

No. 776,934.

PATENTED DEC. 6, 1904.

C. PRÖTT.
HYDRAULIC PRESS.

APPLICATION FILED MAR. 30, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 2.

Fig. 1.

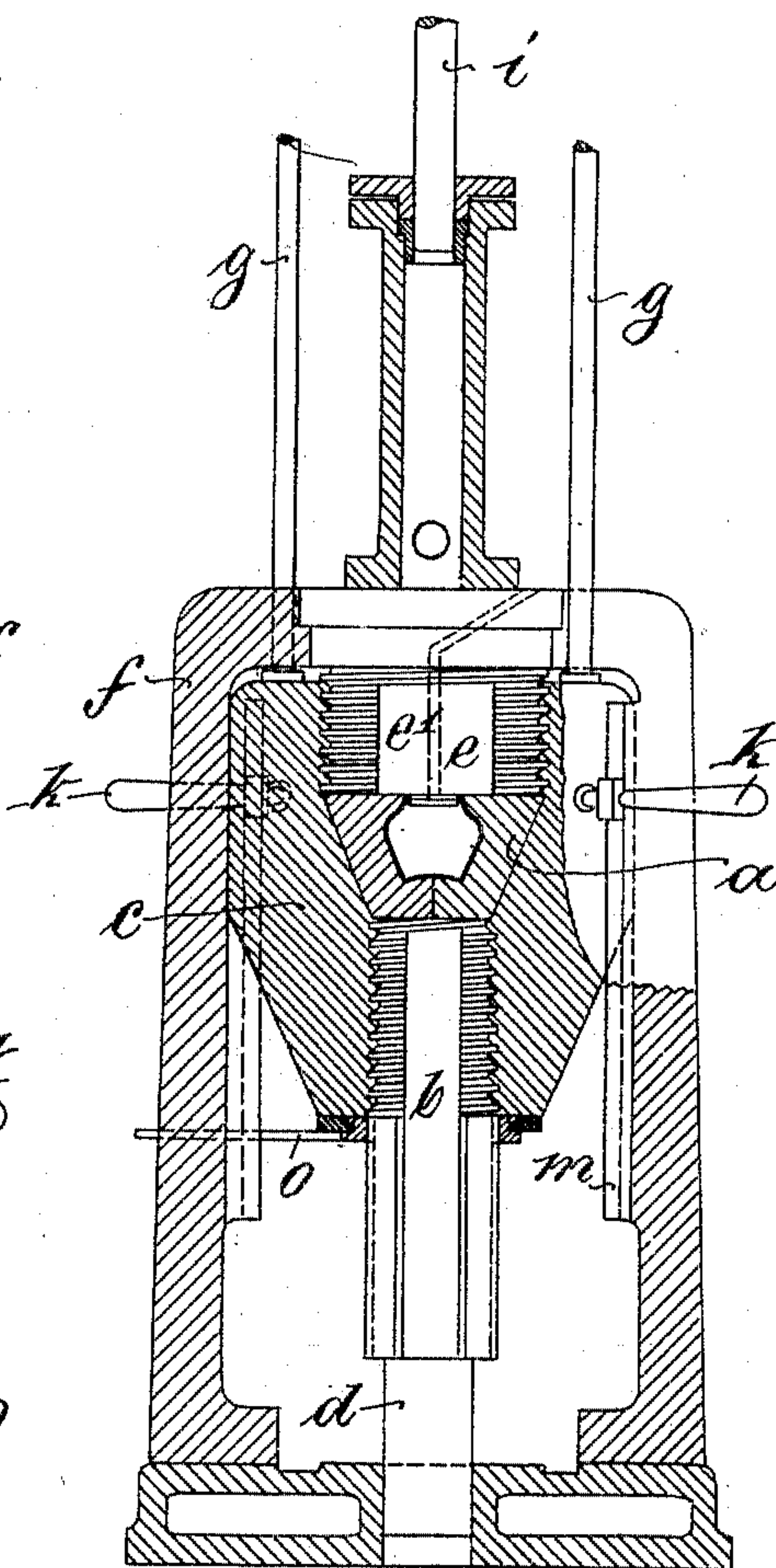
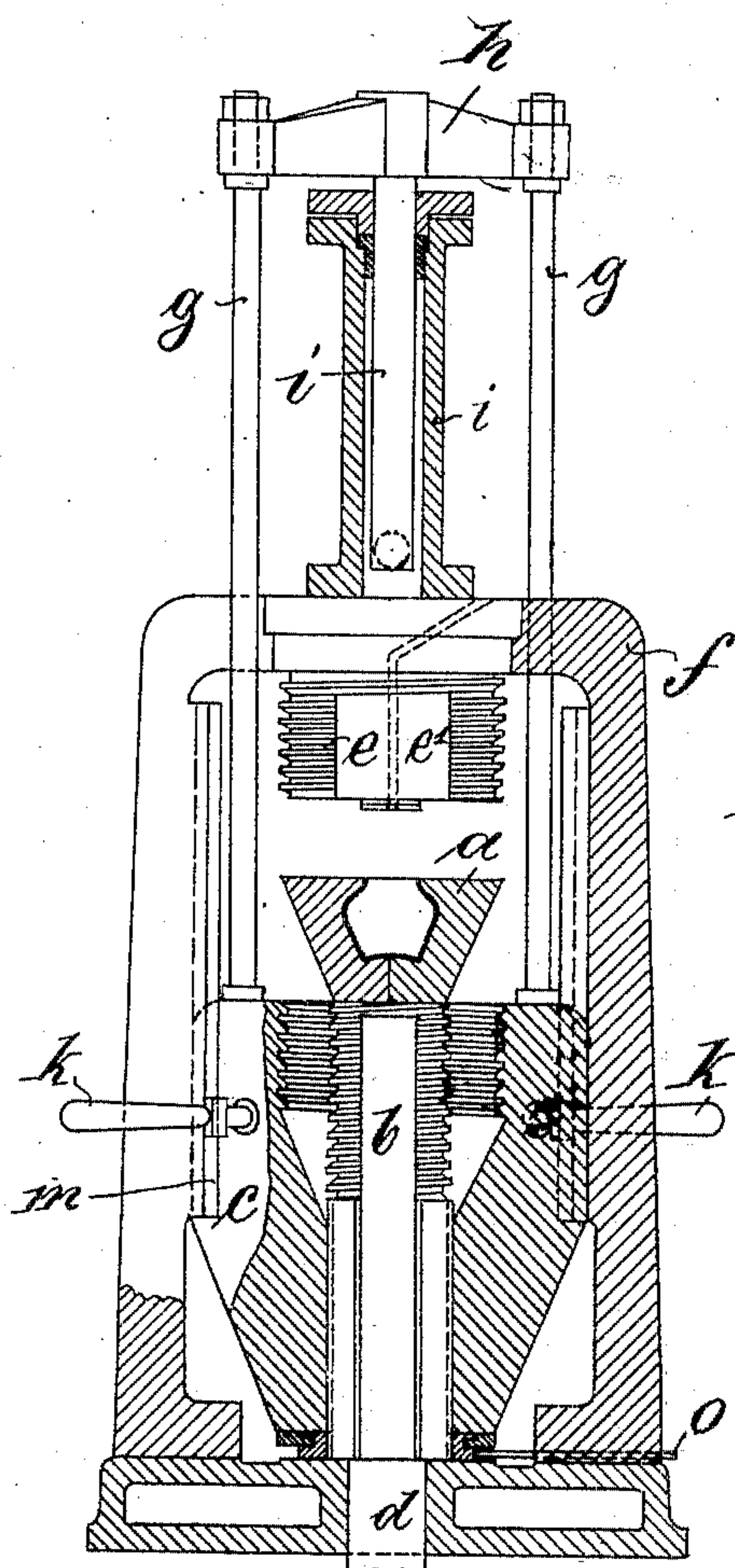
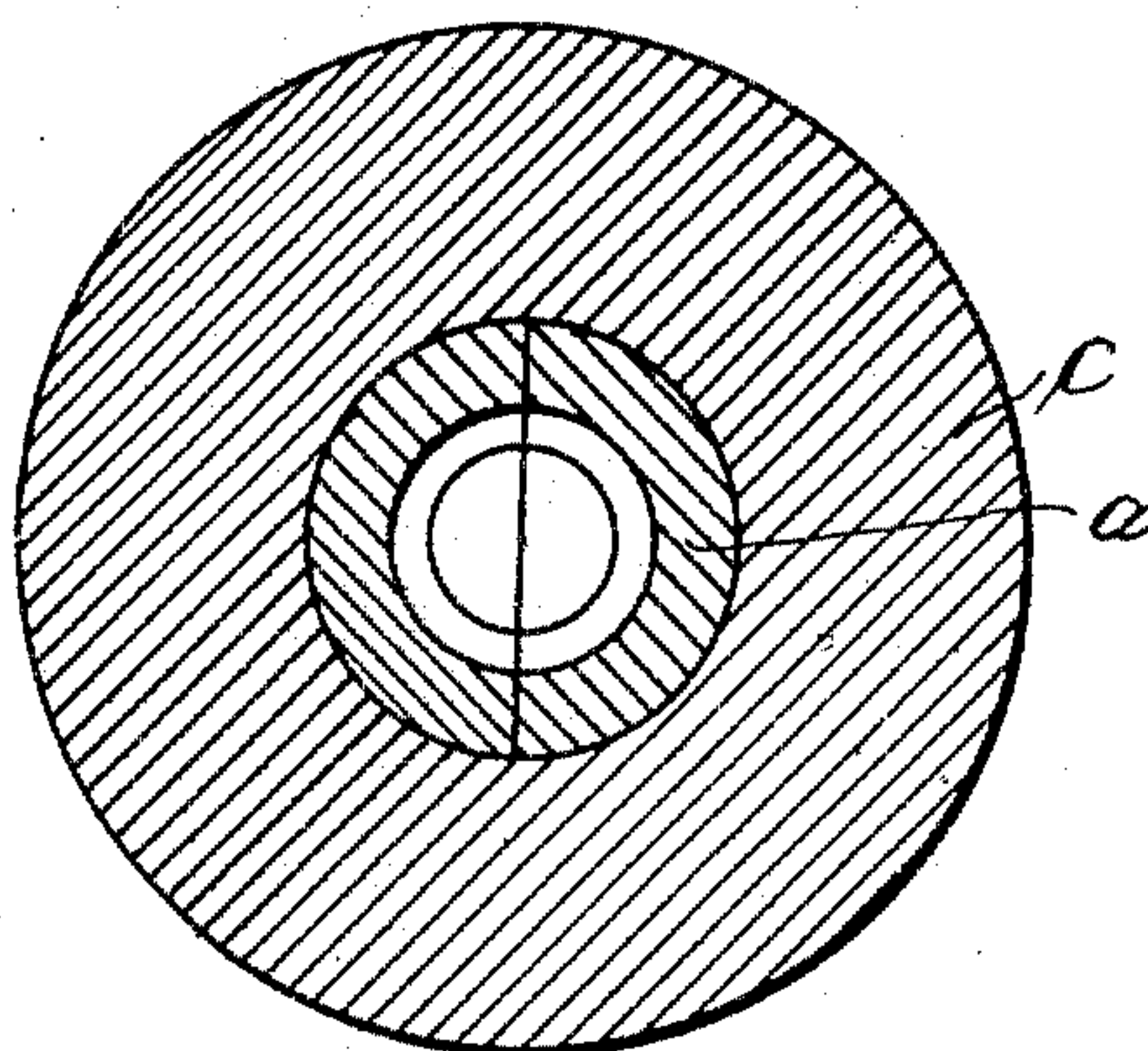


