

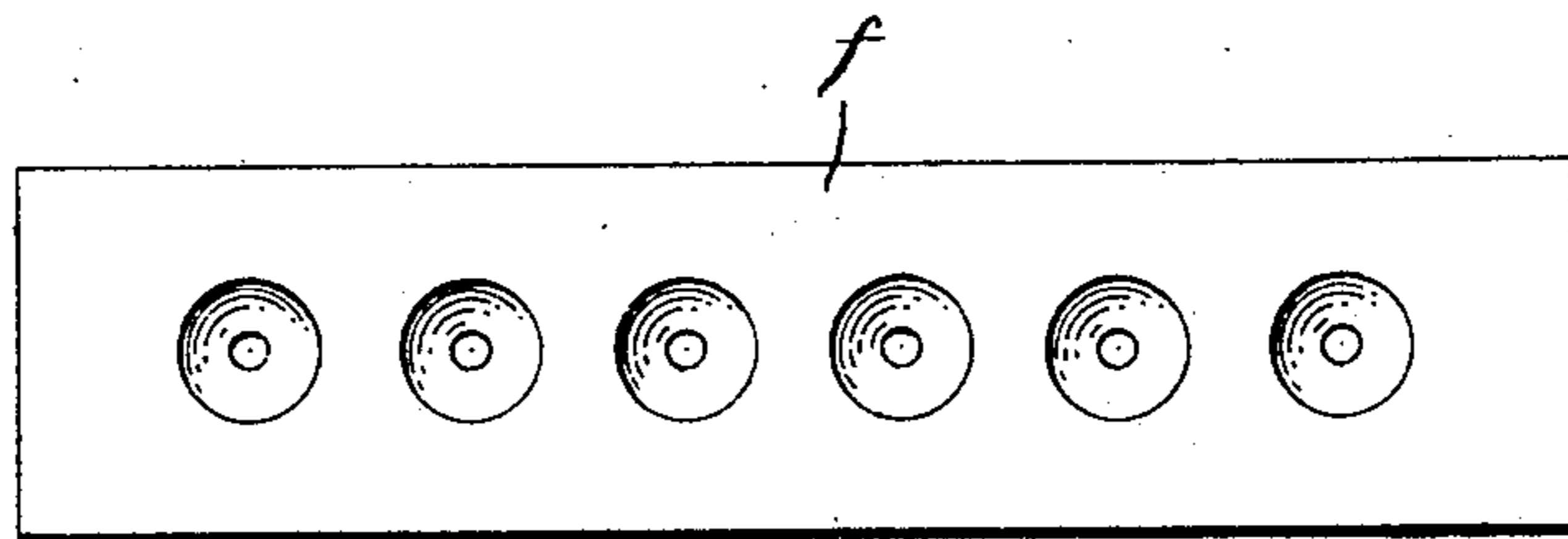
