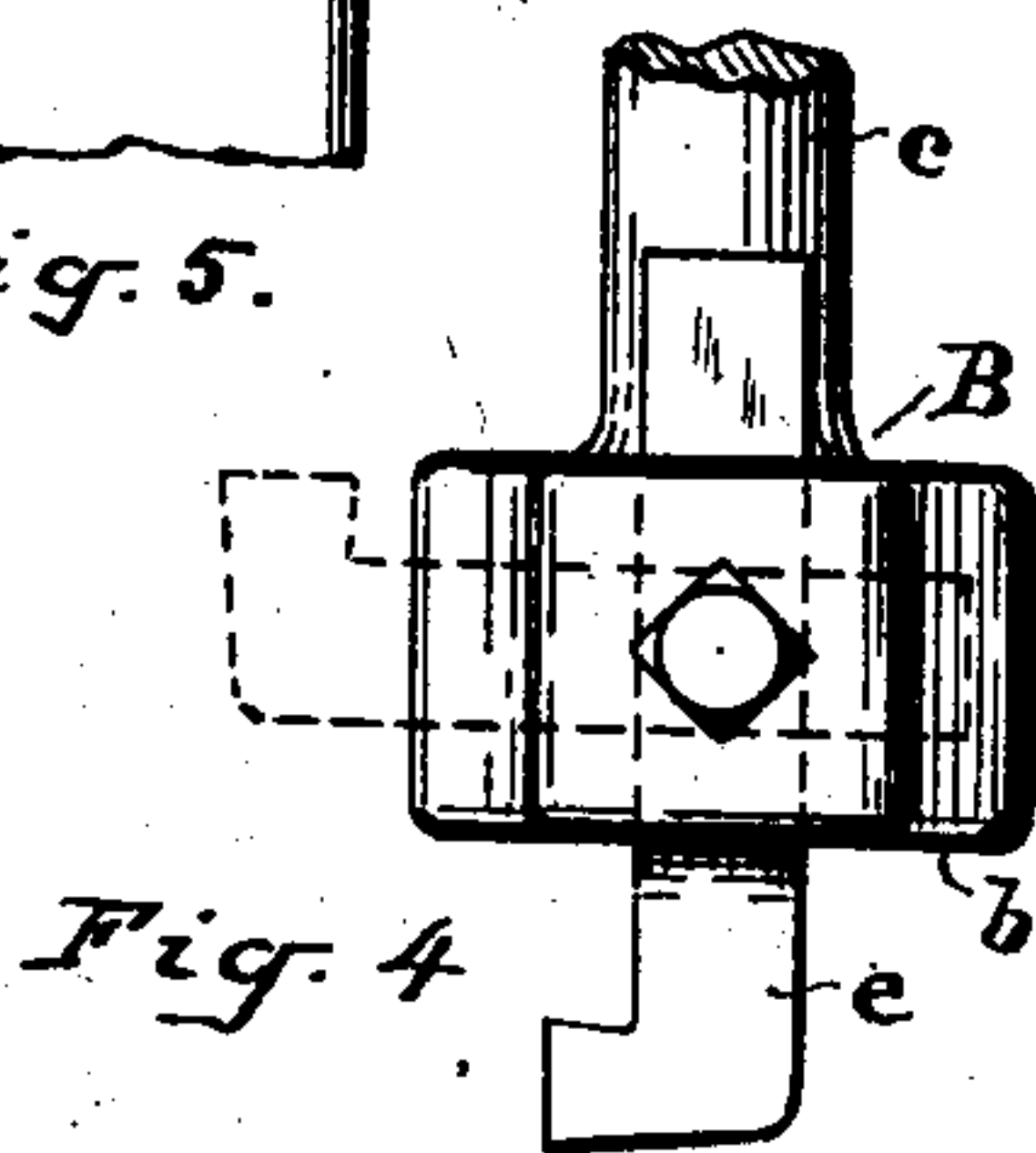


Fig. 4.