Fig. 8.



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2 SHEETS—SHEET 2.

Fig. 3.

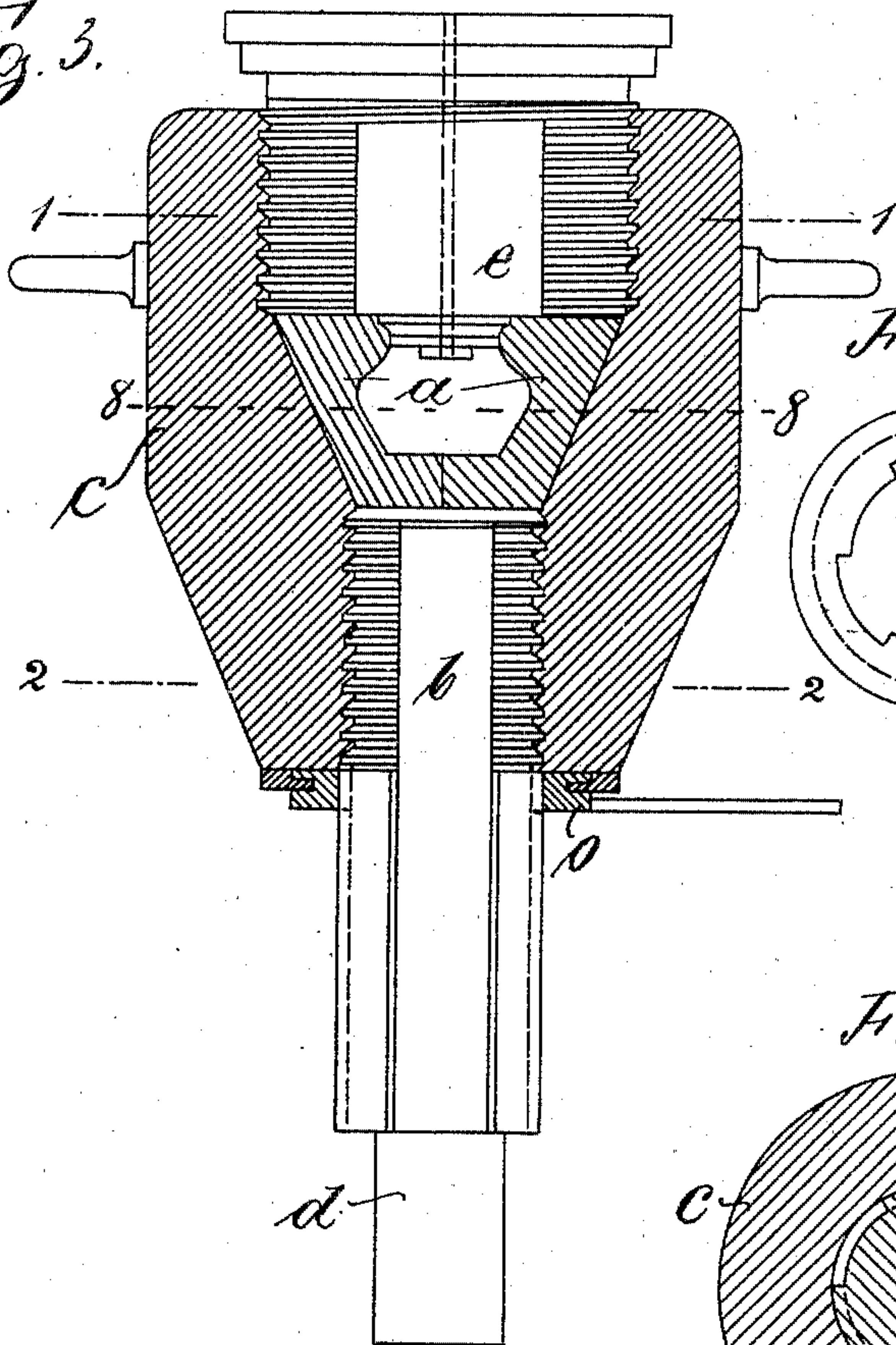


Fig. 6. Fig. 7.