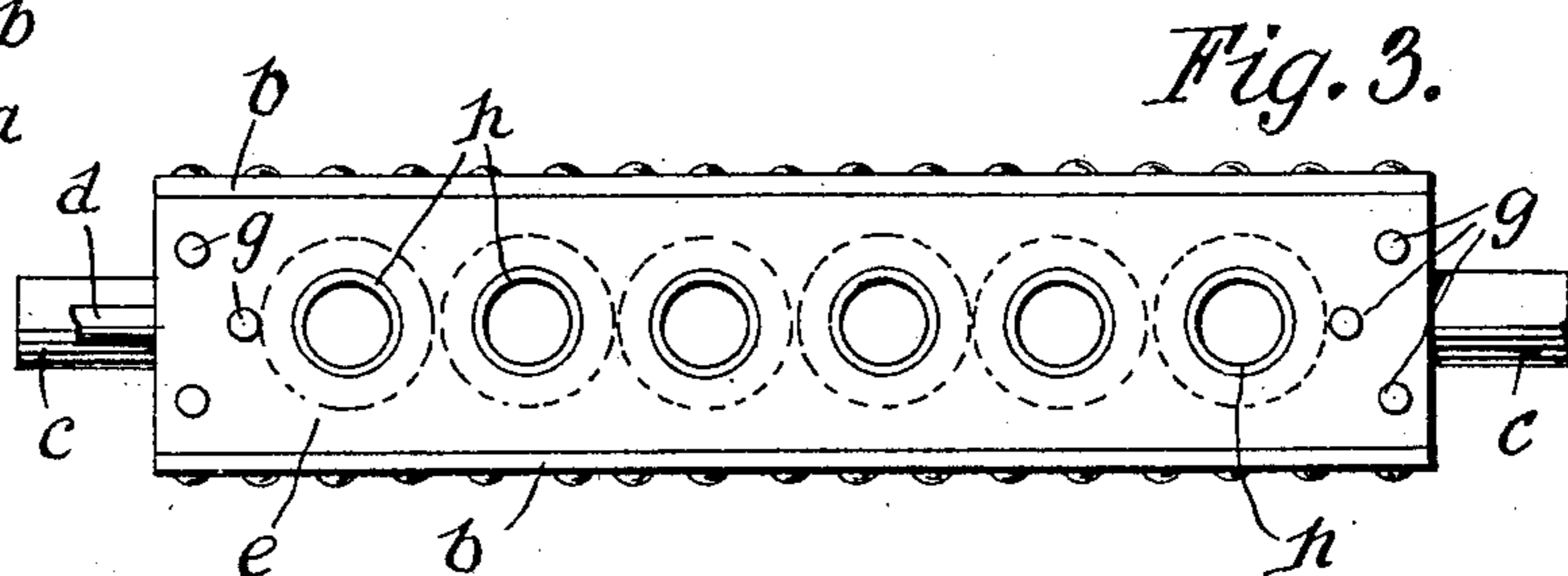
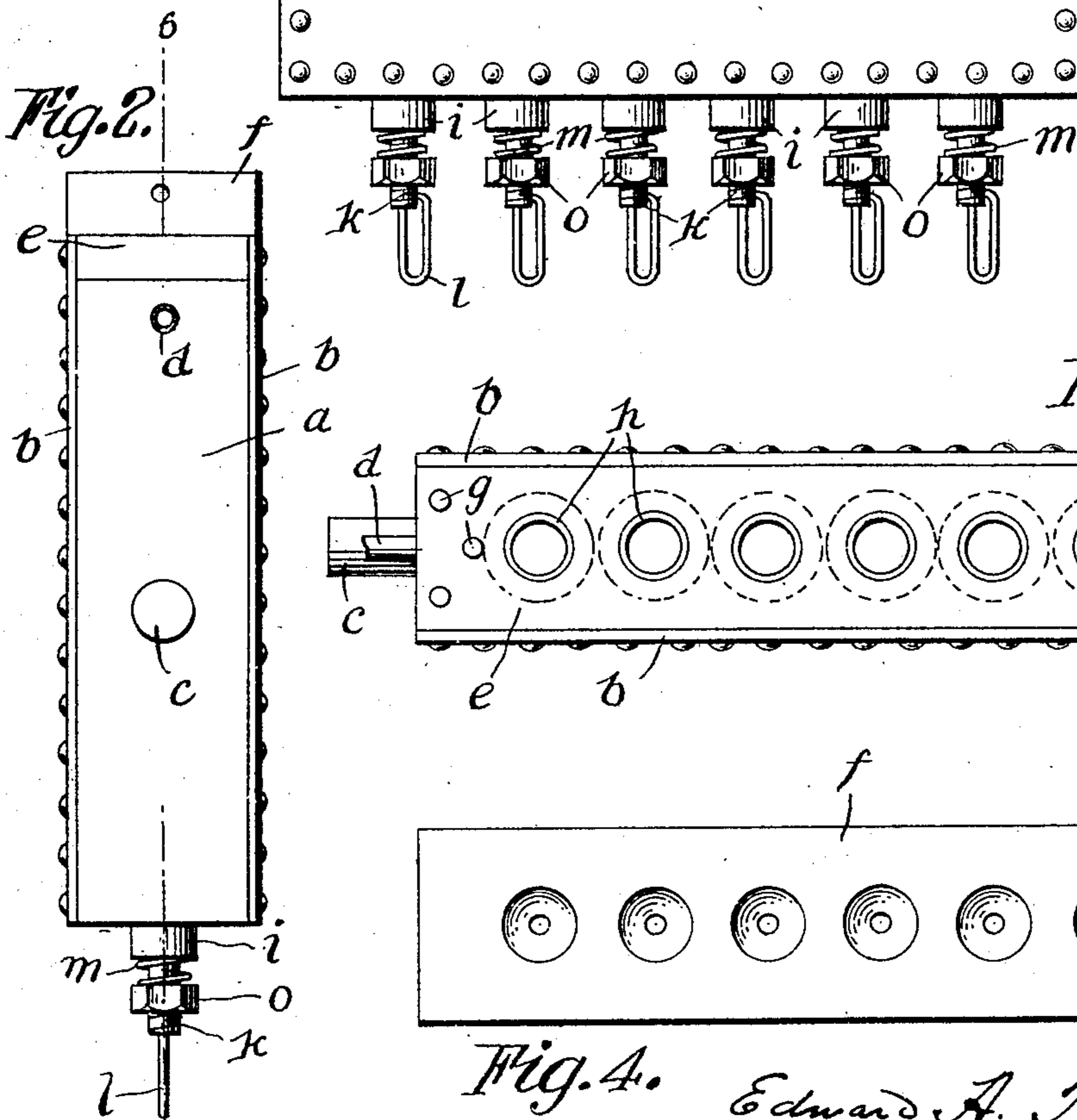
