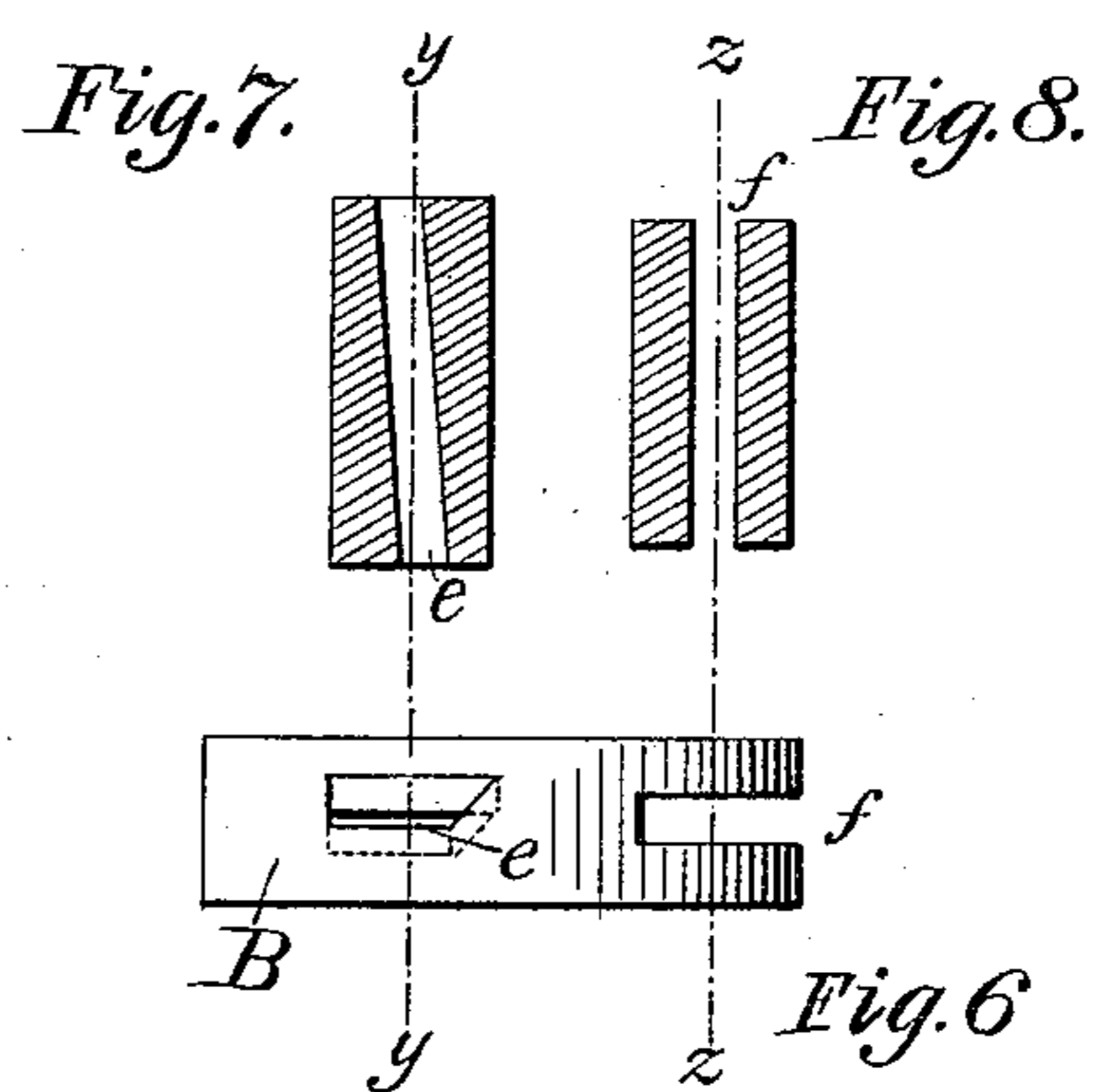
