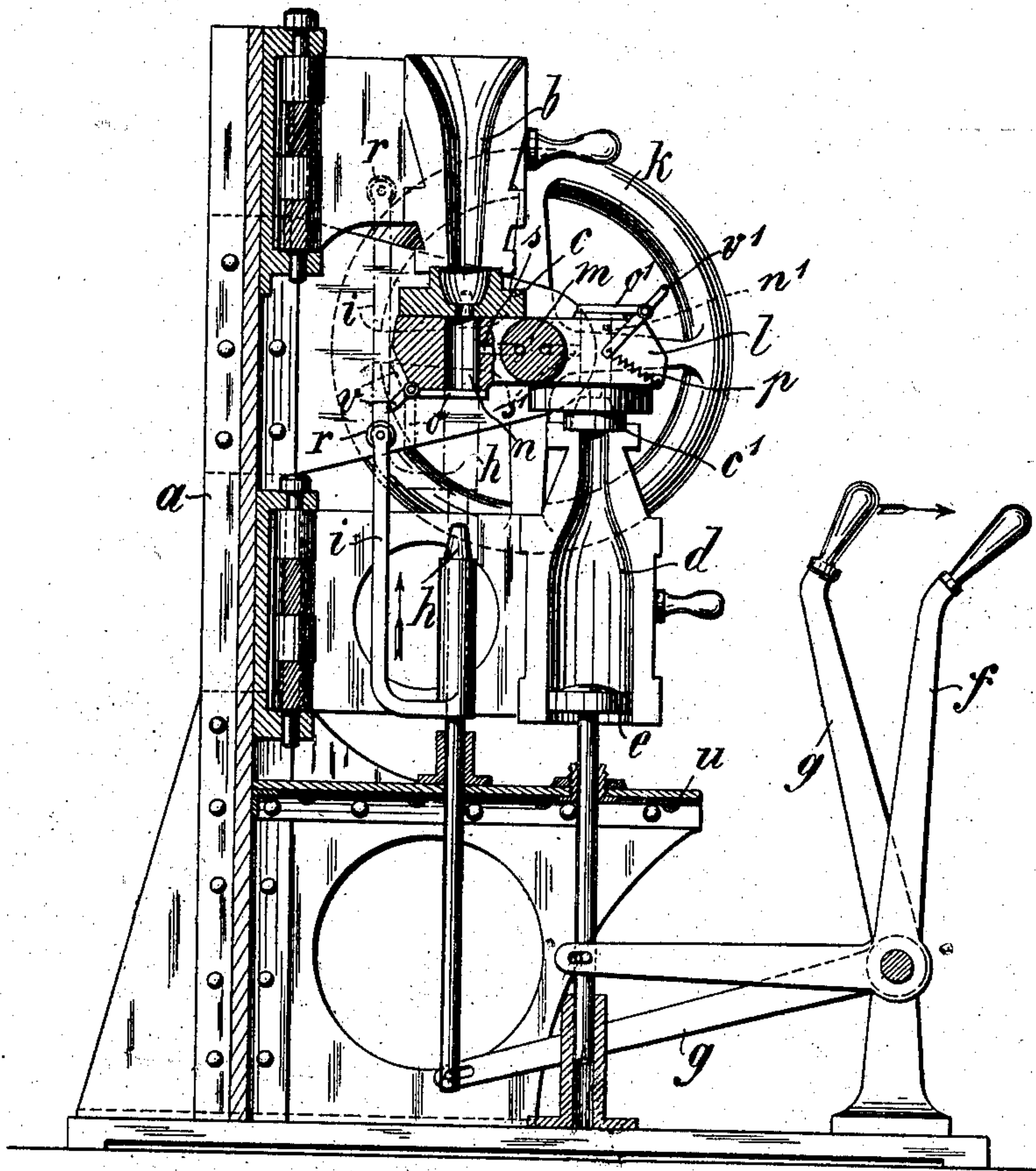


No. 757,356.

PATENTED APR, 12, 1904.

H. SEVERIN.
GLASS BLOWING MACHINE.
APPLICATION FILED JUNE 22, 1903.

NO MODEL.



Witnesses:

James L. Norris, Jr.

W. H. Keefe

Inventor

Heinrich Severin

By James L. Norris

Atty

UNITED STATES PATENT OFFICE.

HEINRICH SEVERIN, OF ACHERN, GERMANY.

GLASS-BLOWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 757,356, dated April 12, 1904.

Application filed June 22, 1903. Serial No. 162,641. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH SEVERIN, a citizen of the Empire of Germany, and a resident of Achern, Germany, have invented certain
5 new and useful Improvements in Glass-Blowing Machines, of which the following is a specification.

This invention relates generally to glass-blowing machines, and particularly to a machine of this character adapted for the manufacture of hollow glass articles of all kinds,
10 especially for the production of bottles.