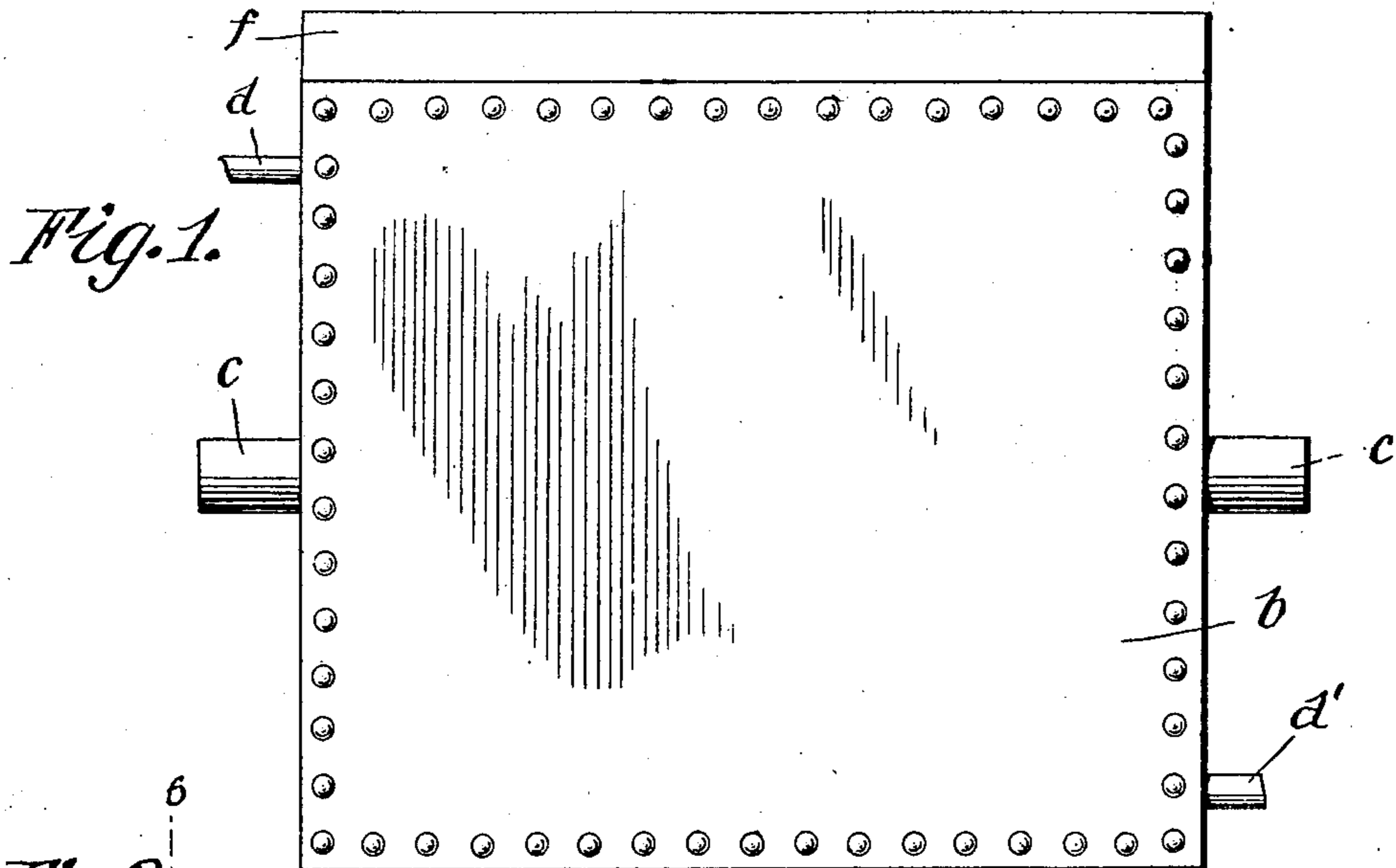
No. 882,507.