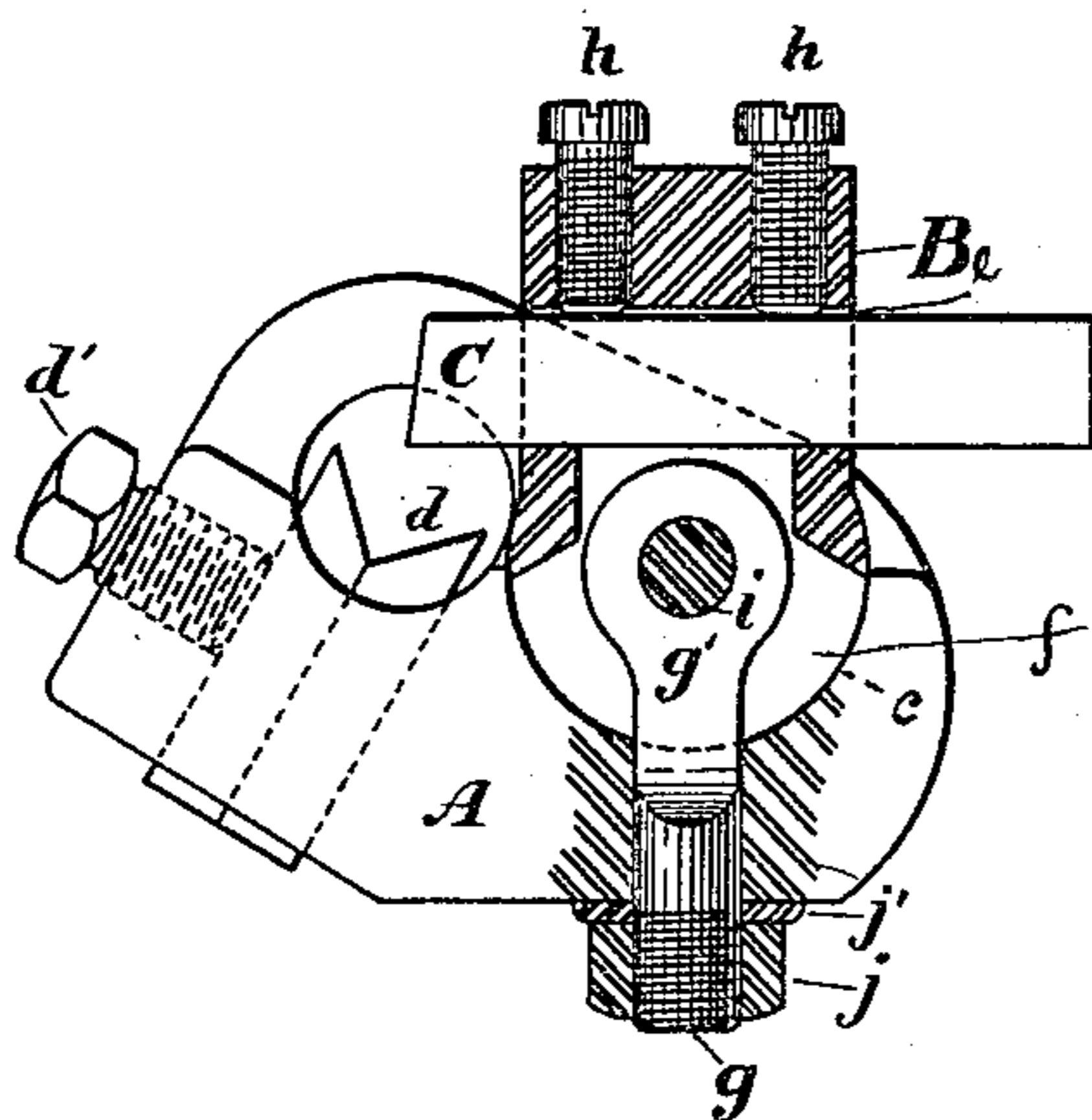
