No. 828,601. PATENTED AUG. 14, 1906.

J. K. DIMMICK.

APPARATUS FOR FORMING PIPE MOLDS.

APPLICATION FILED MAR. 10, 1904.

Fig. 1

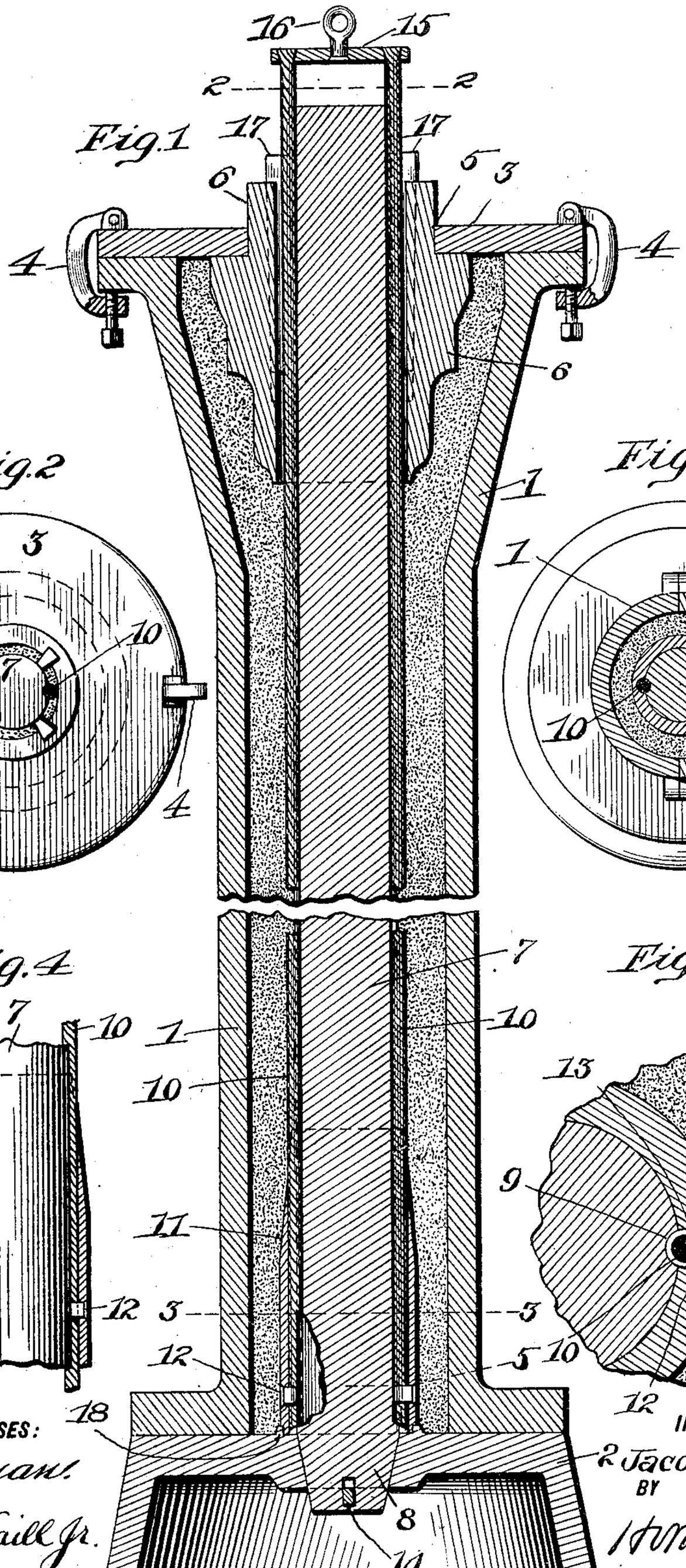


Fig. 2

Fig. 3

Fig. 4

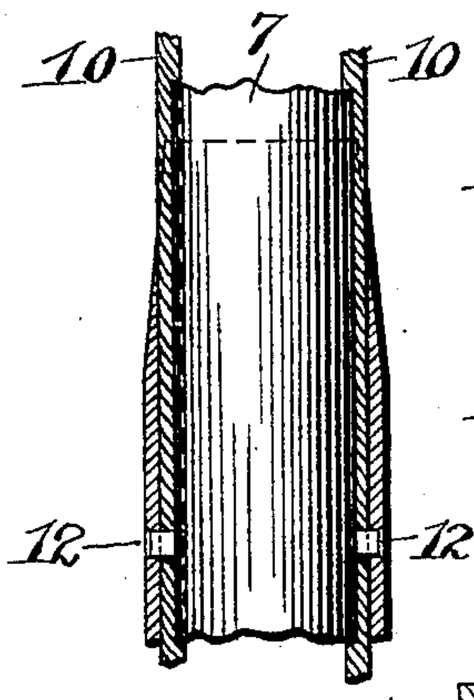
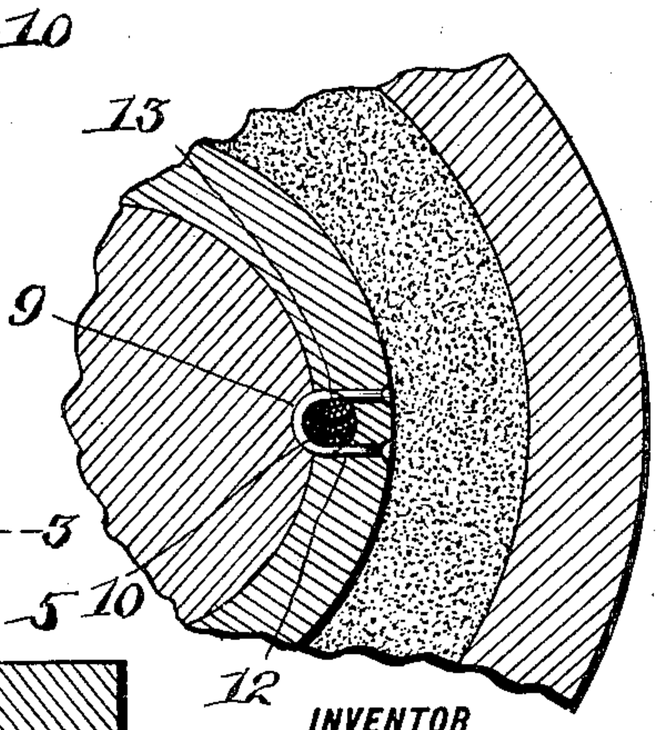


Fig. 5



WITNESSES:

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APPARATUS FOR FORMING PIPE-MOLDS.

No. 828,601. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed March 10, 1904. Serial No. 197,559.

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 the said pattern operates more easily, efficiently, and accurately, while at the same time less space is required for manipulation than heretofore.

Briefly, my invention comprises a pattern or former which is longitudinally movable within the pipe-mold and is provided with an accurately and firmly placed guide which holds said former in position within the mold or flask during the entire operation of the pattern or former.

For a full, clear, and exact description of one form of my invention reference may be had to the following specification, and to the accompanying drawings, forming part thereof, in which Figure 1 is a vertical longitudinal sectional view of a flask having my improved former or pattern in position therein; Fig. 2, a top plan view, on a reduced scale, of the same, partly in section, taken on the line 2 2, Fig. 1; Fig. 3, a transverse sectional view, on a reduced scale, taken substantially upon the line 3 3, Fig. 1; Fig. 4, a detail view showing the lower end of the former or pattern and its guide, together with the means for moving the former or pattern longitudinally thereon; Fig. 5, a partial transverse sectional view, on an enlarged scale, taken substantially on the line 5, Fig. 1, and showing the manner of attaching the means for moving the former longitudinally to the former itself.

The device of this application is an improvement over those of my prior patents, No. 317,101, issued May 5, 1885, and No. 683,255, issued September 24, 1901, and while retaining all the advantages of the constructions set forth in said patents I obtain certain other advantages hereinafter to be clearly pointed out and claimed.

Referring to the drawings, the numeral 1 indicates a cylindrical flask which is preferably made in two longitudinal sections hinged together at one of their meeting edges and secured by means of removable clamps at the other, so that it may be readily opened when it is desired to remove the mold after casting. This construction is well known in this art, and hence does not need a specific description.

