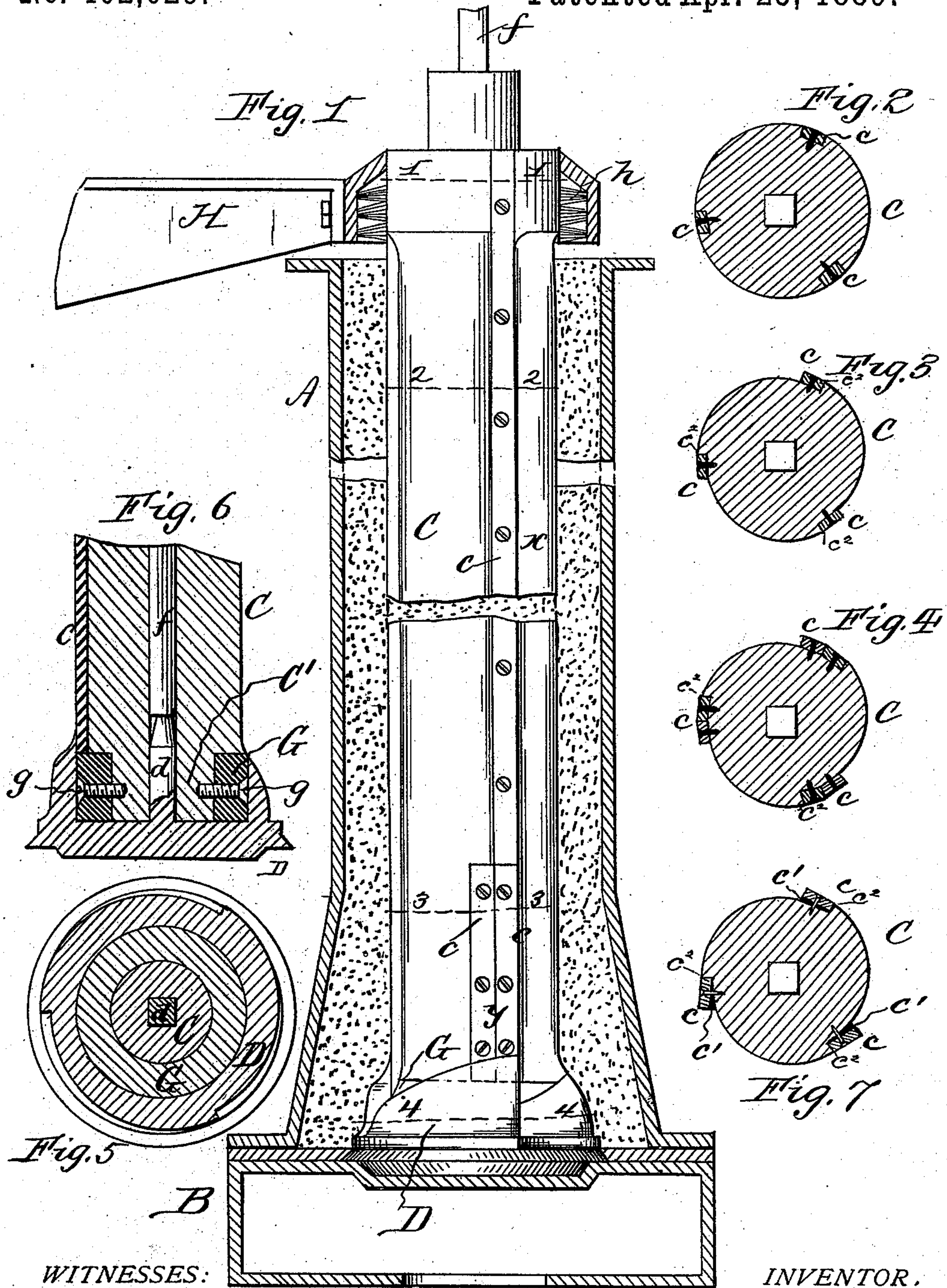


(Model.)

A. H. McNEAL & W. A. STINERUCK.  
FORMER FOR PIPE MOLDING APPARATUS.

No. 402,029.

Patented Apr. 23, 1889.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ANDREW H. MCNEAL AND WILLIAM A. STINERUCK, OF BURLINGTON,  
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## FORMER FOR PIPE-MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 402,029, dated April 23, 1889.

Application filed April 23, 1887. Serial No. 235,856. (Model.)

