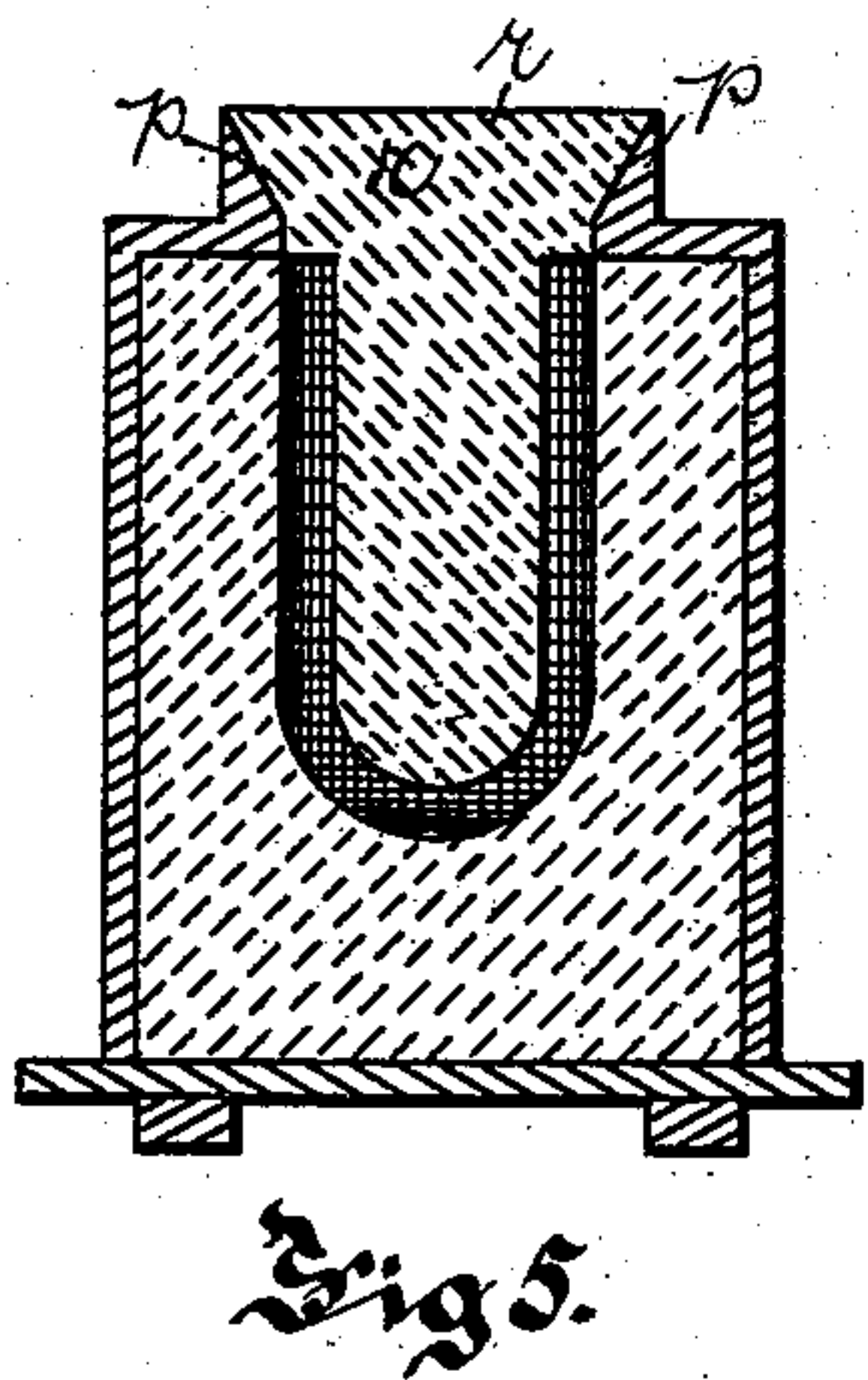
