

P. MUELLER.  
METAL MOLD.  
APPLICATION FILED NOV. 9, 1908.

951,962.

Patented Mar. 15, 1910.

Fig. 1.

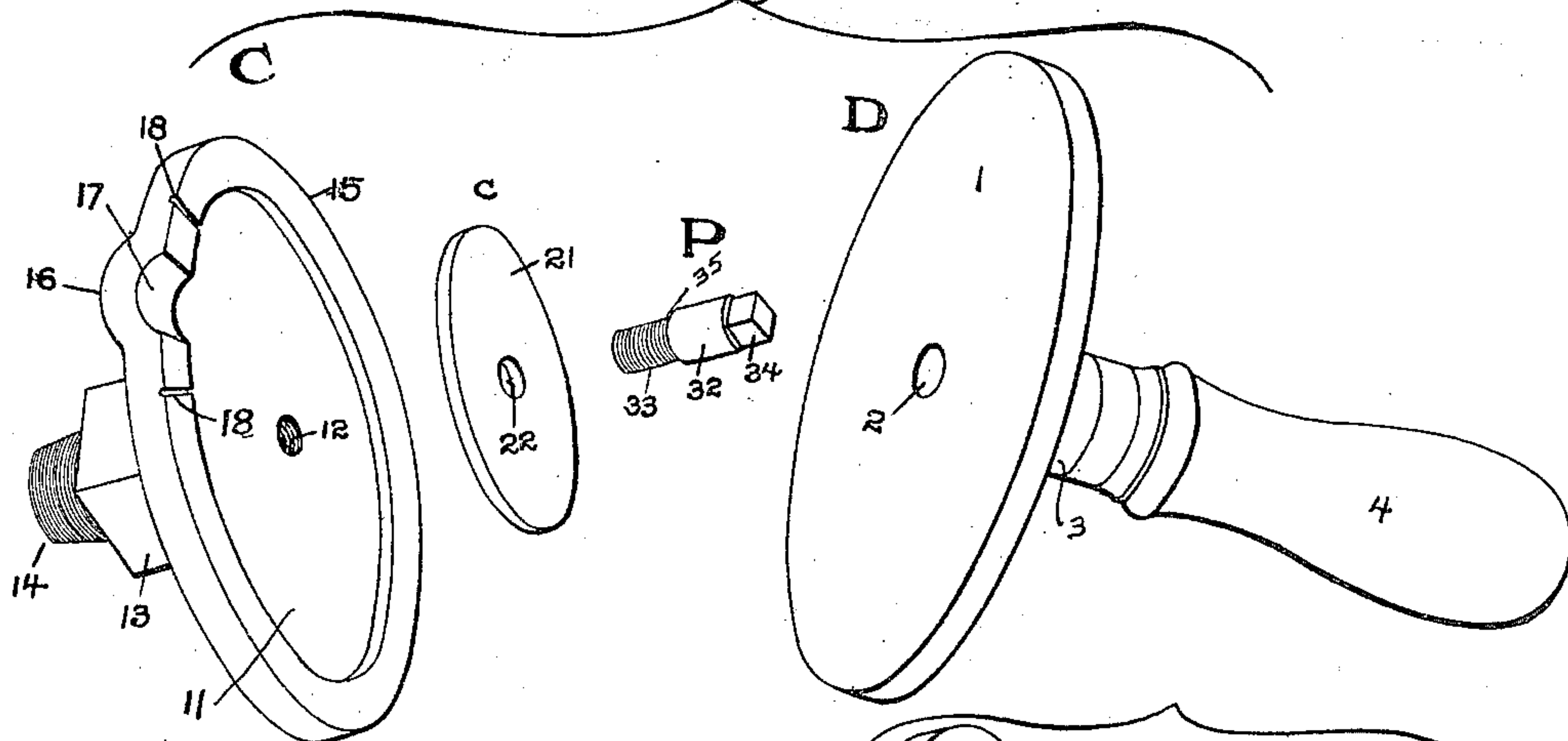


Fig. 3.

Fig. 2.