*To all whom it may concern:*

Be it known that we, ANDREW H. MCNEAL and WILLIAM A. STINERUCK, both of Burlington, in the county of Burlington and State of New Jersey, have invented a new and valuable Improvement in Formers for Pipe-Molding Apparatus; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Our invention has relation to molding apparatus for the manufacture of pipe or cylindrical castings of any kind of the form wherein a former having a pressing face or faces on its periphery is rotated within a stationary flask to compress the sand therein to the requisite form for receiving the core. These pressing-faces of the former have been made integral therewith, and as these pressing-faces rotate against and compress the sand in the flask they are subjected to so much friction that they rapidly wear away or deteriorate and soon become useless, which necessitates throwing the former away and replacing it by a new one. The wear of the pressing-faces is in practice so rapid that in many instances a new former is required every three or four days, and as these formers, with their integral pressing-faces, are expensive to make the cost of frequently replacing the worn-out formers with new ones adds greatly to the cost of manufacture.

Our invention has for its object to avoid said described objections, and to accomplish the same we make the pressing-faces of the former separate from it and secure the faces to it parallel to its axis and to each other and flush with the surface of the former, and extend them from top to bottom of the former, so that they are easily removable therefrom. When these removable pressing plates or surfaces are worn, they are removed and replaced by new ones without necessitating a new former every time new or fresh pressing faces or surfaces are required.

Our invention has for its further object to

provide such described construction of former with a sleeve or slicker for the lower end of the former, which slicker is separate from the former and removable therefrom to admit of its being easily and cheaply replaced when worn.

Our invention accordingly consists of the combination, construction, and arrangement of parts comprising a former for a pipe or cylinder molding apparatus of the form described, as hereinafter more fully set forth and claimed.

Reference being had to the accompanying drawings, Figure 1 is a vertical section, partly in elevation, of flask and former embodying our improvements, and Figs. 2, 3, 4, and 5 are sections on the lines 1 1, 2 2, 3 3, and 4 4, respectively. Fig. 6 is a vertical section of the lower part of former, slicker, and bell-mouth former; and Fig. 7 is a horizontal section of former, showing a packing under the faces.

A represents the stationary flask; B, the base-plate; C, the tubular rotating former having an angular bore and parallel pressing-faces  $c$ , the advance edges  $c^2$  of which are flush with its surface; and D, the lower end former for the bell-mouth, all of which are arranged for operation in the usual manner, except as hereinafter noted.

The angular shaft or rod  $f$  for the former C passes down through the bore of the same to near its bottom, as shown in Fig. 1. The lower end of the former C is reduced in diameter, or provided with a shouldered end,  $C'$ , (see Fig. 6,) upon which is mounted a slicker, G, suitably screwed or otherwise fastened to end  $C'$  by screws  $g$ , so as to be removable therefrom when worn out for replacement by a new slicker. Surrounding the slicker is the usual loose bell-mouth former, D, which, as shown, has an angular upwardly-projecting rod  $d$ , fitting the bore of the former, so as to rotate therewith.

The pressing-faces  $c$  of the former are made separate from it, and preferably extend from top to bottom, as indicated at  $x$ , Fig. 1, and are screwed or otherwise secured to the former, as shown, to admit of their removal when



worn out and replacement by new ones. These removable pressing-faces may be of chilled iron, steel, or other suitable material, and one or more plates, *c*, arranged parallel and contiguous to one another, may be used for each face, as indicated at *y*, Fig. 1. The object in having two pressing faces or plates on the lower part of the former is that the wear is greater near the bottom of the former than near the top and extends farther around its circumference, and therefore it needs a greater extent of protection.

To facilitate the former being used for different sizes and weight of pipe or cylinders, packing, *c'*, preferably of rubber, may be inserted underneath the removable pressing-faces *c c*. The packing laid under the pressing-faces preferably is in wedge-shaped pieces, thereby raising the outer edge of the removable pressing-faces and leaving the inner edge flush with the former, and the packing is then bolted or screwed down under the removable pressing-faces against the former.

The former and its removable faces may be constructed and arranged as desired to suit the work to be done. In the drawings the former shown has a smooth or cylindrical upper end fitting in the bearing *F*, in which is located the cleansing-brush *h* and a fluted central part or portion for the flask.

As the former is raised out of the mold, the slicker *G* rises with it and smooths the walls of the mold as it is drawn or elevated through the same.

What we claim is—

1. A vertically-arranged pipe-former having removable pressing-faces parallel with the axis, and the advance faces flush with the surface of the former.

2. A vertically-arranged pipe-former having removable pressing-faces, the advance edges of which are flush with the surface and the lower part provided with two faces contiguous to each other, for the purpose set forth.

3. The former *C*, having separate and removable parallel pressing-faces *c c*, extending from top to bottom of the former, and packing, *c'*, between the faces and former, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

ANDREW H. MCNEAL.  
WILLIAM A. STINERUCK.

Witnesses:

F. P. F. RANDOLPH,  
FRANK L. JOHNSON.