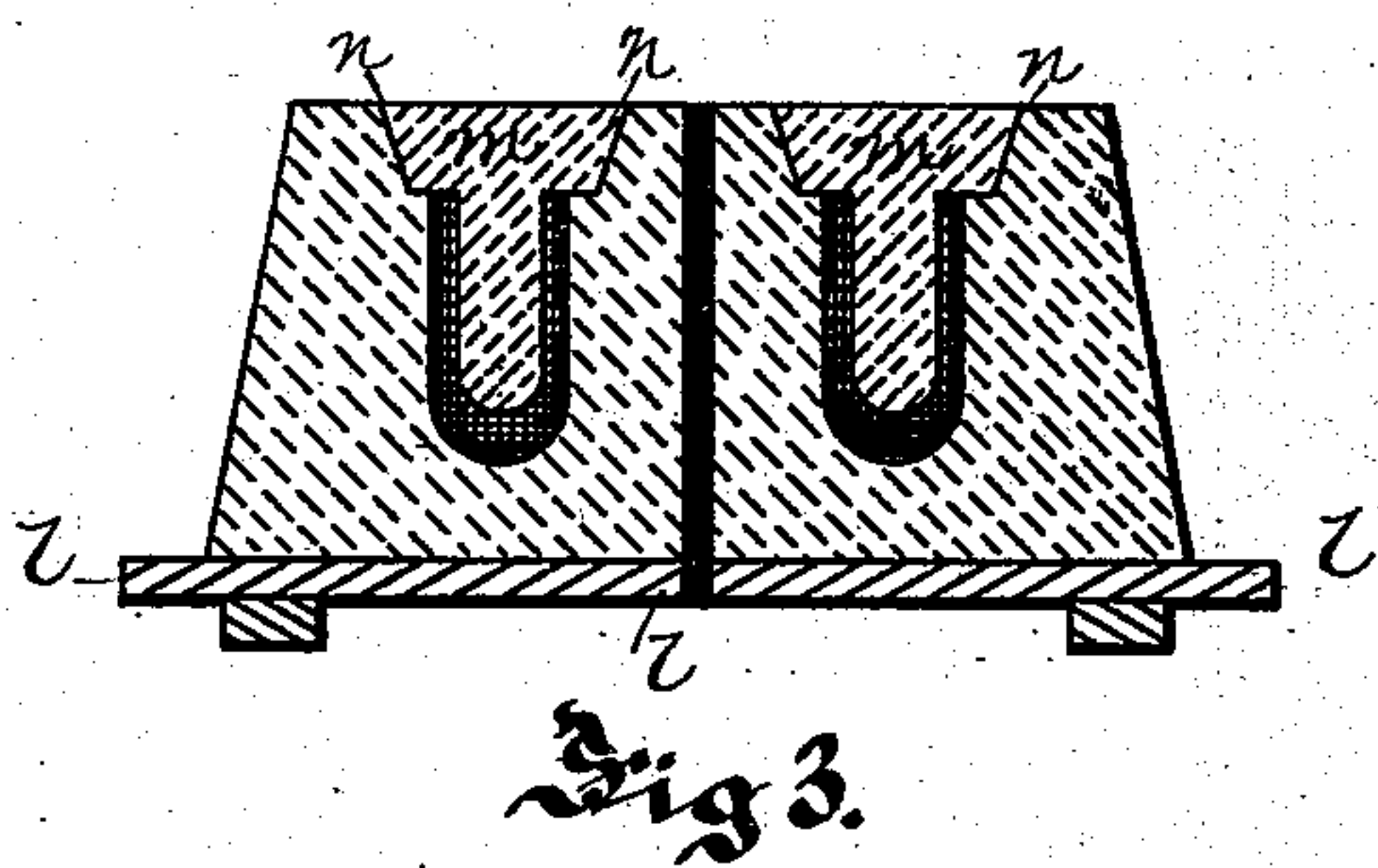
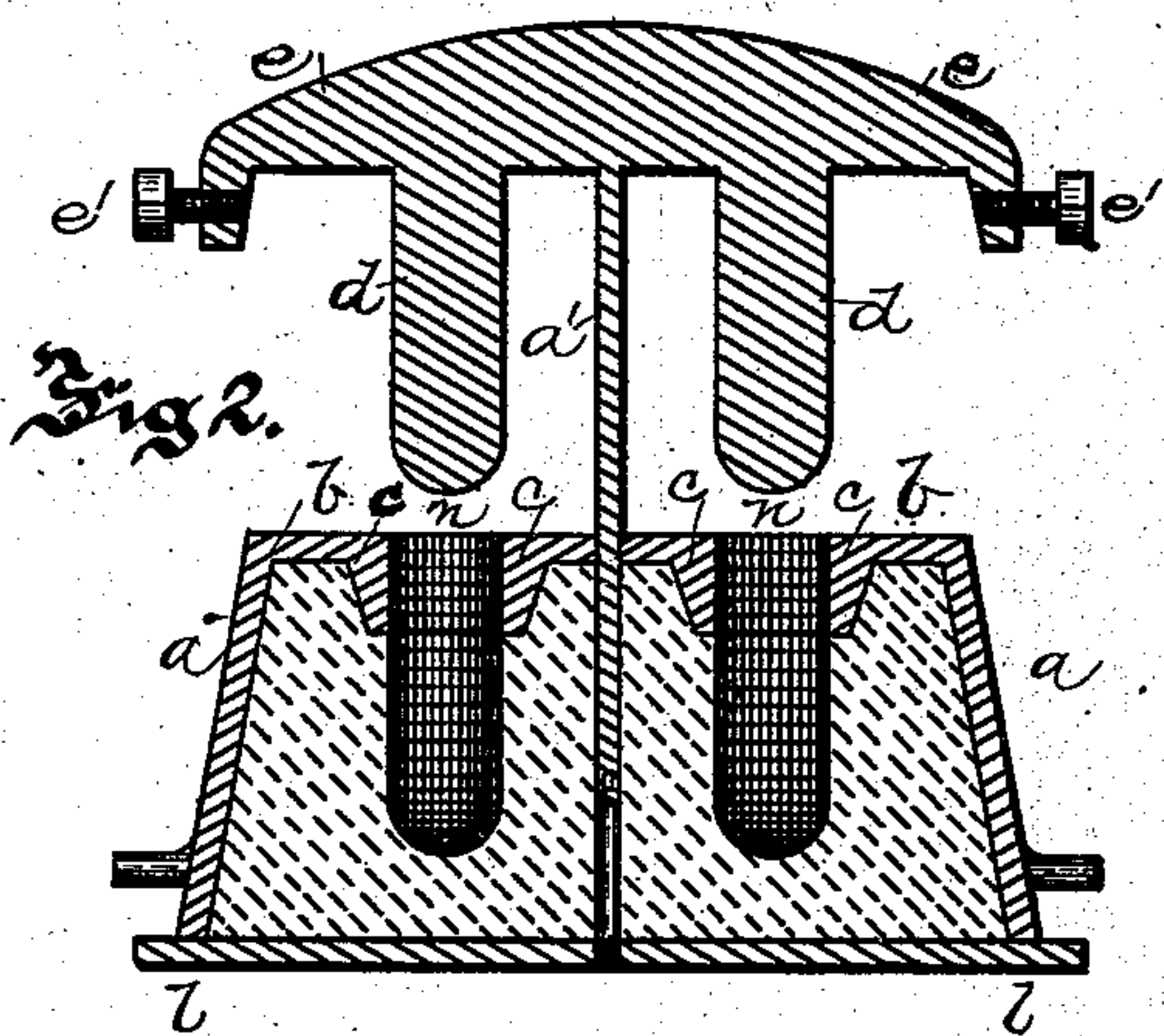