The numeral 2 indicates a base or standard upon which the flask rests during the forming and casting operations and to which the flask is secured by any well-known or suitable clamps.

3 indicates a top plate which is also secured to the upper end of the flask 1 by means of removable clamps, such as indicated at 4. The plate 3 has a central circular aperture 5, which is adapted to receive and hold in place the upper end of the bell-pattern 6, which gives the mold the shape of the upper enlarged end of the pipe.

The parts just described are substantially those set forth in my prior patent, No. 683,255, issued September 24, 1901, and operate in substantially the same way.

The improvement herein contained is comprised in providing a guide and former or rammer which has a central cylindrical longitudinal guide 7, which is provided at its lower end with a tapering portion 8, adapted to fit within a tapering opening or recess in the base 2, which accurately centers and holds said guide in position. The base 2 may also be provided with lugs or a flange 18, which aid in centering the sleeve 11 and also the guide 7. At diametrically opposite points in this cylindrical guide I provide semicircular grooves 9, within which wire ropes 10 or similar connecting devices are adapted to fit. The ropes 10 are adapted at their lower end to a longitudinally-slidable tapering sleeve 11, and the means for attaching said ropes to said sleeve may consist of any well-known device; but I have shown the same as comprising strips 12, which pass through openings in said sleeve 11 after engaging notches or recesses in said ropes 10 and which are riveted in said openings in the sleeve 11, as clearly indicated in Fig. 5. The sleeve 10 is of course provided with semicircular grooves 13, corresponding to the semicircular grooves 9 in the cylindrical guide 7,

and which form passage-ways for the ropes 10 between said sleeve and said guide. The upper ends of the ropes 10 are connected by a yoke 15, which is provided with a suitable eye 16 or similar means for engaging a hook or other device for centering the said yoke with suitable means for giving a longitudinal pull up on said ropes 10. The lower end of the cylindrical guide 7 is preferably provided with a slot-and-pin device 14 for holding the same within the recess in the base 2.

