

No. 628,752.

Patented July 11, 1899.

H. M. BROWN.

DOUBLE TOOL HOLDER FOR MACHINE TOOLS.

(Application filed Mar. 2, 1899.)

(No Model.)

Fig. 1.

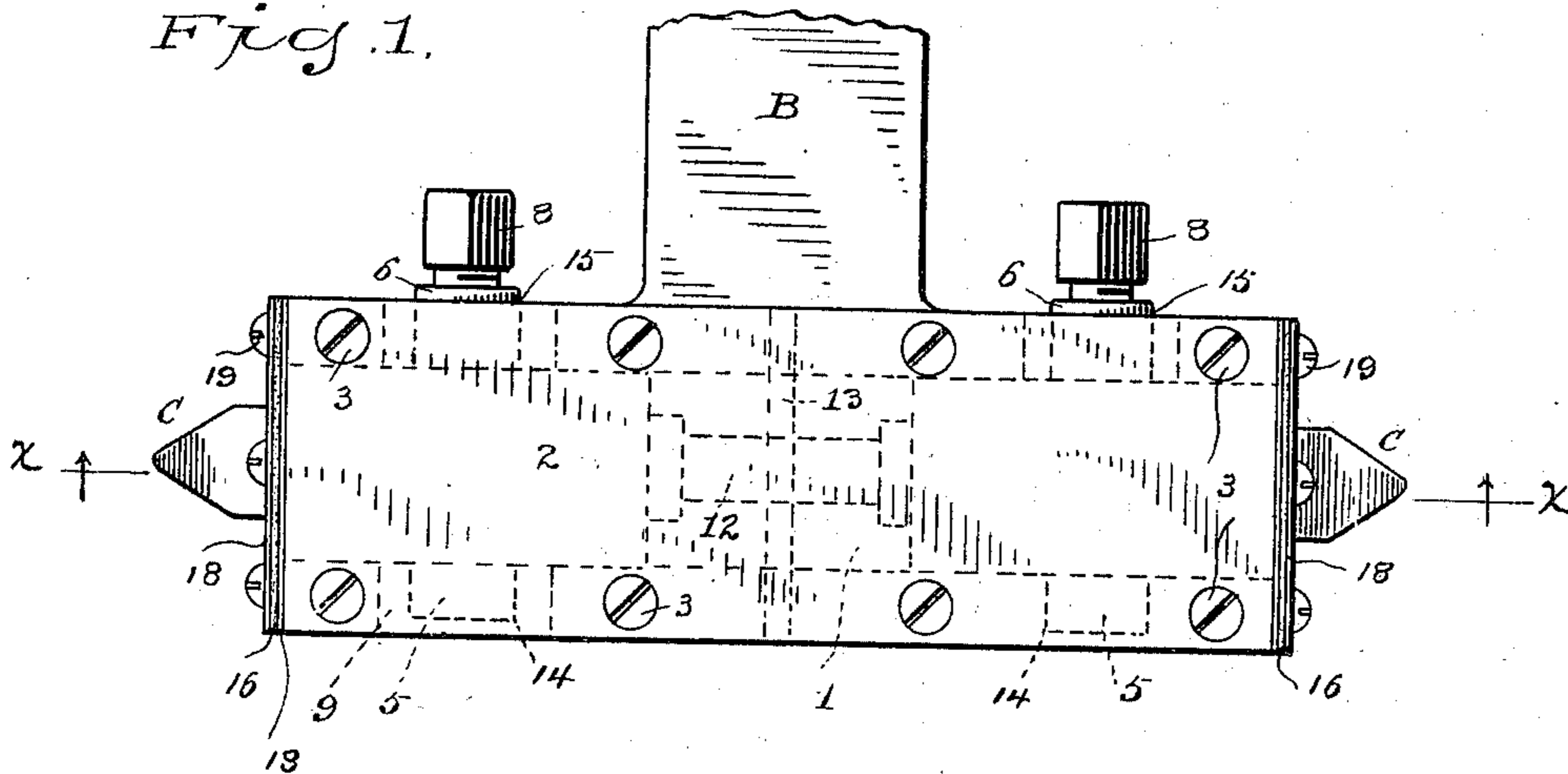


Fig. 2.