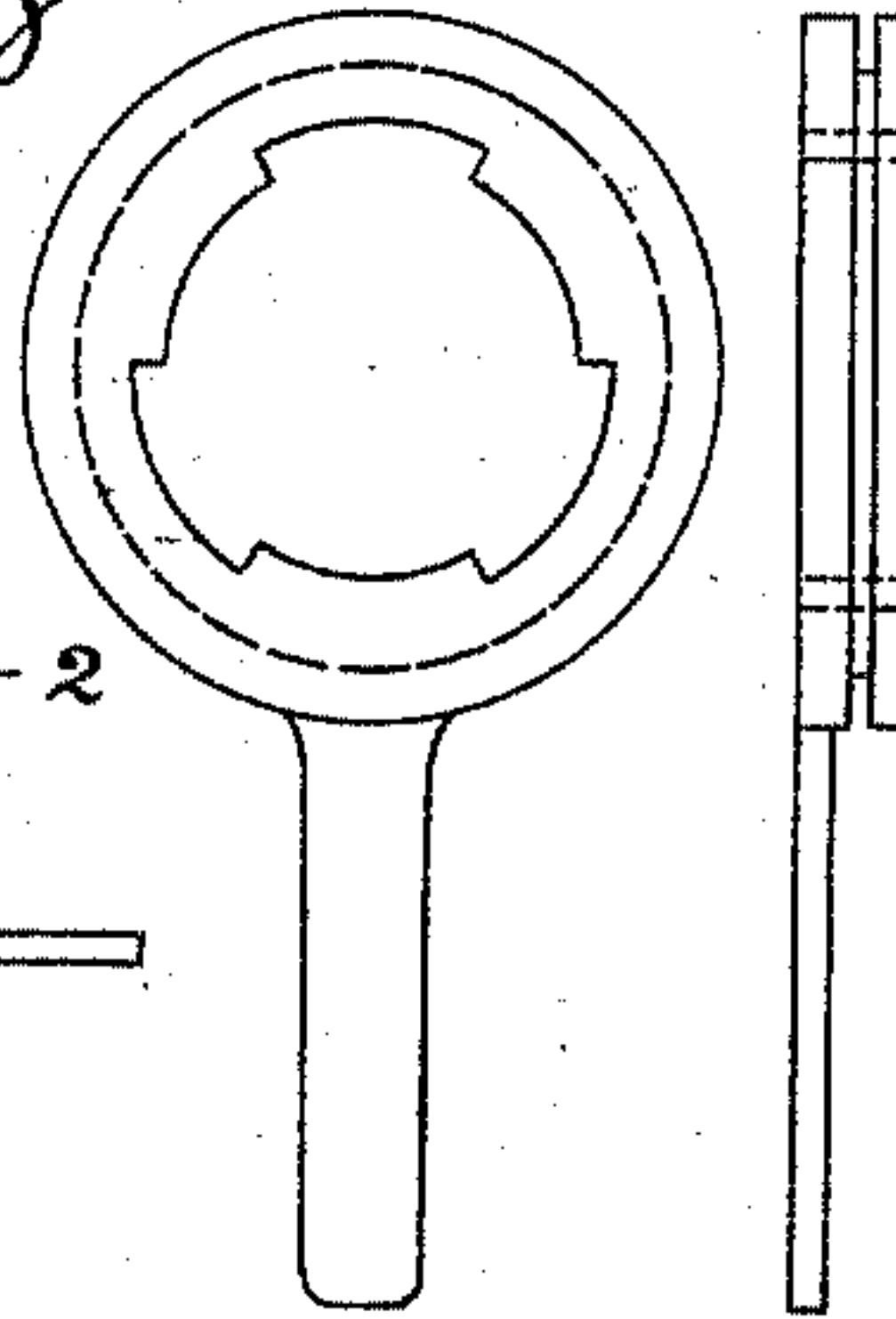


Fig. 5.