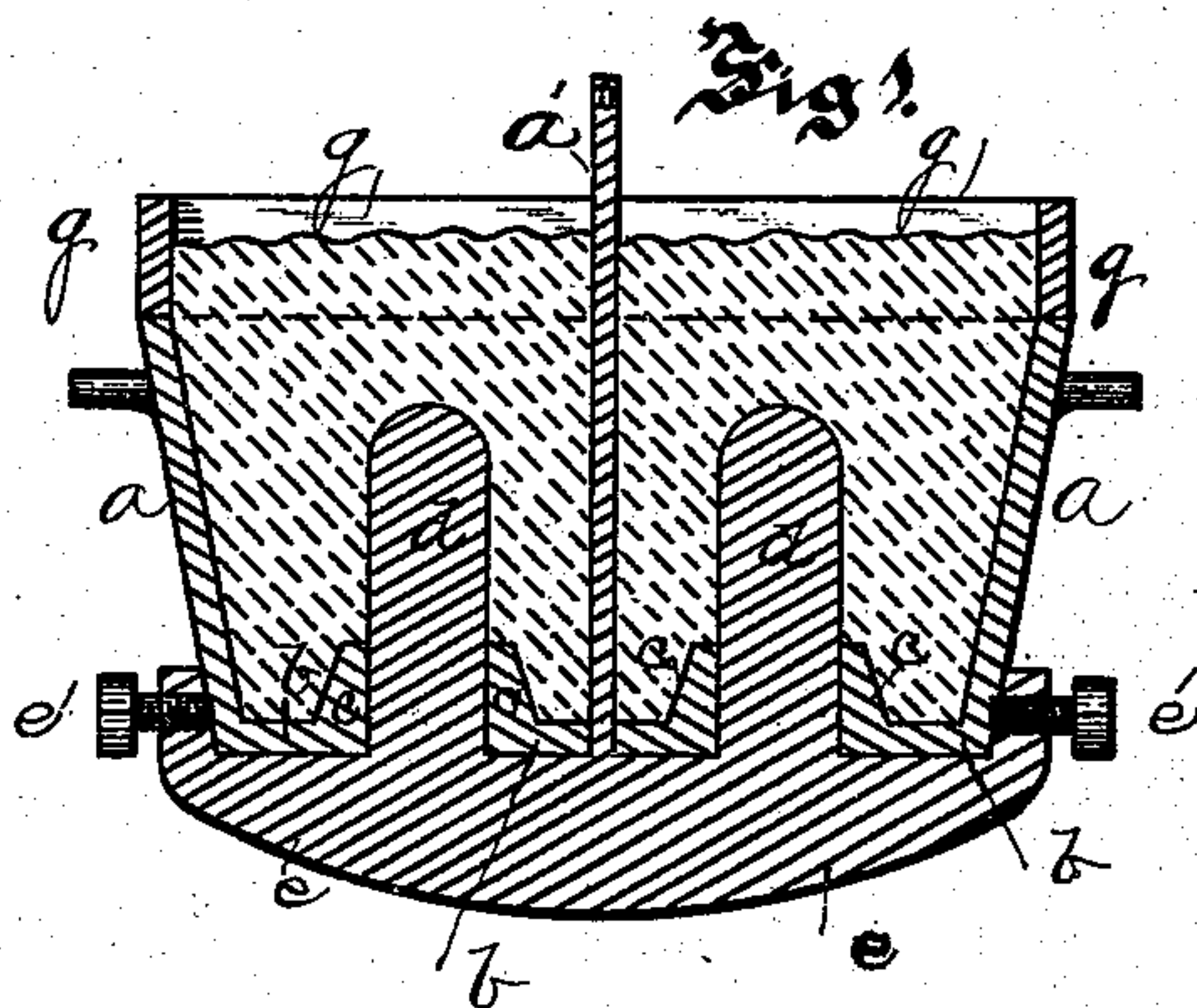
