

No. 835,520.

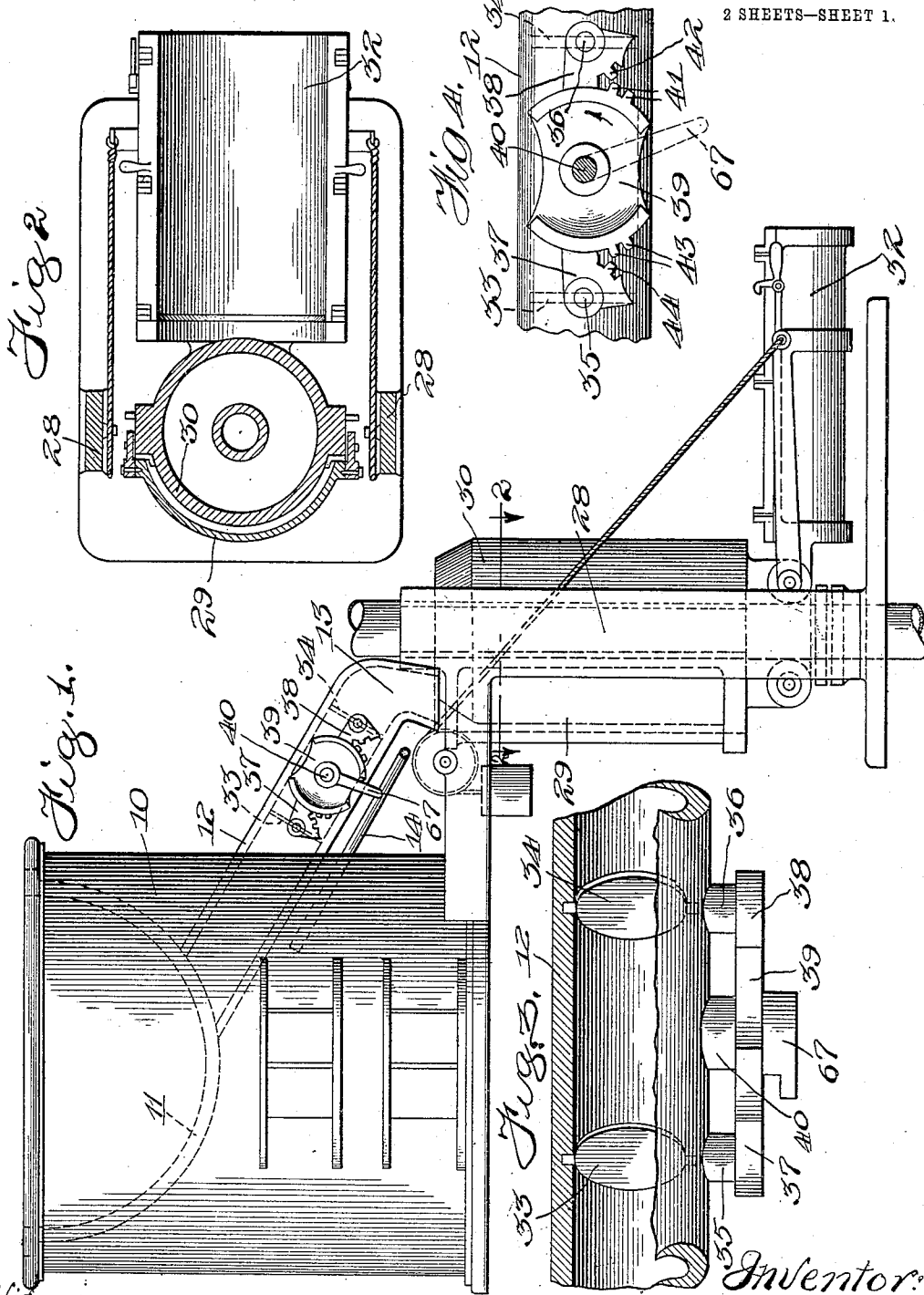
PATENTED NOV. 13, 1906.

S. G. GOSS.

MOLTEN METAL MEASURING APPARATUS.

APPLICATION FILED FEB. 21, 1903.

2 SHEETS—SHEET 1.



Witnesses:
J. B. Weir
G. V. Donarum.

Inventor:
Samuel G. Goss,
by Bon. & Adams, P. & Co.,
his Attys.