The upper end of the cylindrical guide 7 is held in position centrally in the flask 1 by means of wedges or tapering pins 17, which are adapted to engage corresponding grooves in the bell-pattern 6, said bell-pattern having a sufficient internal diameter to allow the tapering sleeve 11 to be easily drawn therethrough.

In the use of my device for forming the molds preparatory to casting the pipes the cylindrical guide 7, having the tapering sleeve 11 located at its lower end, is first placed within the mold with its lower tapering ends within the recess or opening in the base 2. Molding-sand is then placed about said sleeve and guide, so that the flask is substantially filled by the same. The bell-pattern 6 is then placed in position by being forced downwardly about the guide 7, and the wedges 17 are then inserted between the said guide 7 and bell-pattern 6, after which the molding-sand between the bell-pattern and flask is then rammed to the required density in the usual manner. The plate 3 is then placed in position upon the end of the flask 1 and about the cylindrical portion of the bell-pattern 6. When in these positions the parts are ready to have the former pattern withdrawn. This is accomplished by attaching the hook of a crane or other suitable draft means to the eye 16, and thereby exerting a pull upon the ropes 10. This will cause the tapering sleeve 11 to be drawn upwardly about the cylindrical guide 7, which will at the same time compress the molding-sand between the interior of the flask and the cylindrical guide to the required density, the proportion between the interior of diameter of the cylindrical guide 11 and exterior diameter thereof being in a direct proportion to the amount of compression or ramming desired to be given to the molding-sand. When the cylindrical sleeve 11 enters the opening in the bell-pattern 6, the same will come in contact with the wedges or pins 17, and as the motion is continued said pins will be ejected from said pattern, and the sleeve 11 may therefore be entirely removed. The bell-pattern and guides 7 are then removed and the core placed in position in place of the cylindrical guide 7. For the plate 3 a suitable cover or top having a gate therein is substituted, and the pipe is then cast in the well-known manner.

It is obvious that in place of the wire ropes 10 I may use rods or other suitable connecting means; but I preferably use connecting means which are flexible. Also other means may be used for centering the cylindrical guide within the flask, the essential characteristics being that the said means may allow the cylindrical sleeve to be removed without disturbing the cylindrical guide and also to allow the said cylindrical guide to be removed.

Furthermore, I do not wish to be limited to the exact detail 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 guide removably held therein, a short tapering sleeve carried by said guide and means connected with said sleeve and leaving uncovered the main body of said guide for moving said sleeve longitudinally thereof.

2. The combination with a flask of a guide removably held therein, a short tapering sleeve carried by said guide and means connected with said sleeve and sunk into the surface of said guide longitudinally for moving said sleeve on said guide.

3. The combination with a flask, a removable guide therein, means adjacent each end of said guide for fixing the same in position, a tapering sleeve carried by said guide, means for moving said sleeve longitudinally of said guide, the means for fixing the guide in position at the upper end of said flask being removed as said sleeve contacts therewith.

4. The combination with a flask, a central longitudinal guide removably fixed therein, a tapering sleeve carried by said guide, removable means for fixing said guide in position at its upper end, means for moving said sleeve longitudinally of said guide and for removing said means for fixing said guide in position at its upper end.

5. In combination with a flask, a longitudinal guide fixed therein, a tapering sleeve carried by said guide, wedges or pins for fixing said guide in position at its upper end, means for moving said sleeve longitudinally of said guide and for removing said pins or wedges.

6. In combination with a flask, a central longitudinal guide therein, a tapering sleeve carried by said guide there being corresponding grooves in said guide and sleeve, and means lying in said grooves and connected to said sleeve for moving the same longitudinally of said guide.

7. The combination with a flask, a central, longitudinal guide therein, a tapering sleeve carried by said guide, there being corresponding grooves in said guide and sleeve and flexi-

ble connections located in said grooves and connected to said sleeve for drawing the latter longitudinally of said guide.

8. The combination with a flask, a longitudinal guide therein, a tapering sleeve carried by said guide there being corresponding grooves in said guide and sleeve, and wire ropes retained in said grooves and connected to said sleeve for moving said sleeve longitudinally of said guide.

In witness whereof I have hereunto set my hand this 8th day of March, A. D. 1904.

JACOB K. DIMMICK.

Witnesses:

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