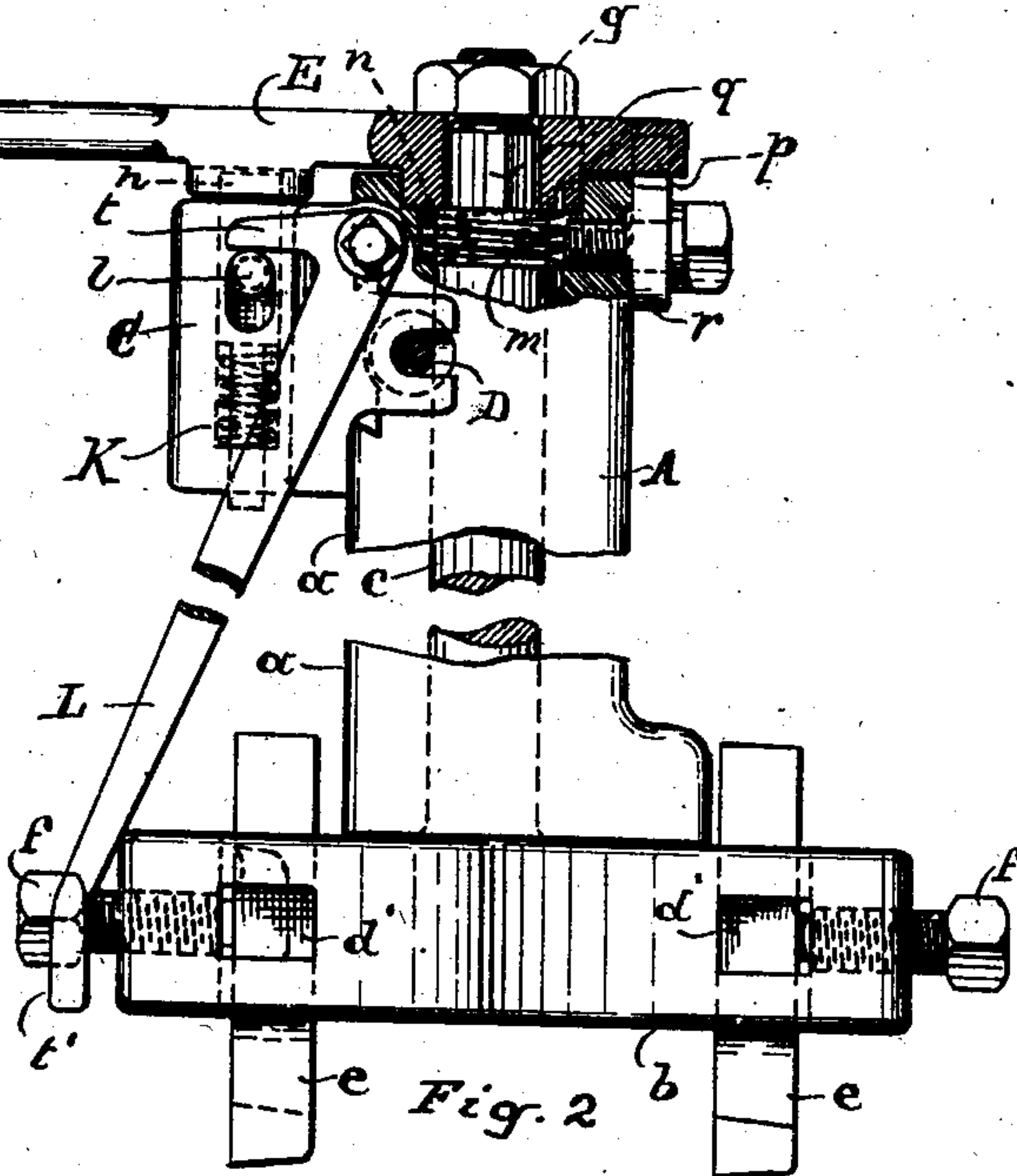


Fig. 2.