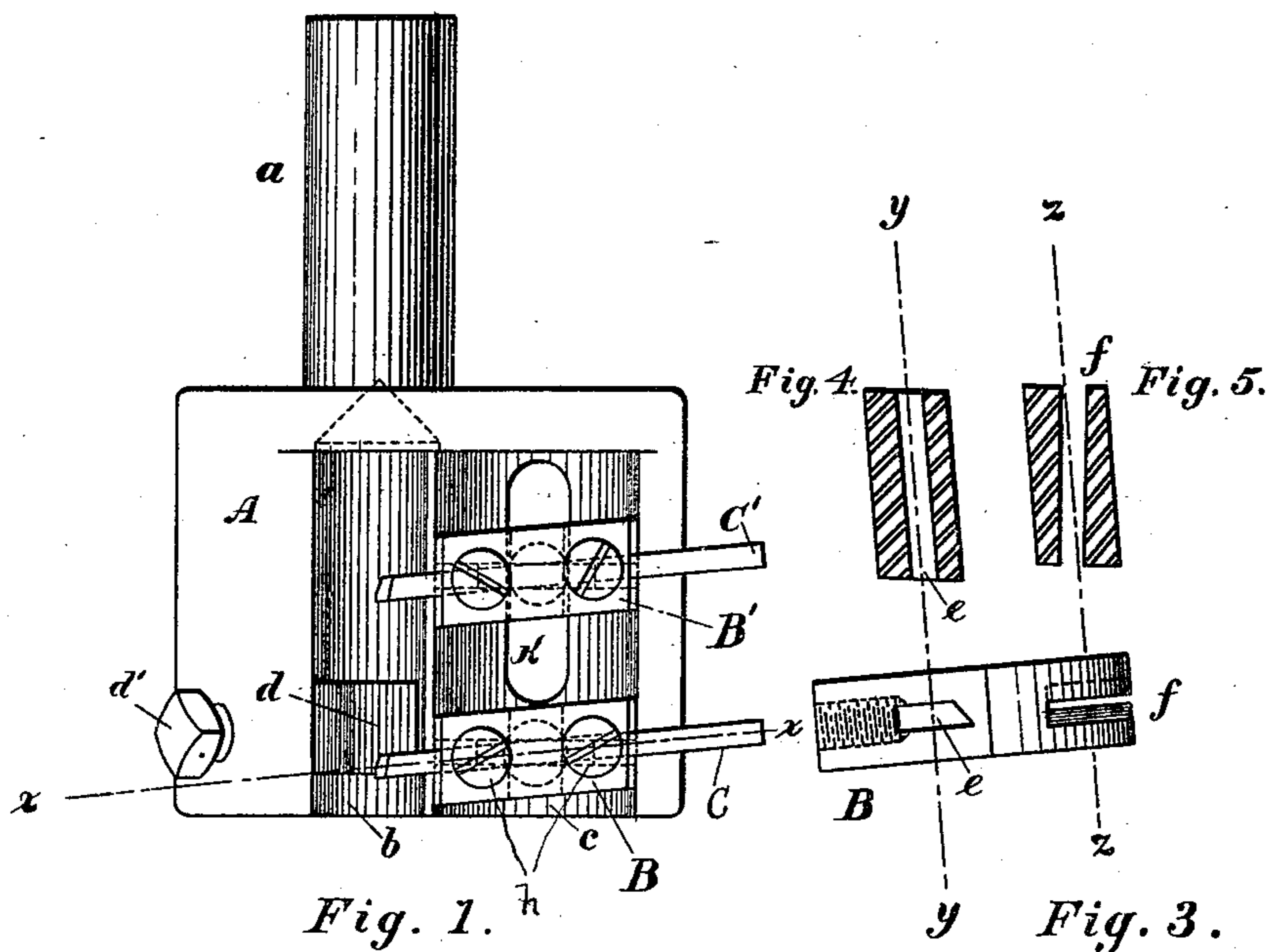


