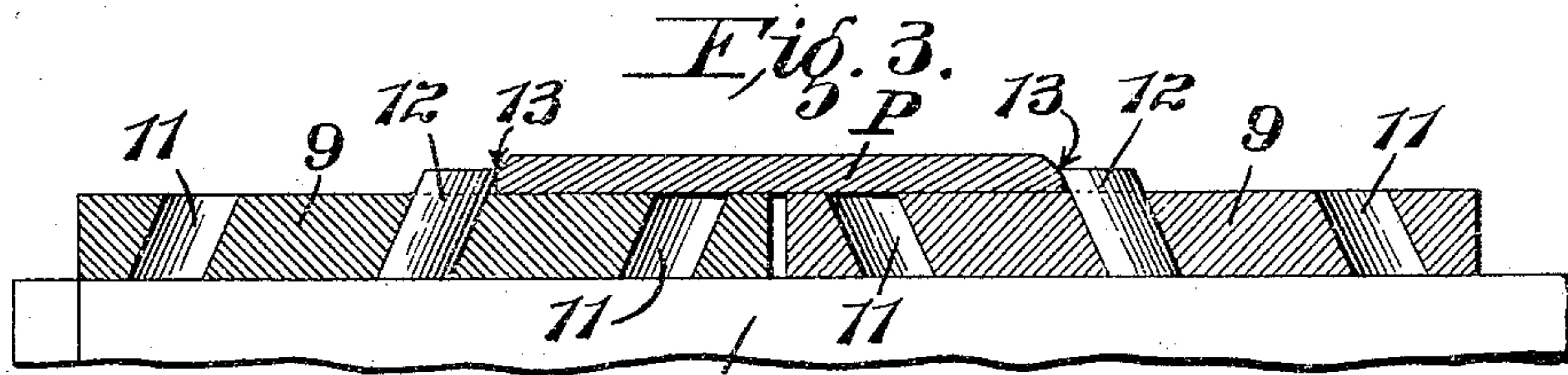
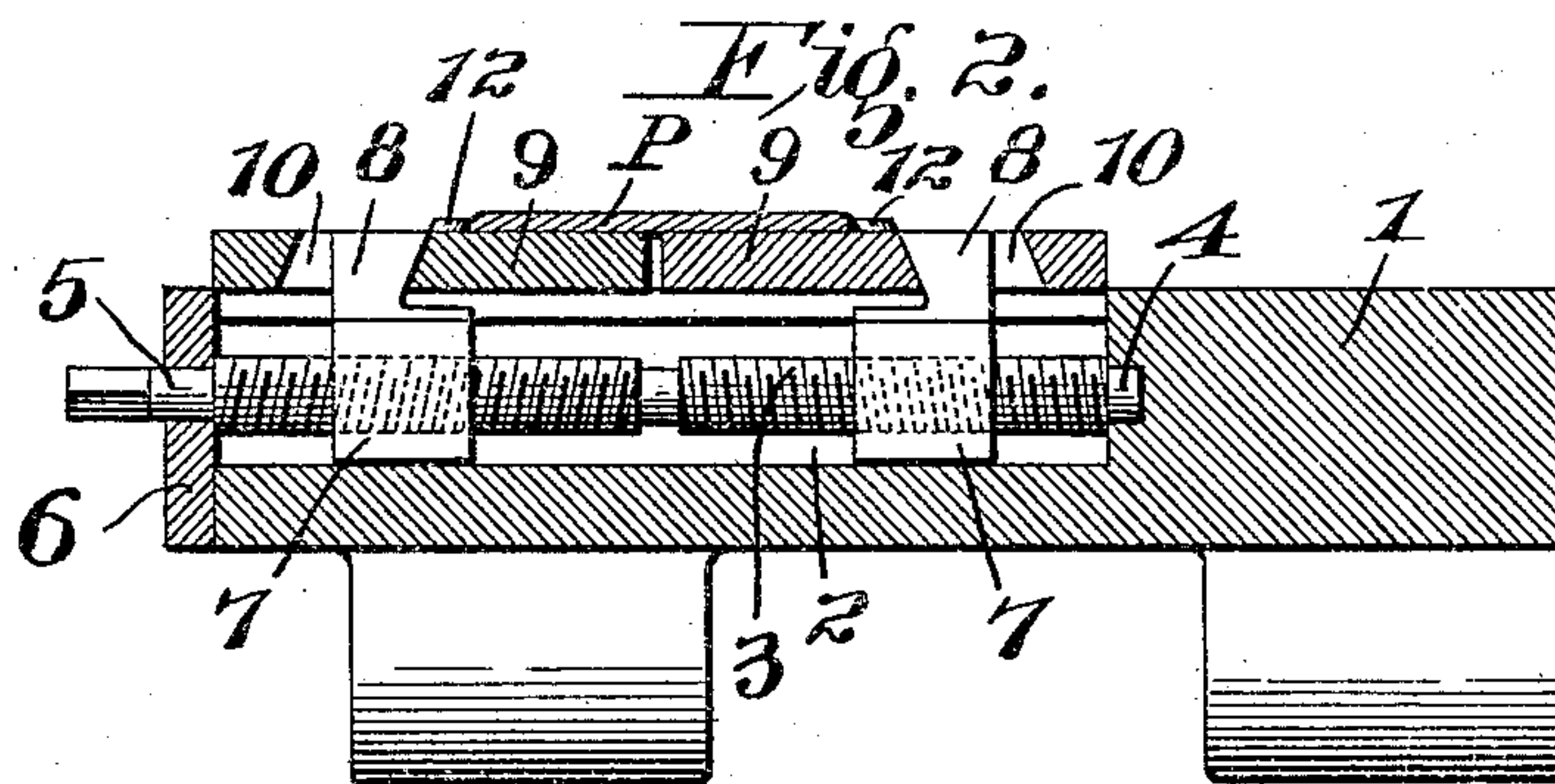
