No. 780,863. PATENTED JAN. 24, 1905.

T. COLEMAN, Jr.

SHAPING PLUNGER FOR GLASS PRESSES.

APPLICATION FILED MAY 31, 1904.

FIG. 1.

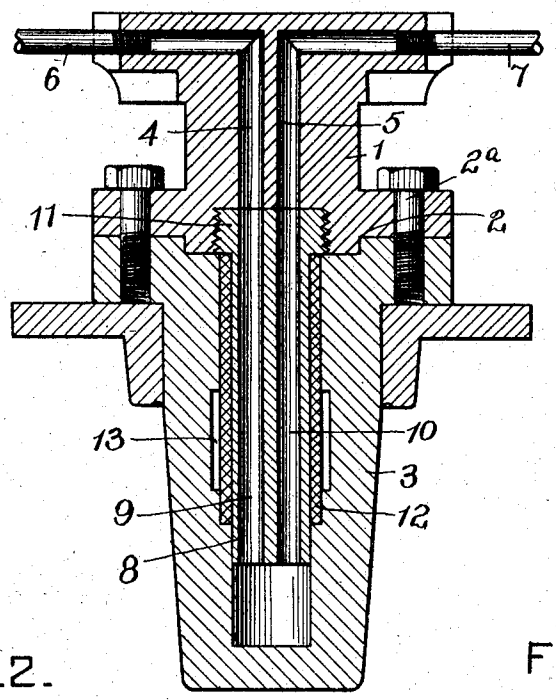


FIG. 2.

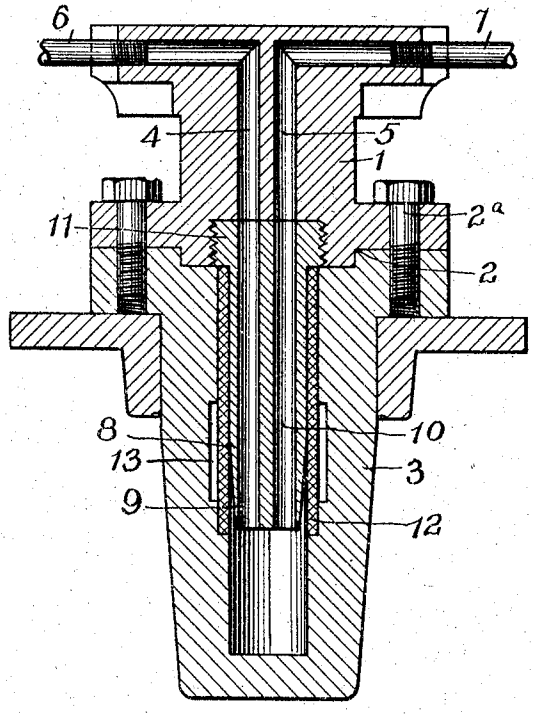
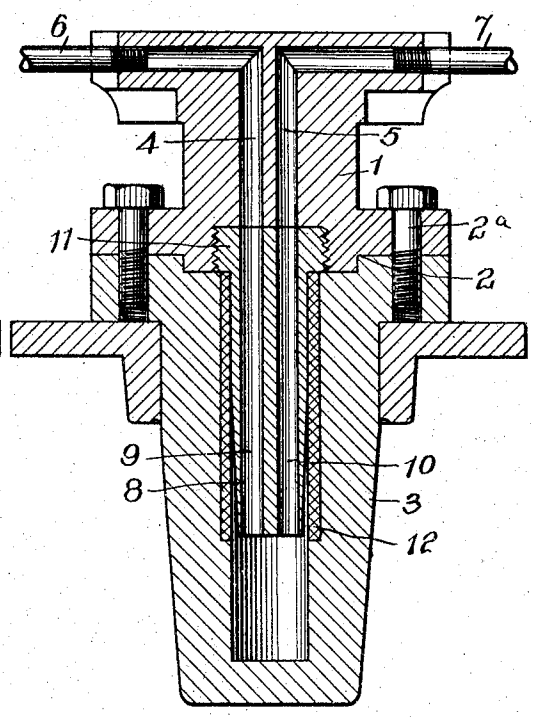


FIG. 3.



WITNESSES:

Herbert Bradley.

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No. 780,863. Patented January 24, 1905.

UNITED STATES PATENT OFFICE.

THOMAS COLEMAN, JR., OF CLARKSBURG, WEST VIRGINIA.

SHAPING-PLUNGER FOR GLASS-PRESSES.

SPECIFICATION forming part of Letters Patent No. 780,863, dated January 24, 1905.

Application filed May 31, 1904. Serial No. 210,460.

To all whom it may concern:

Be it known that I, THOMAS COLEMAN, Jr., a citizen of the United States, residing at Clarksburg, in the county of Harrison and State of West Virginia, have invented or discovered certain new and useful Improvements in Shaping-Plungers for Glass-Presses, of which improvement the following is a specification.