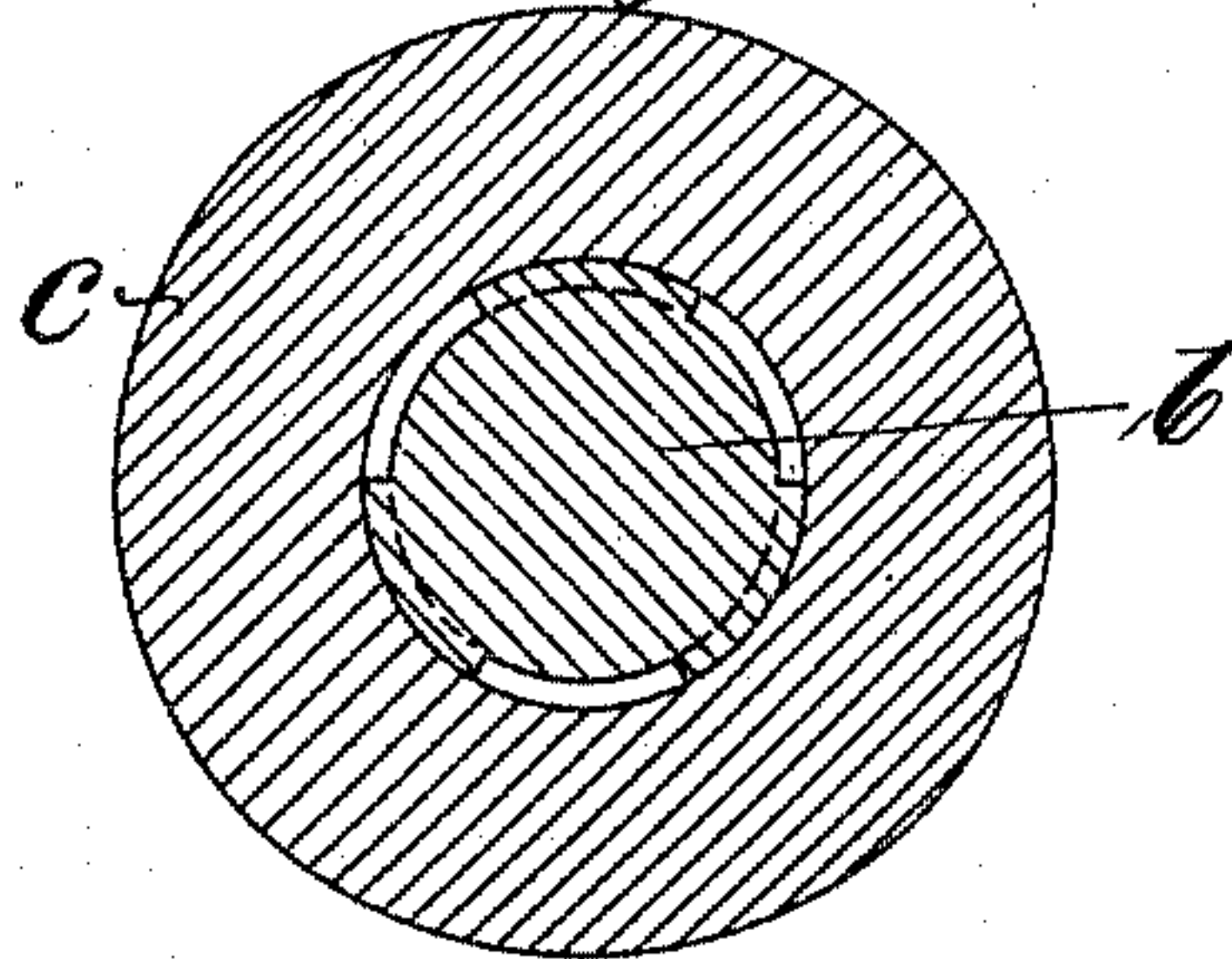
