

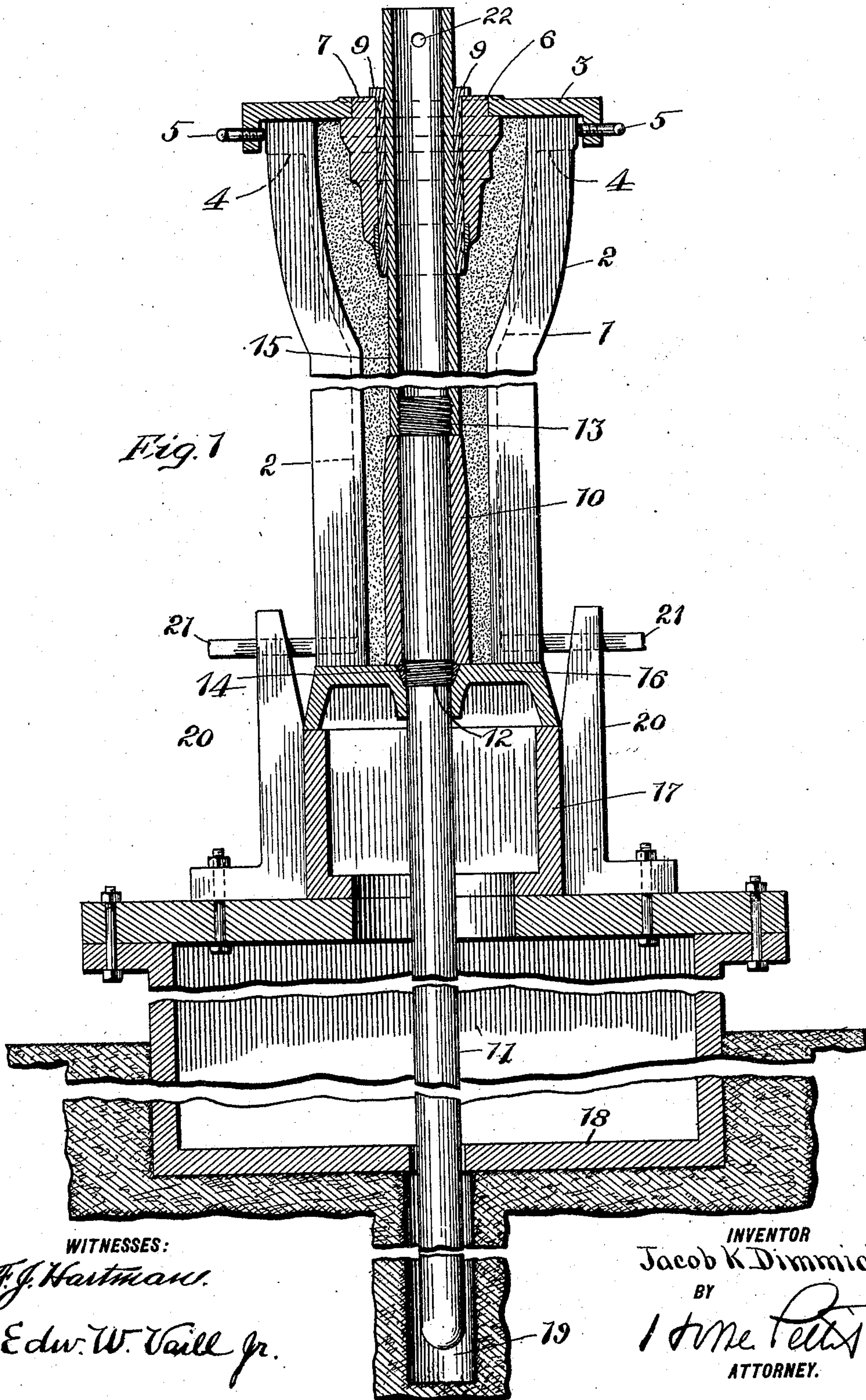
No. 806,329.

PATENTED DEC. 5, 1905.

J. K. DIMMICK.  
APPARATUS FOR FORMING PIPE MOLDS.

APPLICATION FILED MAY 10, 1904.

