

No. 699,018.

Patented Apr. 29, 1902.

A. SANDVIG.
APPARATUS FOR FORMING PLATES.

(Application filed Nov. 17, 1900.)

(No Model.)

Fig. 1.

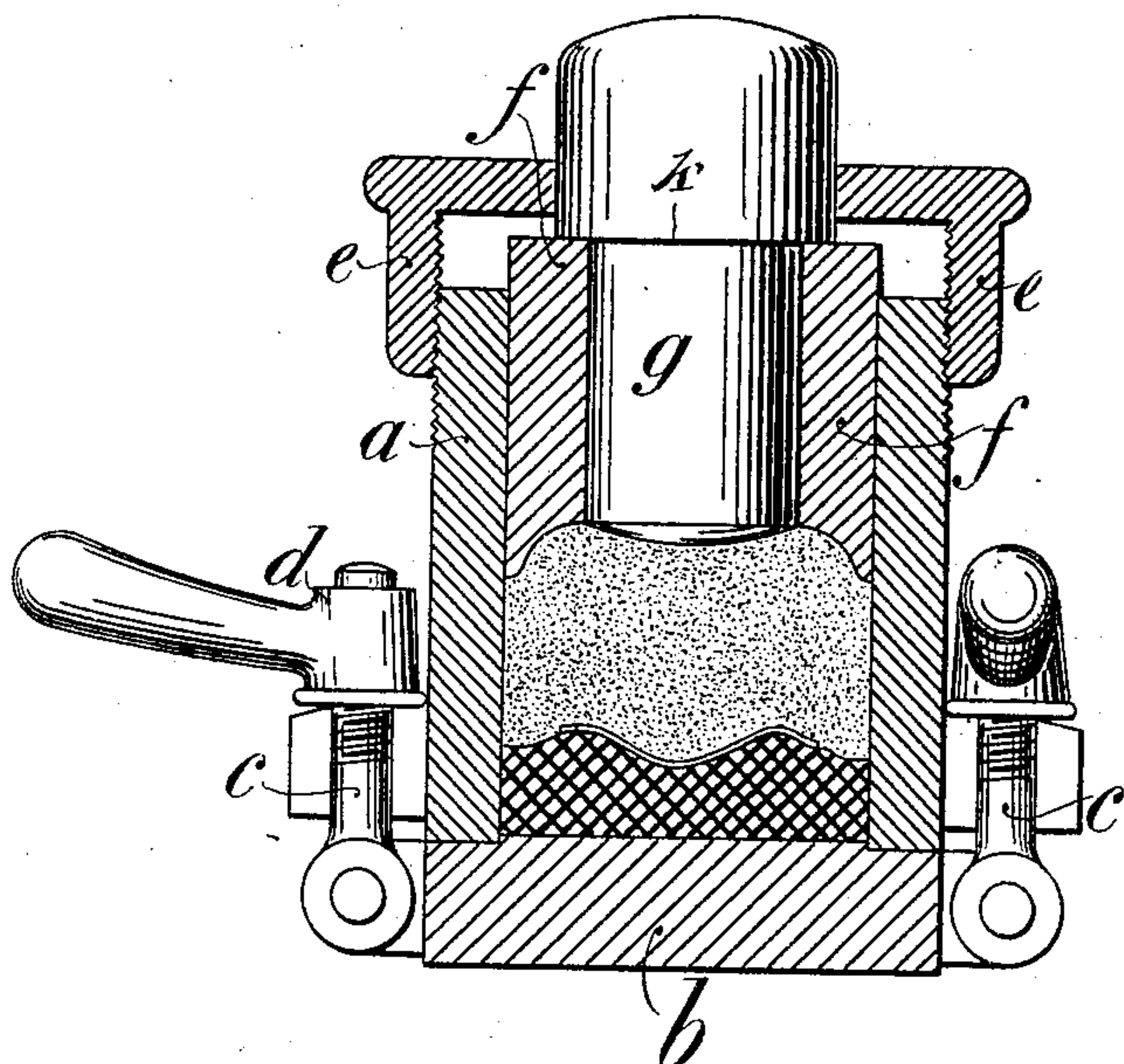