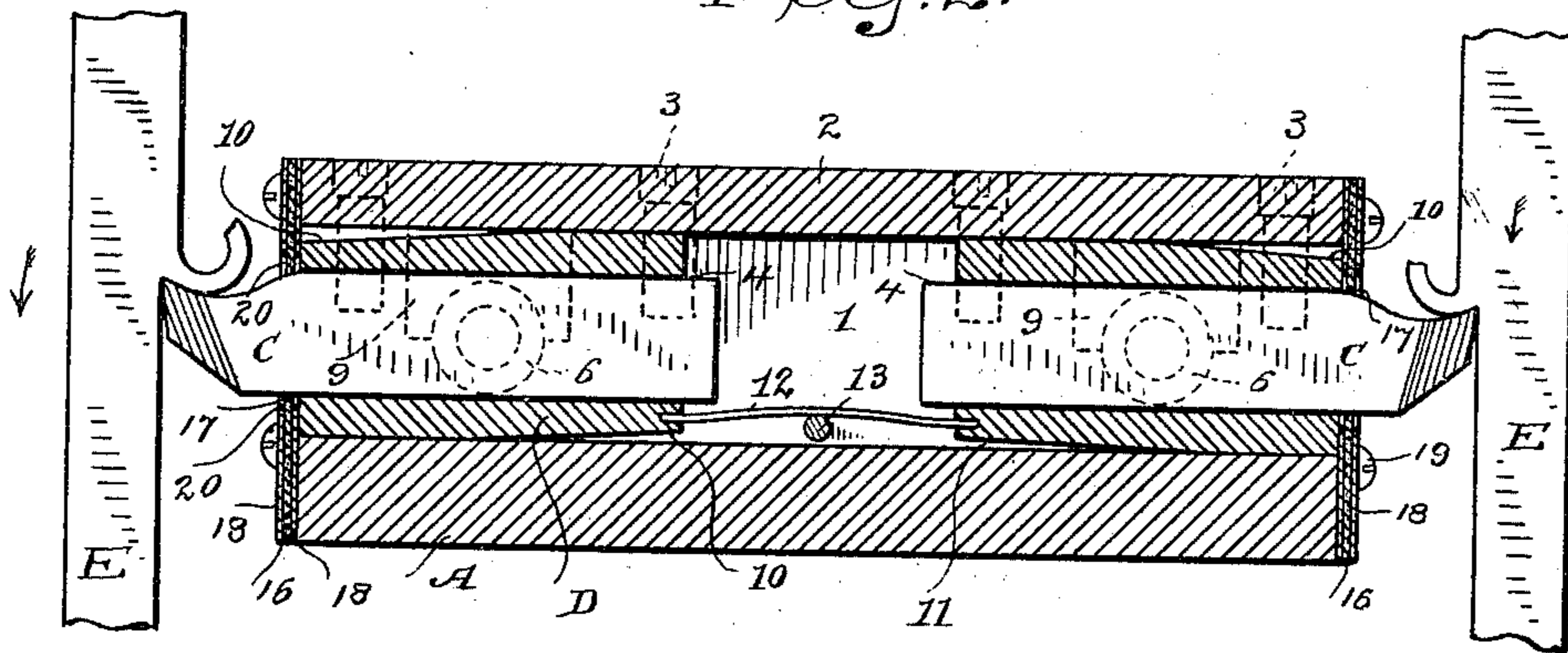


Fig. 3.