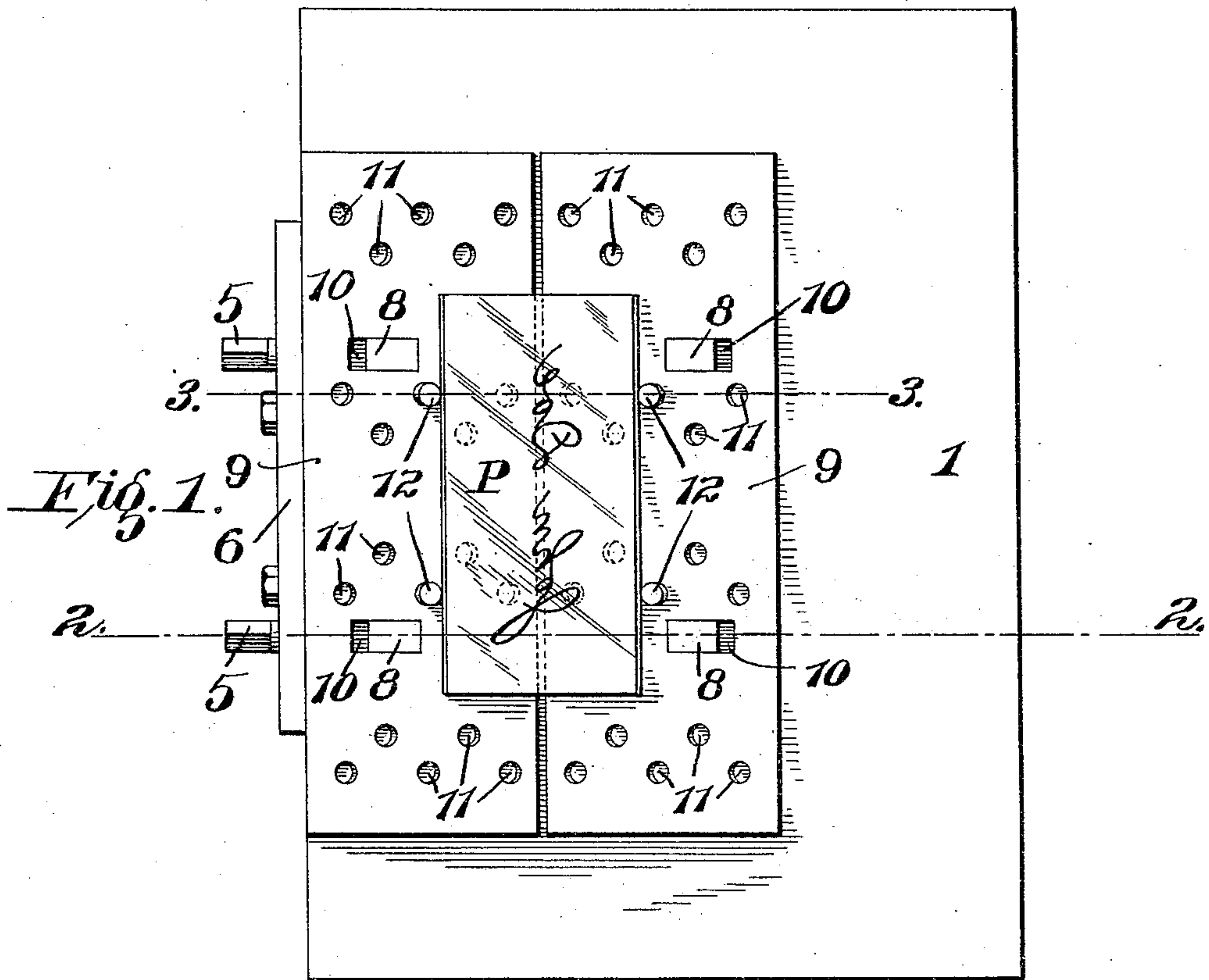


