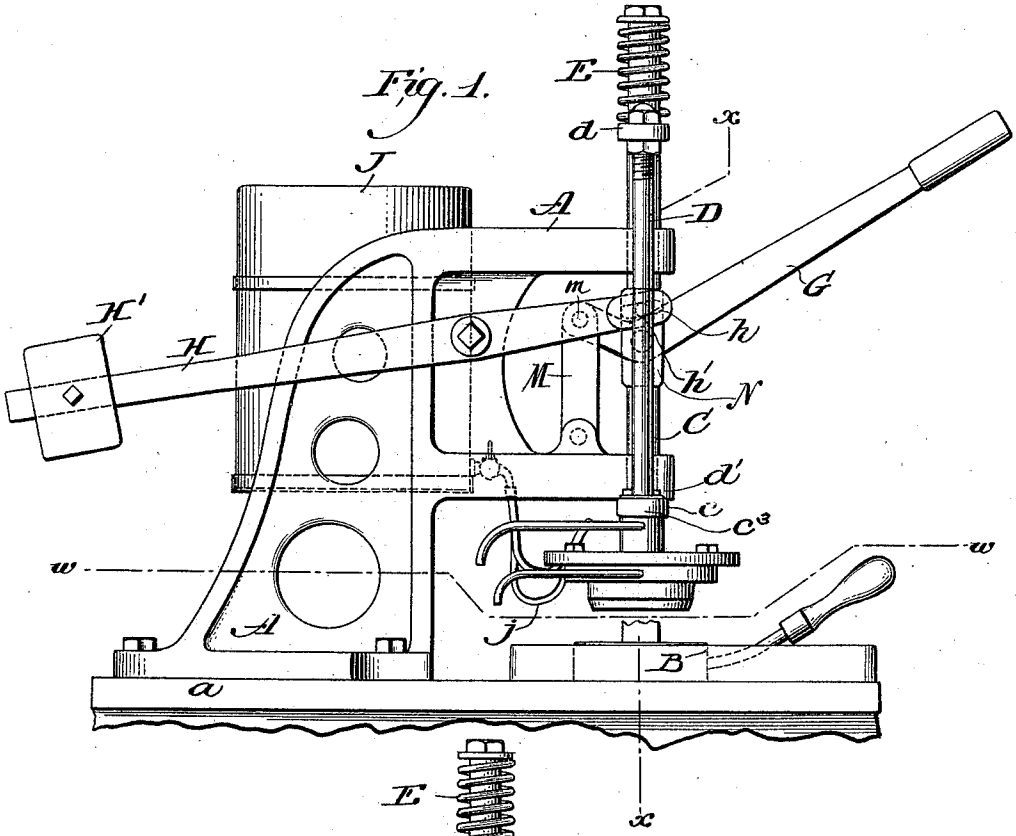
(No Model.) 2 Sheets—Sheet 1.

C. GREBE.

APPARATUS FOR MOLDING GLASSWARE.

No. 519,113. Patented May 1, 1894.

Fig. 1.