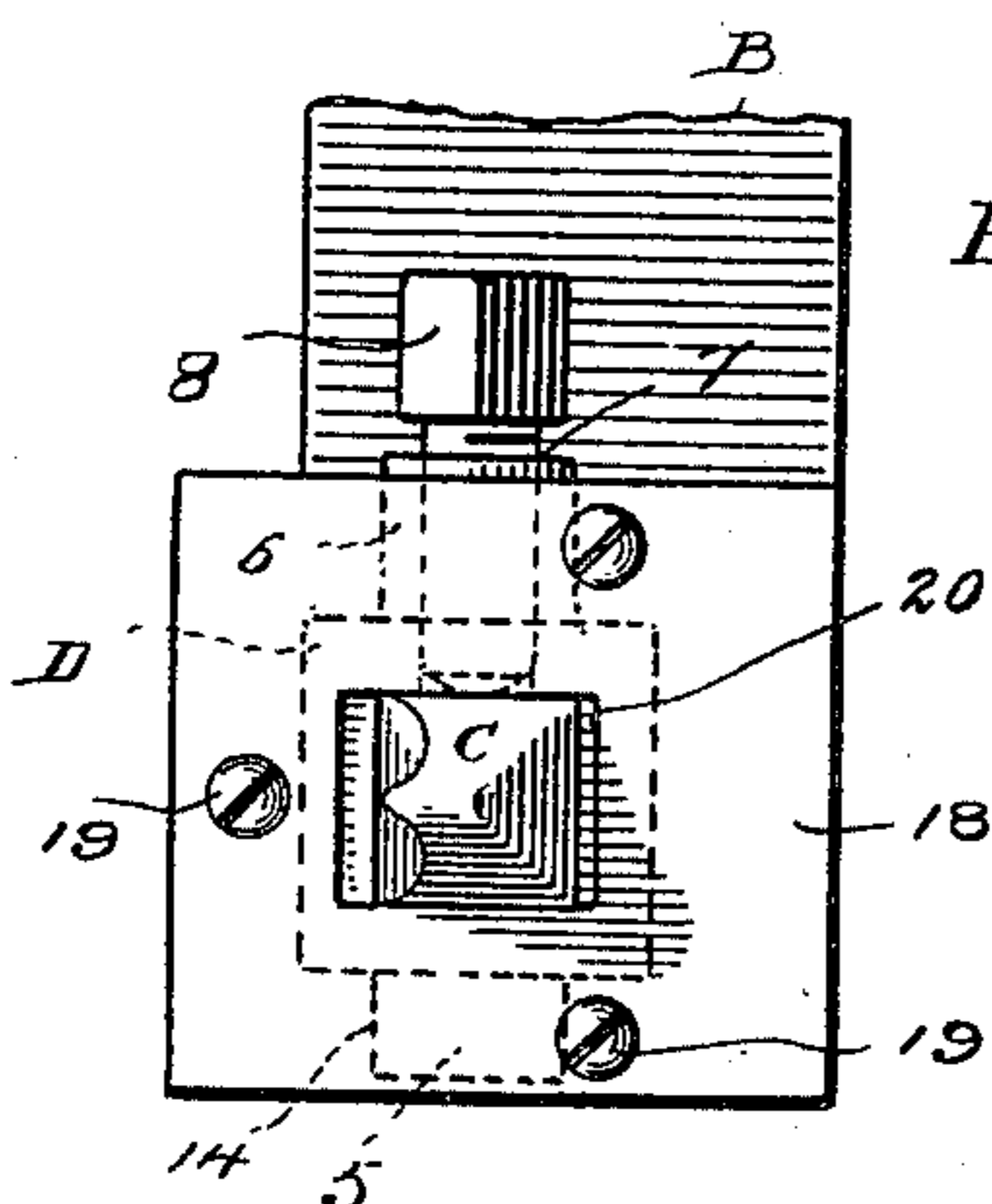
