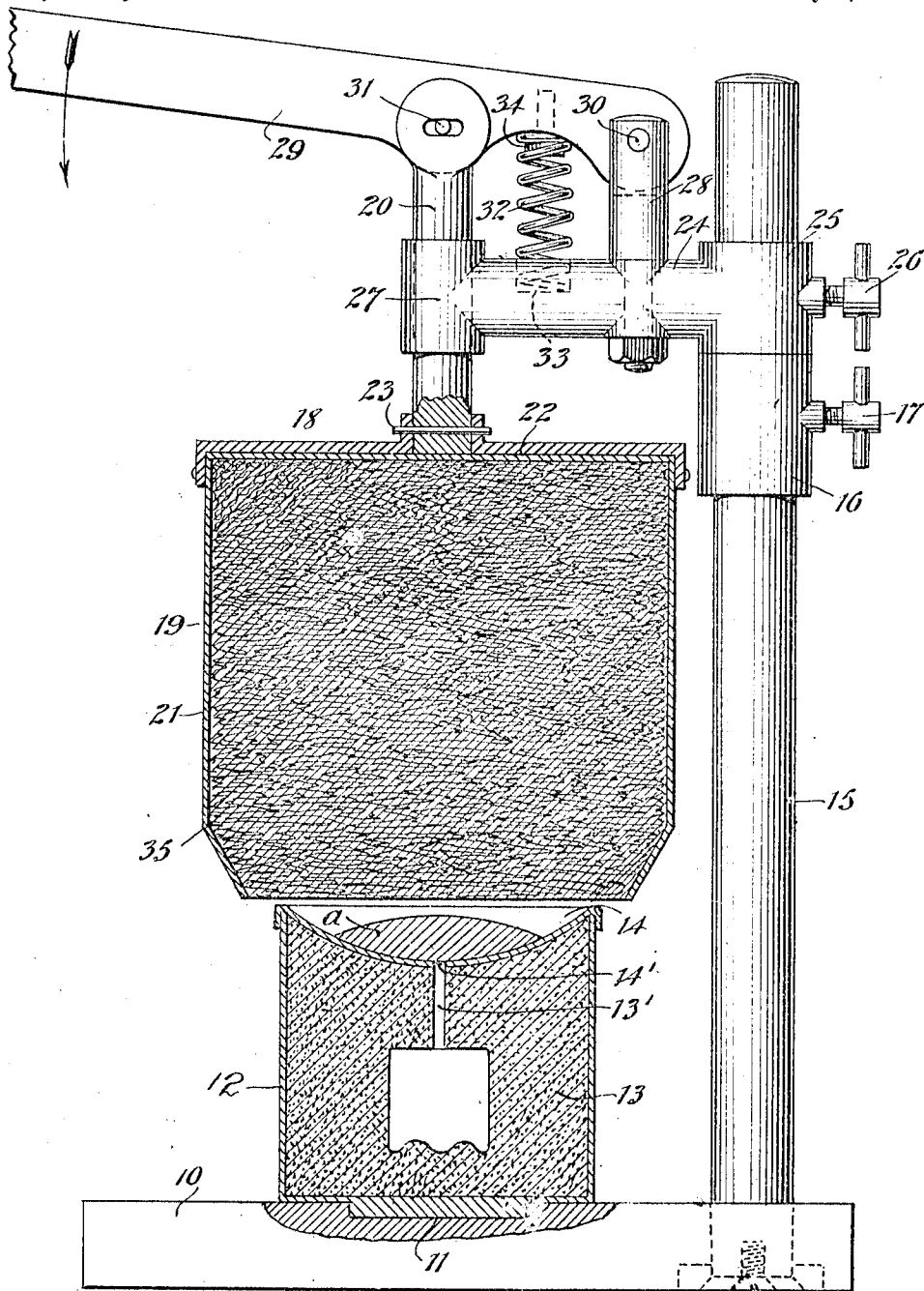


L. MANDELSTAMM.  
METAL CASTING MACHINE.  
APPLICATION FILED JAN. 21, 1919.

1,309,534.

Patented July 8, 1919.



WITNESSES

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# UNITED STATES PATENT OFFICE.

LEO MANDELSTAMM, OF NEW YORK, N. Y.

## METAL-CASTING MACHINE.

1,309,534.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, LEO MANDELSTAMM, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Metal-Casting Machine, of which the following is a full, clear, and exact description.

This invention relates to means and method for casting precious or other metals and has particular reference to dental work in the making of plates or teeth from gold or the like.

Among the objects of the invention therefore is to improve the facilities for making a cast of precious metal, which obviously is frequently of very small capacity, and which consequently is extremely difficult to perform under methods or by the use of means ordinarily practised.

More specifically stated my invention includes the provision of a cup or receptacle for holding the mold or investment, and above it the metal which after being melted is to be delivered into the cavity formed in the mold. My apparatus also includes a plunger so arranged and constructed as to be brought down over the molten metal to force the same into the cavity while the metal is still in a molten state.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawing which is a vertical view partly in elevation and partly in section.