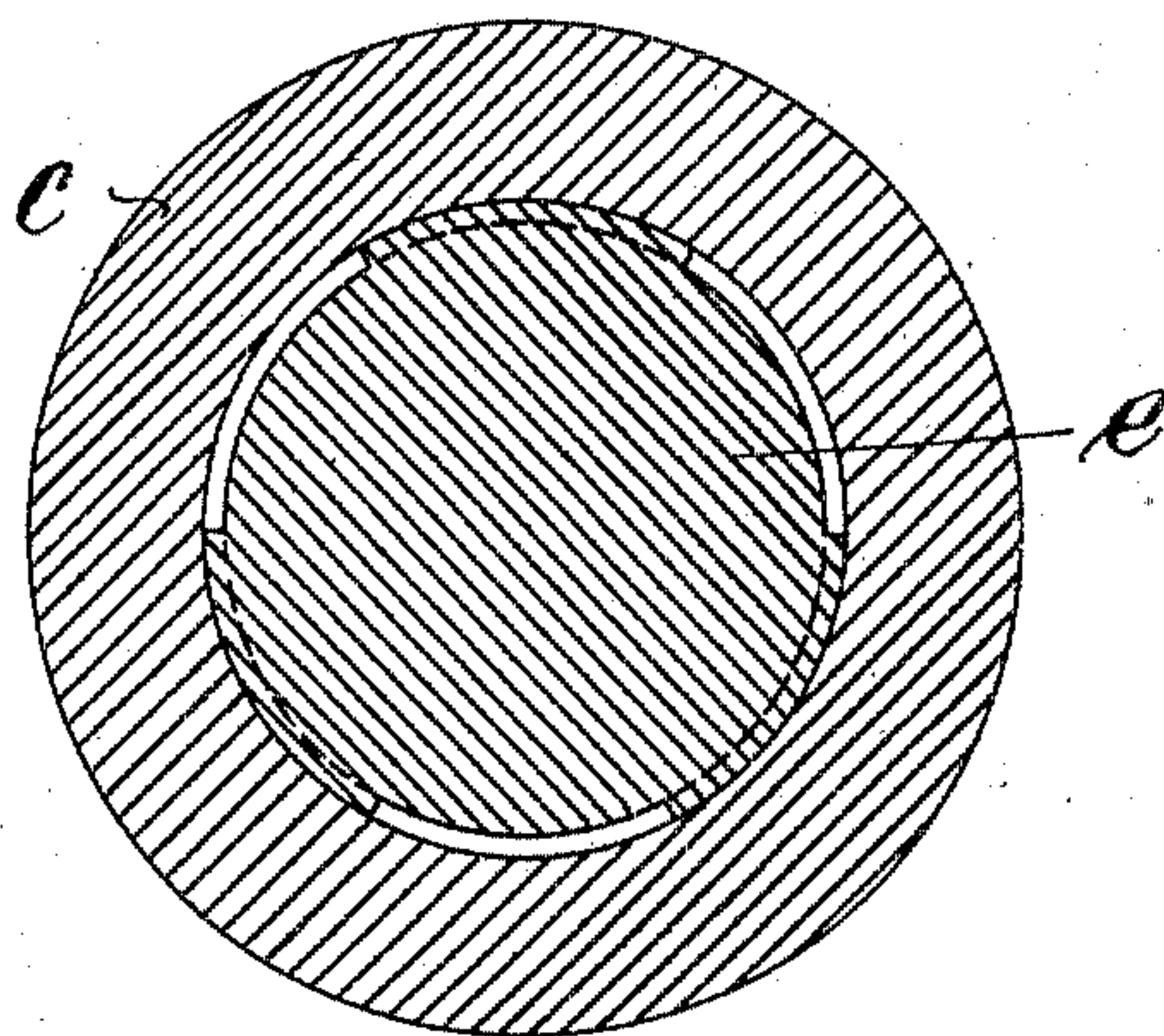