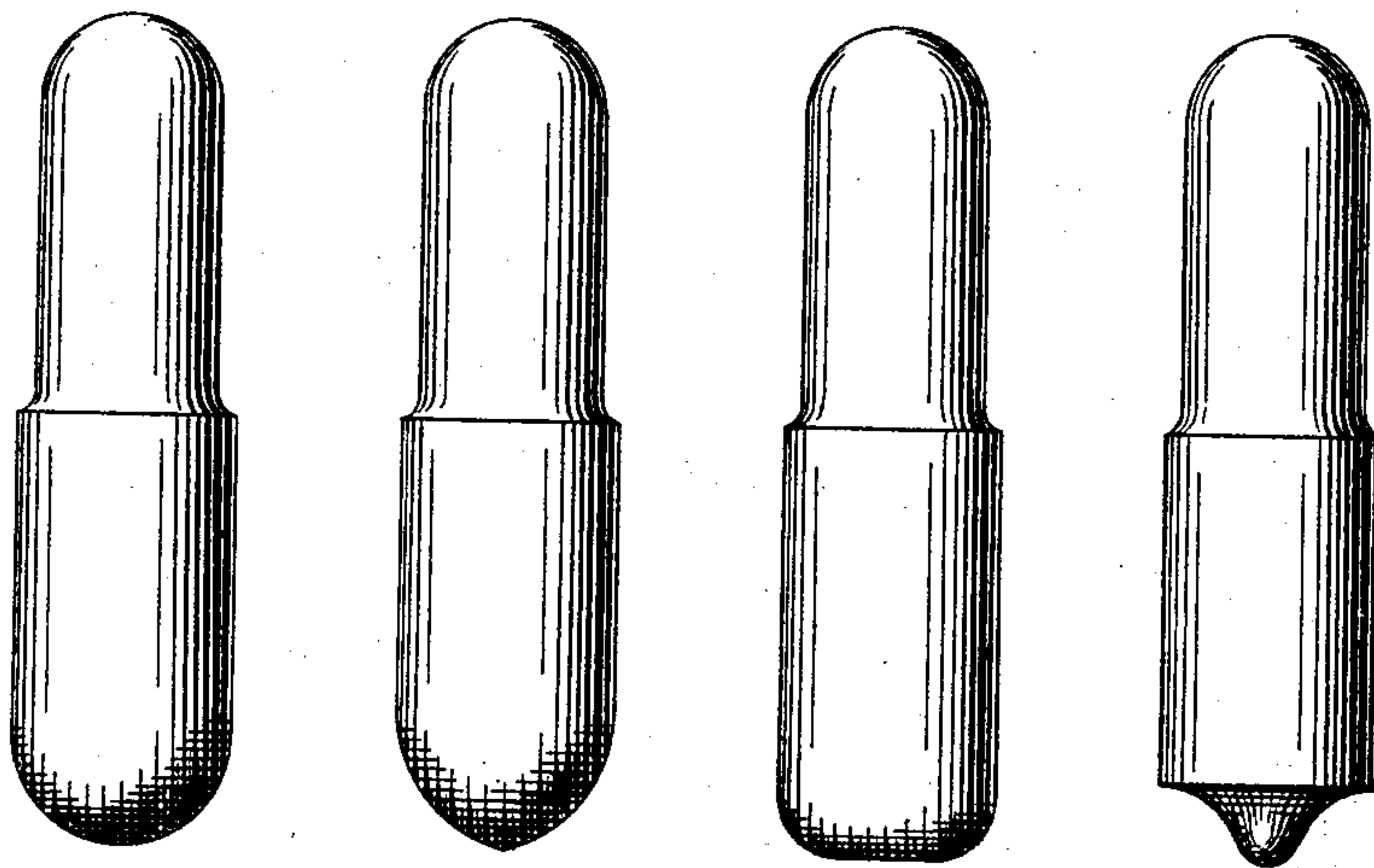


Fig. 2.



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APPARATUS FOR FORMING PLATES.

SPECIFICATION forming part of Letters Patent No. 699,018, dated April 29, 1902.