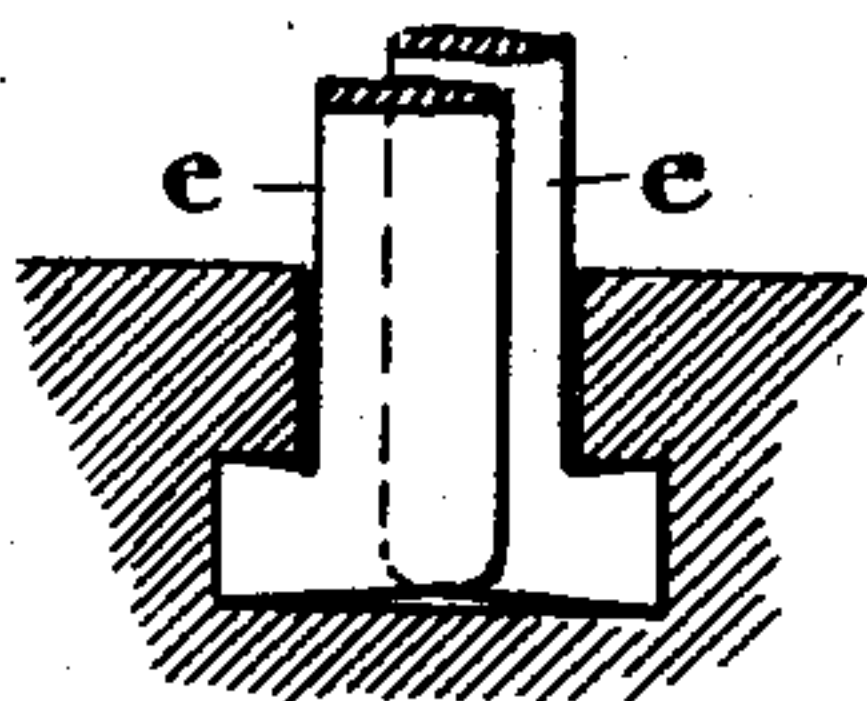


Fig. 6.