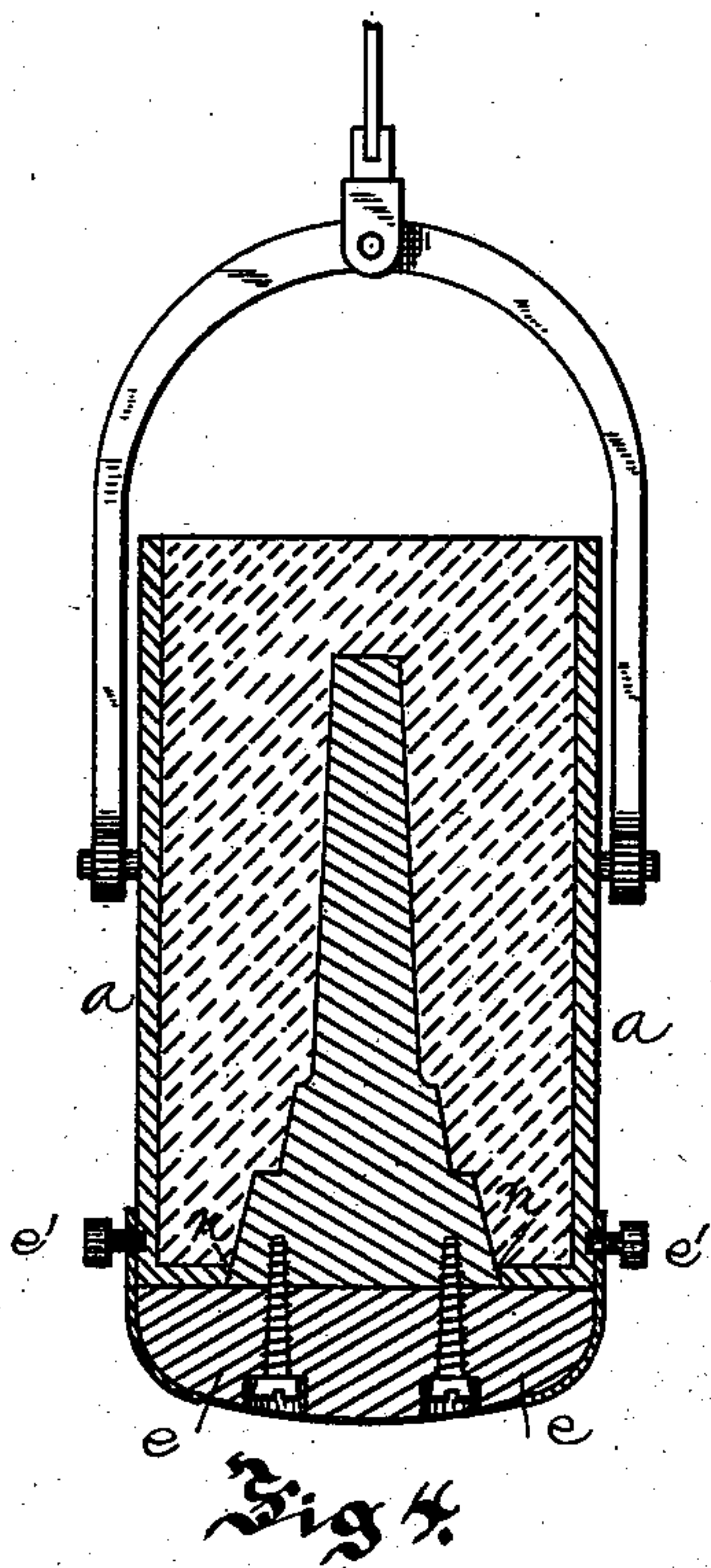