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2 SHEETS—SHEET 2.

Fig. 5.

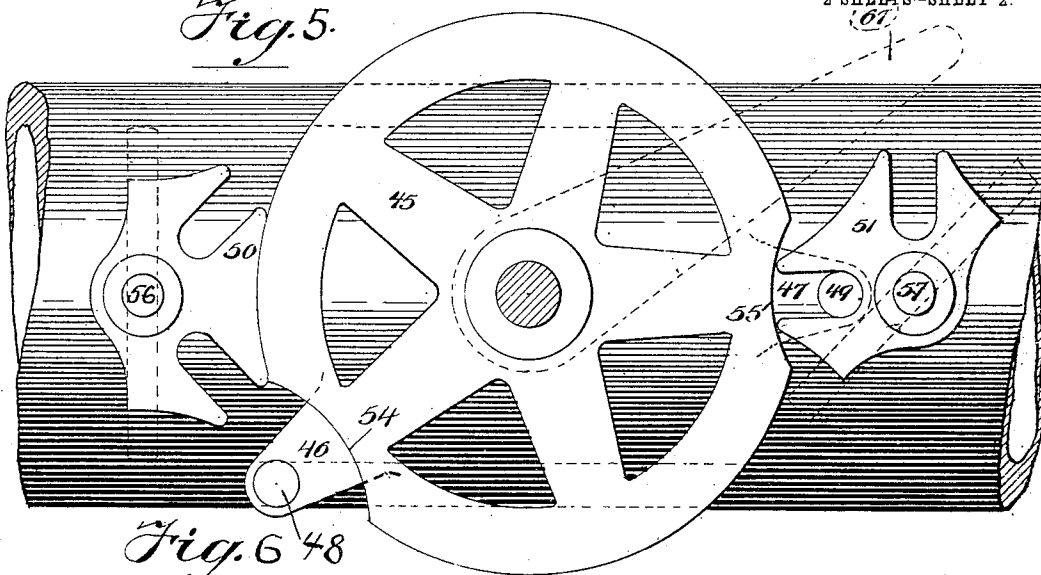


Fig. 6 48

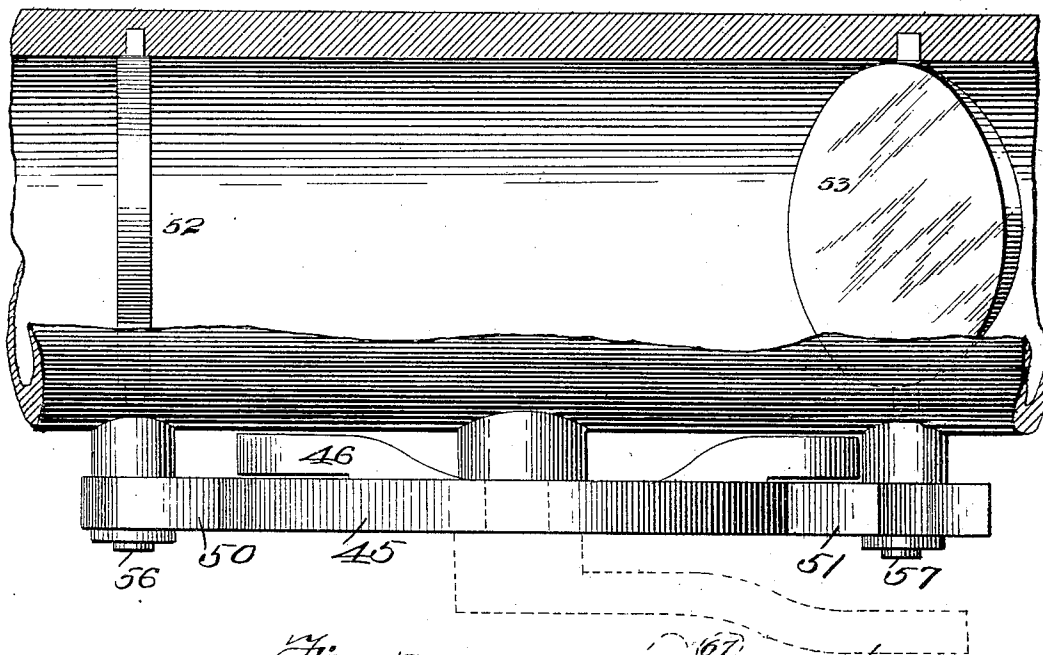
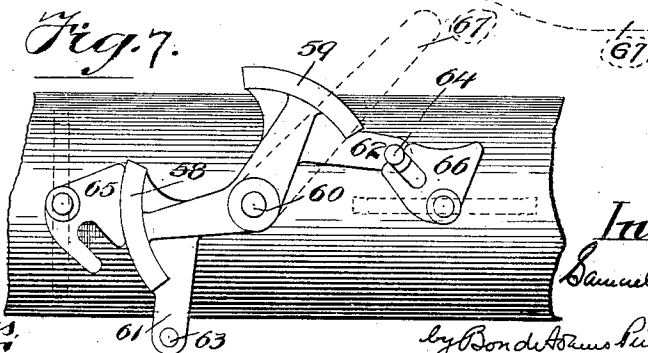