PATENTED MAR. 17, 1908.

E. A. TVERDAHL,
CHILL MOLD.

APPLICATION FILED APR. 30, 1907.

2 SHEETS—SHEET 1.



Witnesses
C. E. Smith.

Geo. E. Jew

Fig. 4. *Edward A. Tverdahl* Inventor

By

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Attorney

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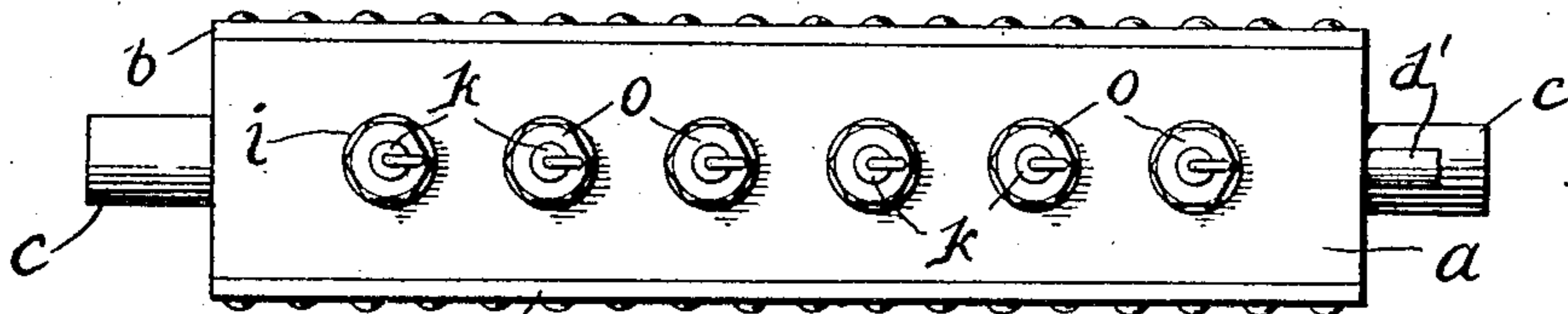


Fig. 5.