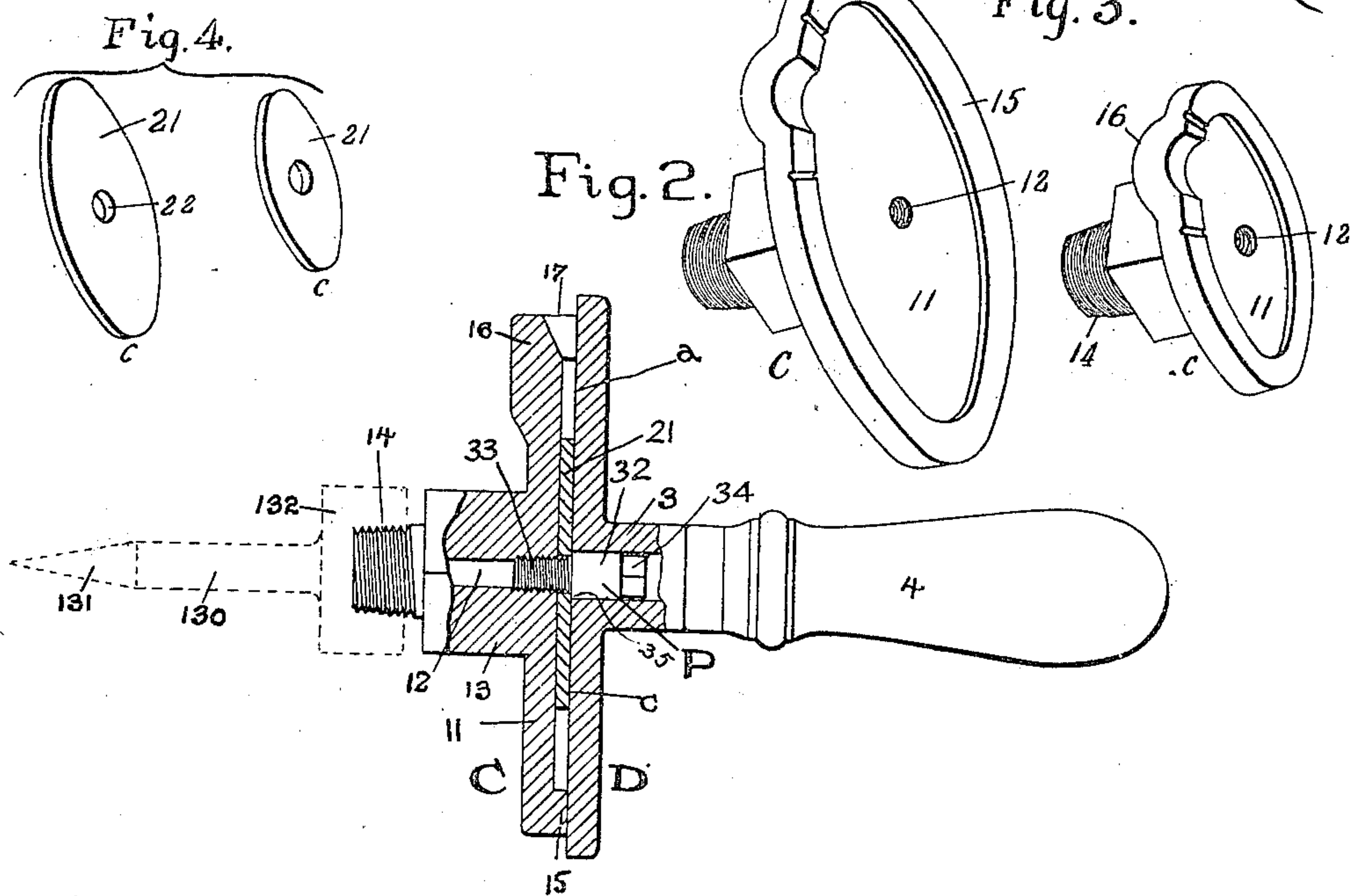
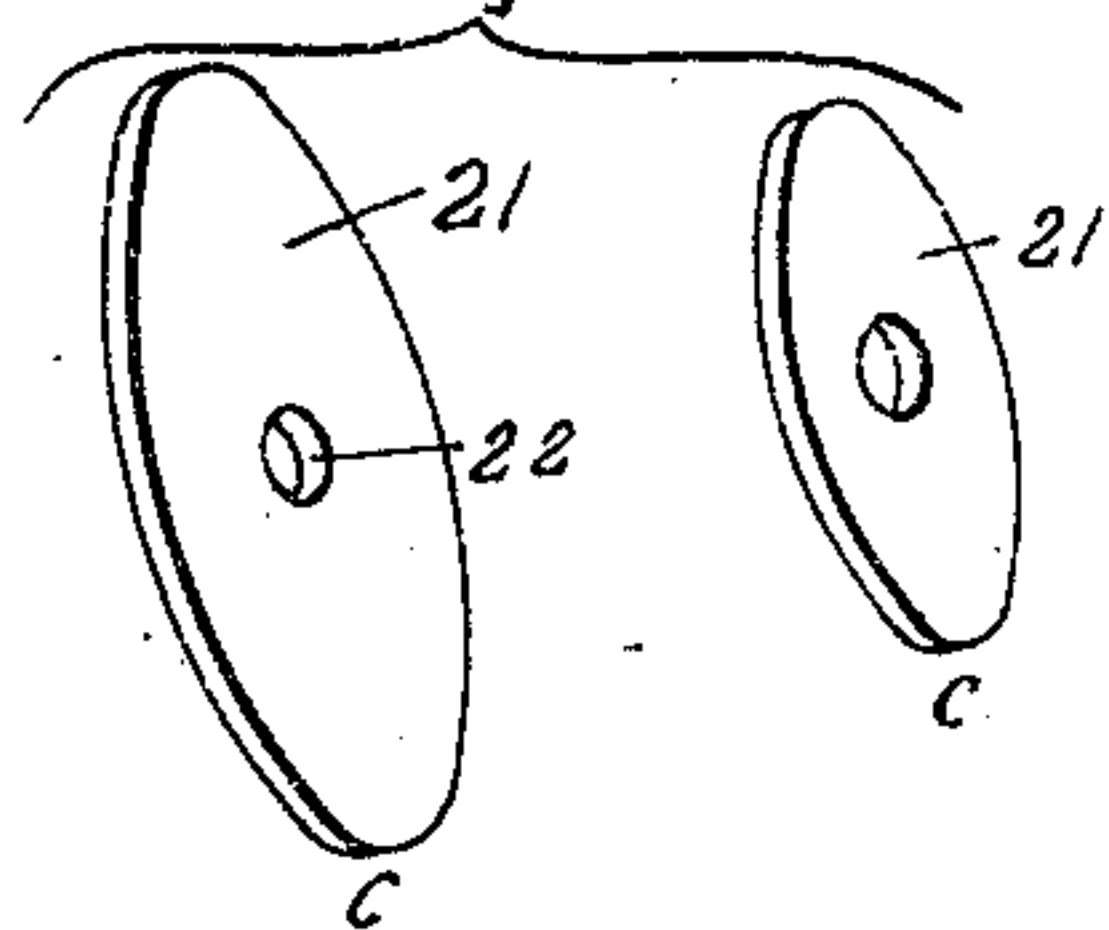