Fig. 7.



Witnesses
J. B. Weir
H. C. Dorman,

Inventor
Samuel G. Goss.
by Bond & Sons, Richard Jackson,
his Attys.

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MOLTEN-METAL-MEASURING APPARATUS.

No. 835,520.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed February 21, 1903. Serial No. 144,551.

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Molten-Metal-Measuring Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to molten-metal-measuring apparatus, and has principally for its object to provide improved apparatus for supplying measured charges of molten type-metal to single or multiple casting-boxes, although it may be used for any other purpose for which it is adapted. I accomplish this object as illustrated in the accompanying drawings and as hereinafter described.

What I regard as new is set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a stereotyping apparatus embodying my improvements. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a detail, partly in section, illustrating the discharge-tube. Fig. 4 is a detail, being a side elevation, illustrating one form of valve-operating mechanism. Fig. 5 is an enlarged detail, showing a modified form of valve-operating mechanism. Fig. 6 is a sectional view of the same, and Fig. 7 is a detail illustrating a further modification of the valve-operating mechanism.

Referring to the drawings, 10 indicates a furnace in which the type-metal is reduced to a molten condition. Said furnace is provided with a suitable chamber or bowl 11, in which the type-metal is contained. Suitable heating arrangements are provided below the bowl, so that the type-metal therein is kept in a molten condition.

12 indicates a tube which communicates with the lower portion of the bowl 11 and extends downward and outward, terminating outside the furnace, as shown in Fig. 1, and having a downwardly-extending spout or nozzle 13 at its lower end.

14 indicates suitable heating appliances, preferably gas-jets, arranged to heat that portion of the tube 12 which lies outside the furnace, except the nozzle 13, which it is not necessary to heat.

28 indicates a casting-box-supporting

frame, which is arranged to support a multiple casting-box, so as to receive type-metal from the nozzle 13. It will be understood that while I have shown a multiple casting-box my improvements may be applied to single casting-boxes as well. In the apparatus illustrated 30 indicates a core which is substantially cylindrical, and 29 32 the two members of the case, each member of the case being semicylindrical and forming with a segment of the core a complete casting-box. The core with the members of the case is adapted to rotate about a vertical axis to bring different sections thereof under the nozzle 13.

The construction of a multiple stereotyping apparatus such as that illustrated forms no part of my present invention, but is fully described and claimed in my companion application executed this day and filed herewith, Serial No. 144,550. It will suffice for present purposes to say that the casting-box illustrated is arranged to be turned to a horizontal position to receive the matrix and for the removal of the plate and to be turned to an upright position under the nozzle 13 to receive its charge.

The molten type-metal is drawn from the furnace in measured quantities by means of butterfly-valves 33 34, mounted on shafts 35 36, respectively, as shown in Figs. 3 and 4, said shafts being operated by segments or blocks 37 38, respectively, also carried by the shafts 35 36. Said segments are engaged by a mutilated gear 39, placed between them and mounted on a suitable stud or shaft 40. As illustrated in Figs. 3 and 4, when the parts are in the position shown therein both valves 33 and 34 are closed and are held closed by the engagement of said blocks with the smooth portion of the periphery of said mutilated gear. When, however, the said gear is moved in the direction indicated by the arrow in Fig. 4, the teeth 41 thereof engage the tooth 42 of the segment 38 and rock said segments in the same direction, opening the valve 34. The valve 33 is, however, not affected at this time, as the smooth portion of the periphery of the gear 39 is still in contact with the segment 37. Reverse movement of the gear 39 from the position shown in Fig. 4 opens the valve 33, the teeth 43 of said gear acting on the tooth 44 of the segment 37 in a manner similar to that just described. A

lever 67 is provided for rocking the gear 39, said lever being mounted on the shaft 40, which carries the gear 39, as shown in Figs. 1 and 4. It will be observed that by the construction described the valve 33 may be first opened to admit a charge of molten metal to the space between said valve and the valve 34, the latter being closed. After closing the valve 33 the valve 34 may be opened, permitting the charge to pass out into the casting apparatus.