In pressing glass articles it is necessary to employ means for preventing the shaping-plunger from becoming so heated that the glass will adhere thereto. The means heretofore employed have been such as to render it impossible to maintain different temperatures in different portions of the plunger, as is desirable in pressing some kinds of glass. Where the upper portions of an article are thin and the lower portions comparatively thick, it is obvious that a greater quantity of the cooling fluid must be applied to the lower end of the plunger than to the upper portion in order to keep the entire plunger at a working temperature.

The object of the present invention is to provide for a distribution or application of the cooling medium to different portions of the plunger proportioned to the amount of cooling required.

It is a further object of the invention to provide for a quick and easy removal and substitution of plungers.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of my improved plunger, showing the manner of securing it to the plunger-rod. Figs. 2 and 3 are similar views illustrating modifications of the parts of my improved plunger.

Heretofore the shaping-plungers have been attached to the plunger-rod through the medium of a supplemental head which was recessed for the reception of the head on the cooling pin or finger. The head and pin or finger is formed with two passages open at the end of the finger and connected at the head with supply and exhaust pipes. When the shaping-plunger is attached to the supplemental head, the finger extends down to or approximately to the bottom of the axial opening in the plunger, so that cooling medium is discharged and drawn from the plunger at points close to its end. As the finger does not fit closely in the opening in the plunger, the water or other cooling medium will fill the space, but will not act as effectively as at the end, as the portion of the cooling medium above the point of the finger will be outside of the active circulation. As constructed it is necessary when a change of plungers necessitates a change of cooling-fingers also to remove both plunger and supplemental head and to detach the cooling-finger from the supply and outlet pipes.

In the practice of my invention I provide a supplemental or plunger-carrying head 1, which may be formed on or connected directly to the plunger-operating rod by bolts or other suitable means and is provided at its lower end with a seat 2, against which the upper end of the plunger 3 is detachably secured by any suitable means, as the bolts 2^a. Through the supplemental head are formed passages 4 and 5, which are connected, respectively, with supply and outlet pipes 6 and 7. A cooling-pin 8, having inlet and outlet passages 9 and 10, is movably held with its passages in line with the corresponding passages in the supplemental head. This pin is so secured in position that on the removal of the plunger it can be removed without disturbing the supplemental head or the connections of the supply and outlet pipes. In the construction shown a threaded socket is formed in the supplemental head around the passages 4 and 5 for the reception of a threaded head 11 on the pin. In pressing some articles it is desirable to cool only the lower ends of the plungers, and in such case the pin 8 is made to fit the bore of the plunger, so that no material amount of the cooling medium will pass above the end of the finger, as shown in Fig. 1. If it is desired to produce a cooling effect above the end of the finger, the latter is reduced in diameter for a distance approximately equal to the distance to which cooling should extend, as shown in Figs. 2 and 3. When a gradual re-

duction of the cooling effect is desired, the reduction of diameter of the finger should be gradual, as shown.

While not necessary, it is preferred to insert a bushing 12 in the bore of the plunger, whereby a graduated cooling action on the plunger can be effected, such construction facilitating the formation of a closed annular insulating air-chamber surrounding the axial cavity of the plunger to a material extension of the action of the cooling medium above a certain point.

It is characteristic of my improvement that the plunger and its cooling-finger, it being in accordance with the best practice to provide a properly-proportioned cooling-finger for each plunger, can be removed and another plunger and finger substituted therefor easily and quickly and without detaching the supplemental head from the operating-rod or breaking the connections of the supply and outlet pipes. It is also characteristic of my improvements that an adjustment of the action of the cooling medium can be had by substituting one form or construction of finger for another, such substitution being easily and quickly effected.

I claim herein as my invention—

1. In a glass-pressing machine, the combination of a supplemental head adapted to be secured to the plunger-operating rod, and provided with inlet and outlet passages, a hollow plunger detachably secured to said head, and a cooling-pin detachably secured to the head and projecting into the plunger, and provided with inlet and outlet passages adapted to register with the passages in the head, substantially as set forth.

2. In a glass-pressing machine, the combination of a plunger-carrying head provided with inlet and outlet passages and having a seat around said passages at one end thereof, a hollow plunger detachably secured on said seat, a cooling-finger detachably secured to the head and projecting into the plunger and provided with passages registering with the passages in the head, substantially as set forth.

3. In a glass-pressing machine, the combination of a hollow glass-shaping plunger, a taper cooling-finger projecting into the plunger whereby a graduated cooling action of the plunger can be effected, substantially as set forth.

4. In a glass-pressing machine, the combination of a hollow glass-shaping plunger provided with a closed annular insulating-chamber surrounding the axial cavity of the plunger, and a cooling-finger projecting into the plunger, substantially as set forth.

In testimony whereof I have hereunto set my hand.

THOMAS COLEMAN, JR.

Witnesses:
S. W. GORDON,
MARY A. GORDON.