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## METAL-MOLD.

951,962.

Specification of Letters Patent. Patented Mar. 15, 1910.

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*To all whom it may concern:*

Be it known that I, PHILIP MUELLER, a citizen of the United States, and resident of Decatur, Macon county, State of Illinois, have invented certain new and useful Improvements in Metal-Molds; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to metal founding and more especially to metal molds such as are employed for casting lead or soft metal washers, better known as "lead flanges" used for making wipe joints or lead rings or washers for slip joints or other joints in water, gas and steam distribution. The object of the same is to produce a mold of this character having as few parts as possible but adapted by interchangeability to form flanges, washers or rings having different sizes of periphery, or core openings, or both.

To this end the invention consists essentially in a die, a series of matrix members of different sizes, a series of cores of different sizes and a detachable connection between these parts; and it consists specifically in details for carrying out this general idea, all of which are described hereinafter and shown in the drawings forming a part of this specification in which,

Figure 1 is a perspective view of the four principal parts of this mold slightly separated from each other; Fig. 2 is a section through these parts assembled, and shows in dotted lines a support which may well be used with the mold; Fig. 3 is a perspective view of two matrices of different size; and Fig. 4 is a perspective view of two cores of different size.

Heretofore lead washers or "flanges" have been cast in a mold consisting of one die member or disk, and a series of matrices whose rims varied in size, the flat portion of the matrices carrying integral cores varying in diameter in proportion to their rims, but with such construction it was not possible to make any given size of washer with an opening in it other than as produced by the core.

It is the object of the present invention

to permit the use of any desired matrix along with any desired core, whereby the selective employment of a member and a core will produce a mold that will cast a washer of the desired size both outside and inside.

In the drawings the letter D designates broadly the die member of this mold, and C the matrix member having a core *c*. This die member comprises a flat disk 1 having a central socket 2, preferably formed within a boss 3 to which is attached an axial handle 4. The latter may be of wood, while all other parts are of metal.

The matrix C comprises preferably a flat body 11 with a central socket 12 and an axial boss 13 which may continue into a threaded stud 14 back of this member. On its face the body is provided with an annular rim 15 which is of the thickness that the finished article shall possess, preferably always the same when this mold is employed for the purposes above mentioned. The rim at one side is depressed into a lip 16 forming a filling opening 17 as seen in Fig. 2, adjacent which are one or more vents 18 for the outlet of air.

The core *c* stands between the two members C and D when the parts are assembled as shown in Fig. 2 and consists merely of a disk 21 with a central aperture 22 which by preference is not threaded, the disk being of the same thickness as the rim 15. There is but one of the mold members D, whereas there are several of the matrix members C whose rims 15 differ in their internal diameters, and there are several of the cores *c* whose peripheries differ in diameter. But two each of the matrix members and cores are shown in Figs. 3 and 4.

