

No. 664,615.

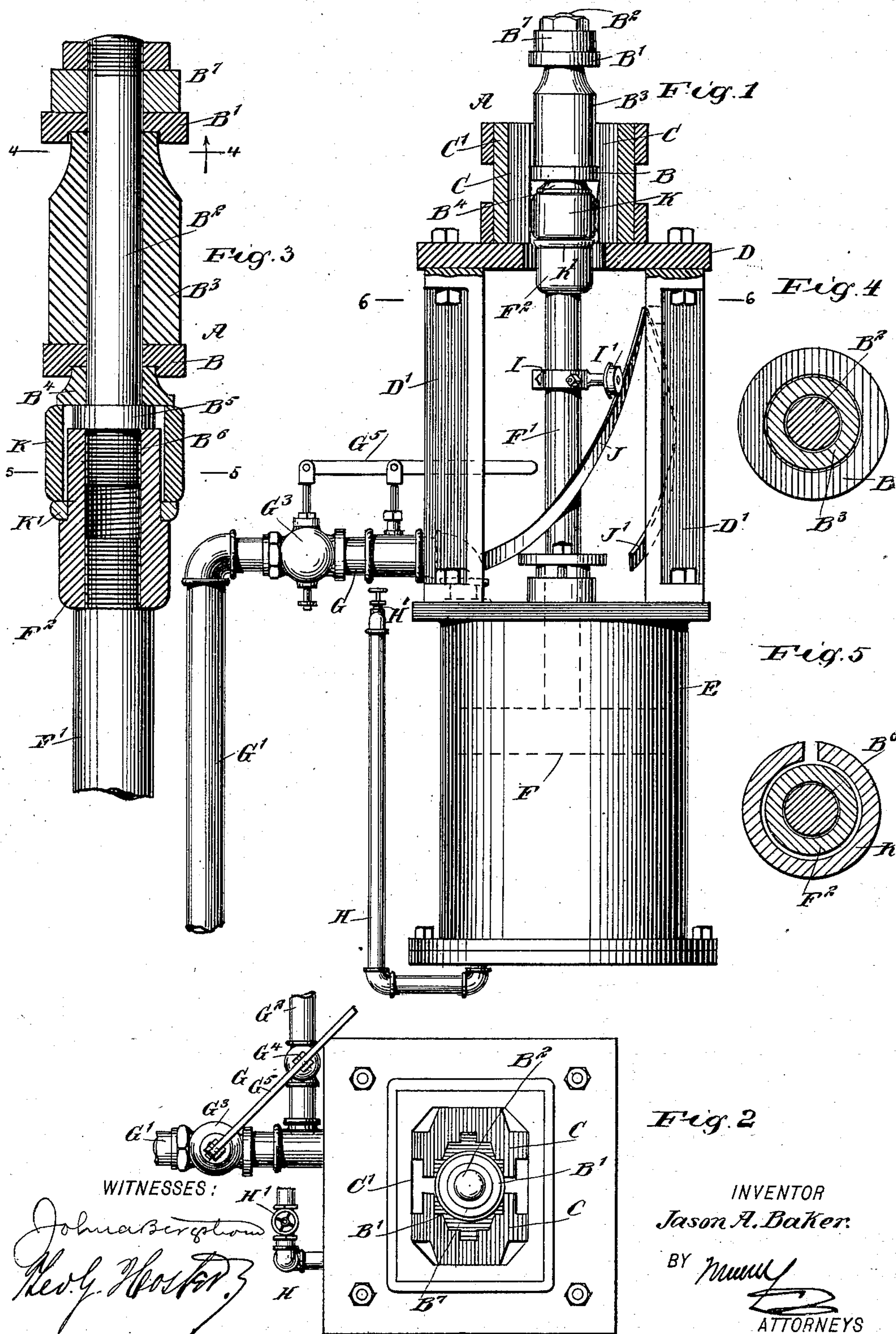
Patented Dec. 25, 1900.

J. A. BAKER.
BROACHING PRESS.

(Application filed May 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

(No Model.)