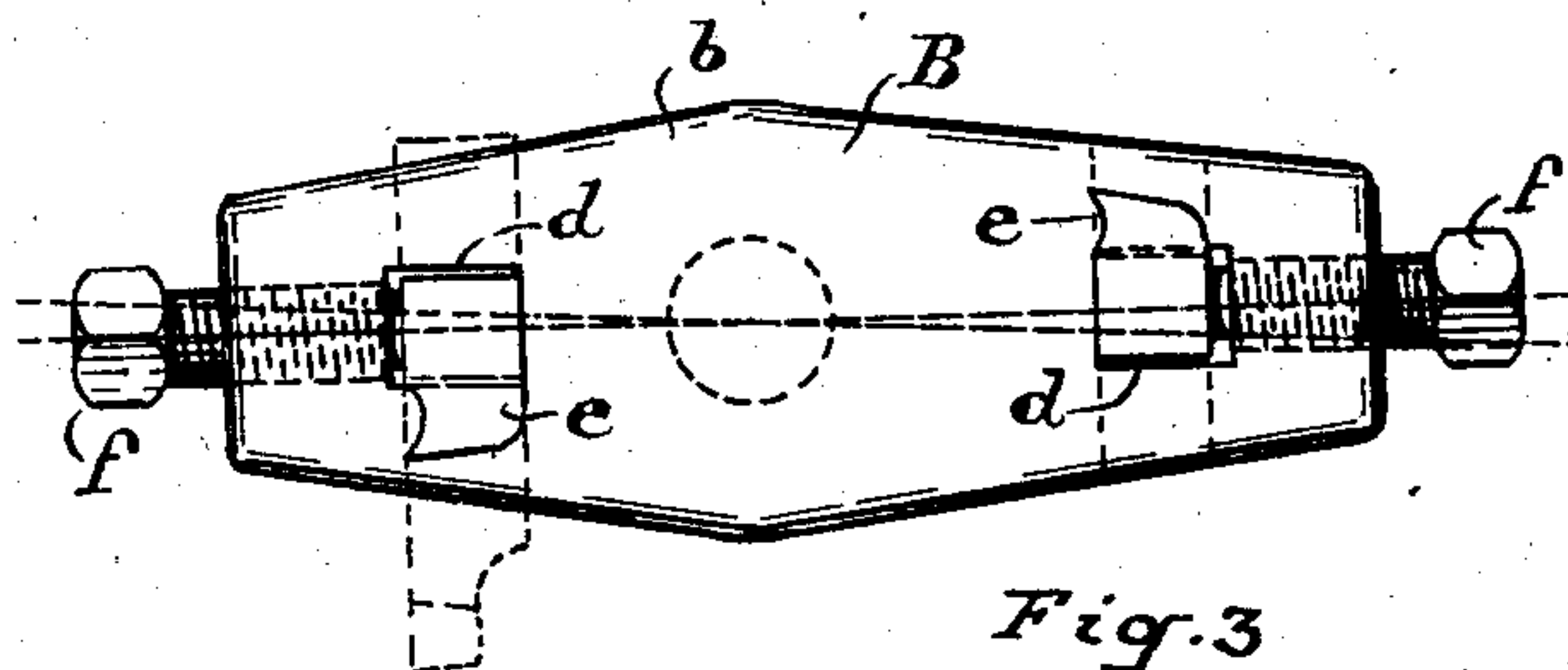


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE H. KLEINERT, OF CLEVELAND, OHIO.

ADJUSTABLE TOOL-HOLDER FOR PLANERS, &c.

SPECIFICATION forming part of Letters Patent No. 721,201, dated February 24, 1903.

Application filed December 2, 1901. Serial No. 84,321. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. KLEINERT, a citizen of the United States of America, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Adjustable Tool-Holders for Planers, &c., of which the following is a specification.

My invention consists in a holder and manipulator for tools used in connection with planers, shapers, lathes, &c. The object of my invention is to provide a device or contrivance which not only increases the capacity of such machines, but which also facilitates the work of the operator and assures greater accuracy in the finished machined articles. I attain this object by the construction of a device substantially as shown in the accompanying drawings, in which—

Figure 1 represents a plan view of said device. Fig. 2 is a part-sectional and part-elevational view of the same. Fig. 3 is an under side view of same. Figs. 4 and 5 are side views of the under and upper portions of said tool holder and manipulator. Fig. 6 illustrates a sectional view of a T-slot and the position of tools for cutting said T-slot.

Like letters of reference denote like parts in the drawings and specification.

Substantially this device consists of the hub or block A, the tool-holder B, the slide C, screw-threaded spindle D, lever E, and diverse minor parts hereinafter mentioned. The exterior of the hub is substantially of a form to enable convenient and secure connection thereof with the tool-carrying part of lathes, planers, &c., the latter being of a form to securely grip the hub. Such connection is established with the portion *a* thereof intermediate the tool-holder and the slide, the length of said hub or block being varied to suit conditions and location. Arranged in pivoted connection with said hub is the tool-holder B, which comprises the head *b* and spindle *c*. (See Figs. 2 and 3.) The head *b* of said holder is perforated, as at *d d' d'*, for reception of the cutters *e e*. Said cutters may be positioned either vertically or horizontally, as conditions may require. (See Figs. 2 and 4.) Preferably set-screws *f f* are employed for securing said cutters in place. The spindle or shank part *c* of said tool-holder

is retained to said hub or block by means of the nut *g*, shown on top of lever E. (See Fig. 2.)

Approximately near the top and front side of the hub A is placed the slide C, having a dovetailed connection with said hub or block, while the screw-threaded spindle D serves as a means of adjustment for said slide, which in turn effects the position of the tool-holder head by the intervention of the lever E and other parts—namely, the pin *h* and the lugs *i j*—as presently described. The pin *h* is inserted within the front part of the slide C, extending vertically therein, and is supported by the spring K, as shown in Figs. 2 and 5, said spring normally holding the pin *h* in engagement with the lever E between the lugs *i j*. A side arm *l*, secured to said pin, projects laterally in the path of movement of a trigger L, the movement of which causes the depression of said pin, whereupon said lever E becomes released to admit of turning of same. The outer face of the lug *i* is preferably beveled to facilitate the engagement of the pin between said lugs without requiring manual depression of the arm *l*. Furthermore, there is placed a spring *m* within the cavity *n* of hub A, and the terminals of said spring extend up and downwardly for engagement of said hub and lever, as seen in Fig. 2, to provide a spring tension, which tends to move the lever out of its normal or locked position. The eye *o* of the lever being secured to the spindle *c* by means of the feather *q* enables a turning of said spindle by means of said lever. The spring *m* is intended to effect automatically a swinging of the lever in the direction of the arrow as soon as the lever becomes released.