2 SHEETS—SHEET 1.





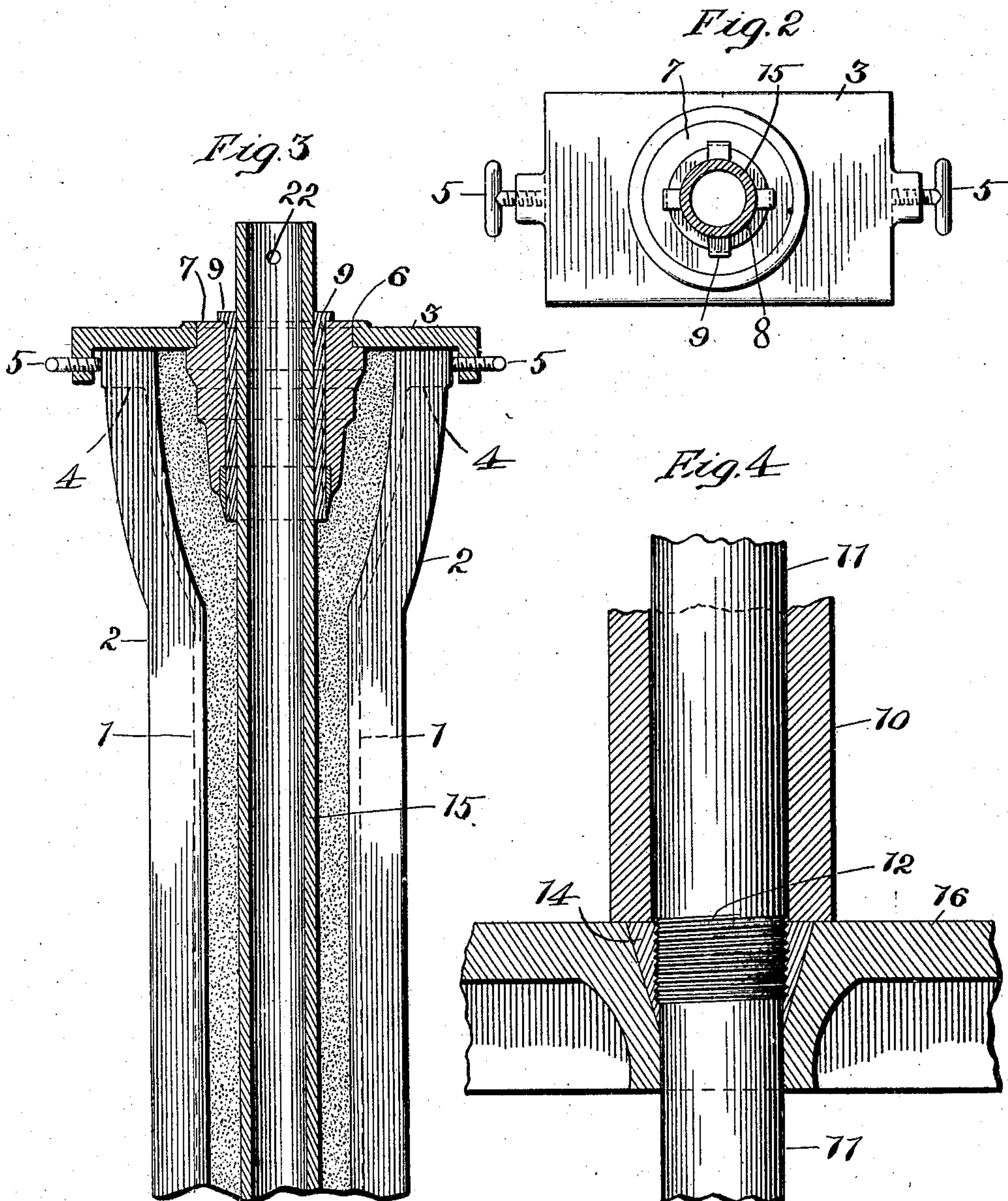
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

JACOB K. DIMMICK, OF PHILADELPHIA, PENNSYLVANIA.

## APPARATUS FOR FORMING PIPE-MOLDS.

No. 806,329.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed May 10, 1904. Serial No. 207,199.