In Fig. 5 I have illustrated valve mechanism similar to that shown in Figs. 1 to 4. Instead of providing a mutilated gear 39 in the construction shown in Fig. 5 I have employed a disk 45, provided with arms 46 47, carrying pins 48 49, respectively, which are adapted to enter slots in blocks 50 51, respectively, connected to butterfly-valves 52 53. The blocks 50 51 are provided with concave surfaces adapted to bear against the periphery of the disk 45 when the valves are closed, by which construction the valves are held closed, except when opened by the action of the disk 45. Opposite the arms 46 47 the disk 45 is provided with concavities 54 55 to permit the rocking of the blocks 50 51 on their pivots 56 57, which are also the pivots of the valves 52 53, as shown in Fig. 6. The operation of this form of apparatus is substantially the same as that shown in Figs. 1 to 4.

The modification shown in Fig. 7 is substantially the same as that shown in Fig. 5, the principal difference being that in lieu of employing a disk 45 I employ two segments 58 59, mounted on a shaft 60 and carrying arms 61 62, corresponding with the arms 46 47. The arms 61 62 carry pins 63 64, which enter slots in blocks 65 66, similar to the blocks 50 51.

It will be understood that the valve mechanism shown in Figs. 5, 6, and 7 is operated by a lever 67, mounted on the shaft 40, which carries the mutilated gear.

While I have described in detail my improvements as illustrated in the accompanying drawings, my invention is not limited specifically to the construction described, but includes, generically, the invention set forth in the claims. Moreover, my improvements are not restricted in their application to apparatus for casting stereotype-plates.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a casting apparatus, the combination of a receptacle for molten metal, a chamber communicating therewith adapted to contain a charge of molten metal, a plurality of valves for effecting the delivery of separate charges from said chamber, and intermediate means for actuating either of said valves separately and meanwhile locking the other valve against operation.

2. In a casting apparatus, the combination of a receptacle adapted to contain molten metal, a measuring-chamber communicating therewith, inlet and outlet valves controlling the admission of molten metal to said chamber and its discharge therefrom, and an actuating device having means for actuating said valves at different times and for locking either of said valves when the other is actuated.

3. The combination of a chamber, a plurality of valves, and an actuating device for said valves arranged to be operated to open and close said valves at different times and having means for locking either of said valves against operation when the other is operated.

4. The combination of a pair of rotary valves, a rotary disk, blocks connected with said valves and adapted to non-rotatably engage said disk when said valves are in a certain position, and means for actuating said valves at different times by the rotation of said disk.

5. In a casting apparatus, the combination of a receptacle adapted to contain molten metal, a measuring-chamber communicating therewith, inlet and outlet valves controlling the admission of molten metal to said chamber and its discharge therefrom, means for heating said chamber, blocks carried by said valves, and means between and engaging said blocks for operating either of said valves and locking the other against operation when one of said valves is operated.

6. In a casting apparatus, the combination of a receptacle adapted to contain molten metal, a measuring-chamber communicating therewith, inlet and outlet valves controlling the admission of molten metal to said chamber and its discharge therefrom, means for heating said chamber, blocks carried by said valves, a disk between said blocks against the periphery of which said blocks are adapted to bear, and means carried by said disk for engaging said blocks to open and close said valves, substantially as described.

7. In a casting apparatus, the combination of a receptacle adapted to contain molten metal, a measuring-chamber communicating therewith, inlet and outlet valves controlling the admission of molten metal to said chamber and its discharge therefrom, blocks carried by said valves, a disk between said blocks against the periphery of which said blocks are adapted to bear, and means carried by said disk for engaging said blocks to open and close said valves, substantially as described.

SAMUEL G. GOSS.

Witnesses:

HELEN M. COLLIN,
JOHN L. JACKSON.