Fig 6

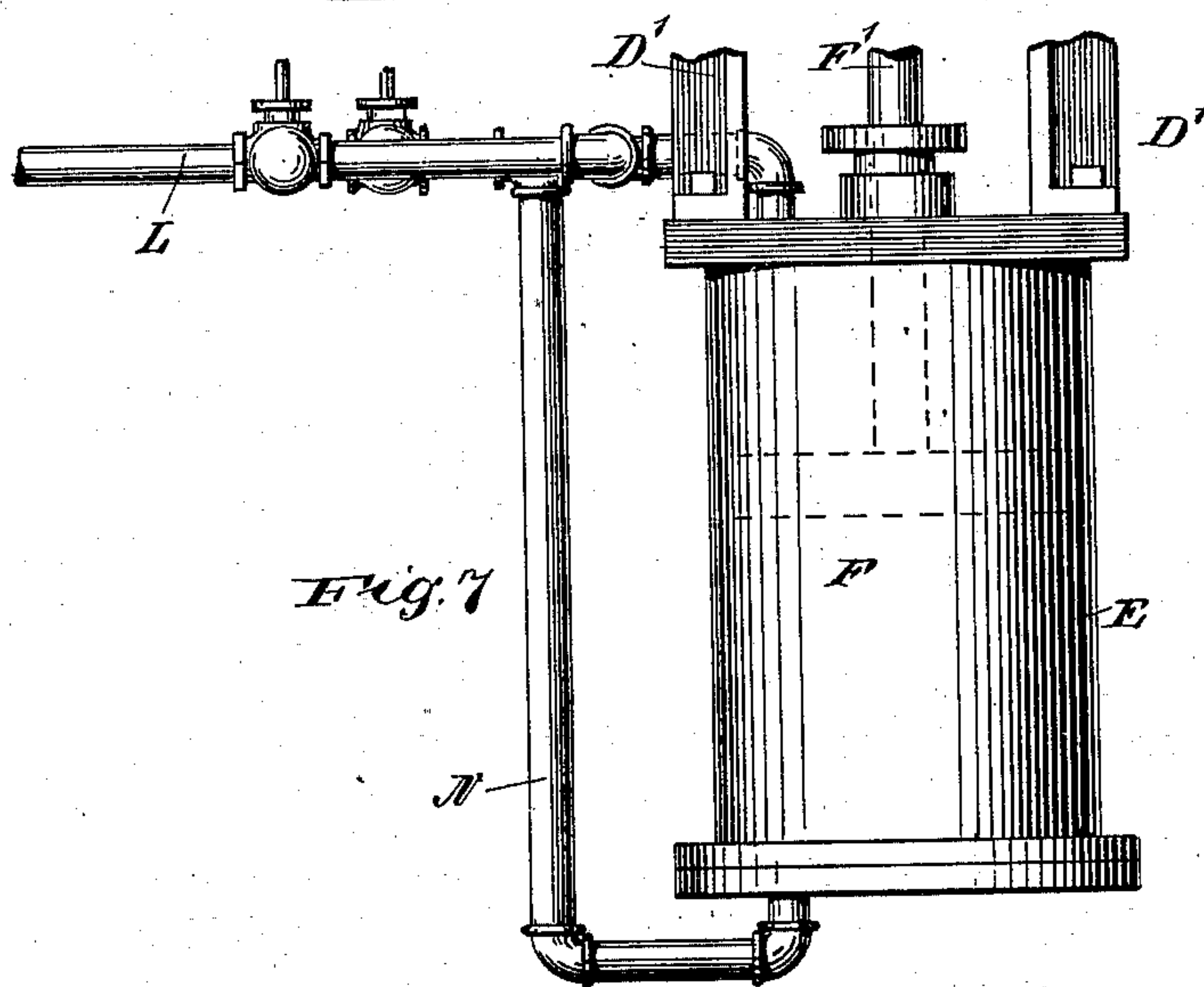