*To all whom it may concern:*

Be it known that I, JACOB K. DIMMICK, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Forming Pipe-Molds, of which the following is a full, clear, and complete disclosure.

My invention relates to certain improvements in that class of pipe-molds in which the molding-sand is rammed or compressed by drawing through the same a tapering former or pattern; and the object thereof is to improve the construction, so that said pattern operates more easily, efficiently, and accurately than has heretofore been possible.

Briefly, my invention comprises a pattern or former which is longitudinally movable within the pipe mold or flask, said former having attached thereto guides which prevent transverse movement of the former while being drawn through the sand to ram the same into the requisite density to form the mold.

My invention also comprises a casing or support for the mold such that space for the extension of the former may be provided without interfering with the ease and efficiency of operation of the apparatus.

My invention also comprises a particular construction of the former and its guides.

For a full, clear, and exact description of this form of my invention reference may be had to the following specification and to the accompanying drawings, in which—

Figure 1 shows a vertical longitudinal sectional view of my improved apparatus; Fig. 2, a plan view of the upper end of the flask; Fig. 3, a view showing the upper portion of the flask and the tubular portion of the former or pattern in section; and Fig. 4, a sectional view of the lower end of the former, showing the details of construction.

Referring to said drawings, the numeral 1 represents one-half of a two-part flask, said parts being placed together along longitudinal edges and being held in position by means of flanges 2, which are engaged by any suitable or well-known form of clamp. The upper ends of the parts of the flask are provided with a plate or cover 3, which is adapted to rest upon semicircular flanges 4, said cover 3 being attached to said parts by means of hand-screws or other suitable devices 5. The plate

3 has a central circular aperture 6, which is adapted to receive and hold in place the upper end of the bell pattern 7, which gives the mold the shape of the upper enlarged end of the pipe. The bell pattern 7 is provided with a central opening 8, which has a series of internal grooves or ways which are adapted to receive wedges or keys 9 when said bell pattern is in position and when holding the former or rammer in position. These means for holding the upper end of the guide in position are similar to those described and claimed in my pending applications, Serial Nos. 197,559 and 197,560, filed March 10, 1904.

The former or rammer comprises a tapering sleeve or bushing 10, which is carried upon the upper end of a guide 11, which in this instance is shown as being a rod. Said rod is provided with two screw-threaded portions 12 and 13, the lower screw-threaded portion 12 being adapted to receive a conical nut 14, while the upper screw-threaded portion 13 is adapted to engage an interiorly-screw-threaded tube 15, which in cooperation with a conical nut 14 holds the tapering bushing 10 in position.

The guide or rod 11 when in position in the flask projects downwardly through an opening in the chill-plate 16, which is tapered at one end to receive the conical nut 14. The tapering portion of the opening in the chill-plate 16 not only serves as a recess for the tapering nut 14, but also serves as a means for centering the core when in position within the flask. This construction obviates the necessity of substituting a separate chill-plate after the mold has been formed, as has been necessary when the guide 11 has been the same size as the sleeve 10. This feature of using the same chill-plate for centering both the former or rammer and the core is a material advantage in this form of device, where a downwardly-projecting guide is used. The chill-plate 16 rests upon a suitable frame or foundation 17, the lower portion of which comprises a casing 18, which is adapted to enter the ground, so as to form a chamber which in height is preferably approximately one-half of the length of the pipe to be molded. The guide 11 may also extend through an opening in the bottom of this chamber and into a hole 19 in the ground, so that said guide 11 is approximately the same length as the tubular



guide 15, whose length is slightly greater than that of the flask or of the pipe to be molded.

It is obvious that series of formers may be placed upon a single chamber and attached to the same foundation or base, in which case the chill-plates 16 for each former would be made continuous and the semicylindrical parts of the flask for each former would also be made integral.

As means for holding the flask in position upon the chill-plate I provide vertical supports or posts 20, which have openings adjacent their upper ends through which pass suitable keys or bars 21. These bars are adapted to engage and bear upon the lower flanges of the semicircular portions of the flask 1.