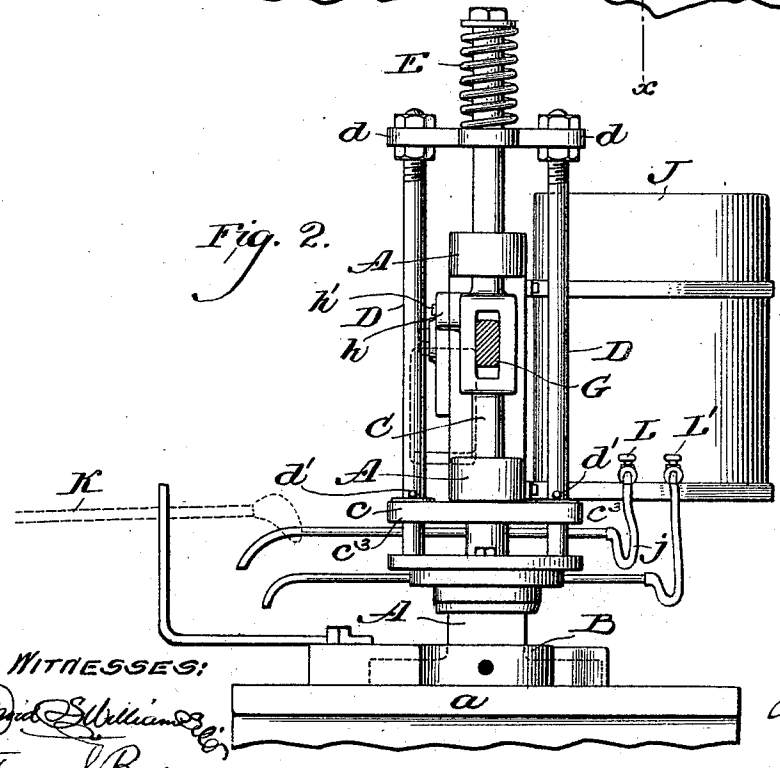


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

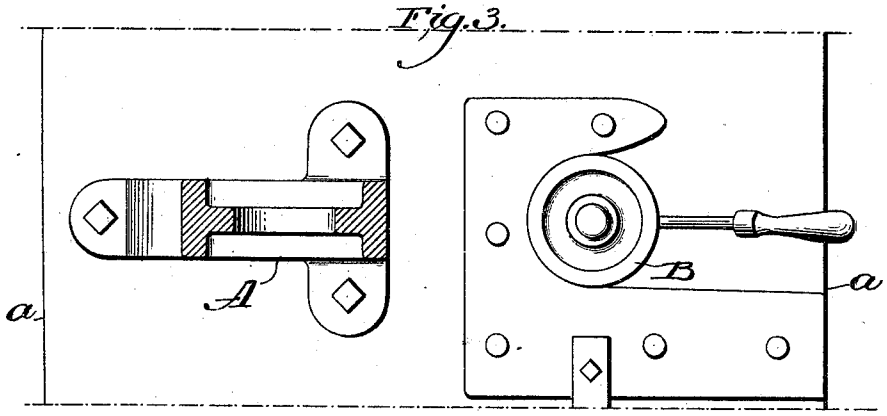


Fig. 4.

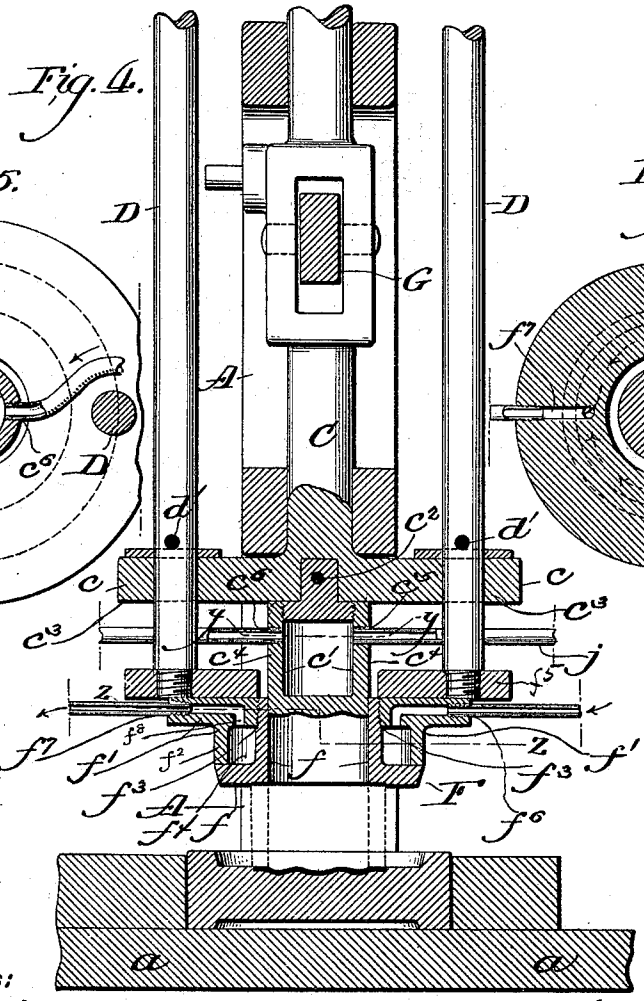


Fig. 5.

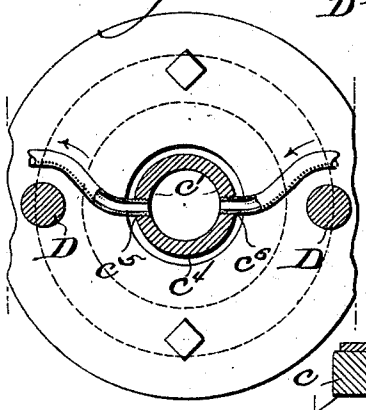
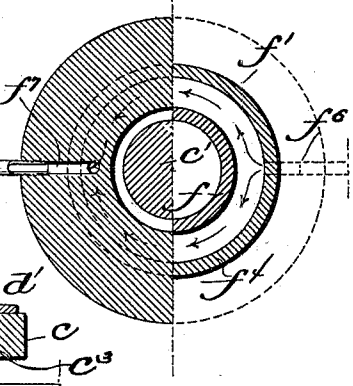


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHRISTIAN GREBE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO SALMON B. ROWLEY, OF SAME PLACE.