A short arm *p* projects from the rear of the lever E, and an adjustable stop *r* is attached to the rear of the hub A within reach of said arm. With such or similar provision the turning of the lever is confined within certain limits, such as are amply sufficient to release the tools during their return movement.

As shown in the drawings, and heretofore pointed out, the tool-holder is pivotally mounted in the hub or block, its pivotal movement being under the control of the lever E. As the lever E when the holder is to be held locked is in operative connection with the pin *h*, which in turn is carried by the slide C,

it will be readily understood that any movement of the screw-threaded spindle D tending to adjust the position of the slide in the hub or block will cause a corresponding movement of the pin *h*, carrying with it in such movement the lever E. As, however, the lever E is connected to the tool-holder, the movement of the slide will impart a pivotal movement within the limits which the slide has been moved to the tool-holder, and as these parts are all operatively connected with said hub or block it will be seen that the tool-holder has an adjustable pivotal connection with the hub or block, due primarily to the movement of the spindle D.

The lever E is intended to be swung in one direction only—namely, in direction of the arrow. Therefore only one of the lugs need be tapered or beveled, and only on one side is a stop required for the arm *p* to prevent undue movement of the lever E.

One of the important features of my invention is the fact that the tool-holder is both pivotal and carries two or more cutters arranged to operate simultaneously. This is especially useful in undercutting or T-slotting, in which the two cutters can operate on opposite sides of the entrance-slot, and by having the holder pivotally mounted it can be readily moved so as to permit either the withdrawal of the tools in the return movement or a cutting of a deeper undercut at the forward movement.

The location of the perforations *d d* within the head *b* is such as to arrange the cutting edges of the tools equidistant from the axis of the tool-holder. Under such conditions a turning of the tool-head will effect an equal advance and retreat of the cutting edges of the tools in lateral direction.

The spindle D enables the operator to feed the cutters in lateral direction, as in "undercutting" for the formation of a "T-slot," and before each return stroke of the cutters a quick release can be effected for said cutters simply by depressing the arm *l*, which is automatically done by the trigger L having its short member *t* in operative contact with said arm *l*, while the long arm *t'* is tipped rearwardly by some stationary obstruction. When the return stroke has been completed, the lever is forced manually to its locked condition, and the beveled face of the lug *i* depresses the pin *h* in order to accommodate the entering of said pin between the lugs *i j*. Furthermore, upon turning of the spindle D to the "right" a spreading of the cutters can be caused until they travel far enough apart to cut a T-slot of the required width. This is due to the fact that the movement of the screw-threaded spindle D moves said slide C relative to the hub, causing the spindle *c* to be moved pivotally in such manner as to increase the degree or distance which said cutters extend laterally on opposite sides of the center of the tool.

From the foregoing it can be readily under-

stood that a duplex tool-carrying device constructed substantially as above described can also be used to advantage in ordinary planing, &c.

What I claim, and desire to secure by Letters Patent, is—

1. A tool equipment for planers, shapers, lathes, &c., comprising a relatively stationary hub or block; a tool-holder pivotally mounted in said block to have a movement in a horizontal plane, the vertical position of the holder remaining unvaried; and an adjustable connection between the block and holder, whereby the movement of the tool-holder may be adjustably limited.

2. A tool equipment for planers, shapers, lathes, &c., comprising a stationary hub or block, a duplex tool-holder pivotally mounted therein and having a spindle, a lever secured to the spindle of said holder and an adjusting-slide for said lever carried by said block and operatively connected with said lever, all being equipped and arranged substantially in the manner as and for the purpose set forth.