(No Model.)

S. L. WORSLEY.
TOOL HOLDER.

No. 459,807.

Patented Sept. 22, 1891.



Witnesses
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TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 459,807, dated September 22, 1891.

Application filed June 5, 1890. Serial No. 354,317. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. WORSLEY, of Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Tool-Holders; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

The improvement hereinafter described relates to holders for cutting-tools, and is particularly applicable to holders for cutting-tools for use in machines adapted to turn down the end of a rod of stock projecting from a revolving chuck as distinguished from being held between centers—as, for instance, in a turret-head screw-machine.

The present invention has for its object to increase the range of adjustment of the cutting-tool, and thus to increase the capacity of the machine of which it forms a part and to present the tool at all times in the proper position for doing good and accurate work.

To that end the chief feature of the invention consists in so constructing the frame or support for the tool-holder and in so mounting the tool-holder therein that said holder, and consequently the tool which it carries, can be readily adjusted to act upon rods of different diameters and to turn such rods down to any given diameter or size within the capacity of the machine.

Referring to the drawings, Figure 1 is a top view of my improved frame or support for the tool-holders with two of my improved tool-holders mounted therein. Fig. 2 is a transverse section on the line $x x$, Fig. 1. Fig. 3 is a perspective view of one of the tool-holders. Fig. 4 is a transverse section on the line $y y$, Fig. 3; and Fig. 5 is a transverse section on the line $z z$, Fig. 3. Figs. 6, 7, and 8 are views corresponding to Figs. 3, 4, and 5, but showing a modification in the construction of the tool-holder.

A represents the frame or support for the tool-holder. This frame may be constructed so as to accommodate only a single tool-holder; but it is preferred to construct it to accommodate two or more tool-holders, so

that, if desired, two or more cuts may be made upon the projecting end of the rod of stock, so as to simultaneously reduce different portions thereof to different diameters. The frame represented in the drawings is constructed to accommodate two tool-holders, as shown. The frame A is provided with a shank a , by means of which it is to be secured to the turret-head, and is constructed with two concave recesses b and c , which extend lengthwise thereof parallel with each other and side by side, as shown in Figs. 1 and 2. The recess b is designed to receive the projecting end of the rod of stock to be operated upon, and the other recess c is designed to receive the tool holder or holders if more than one be used. The concave recess b is provided with a vertically-adjustable back-rest d , which is held in its adjusted position by a set-screw d' , said back-rest being capable of an adjustment to accommodate and support rods of different sizes.

B represents one of the tool-holders, which is made of the shape in cross-section shown in Figs. 4 and 5—that is, in the form of a parallelogram—but with angles which are not right angles. In this tool-holder two slots e and f are cut, one for the reception of the cutting-tool and the other for the attachment of the eyebolt g , by means of which the tool-holder is secured to the frame. The slot f , which receives the eyebolt g , is open ended, as clearly shown in Fig. 3. With the form of tool-holder shown in the drawings the slot e for the tool is cut through the tool-holder with its sides parallel with the sides of the holder, as shown in Fig. 4, while the slot f for the eyebolt is cut through at right angles to the ends of the tool-holder, as shown in Fig. 5, said slots being so cut for the purposes hereinafter described.

C represents the cutting-tool, which is held in proper position in the slot e in the tool-holder by means of set-screws $h h$. The eyebolt g is flattened at its upper end, as at g' , so as to enter the slot f , and pivotally connected to the tool-holder B by means of a pivot-pin i , which passes through the tool-holder and through the eye of said bolt. The shank of the eyebolt g is screw-threaded, as

shown, and this threaded shank is passed through a hole in the bottom of the concave recess *c* made to receive it. A nut *j* is screwed upon the projecting end of said threaded shank, and thus secures the tool-holder to the frame A. A suitable washer *j'* may be interposed between the nut and the bottom of the frame, if desired. The bottom of the tool-holder B is formed in the arc of a circle to fit the concave recess *c*, as shown in Fig. 2, and so as to permit the tool-holder with its tool to be swung in the arc of a circle for the purpose of adjusting the tool to operate upon rods of different diameters.

If more than one tool-holder and tool is to be employed, a second holder B', constructed exactly like the tool-holder B, already described, and carrying a cutting-tool C', is secured to the frame A by having its screw-threaded eyebolt passed through a slot *k* in the bottom of the concave recess *c*, as shown in Fig. 1, and held there by a nut, as in the case of the eyebolt *g*. The purpose of the slot *k* is to permit the position of the tool-holder B', with its tool C', to be adjusted lengthwise of the frame, as may be desired. The tool-holder B may also, if desired, be made lengthwise adjustable by providing a slot for its eyebolt; but it is preferred that said tool-holder should not be thus adjustable, for the reason that it is desirable to have the tool C always stand substantially opposite the back-rest *d*, and so that the point of the tool C will be slightly in advance of the forward edge of said back-rest, as shown in Fig. 1, the back-rest being preferably fitted to the portion of the rod which has been turned down or reduced in diameter by the action of the tool C.

It will be seen that by the arrangement of the slots *e* and *f* in the tool-holder, as shown in Figs. 4 and 5, the tool-holder will always swing upon its eyebolt in a plane at right angles to the axis of the rod to be operated upon by reason of the fact that the slot *f* is at right angles to said axis, and that as the slot *e*, which receives the tool, is at an angle to the plane in which the tool-holder swings the tool will be held in the proper position to provide for the necessary clearance of the tool in any and all positions in which the tool-holder may be adjusted and preserve the same amount of clearance, whatever position the tool-holder may occupy.