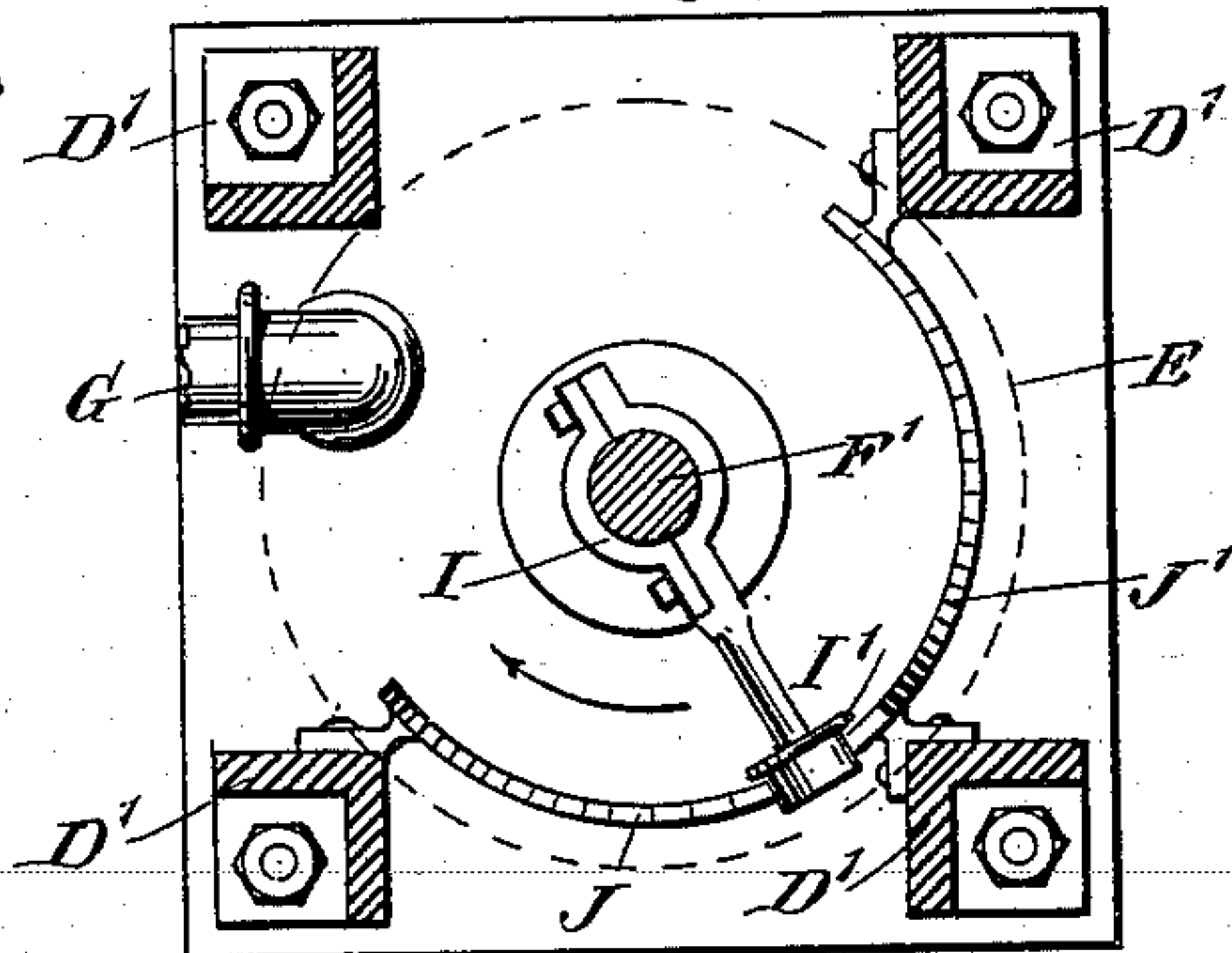
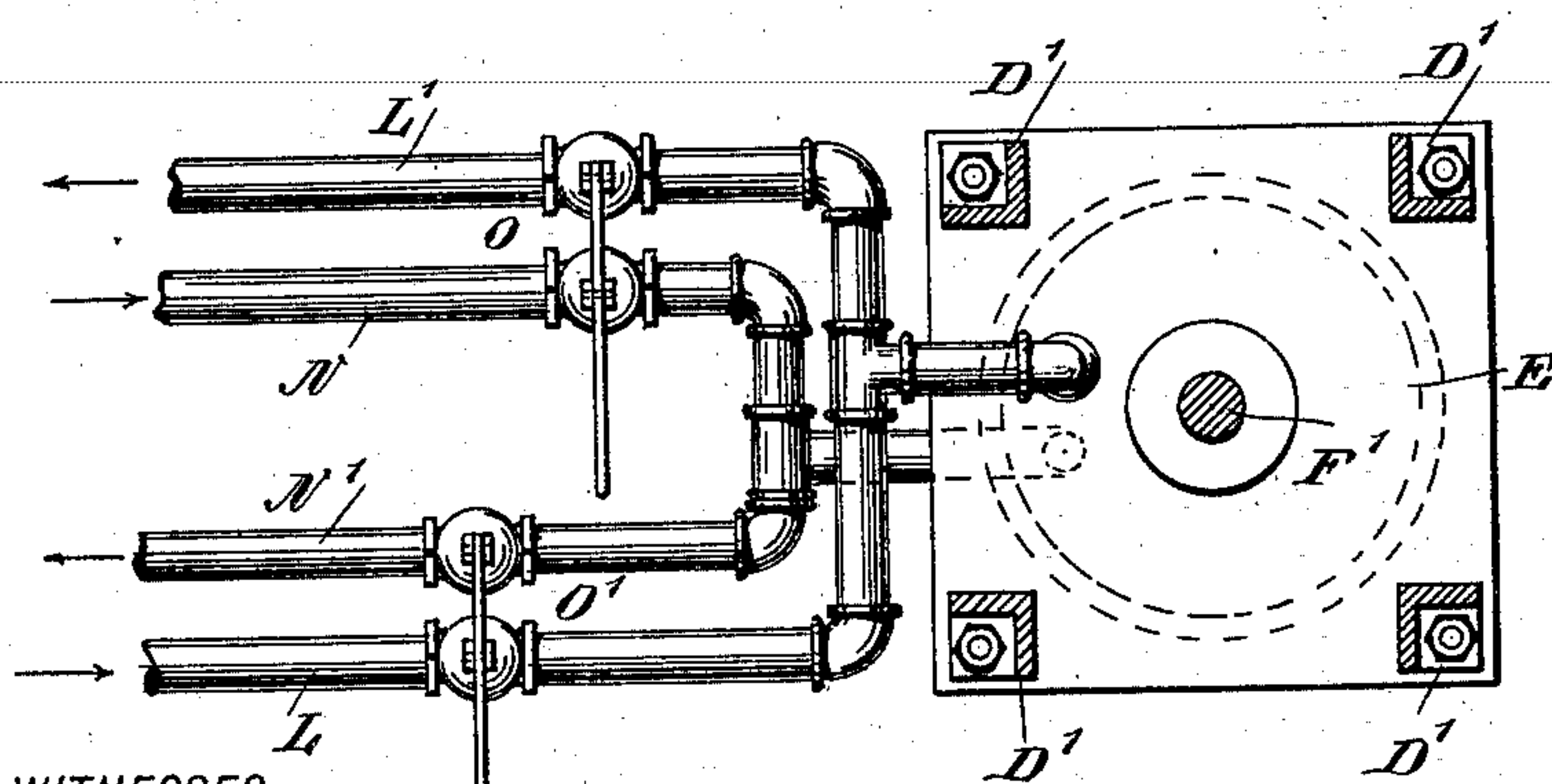


