

No. 666,595.

Patented Jan. 22, 1901.

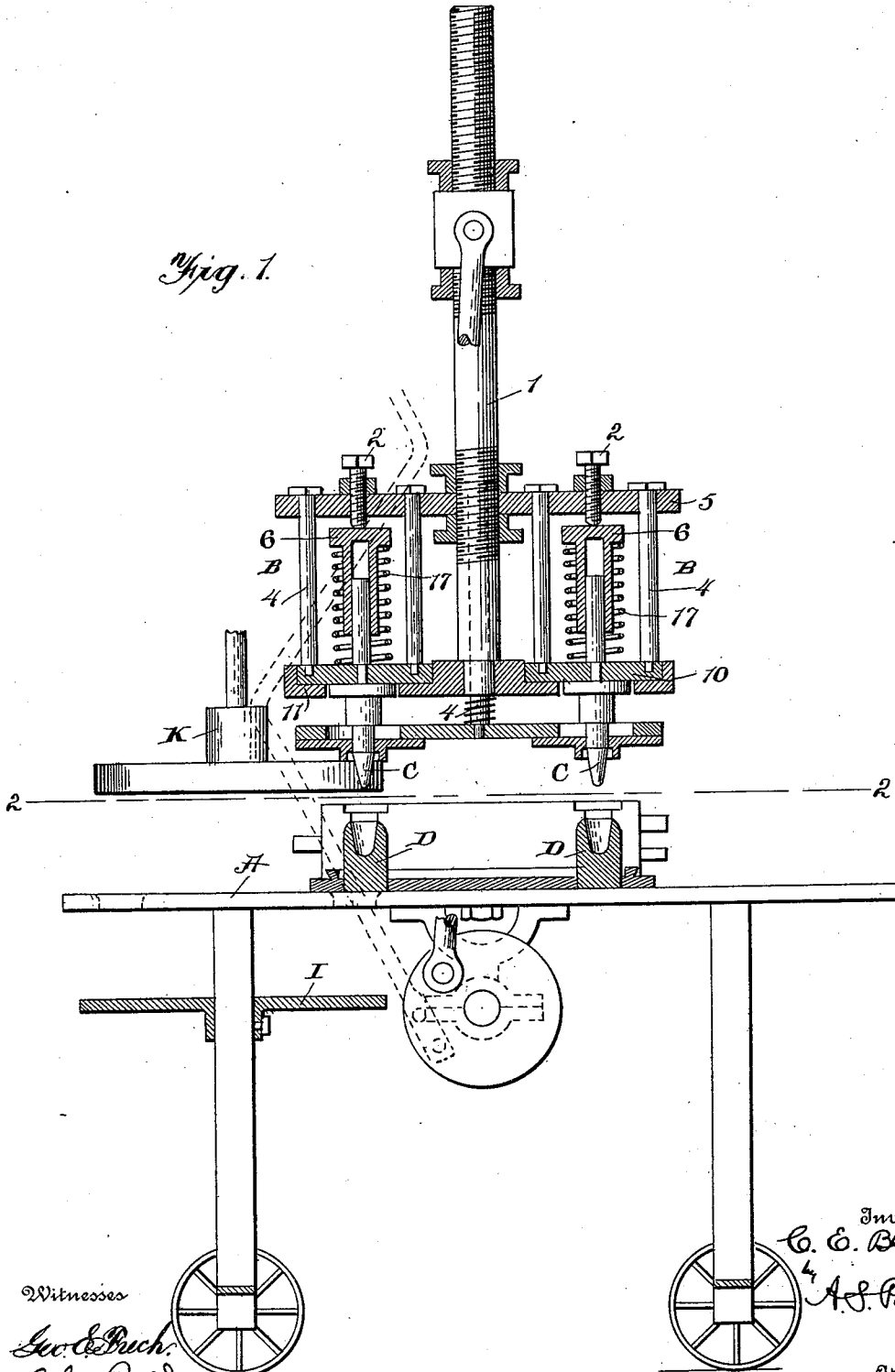
C. E. BLUE.