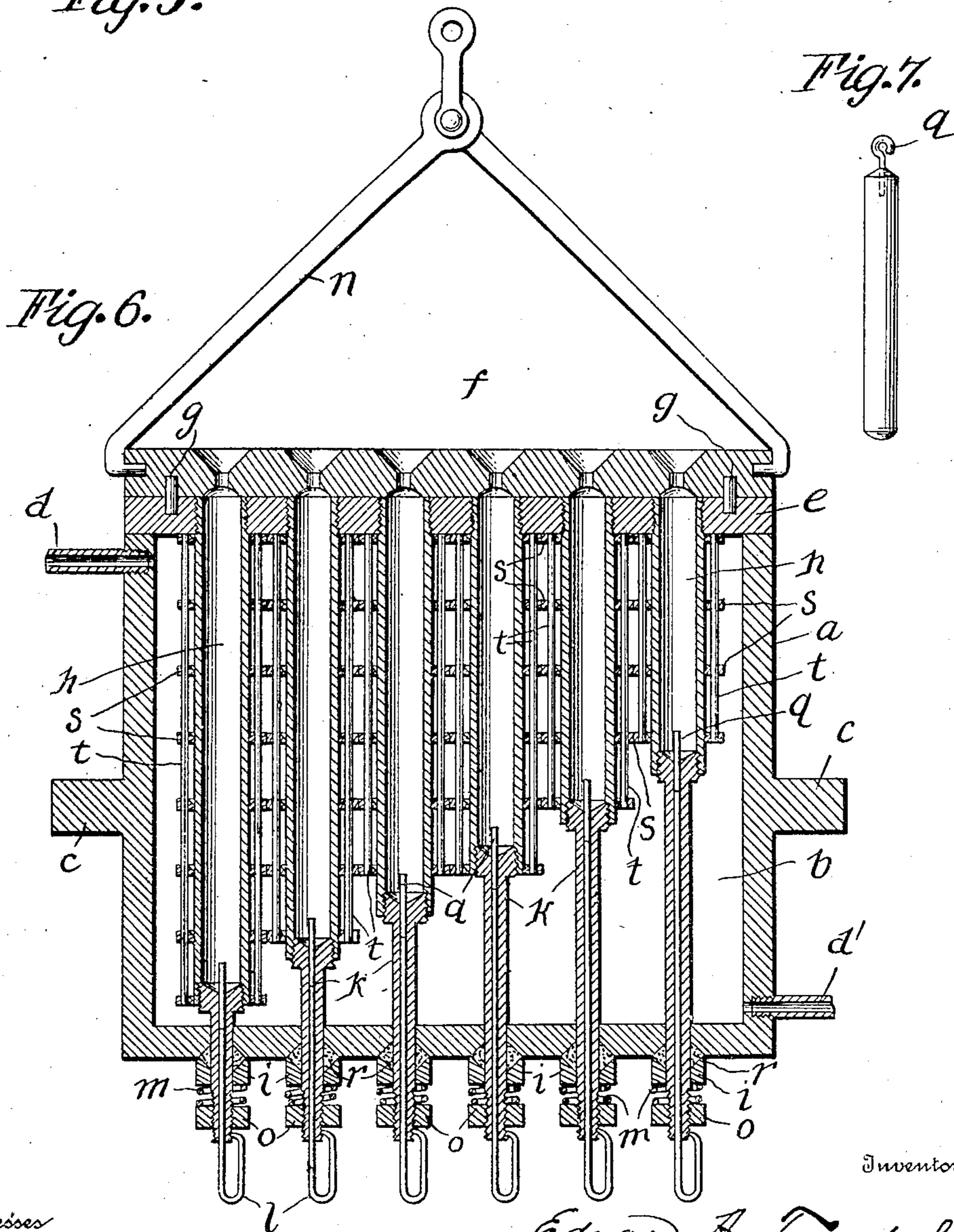


Fig. 6.

Fig. 7.

Witnesses
C. E. Smith.
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UNITED STATES PATENT OFFICE.

EDWARD A. TVERDAHL, OF COSHOCTON, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES W. BURROWS, OF COSHOCTON, OHIO.

CHILL-MOLD.

No. 882,507.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed April 30, 1907. Serial No. 371,123.

To all whom it may concern:

Be it known that I, EDWARD A. TVERDAHL, a citizen of the United States, residing at Coshocton, in the county of Coshocton and State of Ohio, have invented certain new and useful Improvements in Chill-Molds, of which the following is a specification.

This invention relates to chill molds, and particularly to a chill for molding sash weights, although the invention may be applied to other articles if so desired.