In the use of my device for forming the molds preparatory to casting the pipes the parts of the flask are placed in position upon the chill-plates and the guide 11 inserted through the chill-plates, so that the tapering sleeve 10 will be at the lower portion of the flask and, as shown in Fig. 1, the tubular portion 14 projecting slightly from the upper end thereof. After the parts of the flask have been clamped together molding-sand is placed in the flask about the tapering sleeve 10 and rammed in position. The flask is then filled with sand to a point adjacent the upper end, so as to support the bell pattern 7 when the same is placed in position about the tubular guide 15. More molding-sand is then placed between the bell pattern and the sides of the flask and rammed in position, the keys 9 having been previously inserted to give the correct position of the bell pattern 7 in relation to the guide 15. The cover 3 is then placed in position over the end of the flask, so that the central aperture end therein engages the upper end of the bell pattern 7. The parts are now in the position to have the former withdrawn. This is done by any suitable lifting device, as by inserting a hook of a crane in openings 22 in the upper end of the guide. As the tapering portion 10 comes adjacent to the bell pattern 7 its upper end will engage the keys 9, and as said tapering portion passes through the bell pattern the keys will be removed, so that said tapering portion can emerge from the top of the flask without disturbing or being stopped by the bell pattern. As the tapering sleeve 10 emerges from the top of the flask the lower end of the guide 11 will leave the chill-plate 16, and as it is not necessary to further guide the parts being removed both the guides 11 and 15, with the sleeve 10, may be entirely withdrawn from the flask without injuring the mold or displacing the sand.

As is usual in this class of apparatus, the tapering sleeve 10 is made of such a shape that the amount of compression given to the sand as the sleeve passes through the sand in

its upward movement is substantially that required in the ordinary manner of ramming molding-sand.

I do not wish to be limited to the exact details and arrangement of parts herein set forth, for changes may be made therein without departing from the spirit and scope of my invention; but

What I claim, and desire to protect by Letters Patent of the United States, is—

1. The combination with a flask, of a former therefor, comprising a tapering portion, guides extending from said tapering portion, said guides being of smaller diameter than said tapering portion, the lower guide being adapted to pass through an opening in the chill-plate, and being of a length substantially equal to that of the flask.

2. The combination with a flask, of a former therefor, comprising a tapering portion, guides extending from said tapering portion, the lower of said guides being of smaller diameter than said tapering portion, and adapted to pass through an opening in the chill-plate, said opening being of a size smaller than the pipe-core, whereby the same chill-plate may be used in connection with the guide and with the core.

3. The combination with a flask, of a former therefor, comprising a tapering portion, guides extending from said tapering portion, the lower guide being of a diameter smaller than the diameter of the pipe-core, and terminating adjacent the tapering portion in a conical projection, which is substantially the shape of the lower end of the pipe-core, said lower guide being adapted to pass through an opening in the chill-plate whereby the same chill-plate may be used in forming the mold and when the core is in position.

4. The combination with a flask, of a former therefor, comprising two cylindrical guides having an enlarged central portion which is tapering, the lower guide being adapted to pass through an opening in the chill-plate, and the upper guide being adapted to pass through the bell pattern, and means for centering said guide in the bell pattern, and for allowing the enlarged portion to pass therethrough.

5. The combination with a flask, of a former therefor, comprising a central tapering portion, a tubular guide extending from the upper end of said tapering portion, a cylindrical guide extending from the lower end of said tapering portion, a permanent chill-plate having an opening for centering said cylindrical guide and removable means for centering said tubular guide.

6. The combination with a flask, of a former therefor, comprising a rod having screw-threaded portions adjacent its upper end, a tube connected with said rod by one of said screw-threaded portions, a tapering sleeve

carried by said rod, and a tapering nut engaging with the other of said screw-threaded portions to hold said sleeve in position, said rod being adapted to pass through an opening in the chill-plate of the flask, and said nut being adapted to be seated in a tapering portion of said opening, said chill-plate being adapted to guide the rod of the former

or rammer, and also to serve as a seat for the pipe-core.

In witness whereof I have hereunto set my hand this 28th day of April, A. D. 1904.

JACOB K. DIMMICK.

Witnesses:

EDW. W. VAILL, Jr.,

ELEANOR T. McCALL.