MACHINE FOR MANUFACTURING BLOWN GLASSWARE.

(Application filed July 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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2 Sheets—Sheet 2.

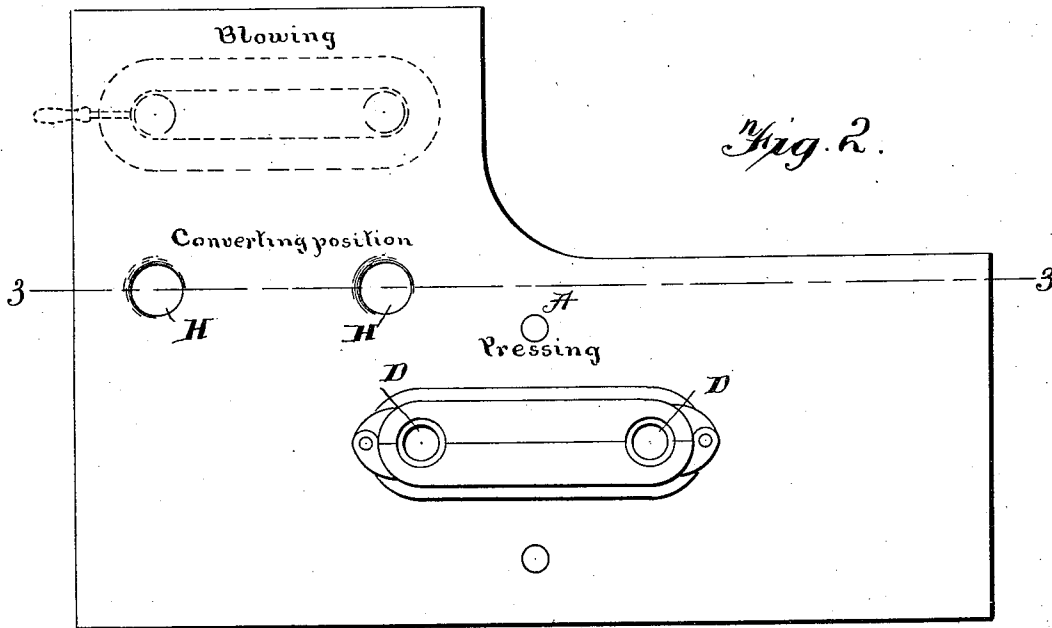


Fig. 2.

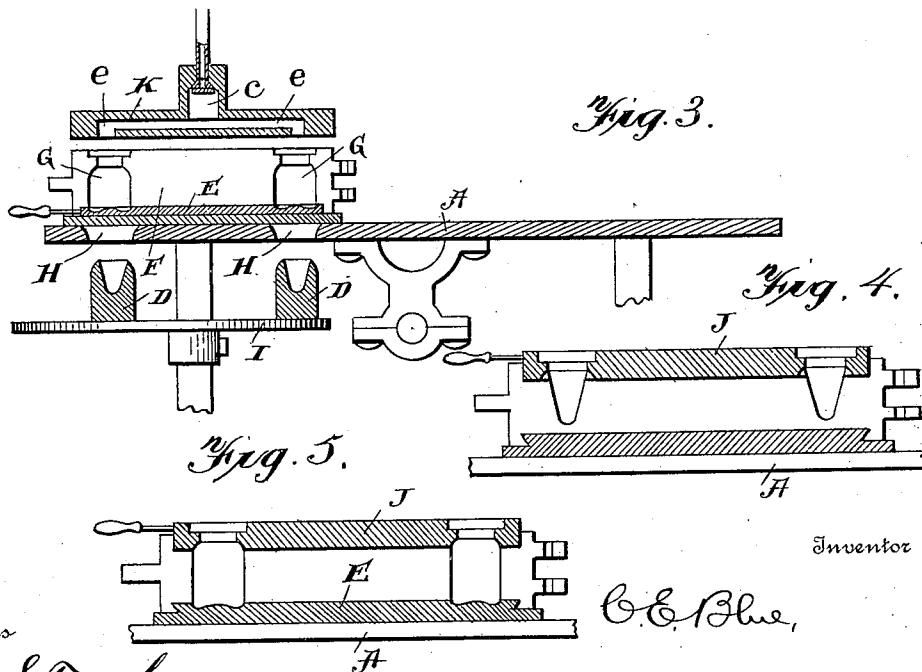


Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES EDWIN BLUE, OF WHEELING, WEST VIRGINIA.