The sash weights or other articles are cast in steel tubes of proper size, cooled or chilled by water, and improved means are provided for connecting or molding in an eye at the end of the sash weight, when the weight is cast.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a front elevation of the chill. Fig. 2 is a side elevation thereof. Fig. 3 is a top view, with the sprue plate removed. Fig. 4 is a plan of the sprue plate. Fig. 5 is a bottom view of the chill. Fig. 6 is a vertical section of the chill on the line 6—6 of Fig. 2. Fig. 7 is a view of the sash weight produced.

Referring specifically to the drawings, the rectangular cast iron frame *a*, together with the side plates *b* attached by screws thereto, and the top plate *e*, form the water jacket. Trunnions *c* are cast on the frame *a*, and may be supported by any ordinary floor stand or shaft hanger so that the chill can be revolved or turned upside down if desired. The inlet *d* and outlet *d'* permit the circulation of water through the chill, which is water-tight.

Within the chill box or casing as above described, are tubes *h*, made of seamless steel and reamed with a slight taper. They are threaded on the outside at the upper end and screwed into holes in the top plate *e*, and are threaded on the inside at the lower end to receive screw plugs *k*. The length and diameter of the tubes *h* are governed by the size of the sash weight required.

The steel plugs *k* are bored through their entire length to permit the placing of round wrought iron pins *q* which afterwards are bent to form the eyes of the sash weights. The plugs are counter-sunk at the upper end to give the sash weights a conical head, and on the lower end the plugs are turned down

and passed through properly drilled holes in the frame *a* and are threaded to receive cast iron washers *i*, which, as well as the frame *a*, are counter-sunk to receive packing at *r*. The lower ends of the shanks are threaded to receive the nuts *o*, and coiled springs *m* are placed between the nuts and the washers. The object of these springs is to take up expansion and contraction due to the variable temperature, and the nuts *o* furnish a means of regulating the pressure on the packing between the washers and the frame.

Rods or pin supports *l* extend through the bore of the plugs *k*, and are looped at the lower end, and the upper ends of the loops are caught against the threads of the plungers *k*, just below the nuts *o*, whereby the rods support themselves, and also support the eye pins *q* referred to.

The cast iron sprue plate *f* forms a grate for each tube *h*. This plate is machined or counter-sunk on the under side, at the gates, so as to give the sash weights a rounded end, and the sprue plate is also counter-sunk on the upper side so that when the tubes and sprue are poured full of metal it will give the sash weights heads by means of which they can be drawn from the tubes with the sprue plate, from which they are afterwards detached. Tongs *i* are arranged to engage holes in the end of the sprue plate to lift the same. The plate is guided to its proper position on the top plate *e* by means of the dowel pins *g*.

In order to strengthen and stiffen the tubes *h*, cast iron rings or flanges *s* are placed thereon at intervals of a few inches, and steel rods *t* are run through the flanges and fixed thereon. This forms a truss which strengthens and stiffens the tubes.

The object of the revolving chill, or of constructing it so that it can be revolved or turned upside down, is that in the event that a tube is only partially filled and the weight cannot be drawn by the sprue plate, the chill may be inverted and the weight pushed out.

In the use of the mold, the eye pins *q* are set in place and the metal is then poured, sufficient to fill the tubes and the gates. The water is then admitted to the jacket to chill the mold, after which the sash weights can be drawn by lifting the sprue plate. After the weights are drawn and detached the rods *q* are bent to form the eyes.

I claim:

1. The combination with a chill casing, and a tube therein, of a plug extending through the casing and into the end of the
5 tube, said plug having a bore adapted to hold an insert for the casting, and a rod extending into the bore from the exterior of the casing, to support the insert.

2. The combination with a chill casing,
10 and a tube therein, of a plug extending through the wall of the casing and into the end of the tube, a packing washer and a nut on the plug, and a spring between the nut and washer.

15 3. A mold comprising a jacket having trunnions whereby it may be inverted, and a

tube therein opening at one end through one side of the jacket, and a plug fitting in the other end of the tube and extending through the opposite side of the jacket, said plug hav- 20 ing a longitudinal bore and a removable rod therein.

4. A mold comprising a water jacket, and a tube therein having strengthening plates around the same and rods extending through 25 said plates.

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

EDWARD A. TVERDAHL.

Witnesses:

J. TORRENS STEWART,
LEVI WILLIAMS.