It is evident that, if desired, the tool-holder may be made rectangular in form, as shown in Figs. 6, 7, and 8, in which case the direction of the slots in the tool-holder will be the reverse of those shown in Figs. 3, 4, and 5—that is to say, the slot *f* for the reception of the pivoted eyebolt will then be made parallel with the sides of the tool-holder as well as at right angles with its end, while the slot *e* for the tool will be at an angle with the sides of the tool-holder to provide for the necessary clearance, when the same results will be produced.

By the construction of the tool-holder and

the support therefor above described it will be seen that the cutting-tool can be readily adjusted to operate upon rods of different sizes by a simple manipulation and without the necessity of loosening and retightening a number of set-screws. Moreover, by reason of the fact that in adjusting the position of the tool the point of the tool is swung in the arc of a circle instead of being simply moved up or down in a right line, the point of the tool is always brought to the same relative position upon the periphery of the rod of stock in the operation of cutting, which is manifestly desirable and of great advantage, and, finally, it will be apparent that by the use of said improved tool-holder rods of a comparatively large range of diameters can be turned with one and the same holder by reason of its capacity for adjustment in the manner described.

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

1. An adjustable tool-holder having its bottom formed substantially in the arc of a circle and provided with two slots, one for the reception of the cutting-tool and one for the attachment of a pivoted shank, said slots being at different angles with relation to the sides of the tool-holder, whereby said tool-holder may be adjusted in a plane at right angles to the axis of the work to be operated upon and at the same time present the cutting-tool so that it will have the proper clearance in any or all adjusted positions, substantially as described.

2. An adjustable tool-holder having its bottom formed substantially in the arc of a circle and having two slots formed therein, one for the reception of the cutting-tool and one for the attachment of a pivoted shank, said last-mentioned slot being open-ended and adapted to receive the end of a shank or eyebolt, said tool-holder being pivotally connected to said shank, so that the former may be swung or adjusted with relation to said shank, substantially as described.

3. An adjustable tool-holder having its bottom formed substantially in the arc of a circle and provided with a cutting-tool and with a shank, the tool-holder being pivoted to said shank, whereby the point of the cutting-tool may be adjusted in the arc of a circle by swinging said tool-holder with relation to said shank, substantially as described.

4. The combination, with a frame or support having a concave recess formed therein, of an adjustable tool-holder with its bottom formed substantially in the arc of a circle to correspond with said concave recess, said tool-holder being pivotally secured to said frame or support by means of a shank, whereby said tool-holder may be swung or adjusted in the arc of a circle, substantially as described.

5. The combination, with a frame or support having a concave recess formed therein, of an adjustable tool-holder with its bottom formed substantially in the arc of a circle and

provided with two slots, one for the reception of a cutting-tool and the other for the attachment of a pivoted shank, by means of which said tool-holder is to be secured to said frame or support, said slots being at different angles with relation to the sides of the tool-holder, whereby said tool-holder may be adjusted in a plane at right angles to the axis of the work to be operated upon and at the same time present the cutting-tool, so that it will have the proper clearance in any or all adjusted positions, substantially as described.

6. The combination of a frame or support having two parallel concave recesses formed therein, one of said recesses being adapted to receive the tool-holder and the other to receive the end of the rod to be operated upon, and a tool-holder secured in one of said recesses and capable of adjustment to swing the end of the cutting-tool supported therein in the arc of a circle to enable said cutting-tool to operate upon rods of different diameters, substantially as described.

7. The combination of a frame or support

for a tool-holder having two parallel concave recesses formed therein, a tool-holder secured in one of said recesses and capable of adjustment to swing the end of the cutting-tool supported therein in the arc of a circle, and a back-rest located in the other of said recesses to support the rod of stock in the proper position to be operated upon by the cutting-tool, substantially as described.

8. The combination, with a frame or support therefor, of two adjustable tool-holders, each of said tool-holders being secured to said frame or support by means of a pivoted shank and so that each of said tool-holders may be independently adjusted, whereby the cutting-tools secured in said tool-holders may be so adjusted as to act upon a rod of stock and simultaneously reduce different portions thereof to different diameters, substantially as described.

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Witnesses:

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