MACHINE FOR MANUFACTURING BLOWN GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 666,595, dated January 22, 1901.

Application filed July 17, 1900. Serial No. 23,937. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWIN BLUE, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Machines for the Manufacture of Blown Glassware, of which the following is a specification.

My invention relates to improvements in machines for the manufacture of pressed and blown glassware, and pertains to a machine constructed and adapted to produce simultaneously a plurality of completed articles, all of which will be fully described hereinafter and particularly pointed out in the claims.

The object of my invention is to produce a machine for the manufacture of pressed and blown glassware in which the construction and relative arrangement of the press and blow molds, the blow-head, and the plungers are such that a plurality of completed articles can be simultaneously produced.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view taken through the plunger mechanism and the molds situated thereunder and in the pressing position. Fig. 2 is a plan sectional view on the line 2 2 of Fig. 1, the molds being shown in full lines in the pressing position and in dotted lines in the blowing position. Fig. 3 is a vertical sectional view on the line 3 3 of Fig. 2, showing the combined press and blow mold in the convertible position with the press-molds removed from the blow-molds. Fig. 4 shows a modification in the construction of the press-molds in that they are entirely separate and distinct from the blow-molds. Fig. 5 shows a similar view of the blow-molds in that they are entirely separate and distinct from the press-molds.

Referring now to the drawings, A is a suitable supporting platform or table, from which projects the standards or columns 1. Supported by these columns or standards 1 is a presser-head B, and this presser-head B carries a plurality of independently-retracting plungers C.

In the operation of my invention to produce a plurality of articles simultaneously it is desirable that the plungers be independently re-

tractable; but they are carried by the presser-head and are moved downwardly simultaneously thereby. The object in having the plungers independently retractable is to permit them to accommodate themselves to the variation in the amount of glass supplied to the press-molds D, respectively, in that it is not practicable for the respective molds to be charged with the same amount of glass. The plungers can be made independently retractable in respect to the presser-head in many ways, and in Fig. 1 I show my preferred way of accomplishing this result. In the example here shown the presser-head is provided with a plurality of tubes 6, the number corresponding with the number of plungers C. The upper ends 7 of these plungers pass into these adjustable guiding-tubes 6, which are provided at their upper ends with flanges or projections for the engagement of the upper ends of the coil-springs 17. The lower ends of these coil-springs are here shown as abutting against a lower vertically-movable plate 10, which is provided with vertically-arranged bolts or standards 4, adapted to pass freely through the upper stationary plate 5 of the presser-head, and the spring thus serves to hold the plate normally downward, and the plate being in engagement with the plunger serves also to hold it normally downward. The downward movement of the plate is limited by the lower stationary plate 11 of the presser-head. Each plunger C is provided with the construction just described, and the tubes 6 are vertically adjustable through the medium of the adjusting-screws 2, by means of which they can be adjusted, and thus increase or decrease the tension of the springs, as may be desired. The presser-head will be moved vertically by hand or any well-known means.

As shown in Figs. 1, 2, and 3, I use a combined press and blow mold in that the press-molds D are adapted to be inserted through the open lower ends of the blow-molds, and when removed therefrom a blow-mold bottom E is placed in its stead for constituting the bottoms of the blow-molds. In this instance each of the blow-mold bodies F is provided with a plurality of blow-cavities G, which, as

just stated, have open lower ends for the purpose of receiving the press-molds D.