3. A tool equipment for planers, shapers, lathes, &c., comprising a relatively stationary hub or block; a tool-holder pivotally mounted in said block to have a movement in a horizontal plane, the vertical position of the holder remaining unvaried; and an adjustable connection between the block and holder, whereby the movement of the tool-holder may be adjustably limited, said holder being movable pivotally independent of the adjusting devices.

4. A tool equipment for planers, shapers, &c., comprising the combination of a hub or tubular block, a duplex tool-holder having an axial connection with said hub, said holder having a spindle, a lever secured to the spindle of said tool-holder, a slide arranged in connection with said hub, a pin engaging said lever to prevent lateral movement thereof and means to withdraw said pin to release said lever all constructed and arranged substantially as and for the purpose set forth.

5. The combination with a duplex tool-holder having pivotal movement relative to a member adapted for fixed connection with planers, &c.; said member and an operating-lever for said holder; of an adjusting device carried by said member, and having engagement with said lever, for adjustably controlling the pivotal movement of said holder.

6. The combination with a duplex tool-holder and its supporting member, of a lever secured to the spindle of said tool-holder, mechanism for swinging said tool-holder and mechanism adapted to lock and release said lever substantially in the manner as and for the purpose set forth.

7. In combination, a stationary hub or block; a tool-holder pivotally mounted therein within adjustable limits, means for normally holding said holder locked in operative position; and means for automatically mov-

ing the holder to an inoperative position when the locking mechanism is released.

8. In combination, a stationary hub or block; a tool-holder pivotally mounted therein within adjustable limits, means for normally holding said holder locked in operative position; and a spring for automatically moving the holder to an inoperative position when the locking mechanism is released.

9. In combination, a stationary hub or block; a tool-holder pivotally mounted therein, means for normally holding said holder locked in operative position; means for automatically moving the holder to an inoperative position when the locking mechanism is released; and adjustable means for limiting the length of movement from an operative to an inoperative position.

10. In combination, a stationary hub or block; a tool-holder pivotally mounted therein, means for normally holding said holder locked in operative position; means for automatically moving the holder to an inoperative position when the locking mechanism is released; and an adjustable stop carried by the hub or block for limiting the length of movement from an operative to an inoperative position.

11. In combination, a stationary hub or block; a tool-holder pivotally mounted therein within adjustable limits; a lever for moving said holder pivotally, means for normally holding said lever locked in operative position, and means for automatically moving said lever to an inoperative position upon release of the locking mechanism.

12. In combination, a stationary hub or block; a tool-holder pivotally mounted therein within adjustable limits; a lever for moving said holder pivotally; a locking device

coöperating with said lever to hold said holder locked in operative position, and a spring for automatically moving said lever to an inoperative position upon release of the locking devices.

13. In combination, a stationary hub or block; a tool-holder pivotally mounted therein; a lever for moving said holder pivotally, said lever having a recess; a spring-operated pin adapted to extend into said recess to hold said lever locked in operative position, and a spring for automatically moving said lever to an inoperative position upon release of said pin from said recess.

14. In combination, a stationary hub or block; a tool-holder pivotally mounted therein; a lever for moving said holder pivotally; and a slide adjustably connected to said block, said slide carrying locking devices coöperating with said lever for holding the lever locked, whereby a movement of the slide will impart a positive movement to the holder pivotally.

15. In combination, a stationary hub or block; a tool-holder pivotally mounted therein; a lever for moving said holder pivotally; and a slide adjustably connected to said block, said slide carrying locking devices coöperating with said lever for holding the lever locked in operative position, whereby movement of the slide will impart a positive movement to the holder pivotally, and means for automatically moving said lever to an inoperative position upon release of the locking devices.

Signed at Cleveland, Ohio, this 21st day of November, 1901.

GEORGE H. KLEINERT.

Witnesses:

BERNH. F. EIBLER,
NELLIE GARVEY.