The object of the invention is in a ready, simple, thoroughly feasible, rapid, and practical manner and purely by mechanical means
15 to manufacture bottles all the parts of which shall be perfectly finished and equal in every respect hand-made bottles; furthermore, to protect those parts of the machine subjected
20 to the greatest wear from rapid deterioration in use.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the
25 novel construction and combination of parts of a glass-blowing machine, as will be hereinafter described and claimed.

In the accompanying drawing, forming a part of this specification and in which like
30 characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited
35 may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof, and in this drawing the figure is a view in vertical longitudinal section of the machine character-
40 izing the present invention.

In machines of this character as heretofore employed an inherent disadvantage that militates against their employment is that the output for a given time is not commensurate with
45 the labor involved to render their adoption practical. This is due to the fact that one bottle has to be completely finished before another one is begun; otherwise the mouth-forming plunger would not have sufficient

time to cool, and the result would be that
50 such plunger would quickly become worn and would produce uneven mouthpieces, and to obviate this frequent renewal of the mouth-forming plunger will be necessary, thereby
55 entailing loss of time and great expense.

In the machine of the present invention the above objectionable features are avoided in a ready and thoroughly practical manner, and a larger number of bottles or other articles
60 can be produced by its employment than has heretofore been possible. By reason of the manner in which the mouth-plunger is disposed with relation to the receiving-mold there is ample time between the operations of forming a mouthpiece to permit it to cool suffi-
65 ciently to prevent any deterioration or damage from the heat to which it is subjected. Furthermore, owing to the rapidity with which the bottles are made the bottle-mold remains at practically the same temperature, and this
70 results in the output of a bottle having a highly-finished or glossed exterior.

A salient feature of the present invention is that instead of employing a single mouth-mold, as heretofore, or two mouth-molds dis-
75 posed coaxially there are employed two mouth-molds which are arranged on a rotatable plate and at the terminals thereof, one of which mouth-molds closes the lower end of the receiving-mold and the other the upper end of
80 the finishing or bottle mold, the said molds being multipart structures suitably hinged to the frame of the machine and adapted to move laterally with relation thereto. To permit the mouth-plunger to enter the mouth-molds,
85 the plate by which the molds are carried is provided with two bores, each of which is normally closed by a suitable valve adapted automatically to be opened by means carried by the mouth-plunger before the latter enters
90 the bore and is automatically closed again after the mouth-plunger has receded from the bore, the operative end of the mouth-plunger being so arranged that when idle it is free from contact with any part of the machine,
95 whereby it is allowed rapidly to cool.

On the frame *a* of the machine are arranged the receiving-mold *b* and the finishing or bot-

the mold d , each of which consists of two sections hinged to the frame in any suitable manner to permit of the sections being opened or moved laterally. Between the two molds is arranged a plate l , which is mounted upon an axle m , and upon the terminal portions of this plate and on opposite sides thereof—that is to say, one on the upper and the other on the lower—are mounted the mouth-molds c and c' , said molds communicating with bores n n' , provided for the reception of the mouth-plunger. When the plate l is in the position shown, the mouth-mold c closes the lower part of the receiving-mold b and the mouth-mold c' closes the upper part of the finishing-mold d , it being understood that when the position of the plate is reversed the coöperative relation between the parts described is likewise transposed.

Arranged within the bottom of the finishing-mold is a piston or plunger e , which is adapted to be reciprocated vertically by a hand-lever f , said plunger operating to support the bulb when first inclosed within the finishing-mold, thus to prevent undue lengthening with attendant danger of breaking or tearing the mouthpiece loose from the bulb.

The machine is provided with a table u , as usual, and on this table are arranged two bearings, one for the reception of the stem of the plunger e and the other for the reception of the stem of the mouth-plunger h , which latter is adapted to be reciprocated vertically by a hand-lever g . This plunger h serves to form the mouth of the bottle and for that purpose enters either of the bores n n' of the plate l , according to its position, and as soon as the mouth-plunger recedes from the bore with which it is coöperating the said bore is automatically closed to prevent the compressed air employed in blowing the bulb from escaping. For this purpose suitable valves o and o' are provided, which in this instance are shown as in the nature of flap-valves suitably hinged to the plate l , the valves being held normally closed by means of springs p , connected, respectively, with the plate l and with a pair of arms v v' , secured to the valves. These arms project beyond the valves, and the projecting portions are engaged by a roller r , carried by an arm i , secured to the mouth-plunger. By the arrangement shown when the mouth-plunger is raised the roller r engages with the projecting part of the arms v or v' , as the case may be, and throws the valve downward in advance of the plunger h , thereby leaving the latter free to enter the bore n or n' , as the case may be, and as the plunger recedes from the bore with which it has just coated the spring causes the valve automatically to close, thus preventing the escape of compressed air. Compressed air from any suitable source is admitted to the bores n and n' , and thus to the glass bulb, through ducts

s s' , formed in the axle m , suitable valves (not shown) being provided to control the supply of air.