C. E. BROOKS.
SUB-CHUCK.

APPLICATION FILED SEPT. 12, 1908.

930,146.

Patented Aug. 3, 1909.



Witnesses:

Edgar T. Farmer:
G. A. Remington

By

Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES E. BROOKS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO B. ROTH TOOL COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

SUB-CHUCK.

No. 930,146.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed September 12, 1908. Serial No. 452,753.

To all whom it may concern:

Be it known that I, CHARLES E. BROOKS, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Sub-Chuck, of which the following is a specification.

This invention relates to chucks or work holders, and more particularly to sub-chucks for use in connection with die or printing plate holders for embossing and printing presses.

In die or plate printing and embossing the terms "die" and "plate" are used to distinguish between different thicknesses of plates. For example, in practice, the standard for a "die" is a plate one-half inch thick. All other plates of less thickness are known as "plates." The ordinary plate is one-eighth of an inch thick. The chucks or holders are usually made to accommodate dies, and the common practice in the use of plates is to "die-high" them or build them up to correspond to the height of a die by mounting them on blocks of wood, or, more commonly, on blocks of Babbitt metal.

The principal objects of my invention are to obviate the necessity of building up the plates, to provide for readily and conveniently chucking plates of various sizes in the die-holder, and to attain certain advantages hereinafter more fully set forth.

The invention consists in providing a sub-chuck to be used in connection with the die-holder, in providing for the interchangeability of the sub-chuck, and, further, in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a top plan view of a die-carrier having a sub-chuck embodying my invention applied thereto and showing a printing plate secured thereon; Fig. 2 is a cross-section on the line 2—2 of Fig. 1, and, Fig. 3 is an enlarged cross-section on the line 3—3 of Fig 1.

The die-carrier 1 illustrated in the drawings is of the type illustrated in my application for Letters Patent on embossing and

printing press, Serial No. 424,308, filed by me March 31, 1908. In this type of press the die-carrier is reciprocated from the inking device to the impression device and back, the die or plate carried thereby being automatically wiped during its movement toward the impression device. In the body portion 1 of the die-carrier or chuck are two parallel slots or grooves 2 which extend from the rear portion to the front edge thereof. Extending lengthwise of each of these slots is a screw 3 whose rear end 4 is swiveled or journaled in a socket provided therefor in the body of the carrier. The front portions 5 of the screws 3 are reduced and journaled in holes provided therefor in a face plate 6 mounted on the front end of said die-carrier. The projecting ends 5 of the screws may be squared or otherwise arranged to cooperate with keys or other means for turning them. Each of the screws is provided with reversed threads; that is, a right hand screw at one side of its middle and a left hand screw on the other side. On each thread of the screws is a threaded clamping member or jaw 7. Each of the threaded jaws has a portion 8 which extends upwardly beyond the surface of the body of the die-carrier, and the inner face of this upwardly extending portion is undercut on an incline. By the arrangement just described, the turning of a screw has the effect of moving its respective threaded jaws toward and away from each other. The jaws are adapted to act directly against the edges of a die, or, for the purpose of more securely holding the die, against an interposed rotatable rod or element as set forth in my application for Letters Patent hereinbefore referred to.

The sub-chuck comprises a pair of rectangular plates 9, each of which has a pair of rectangular holes or slots 10 therethrough of a size to fit over the upwardly extending portion of the clamping jaws 7. These plates 9 are provided with a multiplicity of inclined circular holes 11 therethrough which are adapted to receive studs 12. The studs 12 are made to closely fit the holes and tight enough to be frictionally held therein. Both ends of each of said studs are cut off on a bevel in parallel relation to each other so that

when a stud is placed in a hole 11 with its end faces parallel with the top and bottom faces of the sub-chuck plate 9, a sharp overhanging edge 13 is presented in the direction said inclined stud projects. The two sub-chuck plates 9 are exact duplicates as far as the slope and arrangement of the holes 10 and 11 are concerned, but said plates are placed on the die-carrier in reverse order, so that there will be a counter pair or set of holes 11 in each plate 9 and also that said studs 12 therein will have their overhanging edges presented inwardly. Preferably, the holes 11 are arranged in parallel rows both cross-wise and lengthwise of the sub-chuck plates and the holes of the adjacent rows are staggered with relation to each other. By this arrangement the four studs 12 may be arranged at various distances apart in rectangular relation, so as to accommodate the sub-chuck to printing plates of various sizes.