As shown and as indicated in Fig. 2, the supporting platform or table A has a pressing position, a converting position, and a blowing position. In the operation of the invention, as illustrated in Figs. 1, 2, and 3, the combined press and blow molds are charged with glass and placed in the position shown in Fig. 1. The presser-head is then depressed, carrying both of the independently-retractable plungers, causing them to enter the said molds and to independently accommodate themselves to any variation in the amount of glass placed in the molds, respectively, whereby each plunger will enter the mold until it is stopped by the glass filling the respective molds under the pressure of the plungers. The combined press and blow molds are then moved to the converting position, Fig. 2, at which point the platform is provided with a plurality of openings H, arranged to register with the openings in the blow-molds, and thus permit the press-molds D to drop therethrough upon a support I. When in this position the pressed blanks are supported by the neck of the blow-molds. At this point the said blow-mold bottom E is placed in position, and which is also provided with a plurality of bottoms adapted to register with the plurality of blow-mold cavities and to form bottoms therefor. The blow-molds are then moved to the blowing position, and the blow-head K is then carried in position thereon by any desired means and is constructed and arranged to have communication simultaneously with the plurality of mold-cavities, whereby the several pressed blanks are simultaneously blown or expanded within the blow-mold cavities. As here shown, the blow-head is provided with lateral passage-ways *e*, having their outer ends registering, respectively, with the blow-mold cavities, and their inner ends in communication with a fluid-pressure-supply passage-way *c*. While I here show a blowing position independent of the converting position, it will be readily understood that the blow-head K can be situated at the converting position and the articles blown at that position; if desired.

Thus far I have described combined press and blow molds; but I wish to state that separate press-molds, as shown in Fig. 4, and separate blow-molds, as shown in Fig. 5, may be provided. In this instance the press-molds will be placed in the pressing position and the blow-molds in another or blowing position and the pressed blanks removed from the press-mold cavities and carried through the medium of the neck-ring J to the blow-mold, or they may be suspended in any manner by the neck-ring and the blow-molds brought to the suspended blank and closed therearound.

By the arrangement of the press and blow molds, the blow-head, and the plungers, as here

shown, arranged, and constructed, I am enabled to produce simultaneously a plurality of completed articles, thus about doubling the output of the machine, and thus materially cheapening the cost of production.

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

1. In a machine for the manufacture of pressed and blown glassware, the combination of a plurality of press-mold cavities, a plurality of blow-mold cavities, a presser-head carrying a plurality of simultaneously and independently acting plungers registering with the plurality of press-mold cavities, and a blow-head having simultaneous communication with each of said blow-mold cavities.

2. In a machine for the manufacture of pressed and blown glassware, the combination of a plurality of press-mold cavities, a plurality of blow-mold cavities, a presser-head provided with a plurality of independently-retractable plungers registering with said press-mold cavities, and a blow-head having simultaneous communication with each of said blow-molds.

3. In a machine for the manufacture of pressed and blown glassware, the combination of a mold-support, a plurality of blow-molds having blow-cavities with open lower ends, independent press-molds adapted to enter said blow-cavities through the lower ends thereof, said mold-support having a plurality of press-mold passages registering respectively with the plurality of blow-mold cavities and through which the press-molds will drop.

4. In a machine for the manufacture of pressed and blown glassware, the combination of a mold-support, a plurality of blow-molds having blow-cavities with open lower ends, independent press-molds adapted to enter the said blow-cavities through the lower end thereof, said mold-support having a plurality of press-mold passages registering respectively with the plurality of blow-mold cavities and through which the press-molds will drop, and a support for the press-molds located below the said blow-mold passages.

5. In a machine for the manufacture of pressed and blown glassware, the combination with a plurality of press-mold cavities, of a presser-head having a rigid upper and lower plate, a plurality of independently-movable plungers, the presser-head provided with adjustable guiding members for the upper ends of the plungers, springs having one end engaging the said guiding members and their other ends causing a downward pressure upon the said plungers.

6. In a machine for the manufacture of pressed and blown glassware, the combination of a plurality of press-mold cavities, a plurality of blow-mold cavities, a presser-

head carrying a plurality of independently-retractable presser-held plungers registering with the plurality of press-mold cavities, a blow-head having communication with each
5 of the said blow-mold cavities, and a blow-mold bottom for the plurality of blow-mold cavities.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES EDWIN BLUE.

Witnesses:

T. F. THONER,
W. V. HOGE, Jr.