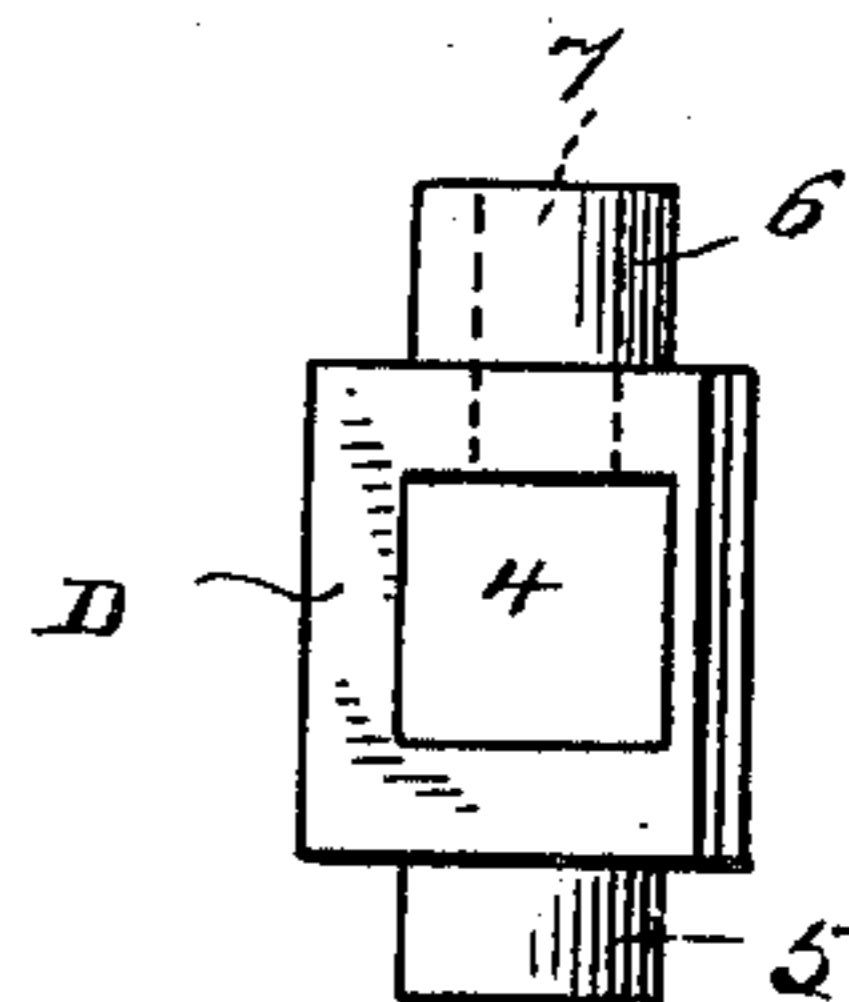