The end walls of the rectangular holes or slots 10 are beveled or inclined in parallel relation to correspond to the beveled undercut inner faces of the clamping jaws 7, and said slots 10 are located about midway between the middle and one edge of the respective plates 9. By this arrangement said plates 9 may be turned over and placed on the die-carrier in reverse manner to that shown in the drawings, so that the longitudinal counter pair or row of holes 11 in the sub-chuck plates may be brought closer together.

By making the sub-chuck plates reversible and interchangeable, printing plates of various sizes may be secured and supported on the carrier. The several holes for the clamping studs may be arranged in various combinations, and as dies or printing plates are substantially of only two thicknesses in the practice (the "dies" are commonly one-half inch in thickness and "plates" one-eighth), a single set or pair of sub-chuck plates may be made to have a universal range to accommodate printing plates of practically all standard areas.

As shown more clearly in Fig. 3 of the drawings, the printing plate P is supported throughout except for a very slight space between the meeting edges of the sub-chuck plates 9, which space need only be sufficient to permit the studs 12 to bind against the side edges of said printing plate P when the clamping jaws are moved toward each other. It is therefore obvious that the printing plate is firmly held and will not bend or buckle under the powerful pressure of the plunger or other impression device of the printing press.

Obviously, the device admits of considerable modification without departing from my invention. Therefore, I do not wish to be limited to the exact construction and arrangement shown.

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

1. The combination with the body portion of a chuck having relatively movable die-holder jaws thereon and means for actuating and holding said jaws in adjusted position, of a sub-chuck comprising relatively movable members detachably mounted on said body portion between said jaws so as to be actuated thereby, said movable members being provided with upwardly projecting members adapted to clamp against a die plate supported on said sub-chuck.

2. The combination with the body portion of a chuck having pairs of relatively movable die holder jaws thereon and independent means for each pair of jaws for actuating and holding said jaws in adjusted position, of a sub-chuck comprising relatively movable members detachably mounted on said body portion between said jaws so as to be actuated thereby, said sub-chuck members being provided with upwardly projecting members adapted to clamp die plates of various widths and lengths supported on said sub-chuck.

3. The combination with the body portion of a chuck having relatively movable jaws thereon and means for actuating and holding said jaws in adjusted position, of a sub-chuck comprising relatively movable members arranged on said body portion to be actuated and held by said jaws, said sub-chuck members being reversible and interchangeable to clamp and support plates of various widths and lengths.

4. The combination with a body portion of a chuck having pairs of relatively movable jaws thereon and independent means for each pair of jaws for actuating and holding them in adjusted position, of a sub-chuck comprising relatively movable plates detachably mounted on said body portion between said jaws so as to be actuated thereby, said plates being provided with a multiplicity of counter sets of holes, and studs adapted to be removably secured in a counter set of holes, whereby said sub-chuck is adapted to support and clamp plates of various widths and lengths.

5. The combination with the body portion of a chuck having relatively movable jaws thereon, and means for actuating and holding said jaws in adjusted position, of a sub-chuck comprising relatively movable and detachable plates arranged on said body portion to be actuated and held by said jaws, said plates being provided with a multiplicity of counter sets of inclined perforations therethrough, and studs adapted to be removably secured in a counter set of said inclined perforations, said plates being arranged so that the inclination of the holes of one plate is upwardly toward the counter holes in the opposite plate, whereby the projecting portion of said studs inclines toward the plate to be clamped, and whereby, also, said sub-chuck may be interchangeable and

reversible to clamp and support plates of various widths and lengths.

6. In a chuck, the combination with a body portion having grooves therein, double-
5 threaded screws mounted in said grooves and a pair of clamping jaws on each screw, of a sub-chuck comprising members slidably mounted on said body portion and detach-

ably connected to said jaws to be actuated thereby.

Signed at St. Louis, Missouri, this 1st day
of September, 1908.

CHARLES E. BROOKS.

Witnesses:

G. A. PENNINGTON,
J. B. MEGOWN.