Fig. 7



WITNESSES:

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Fig. 8

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JASON A. BAKER, OF HOUSTON, TEXAS.

BROACHING-PRESS.

SPECIFICATION forming part of Letters Patent No. 664,615, dated December 25, 1900.

Application filed May 31, 1900. Serial No. 18,556. (No model.)

To all whom it may concern:

Be it known that I, JASON ALONZO BAKER, a citizen of the United States, and a resident of Houston, in the county of Harris and State of Texas, have invented a new and Improved Broaching-Press, of which the following is a full, clear, and exact description.

The invention relates to metal-working machines; and its object is to provide a new and improved broaching-press which is simple and durable in construction, very effective in operation, and especially designed for broaching brasses or bearings for use on car and other journals and pitmen or other devices, the press being arranged to permit an exceedingly quick and accurate finishing of the brasses without the employment of skilled labor.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement with parts in section. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged sectional side elevation of the broaching-head. Fig. 4 is a sectional plan view of the same on the line 4 4 in Fig. 3. Fig. 5 is a similar view of the same on the line 5 5 in Fig. 3. Fig. 6 is a sectional plan view of the improvement on the line 6 6 in Fig. 1. Fig. 7 is a side elevation of a modified form of the motor for reciprocating the broaching-head, and Fig. 8 is a plan view of the same.

The improved broaching-press (illustrated in Figs. 1 to 6) is provided with a broaching-head A, having two circular cutters B B', spaced apart and adapted to successively engage brasses C, held in a suitable casing C', set on a platform or table D, carried by standards D', bolted or otherwise secured to the head of a cylinder E, in which reciprocates a piston F, the piston-rod F' of which carries the broaching-head A. When the piston F is reciprocated, the broaching-head A is moved downward and then upward and during the downward movement moves first the main

cutter B through the brasses to give the main cut to the inner surface of the brasses, and then the finishing-cutter B' follows to give the finishing cut to the inner surface of the brasses.