The operation of the machine is as follows: Assuming the parts to be in the position shown, with one of the mouth-molds closing the receiving-mold and the other one the finishing-mold, the liquid glass is supplied to the receiving-mold in the usual manner, and air is admitted to the bore n through the duct s , thereby rendering the glass homogeneous and preventing its running into the bore n . Upon the operator depressing the hand-lever g the mouth-plunger h is lifted and in the manner before described opens the valve o , enters the bore n and the mouth-mold c , and forms the mouth. The mouth-plunger h is then lowered, whereupon the valve o closes the bore n . Both the receiving-mold and the finishing-mold d are now opened, and the plate l is turned through an arc of one hundred and eighty degrees by means of a hand-wheel k , thus supporting the bulb which depends from the mouth-mold c within the finishing-mold, and the plunger e is now lifted to support the bulb, and the receiving and finishing molds are again closed. After the two molds have been closed air is admitted to the bulb in the finishing-mold through the duct s' , and thus effects the finishing of the bottle. During the operation of finishing the bottle a fresh supply of liquid glass has been fed to the receiving-mold, as before, and air is admitted thereto, so that when the finishing-mold is opened for the purpose of removing the finished bottle a fresh bulb is ready to be supplied thereto.

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

1. In a machine for the manufacture of glass articles, the combination with a multipart receiving-mold and a multipart finishing-mold, of a rotatable element, and two mouth-molds arranged alternately at opposite sides of the axis thereof and adapted for closing the lower part of the receiving-mold and the upper part of the finishing-mold.

2. In a machine for the manufacture of glass articles, a multipart receiving-mold, a multipart finishing-mold, a rotatable element carrying two mouth-molds arranged alternately at opposite sides of the axis thereof and adapted for closing the lower part of the receiving-mold and the upper part of the finishing-mold, and means for supplying air under pressure to the two molds.

3. In a machine for the manufacture of glass articles, a multipart receiving-mold, a multipart finishing-mold, a closure for the lower portion of the receiving-mold, and a mouth-plunger provided with means for automatically opening the said closure.

4. In a machine for the manufacture of glass articles, a receiving-mold, a finishing-mold, a

rotatable element carrying two mouth-molds, one of which is adapted to close the lower part of the receiving-mold and the other the upper part of the finishing-mold, a mouth-plunger adapted to coact with the receiving-mold, means for normally closing the entrance to the mouth-mold of the receiving-mold, and means actuated by the mouth-plunger to allow the said plunger to enter the mouth-mold of the receiving-mold.

5. In a machine for the manufacture of glass articles, a receiving-mold, a finishing-mold, a rotatable element carrying two mouth-molds, one of which is adapted to close the lower part of the receiving-mold and the other the upper part of the finishing-mold, means for supplying air under pressure to each mouth-mold, a valve for preventing the escape of air from each of the said molds, a mouth-plunger, and means carried by the plunger to open the valve to permit the plunger to enter the mouth-mold of the receiving-mold.

6. In a machine for the manufacture of glass articles, the combination of a multipart receiving-mold; a multipart finishing-mold, a rotatable element provided with bores, mouth-molds carried by opposite sides of the element and communicating with the bores, valves for closing the bores, a mouth-plunger coacting with the receiving-mold, means for releasing the valve of the bore with which the plunger coacts, to permit the latter to enter the mouth-mold of the receiving-mold, and a bulb-supporting plunger coacting with the finishing-mold.

7. In a machine for the manufacture of glass articles, the combination with a receiving-mold formed in two sections, and a finishing-mold formed in two sections, of a rotatable plate, and two mouth-molds arranged alternately at

opposite sides of the axis thereof and adapted for closing the lower part of the receiving-mold and the upper part of the finishing-mold.

8. In a machine for the manufacture of glass articles, the combination with a receiving-mold formed in two sections, and a finishing-mold formed in two sections, of a rotatable plate, of two mouth-molds arranged alternately at opposite sides of the axis thereof and adapted for closing the lower part of the receiving-mold and the upper part of the finishing-mold, and a mouth-plunger arranged out of contact with the parts of the machine.

9. In a machine for the manufacture of hollow glass articles, the combination with a receiving-mold and a finishing-mold, each consisting of two sections, of a rotatable plate, two mouth-molds arranged alternately at opposite sides of the plate and of the axis thereof, said plate being provided with bores communicating with the mouth-molds, valves for closing the bores, and a mouth-plunger provided with means for opening a valve before the plunger enters a bore.

10. In a machine for the manufacture of hollow glass articles, the combination with a receiving-mold and a finishing-mold each consisting of two sections, of a rotatable plate, two mouth-molds arranged alternately at opposite sides of the plate and of the axis thereof, said axis being provided with ducts to supply air to the mold at the same time but independently of each other.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HEINRICH SEVERIN.

Witnesses:

JULIUS SÜBER,
GUSTAV SCHWEISS.