Fig. 4.



WITNESSES

H. F. Lumb
S. V. Heley

INVENTOR

Horatio M. Brown
By A. M. Wooster
Att.

UNITED STATES PATENT OFFICE.

HORATIO M. BROWN, OF ANSONIA, CONNECTICUT, ASSIGNOR TO THE
FARREL FOUNDRY AND MACHINE COMPANY, OF SAME PLACE.

DOUBLE TOOL-HOLDER FOR MACHINE-TOOLS.

SPECIFICATION forming part of Letters Patent No. 628,752, dated July 11, 1899.

Application filed March 2, 1899. Serial No. 707,494. (No model.)

To all whom it may concern:

Be it known that I, HORATIO M. BROWN, a citizen of the United States, residing at Ansonia, county of New Haven, State of Connecticut, have invented a new and useful Double Tool-Holder for Machine-Tools, of which the following is a specification.

My invention relates to metal-working machines, and has for its object to provide a tool-holder for metal-planers and machine-tools of that type which shall be simple and inexpensive to produce, durable, and not likely to get out of repair, which will carry two tools adapted to operate in opposite directions simultaneously, whereby the capacity of a metal-working machine is doubled, and which, owing to the carrying of two oppositely-operating tools, will move while in use with perfect steadiness and without lateral displacement, so that the work of the tools will be performed perfectly smoothly, thereby rendering it unnecessary after removing the desired amount of metal from the surfaces that are being operated upon to go over the surfaces a second time in order to make the usual finishing or smoothing cut, which has been absolutely necessary with every style of tool-holder and tool of this general type heretofore produced. For example, suppose that two pieces of metal are to be operated upon and that it is perfectly practicable to remove the desired amount of metal from their surfaces by a single cut. In using an ordinary tool-holder two independent operations would be necessary on each piece of metal, making four operations in all—first, a cut to remove as nearly as practicable the desired amount of metal and then a finishing or smoothing cut upon each piece, which would be necessary owing to the inevitable roughness of the first cut. As the result of using my novel tool-holder, however, instead of two independent operations upon each piece of metal, but one operation is required to finish both pieces. I am thus enabled to accomplish at one operation, taking no more than the ordinary length of time, the same amount of work that it has heretofore required four operations to accomplish.

With these ends in view I have devised the novel tool-holder of which the following de-

scription, in connection with the accompanying drawings, is a specification, reference characters being used to designate the several parts.

Figure 1 is an elevation of my novel tool-holder, showing the tools in operative position; Fig. 2, a section on the line *xx* in Fig. 1, showing the tools at work upon pieces of metal; Fig. 3, an end view of my novel tool-holder, showing a tool in place, and Fig. 4 is an elevation of one of the carriers detached.

A denotes the body of my novel tool-holder, which is provided with a longitudinal opening 1, closed by a face-plate 2, held in place by screws 3.

B denotes an arm by which the body of my novel tool-holder is carried and which may itself be part of or may be attached to a planer-head or any suitable portion of a machine-tool.

C denotes cutting-tools, which may be of any ordinary or preferred construction. Each of the tools is held by a carrier D, which is provided with a longitudinal opening 4 to receive the tool. These carriers are suitably pivoted in opening 1 in the body. In the present instance I have shown the carriers as provided with trunnions 5 and 6, said trunnions 5 lying in sockets 14 in the body, which are closed at the ends, as indicated by dotted lines in Fig. 1, and trunnions 6 lying in sockets 15, which extend from opening 1 through to the outer edge of the body. Trunnions 6 are provided with threaded openings 7, which receive set-screws 8, the ends of which engage the tools and lock them in the carrier, as clearly shown in Figs. 1 and 3. The special mode in which the trunnions are journaled in the body is of course not of the essence of my invention. In the drawings I have indicated that half-sockets are formed in the body proper and that the other half-sockets are formed in cap-pieces, which I have indicated by 9 (see dotted lines, Fig. 2) and which are formed upon face-plate 2. Two pieces of work that are being operated upon are indicated by E in Fig. 2.

I have not deemed it necessary for the purpose of this specification to illustrate the bed or table by which the work is carried, as it forms no portion of my present invention.

It will be noticed in Fig. 2 that the front outer ends of the carriers are cut away, as at 10, and that the rear inner ends of the carriers are cut away, as at 11. This is in order to permit the carriers to oscillate on their trunnions sufficiently to permit the tools to drag over the surface of the work during the backward movement of the work. The carriers, and with them the cutting-tools, are held in operative position by a spring or springs. In the present instance I have shown a single flat spring 12 as engaging the inner ends of both carriers, a rod 13 under the spring acting to hold it sufficiently bowed to retain the carriers and cutting-tools in operative position. The forward oscillation of the tools and carriers during the backward movement of the work is against the power of the spring. It will of course be obvious that instead of the body remaining stationary and the work moving backward and forward the work may be held stationary and the body caused to move backward and forward, my invention lying in the construction and operation of the tool-holder as a whole rather than in the operation of the machine-tool in connection with which the tool-holder is used.