In order to impart a reciprocating movement to the piston F in the cylinder E, I prefer to use water-pressure for the downstroke and air-pressure for the return or up stroke. For this purpose the upper end of the cylinder E is connected with a hydraulic water-supply G, and the lower end of said cylinder is connected with a fluid-air-pressure supply H. As shown, a pipe G' serves to carry the water to the upper end of the cylinder, and an outlet-pipe G² leads from said pipe G' adjacent to the cylinder, and in the said pipes G' G² are valves G³ G⁴, arranged on the same lever, which is under control of the operator, so that the latter can open one valve while closing the other to insure proper inflow of the water through the pipe G' at the time the valve G³ is open and the valve G⁴ is closed to force the piston F downward, and when the lever G⁵ is reversed and the valve G³ is closed and the valve G⁴ opened then the water can escape from the cylinder at the time the piston F is forced upward by air-pressure upon the operator opening the valve H' in the pipe H.

The cutters B B' are mounted on a pin B² and are spaced apart by a collar B³, and the cutter B rests on a washer B⁴, adjacent to a collar B⁵ on the pin B², the lower end B⁶ of which is threaded and screws in a sleeve F², screwing on the upper end of the piston-rod F'. A washer and nut B⁷ engage the top of the cutter B', so as to hold the same in position on the pin B² and against the collar B³. By the arrangement described the cutters B B' can be readily taken off from the pin B² and others substituted, and the washers can be differently spaced by using a different-sized collar B³.

On the upper end of the sleeve F² is arranged a centering-ring K, preferably made in split shape and resting at its lower side on a ring K', held on the sleeve F², the upper end of said centering-ring K being engaged by the washer B⁴, previously mentioned, so as to hold the said ring in position between the head A and the upper end of the piston-rod F'. It is evident that when the

cutter-head moves downward the centering-ring K first engages the brasses C, so as to properly center the same for the following cutter B to properly cut the brasses, which are subsequently finished by a second cut given by the finishing-cutter B'.

I prefer to give the broaching-head A a turning motion in addition to the reciprocating movement above mentioned, and for this purpose the piston-rod F' is provided with an arm I, on which is journaled a friction-roller I', engaging a spirally-arranged guideway J, carried by the standards D', so that when the piston-rod F' moves downward the friction-roller in traveling on the said guideway turns the piston-rod, and with it the broaching-head A, to insure a smooth cut in the brasses. If it is desired to turn the piston-rod F' in an opposite direction, the arm I may be adjusted so that the friction-roller I' travels under a guideway J', extending in an opposite direction to the guideway J.

The motor (shown in Figs. 7 and 8) is actuated solely by water-pressure, and for this purpose water inlet and outlet pipes L L' are connected with the upper end of the cylinder A, and similar pipes N N' are connected with the lower end of the cylinder E. Sets of valves O O' are arranged in the pipes L' N and L N', respectively, each set having a single lever under control of the operator to permit the latter to simultaneously open or close the corresponding pipes for allowing water to flow in the cylinder at one end and out at the other end, according to the direction in which the piston F is to be moved at the time.

From the foregoing it is evident that the device is very simple and durable in construction, is not liable to get out of order, and permits of quickly and accurately broaching the brasses without the aid of skilled labor, as it requires no centering of the brasses by the workmen.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A broaching-press, comprising a reciprocating head carrying spaced cutters for suc-

cessively engaging brasses and finishing the same at one operation of the head, a fluid-pressure motor for imparting a reciprocating movement to said head, and means, substantially as described, for turning said head during the reciprocating movement, as set forth.

2. A broaching-press, comprising a reciprocating head having spaced cutters, a fluid-pressure motor, to the piston-rod of which the cutter-head is secured, and means for imparting a turning movement to the piston-rod as it is reciprocated, substantially as described.

3. A broaching-press, comprising a reciprocating head having spaced cutters, a fluid-pressure motor, to the piston-rod of which the cutter-head is secured, a spiral guideway, and a roller carried by the piston-rod of the motor and engaging the guideway, substantially as described.

4. A broaching-press, provided with a head having spaced cutters for successively engaging brasses, and a split ring on said head below the main cutter, for centering the brasses previous to the main cutter engaging the brasses, as set forth.

5. In a broaching-press, the combination of a pin, a sleeve, to which the pin is secured, spaced cutters carried by the pin, and a centering-ring supported by the sleeve and having its upper end engaged by a washer of one of the cutters.

6. In a broaching-press, the combination of a pin having its ends screw-threaded and provided with a collar adjacent to one end, spaced cutters mounted on the pin, a washer being interposed between the lower cutter and the collar of the pin, a sleeve internally screw-threaded and into which the pin screws, a ring held on the sleeve, and a split ring between the first-named ring and the said washer, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JASON A. BAKER.

Witnesses:

ROBT. L. JONES,

A. A. LEARMONTH.