(No Model.)

S. J. ADAMS.
SAND MOLDING APPARATUS.

No. 377,008.

Patented Jan. 31, 1888.



Witnesses:

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UNITED STATES PATENT OFFICE.

S. JARVIS ADAMS, OF PITTSBURG, PENNSYLVANIA.

SAND-MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 377,008, dated January 31, 1888.

Application filed March 31, 1887. Serial No. 233,101. (No model.)

To all whom it may concern:

Be it known that I, S. JARVIS ADAMS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Sand-Molding Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the formation of sand molds, its object being to provide a flask for forming said molds wherein the principle parts are, during the formation of the mold, firmly secured together, and the sand mold, when the patterns are removed therefrom, is so supported as to prevent the formation of ragged edges or the sticking of any portion of sand to the pattern, where it might act to form imperfect molds, having also the further object to support the patterns not only by the securing device by means of which the patterns are secured to the flask, but by means of the stripping plate or support extending across the base of the flask in such manner as to support each individual pattern.

To these ends it consists, generally, in the combination, with the flask, of a stripping-plate formed with or permanently secured to the flask and patterns extending through the stripping-plate.

It also consists in forming through this stripping-plate the core prints or seats for the reception of the heads of the cores which enter the patterns formed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a flask containing patterns and illustrating my invention. Fig. 2 is a like view showing the manner of withdrawing the patterns from the flask. Fig. 3 is a like view of a mold finished ready for casting; and Figs. 4 and 5 are like views of other forms of my invention, illustrating the manner in which it may be employed.

The flasks shown in Figs. 1, 2, and 3 are such as are generally employed in forming molds by the jarring process in the apparatus shown in application for Letters Patent filed by me February 9, 1886, No. 191,323, the flask, with

the patterns, being raised through the medium of a rod, *a'*, which is connected to a reciprocating rod operated from above, the flask being dropped upon a stationary block to impart the jar to it.