In order to prevent the entrance of chips and dirt into opening 1 in the body, I place a sheet 16 of rubber over each end of the opening, said sheet of rubber being provided with an opening 17, through which the tool passes snugly, it being intended that the tool shall fit in this opening so closely as to make it impossible for chips or dirt to enter opening 1, the sheet of rubber, however, yielding freely to the movement of the tool in use. These rubber sheets may be attached in place in any suitable manner. In the present instance I have shown them as clamped between inner and outer metal plates 18, which are themselves held in place by screws 19, which pass through both plates and the sheet of rubber and engage the body. Plates 18 are themselves provided with openings 20, which are amply large to permit the necessary forward movement of the tools during the backward movement of the work.

The operation will, it is thought, be clearly understood from the drawings. The tools are adjusted in the carriers and after adjustment are locked there by tightening up set-screws 8. The pieces of metal to be operated upon are rigidly secured in place in any suitable manner upon the table or bed of the machine, which for convenience in description will be supposed to be a reciprocating table or bed, although, as already stated, so far as the operation of the tool-holder is concerned, it is equally practicable that the work should remain stationary and the tool-holder and tools should reciprocate. The normal action of the spring or springs is to throw the carriers and tools to the operative position, as in Fig. 2. When the backward movement takes place, the tools will both drag over the surface of the work, the carriers oscillating on

their trunnions against the power of the spring or springs, this oscillation of the carriers taking place freely, owing to the fact that both the front outer ends and rear inner ends of the carrier are cut away for that purpose. The instant the backward movement is completed the spring or springs act to return the carriers and tools to their normal or operative position, as in Fig. 2.

Having thus described my invention, I claim—

1. A tool-holder for machine-tools comprising a body having a longitudinal opening extending through it, tool-carriers pivoted near the respective ends of said opening, the front outer ends and the rear inner ends of said carriers being cut away as at 10 and 11 respectively and a spring engaging the inner ends of both carriers, substantially as shown for the purpose specified.

2. A tool-holder of the character described comprising a body having an opening through it and sockets 14 and 15, carriers having trunnions engaging said sockets and openings to receive tools and being cut away at their front outer ends and at their rear inner ends and a spring acting to hold said carriers and tools at the operative position.

3. A tool-holder of the character described comprising a body having an opening through it and sockets leading from said opening, carriers having trunnions engaging said sockets and openings to receive tools and being cut away at their front outer ends and at their rear inner ends, a spring acting to hold said carriers and tools at the operative position and a set-screw in one of the trunnions of each carrier for locking a tool in place.

4. A tool-holder of the character described comprising a body having an opening through it, sockets leading from said opening and a face-plate closing the opening on one side, carriers having trunnions engaging said sockets, and provided with openings to receive tools and being cut away at their front outer ends and at their rear inner ends, a spring acting to hold said carriers and tools in operative position, a set-screw in one of the trunnions of each carrier acting to lock the tool in place and sheets of rubber at the outer ends of the openings in the body through which the tools pass snugly whereby the entrance of dirt and chips into the body is prevented.

5. The carrier D having an opening 4, trunnions one of which is provided with a threaded opening leading into opening 4, said carrier being cut away at its front outer end and at its rear inner end, substantially as shown, for the purpose specified.

6. In a device of the character described the combination with a body having an opening and sockets, of a carrier having an opening to receive a tool and provided with trunnions engaging the sockets; the surfaces of the carrier at its front outer end and at its rear inner end being at an angle to the inner

walls of the carrier for the purpose set forth,
a spring acting to hold the carrier and tool in
operative position and permit forward move-
ment during backward movement of the
5 work, and a set-screw in one of the trunnions
whereby the tool is locked in the carrier.

7. In a device of the character described
the combination with a body having an open-
ing, of a tool-carrier pivoted in said opening,
10 said carrier being cut away at its front outer
end and at its rear inner end for the purpose

set forth, a spring acting to hold the carrier
and a tool in operative position and a sheet of
rubber at the end of the body through which
the tool passes snugly, substantially as shown 15
for the purpose specified.

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

HORATIO M. BROWN.

Witnesses:

CHARLES F. BLISS,
FRANK E. HOADLEY.