Referring now more specifically to the drawing I show an apparatus comprising a base 10 having a depression or pit 11 for holding a strong hollow receptacle or flask 12 having a cavity in which a mold or investment of plastic material 13 is made or placed. For some metals the investments are very expensive and for casting large plates or the like much heat and time are required. Hence I provide a casting machine whereby I may use a small flask for small casts with ready interchange from one size to another, and yet with a plunger suitably designed for direct coöperation with flasks of all standard sizes without interchange of

plungers. The receptacle 12 may include a metal top 14 that may be removable from the main portion of the receptacle to facilitate the introduction of the mold. As to the particular manner, however, of constructing a receptacle of a separable nature I do not wish to be unnecessarily limited. It is to be noted, however, that the top portion 14 of the receptacle is provided with a concavity for holding the metal indicated at " while it is being melted, and from which the molten metal is subsequently to be forced or driven through a hole 14' formed in the bottom of the top member 14 and registering with a by-pass 13' leading to the cavity in the mold for the purpose of filling the cavity.

Fixed in any suitable manner to the base and extending therefrom is an upright standard 15 preferably of cylindrical form for reasons soon to appear.

16 is a hollow cylindrical collar adjustable up and down along the standard to any desired height and adapted to be secured in fixed position by a set screw 17 or its equivalent. This collar might be of other form than cylindrical, but preferably it is formed as shown so as to facilitate the adjustment and locking thereof with respect to the standard.

18 is a plunger comprising two main parts namely a bonnet 19 and a shank 20. The bonnet comprises a strong shell 21 having an opening in its bottom sufficiently large to freely admit the top of the receptacle 12. Otherwise the shell 21 is imperforate or closed, and the shank 20 is secured to the top thereof by any suitable rigid means including a cap 22 and pin 23. The cap is so constructed as to possess ample stiffness for the purposes of the press.

An arm 24 is swiveled upon the standard 15 just above the collar 16 and is adapted to be swung around the axis of the standard as well as being adjustable vertically along the cylindrical upper end of the standard. The arm 24 includes a sleeve 25 having a set screw 26, or its equivalent, through which the arm may be locked from rotation around the standard 15 if desired. At the opposite end of the arm is a sleeve 27 in which the shank 20 is slidable freely. Between the sleeves 25 and 27 there is fitted to the arm an upstanding finger 28 constituting a fulcrum or second class lever 29, the lever being pivoted to the finger through a pin 30. At 31 the lever is pivoted through

a pin and slot connection to the upper end of the shank 20. Between the shank 20 and the finger 28 is a spring 32 having a normal tendency to expand and elevate the lever 5 swinging it upward around the pivot pin 30. The lower end of the spring is seated in a socket 33 while the upper end of the spring embraces a stud 34 fitted into the lever; thus the spring is held from lateral displacement 10 with respect to either the arm or the lever.

The shell 21 of the plunger is densely packed and filled with some suitable refractory material such as asbestos or mineral wool indicated at 35. The operation of my casting press may be briefly summarized as 15 follows: In view of the foregoing specific description according to the height of the receptacle 12, the plunger and supporting means therefor are adjusted at such a height 20 on the standard 15 as to just permit the bottom of the plunger to pass freely over the top of the receptacle when swung around the standard. This preliminary adjustment is effected mainly by the adjustment of the 25 collar 16, and then is fixed by the set screw 17. If the screw 26 is loose it is obvious that the plunger and parts associated therewith may be swung freely in a horizontal plane either over or to one side of the recep- 30 tacle. It is to be understood in this connection that the spring 32 acts automatically to elevate the plunger and hold it in elevated position except when the outer end of the lever is depressed forcibly. With the 35 plunger swung to one side and with the receptacle 12 in place and filled with the mold as indicated the metal to be melted is placed in the concave top of the receptacle and is then subjected to sufficient heat to 40 melt it, such as might be furnished with an ordinary blow pipe, or its equivalent. When the metal is melted the plunger is swung

in a horizontal plane around the axis of the standard to bring the open bottom of the shell 21 directly over the receptacle, and 45 the arm may be locked in this position if desired by tightening the screw 26. Whether locked or not, however, the operator may then depress the outer end of the lever forcing the plunger downward against the ten- 50 sion of the spring 32 and causing the asbestos packing 35 to bear directly downward upon the molten metal and force it through the small holes 14' and 13' into the mold cavity. Ordinarily the molten metal does 55 not flow downward through such small holes without being forced. The metal does not effect the packing 35 in the shell, and hence for a similar work the same equipment may be used repeatedly. When the casting has 60 been made the spring 32 will elevate the plunger to its normal elevated position acting upward upon the lever 29 so that the plunger is free to swing laterally out of the 65 way.

I claim:

In a casting press of the character set forth, the combination with a flask or receptacle adapted to contain an investment of a size proportional to the cast to be made and 70 having a concave top to hold the metal to be cast, a plunger movable in a horizontal plane into position close over the flask and molten metal in the top of the flask, said plunger comprising a drum-like shell of 75 larger diameter than any flask used and having an opening in its bottom and being completely filled with compressed fibrous refractory material adapted to come into direct contact with the molten metal, and 80 means to force the plunger downward to drive the molten metal into the cavity in the investment.

LEO MANDELSTAMM.