The detachable connection between the parts above described consists by preference of a plug P whose body 32 is cylindrical and of a size to fit closely within the socket 2 of the die member, one end of the plug being threaded as at 33 to engage the threaded socket 12 of the matrix member, and the other end being square or angular as at 34 and smaller in its greatest diameter than the diameter of the body 32. A shoulder 35 is formed between the body 32 and the thread 33, being carried entirely around the plug



and adapted to fit closely against the core *c* and clamping it in a fixed position relative to the cup.

In assembling the parts, a core of the proper size is selected and its opening 22 slipped over the threads against the shouldered end 35 of the body 32, a matrix member of the proper size is then selected and brought into position and the threads 33 are screwed into its socket 12 by applying a proper tool to the angular end 34, and finally the socket 2 of the die member is slipped over the angular end and the body of the plug until its face strikes that of the core and simultaneously the outer face of the rim 15. The core 23 is clamped rigidly against the surface of the matrix body 11 by the shoulder 35 and thus held in place while removing the die member D for taking out the washer and repeating such operation. The parts of the mold will, when ready for casting, stand as shown in Fig. 2, and when the filling orifice 17 is brought uppermost the molten material can be poured therein and the trapped air will escape through the vents 18 in a manner which will be clear. The interchangeability of the matrix members and cores permits the selection of those which will produce a lead washer having the desired internal and external diameters, all as will be clearly understood from the above.

If it be desired to support this mold by other means than the hands of the operator the stud 14 on the matrix member may be inserted or screwed into a hole in the wall or other upright support. In Fig. 2 I have shown in dotted lines a support 130 having a pointed end 131 which may be driven into an upright and a head 132 having a proper aperture in which the stud 14 may be fitted. By preference the boss 13 is made angular on its exterior to form a wrench hold in case the insertion or removal of the plug P makes the use of a wrench desirable, and if this wrench hold is square it may be clamped in a vise and thus form a suitable support for the mold. If the die D be provided with a wooden handle 4 as shown, it can readily be held in place by hand while the molten metal sets, which takes but very short time, after which the die member can be removed to give access to the washer that has been cast, hence I consider it advisable to avoid threads in the socket 2 which would require that the die member be screwed into place on the plug and would prevent its quick application and removal as is necessary when a number of washers are to be molded in rapid succession. If all such washers are to be of the same external and internal diameters, no change of parts is necessary; if their internal diameters only

are to vary in size, the matrix member can be left on its support and different cores substituted from time to time, and when the external diameters of the washers are to vary, it will become necessary to employ different matrix members as will be clear.

What is claimed as new is:

1. A mold comprising a matrix member, a die member, a core, and means secured to one of said members for securing the core thereto and movably supporting the other member.
2. A mold comprising a matrix, a die, a core, and internal means therein carried by the matrix for holding the several members in proper relative position.
3. A mold comprising a matrix, a core, means for securing said core to said matrix, and a die held in position by said core securing means.
4. A mold comprising a matrix, a core, means for detachably holding said core to the matrix, and a die, said die being held in position by the core securing means.
5. A mold comprising a matrix member, a die member, a core, and means adapted to be secured to the matrix member for removably attaching the core thereto and slidably supporting the die member.
6. A mold comprising a matrix member, a die member, a core, and removable means for centrally fastening said core on the matrix member and forming a slidable support for the die member and to enable said parts to be moved into operative relation one to another.
7. A mold comprising a matrix, a die, a core, and a removable piece for holding the several members in assembled relation.
8. A mold comprising a matrix member, a die member, a core, and a plug carried by one of said members for centering and holding the core and the other member in position.
9. A mold comprising a matrix member, a die member, a core provided with an aperture, and a plug passing through said aperture and having engagement with one of said members and adapted to hold the core and the other member in position.
10. A mold comprising a matrix member, a die member, a core and a plug having positive engagement with one of said members and free engagement with the other member, said plug adapted to center the core and hold the several members in assembled relation.
11. A mold comprising a matrix, a core, a die, said members being detachable, means for holding said members assembled, means for holding the matrix in fixed position, and means for readily removing the die.
12. A mold comprising a matrix, a core,

a die, means for detachably fastening said core to the matrix and slidably supporting the die as it is moved to and from said matrix, and means on the matrix for enabling the same to be secured in fixed position.

13. A mold comprising a flanged matrix having an air vent through said flange, a core, a die, means for detachably fastening said core to the matrix and slidably supporting the die as it is moved to and from said

matrix, and means on the matrix for enabling the same to be secured in fixed position.

In testimony whereof, I have hereunto subscribed my signature, this 2nd day of November, A. D. 1908.

PHILIP MUELLER.

Witnesses:

E. BROWN,  
JOHN L. WADDELL.