Fig. 4.



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UNITED STATES PATENT OFFICE.

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HYDRAULIC PRESS.

SPECIFICATION forming part of Letters Patent No. 776,934, dated December 6, 1904.

Application filed March 30, 1904. Serial No. 200,855. (No model.)

To all whom it may concern:

Be it known that I, CARL PRÖTT, a subject of the King of Prussia, German Emperor, and a resident of Hagen, in the Province of Westphalia, German Empire, have invented certain new and useful Improvements in Hydraulic Presses, of which the following is an exact specification.

My invention relates to improvements in hydraulic presses, and more especially in presses in which bodies consisting of metal or metal plates are pressed into a matrix directly by means of the pressure of the water without using any punch.

The object of my invention consists in providing a simple device for moving the matrix from the press-block. I attain this purpose by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the press in the position in which the pressing is effected. Fig. 2 is a vertical section of the same in the position in which the matrix is placed into the press or is removed from the same. Fig. 3 is a vertical section of the principal parts of the press, on an enlarged scale. Fig. 4 is a section on line 1 1 of Fig. 3. Fig. 5 is a section on line 2 2 of Fig. 3. Fig. 6 is a plan of a detail part of the press. Fig. 7 is a side view of the part shown in Fig. 6, and Fig. 8 is a horizontal sectional view taken on line 8 8 of Fig. 3.

In the drawings, *a* is a matrix consisting of two parts. It will be seen that the matrix has a frusto-conical form.

b is the bottom upon which the matrix is to be placed.

c is a press-block in which the bottom *b* is situated. The press-block is provided with a suitable bore for taking up the matrix *a*, the outside surface of which is suitably shaped so that the two parts of the same are held together against the pressure of the water.

The bottom *b* consists of a screw part of each thread of which is removed, as may be seen from Fig. 5. The bottom *b* is integrally provided with a bar *d*, by means of which the bottom *b* can be moved in the vertical direction. In the press-block *c* threads are provided which correspond to the threads of the bottom *b*, part of which threads is also re-

moved, so as to form a so-called "threaded bayonet connection."

e is a cover for holding the matrix in its position, which cover is provided with a central bore *e'* for the admission of the water. The cover *e* may be fixed to the press-block *c* in the same manner as the bottom *b*, by means of a threaded bayonet connection.

f is a frame in which the press-block *c* is guided by means of guide-rails *m* and to which the cover *e* is rigidly fixed.