Application filed November 17, 1900. Serial No. 36,871. (No model.)

To all whom it may concern:

Be it known that I, ANDERS SANDVIG, a subject of the King of Sweden and Norway, residing at Lillehammer, Norway, have invented certain new and useful Improvements in Apparatus for Forming Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to an apparatus for forming or pressing plates, and has for its object to provide means for imparting in a simple and easy manner to plates, especially thin sheet metal, any desired hollow form without using more than a single die.

My apparatus is especially suitable for use in forming bed-plates for artificial teeth. The production, for instance, of an aluminium bed-plate for a set of teeth will require by this method no longer time than one hour, including the time it takes to perform the molding operation in the mouth of the patient. In apparatus heretofore designed for this purpose upon similar principle as that upon which the present apparatus works difficulties have risen in obtaining a true form of the plates; and my invention relates to certain improvements whereby these difficulties are overcome.

Figure 1 in the accompanying drawings illustrates a pressing apparatus which may be used for the production of aluminium-teeth bed-plates, and Fig. 2 shows plungers of various forms for use in the formation of plates.

The press shown consists of a cylinder *a*, having a bottom *b*, which is detachably secured to the cylinder by means of clamping-screws *c*, provided with nuts *d*. At the top of the cylinder is a screw-cap *e*, and inside is a sleeve *f*, adapted to move vertically within the cylinder. Fitted into this sleeve is the plunger *g*, which may, if desired, be removed and replaced by plungers of other forms, such as those represented in Fig. 2.

In forming bed-plates by means of this apparatus I take the die or model previously produced from a suitable material (for instance,

"spence-metal") and place it upon the bottom of the cylinder. On the top of the die I lay the plate to be formed, preferably covered on its upper side with a thin sheet of rubber secured by a strap or ring of caoutchouc. After filling the cavity of the cylinder with sand the pressing operation may be effected by forcing the plunger downward with a hammer, (operated by hand or by mechanical means.) The plunger is provided with a shoulder *k*, bearing on and driving downward also the sleeve *f*, whereby the whole of the sand is subjected to a vertical pressure throughout the whole mass. When the sand is sufficiently compressed, the screw-cap *e* is screwed down to secure the sleeve *f* in the position in which it is brought by the blows or the pressure exerted on it. The plunger *g* may now be replaced by one of the other plungers, which have no shoulder bearing on the sleeve, and such plunger is then driven down by blows or otherwise, whereby the central part of the sand is chiefly compressed, and thereby the plate given its form. From time to time the plate may be taken out and made warm, (to a glowing heat). It is preferable to make use of sleeves *f* (with plungers *g*) of two or more different widths, and in order to drive the sleeve *f* into the casing during the first part of the operation one of the plungers is provided with an annular shoulder *k*, as above explained. When, however, said sleeve has been driven into the casing to the desired extent and locked by the screw-cap *e* against outward motion, the next operation or the succeeding operations may be effected by means of plungers—such as shown in Fig. 2, for instance—devoid of an annular shoulder.

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

1. A mold having a die therein, two coöperating parts movable toward the die, one of the parts movable simultaneously with and also independently of the other and a yielding molding material between the coöperating parts and die, substantially as set forth.

2. A mold having a die therein, a coöperating sleeve and plunger movable toward the die, said plunger movable with and also independently of said sleeve and a yielding mold-

ing material between the plunger and die, substantially as described.

3. A mold comprising a casing and a detach-
able base-plate, a die therein, a cooperating
5 sleeve and plunger movable toward the die,
means to lock the sleeve against motion out
of the casing, said plunger movable with and
also independently of said sleeve and a yield-
ing molding material above the die, substan-
10 tially as described.

4. A mold, a die therein, a sleeve movable
toward the die and a plunger movable with

respect to the sleeve, whereby any one of a
series of plungers is capable of being sub-
stituted for the first one, and a yielding mold- 15
ing material above the die, substantially as
forth.

In witness whereof I hereunto set my hand
in presence of two witnesses.

ANDERS SANDVIG.

Witnesses:

JOH. VAALER,
O. MÜLLER.