The flask *a* has formed with it or permanently secured thereto the stripping-plate *b*, this plate extending across the base of the flask and having openings formed therein, through which the pattern or patterns extend, the openings in the stripping-plate fitting neatly around the patterns; and, if desired, as shown in the drawings, the stripping-plate having the patterns *c* formed thereon to mold the seats or cope-prints for centering the core-heads of the cores within the same. The patterns *d* are secured to the pattern plate or block *e*, this block in said molding apparatus being secured by means of set-screws *e'* or other such devices to the flask, and the block forming the curved base to the combined flask and pattern to receive the jars in the formation of the mold. Where, however, the molds are formed on the ordinary reciprocating jarring-table, as covered in patents heretofore granted to me, this block or plate *e* may be made flat and rest directly upon the jarring-table, and in such case the stripping-plate *b* acts to hold the patterns and the flask in proper relative line. At the same time when the flask is inverted after the formation of the mold, and while the patterns remain within the mold, this stripping-plate holds the patterns in line and prevents their sagging so as to press against the walls of the mold formed and injure it.

In forming molds with this apparatus the patterns are inserted within the mold, and where the jarring apparatus described in my said application is employed the pattern plate or block is secured to the flask; the reservoir *g* placed on the flask, a proper amount of sand fed thereto, and the apparatus secured to the reciprocating rod of the jarring apparatus, the flask, with its patterns and the sand contained therein, being raised and dropped upon the jarring-block, so compacting the sand. The rod *a'* is then disconnected from the reciprocating rod, the reservoir removed, and, if desired, the patterns dropped out of the flask, this being accomplished by loosening the con-

nection between the pattern-plate *e* and the flask and permitting the patterns to drop through the same, the rod *a'*, which is preferably connected to the base-plate, acting as a further guide to the patterns as they drop out of the mold. A suitable bottom board, *l*, is then placed upon the flask, and the flask containing the mold inverted, and the flask lifted off the mold by any suitable means, leaving the finished mold ready for the reception of the cores *m*, which fit within the seats *n*, formed for them by the patterns *c*, secured to the stripping-plates, the molds being then ready for casting. During this operation the stripping-plate formed with or permanently secured to the flask acts to hold the patterns and the flask in proper relative position and assists in guiding the patterns out of the flask, supporting the sand as the patterns are withdrawn; and in case the flask is inverted when the patterns remain therein the stripping-plate prevents the sagging of the patterns and the injury of the mold thereby.

In Fig. 4 my invention is illustrated in molds where the seat *n* for the cope-print is formed by the main pattern, the patterns for the cope-print being thus made separate from the stripping-plate, which is formed with or permanently secured to the flask; and in this case the stripping-plate supports the pattern and holds it in proper line with the flask, as above described, acting also to guide the pattern during the first part of its removal from the mold, which is the most difficult part, the stripping-plate also supporting the sand as the pattern is withdrawn.

In Fig. 5 another form of my invention is illustrated, in which the seat for the cope-print forms part of the stripping-plate, a metal seat for the cope-print being thus provided, in which the relative position of the core and mold depends not upon the seat formed in the sand, but upon a perfect seat formed in the stripping-plate. In this case a flaring or other shaped seat, *p*, is formed on the outer face of the stripping-plate, and the pattern conforms to this seat when it

is placed within the flask, the pattern being secured to the flask by set-screws, as above described, during the molding operation. After the mold is formed, the pattern is withdrawn, exposing the metal seat *p* formed by the stripping-plate for the reception of the cope-print *r* of the core. When this form of seat is employed, it is of course necessary that the flask remain around the mold during casting; but this is desirable in heavy work, and the metal seat insures a more perfect fitting of the core within the mold-cavity.

By my invention I am thus enabled to center and support the pattern within the flask during the molding operation and to support the sand while the pattern is withdrawn by means of part of the flask which is not liable to any movement whatever, even with heavy and rough wear. I am also enabled to retain the parts in the exact position desired, and at the same time to employ different shapes of patterns with the same flask, which could not be accomplished where the patterns and the pattern-plate are formed permanent with the flask itself.

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

1. In sand-molding apparatus, the combination of the flask, the stripping-plate formed with or permanently secured to the flask, and the pattern extending through the stripping-plate into the flask, substantially as and for the purposes set forth.

2. In sand-molding apparatus, the combination of the flask, the stripping-plate formed with or permanently secured to the flask and adapted to form the seat or cope-print for the core-head of the core, and the pattern extending through the stripping-plate in the flask, substantially as and for the purposes set forth.

In testimony whereof I, the said S. JARVIS ADAMS, have hereunto set my hand.

S. JARVIS ADAMS.

Witnesses:

JAMES I. KAY,

J. NEGLEY COOKE.