To the press-block *c* vertical bars *g* are fixed, the upper ends of which are connected by means of a traverse *h*. To this traverse *h* the hydraulic piston *i* is fixed, which is situated in a cylinder *i'*, connected in any convenient manner to a water-pump. The press-block *c* is provided with handles *k*, by means of which the press-block can be turned for the purpose of actuating the bayonet connections.

The bottom *b* or the bar *d*, fixed to the same, can be turned by means of a device *o*, the construction of which is illustrated in Figs. 6 and 7.

It will be seen from the drawings that the upper thread of the bottom *b*, as well as of the cover *e*, is not provided with a cut-out.

The operation of the press is as follows: If the press is in the position shown in Fig. 2, the matrix, containing the body to be pressed, which body may already be filled with water, is placed upon the bottom *b*. The press-block *c* is in this position situated so that the handles *k* touch the guide-rails *m* and that in raising the press-block by means of the hydraulic piston *i* the parts of the threads of the bottom *b*, as well as of the cover, pass through the cut-outs between the threads in the press-block *c*. In actuating the press the press-block *c* is raised until the conical part of the same takes up the matrix *a*, containing the body to be pressed. In further raising the press-block the matrix *a* is taken along. The bottom *b* still remains for a moment in its position until the parts of the threads in the block *c* push against the upper full thread of the bottom *b*. During the further upward movement of the press-block the bottom *b* is also raised. It will be understood that by this arrangement a small space remains between the matrix *a* and the bottom part *b*. During the further

upward movement of the press-block *c* the parts of the upper thread in the press-block *c* will push against the upper full thread of the cover *e*, thereby stopping the movement of the press-block *c*. In this position a small space will remain between the cover *e* and the upper surface of the matrix *a*. If now the press-block *c* is turned by means of the handles *h*, this press-block will be further raised until the upper surface of the matrix pushes against the lower surface of the cover *e*, and at the same time the parts of the threads of the cover *e* will be screwed to the parts of the threads in the press-block *c*, thereby actuating the bayonet connection. Thereafter the bottom *b* is turned by means of the device *o* until the upper surface of this bottom pushes against the lower surface of the matrix *a*, thereby actuating at the same time the bayonet connection. The press is then in the position shown in Fig. 1, in which position the pressing proper is effected. After the pressing has been done the press-block *c* as well as the bottom *b* are turned back. If now the water in the cylinder *z'* is allowed to flow out, the press-block *c* will sink down on account of its own weight and all the parts will come back into the position shown in Fig. 2, thereby removing the matrix from the press-block, so that the matrix can easily be taken out of the press.

Having thus fully described the nature of my invention, what I desire to secure by Letters Patent of the United States is—

35 1. In a hydraulic press, the combination of a press-block provided with a suitable bore for taking up the matrix, a bottom piece for

carrying the matrix, a bayonet connection between the press-block and the bottom piece, a cover for the matrix, a bayonet connection between the cover and the press-block, and means for leading water into the matrix, substantially as described and for the purpose set forth.

2. In a hydraulic press, the combination of 45 a press-block provided with a suitable bore for taking up the matrix, a bottom piece for carrying the matrix, a bayonet connection between the press-block and the bottom piece, a cover for the matrix, a bayonet connection 50 between the cover and the press-block, means for leading water into the matrix, and means for raising and lowering the press-block, substantially as described and for the purpose set forth.

3. In a hydraulic press, the combination of 55 a press-block provided with a suitable bore for taking up the matrix, a bottom piece for carrying the matrix, a bayonet connection between the press-block and the bottom piece, 60 a cover for the matrix, a bayonet connection between the cover and the press-block, means for leading water into the matrix, means for raising and lowering the press-block, means for turning the press-block, and means for 65 turning the bottom piece, substantially as described and for the purpose set forth.

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

CARL PRÖTT.

Witnesses:

OTTO KÖNIG,
J. A. RITTERSHAUS.