APPARATUS FOR MOLDING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 519,113, dated May 1, 1894.

Application filed December 13, 1893. Serial No. 493,530. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN GREBE, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Molding Glassware, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

I will first describe the construction and operation of my device and then specifically point out the invention in the claim.

In the drawings: Figure 1 is a side elevation of a press with my improvements embodied. Fig. 2 is a front elevation of the same. Fig. 3 is a section on line *w—w*, Fig. 1. Fig. 4 is a section on line *x—x*, Fig. 1. Fig. 5 is a section on line *y—y*, Fig. 4. Fig. 6 is a section on line *z—z*, Fig. 4.

A is the frame of the press secured to base *a*. Upon the base *a* is the female die or mold B.

C is the plunger having the cross head *c* to which cross head is secured the plunger mold or die, *c'*, by a pin, c^2, which passes through said mold and the cross head. The cross head, *c*, travels upon the uprights, D, D, which uprights are connected together at the top by the cross piece, *d*, between which and the enlarged top of plunger C is the coil spring, E, coiled around plunger C. *d'* are pins upon the uprights, D, and adapted to be engaged by projections, c^3, upon the cross head, *c*. The plunger die, *c'* has the jacket, c^4, having the orifices, c^5, c^6. The uprights, D, D, pass through bearings, d^2, in the frame of the machine.

F is the male die or mold, and *f* is the die seat. This die seat is of peculiar form, having the hollow circular ring, *f'*, and the downwardly projecting portion, f^2. The male die has the threaded projection, f^3, which screws into corresponding threads in the ring, *f'*, and between the projection, f^2 of the die seat and projection, f^3, is the space or chamber, f^4. f^8 are openings from ring, *f'* to chamber, f^4. The die seat is secured to the frame, f^5, connecting the uprights, D, D.

G is a lever bent as illustrated, pivoted to the upright M, at *m*, and extending through the slotted link N, of the plunger C, and H is a counterweight arm having at one end the counterweight, H', and at the other the slotted link, *h*, in the slot of which rests the pin, *h'*, secured to the plunger, C.

J is a tank containing water. *j* is a flexible tube leading from said tank, J, to the orifice, c^5, in the plunger die jacket, and c^6 is the orifice of discharge. The water circulates around the jacket, entering by orifice, c^5, and leaving by orifice, c^6.

f^6 is an orifice in the ring, *f'*, to which is connected a flexible pipe from tank, J, and f^7 is an orifice for discharge of the water, the water circulating around the ring, *f'*, and the annular space, f^4. The glass to be molded or pressed is carried by the pipe, K, from the pot, and a portion cut off and placed upon the center of the lower die or the base for the plunger, C. The lever G, is then operated, which forces the plunger, C, down, and, through the medium of spring, E, carries downward the uprights, D, D, until the male die carried by the uprights rests upon the female die when the plunger alone has a further downward movement until it strikes the male die, when it forces the glass outward to fill the mold formed by the male and female die. When the article is formed, the lever is lifted and the spring brings the plunger up until the counterweight acts to lift both the plunger and the uprights.

My invention is formed in that portion of the apparatus which comprises the plunger die and male die, their construction and arrangement for the purpose of keeping these parts cool during the operation. In the manufacture of pressed glass-ware of this character and by these means, the action of the plunger die and male die upon the hot glass rapidly heats the same, causing the glass to stick to the parts and forming imperfect articles, while, if the dies be removed and cooled by plunging in cold water, they are liable to be brought to such a temperature as to crack or break the glass by chilling, also the time lost in so cooling the parts is considerable. By the construction of dies shown and described and the connections to the source of water supply, the temperature of the dies can be kept even, avoiding any necessity of stopping the operation to cool the parts and the

work can proceed continuously without the sticking or breaking of the glass, and the connections enable the water to pass through in all portions of the plunger and dies. Cocks, L, L′, are used to regulate the flow of water to the plunger die and male die, so that such quantity of water as is necessary to keep the temperature of the parts even is allowed to pass.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a machine for pressing and molding glass, a male die adapted to reciprocate and means for reciprocating said die, a die seat formed of a hollow ring and projecting surface forming one wall of a chamber, there being an upwardly projecting surface from the die forming the other wall of the chamber, said ring having orifices which open into said chamber, a die plunger provided with a chamber and orifices which open into the last named chamber, a source of water supply, flexible connection between said source of supply and one of the die plunger chamber orifices and between said source of supply and one of the male die chamber orifices, and discharge openings from each chamber, substantially as described.

In testimony of which invention I have hereunto set my hand.

CHRISTIAN GREBE.

Witnesses:
FRANK S. BUSSER,
JOHN F. CARR.