April 3, 1956 L. BERG 2,740,159

AIR CYLINDER LOCKING MEANS FOR SPINNING MOLD FIXTURES

Filed Aug. 30, 1952 3 Sheets-Sheet 1

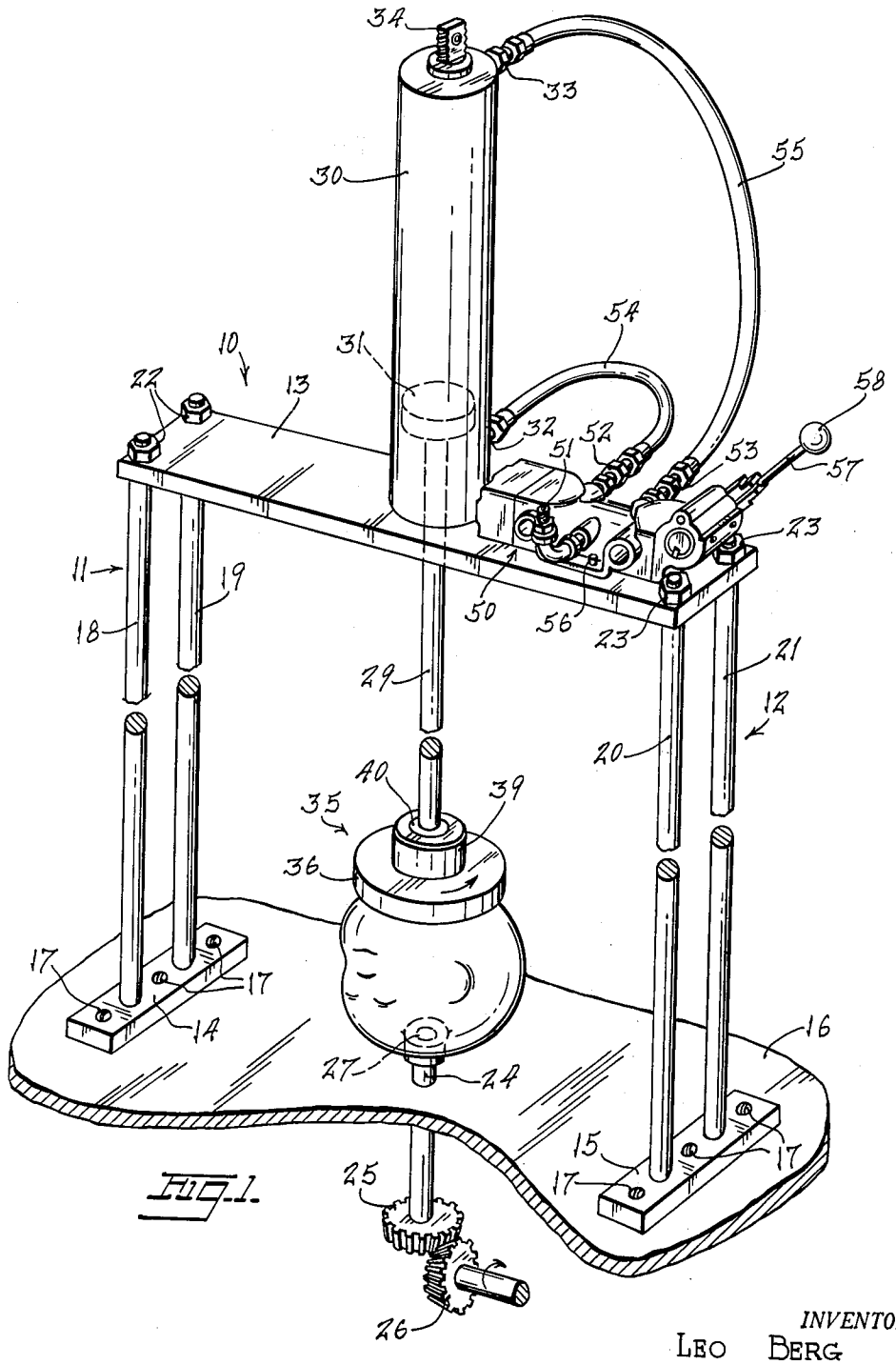


FIG. 1.

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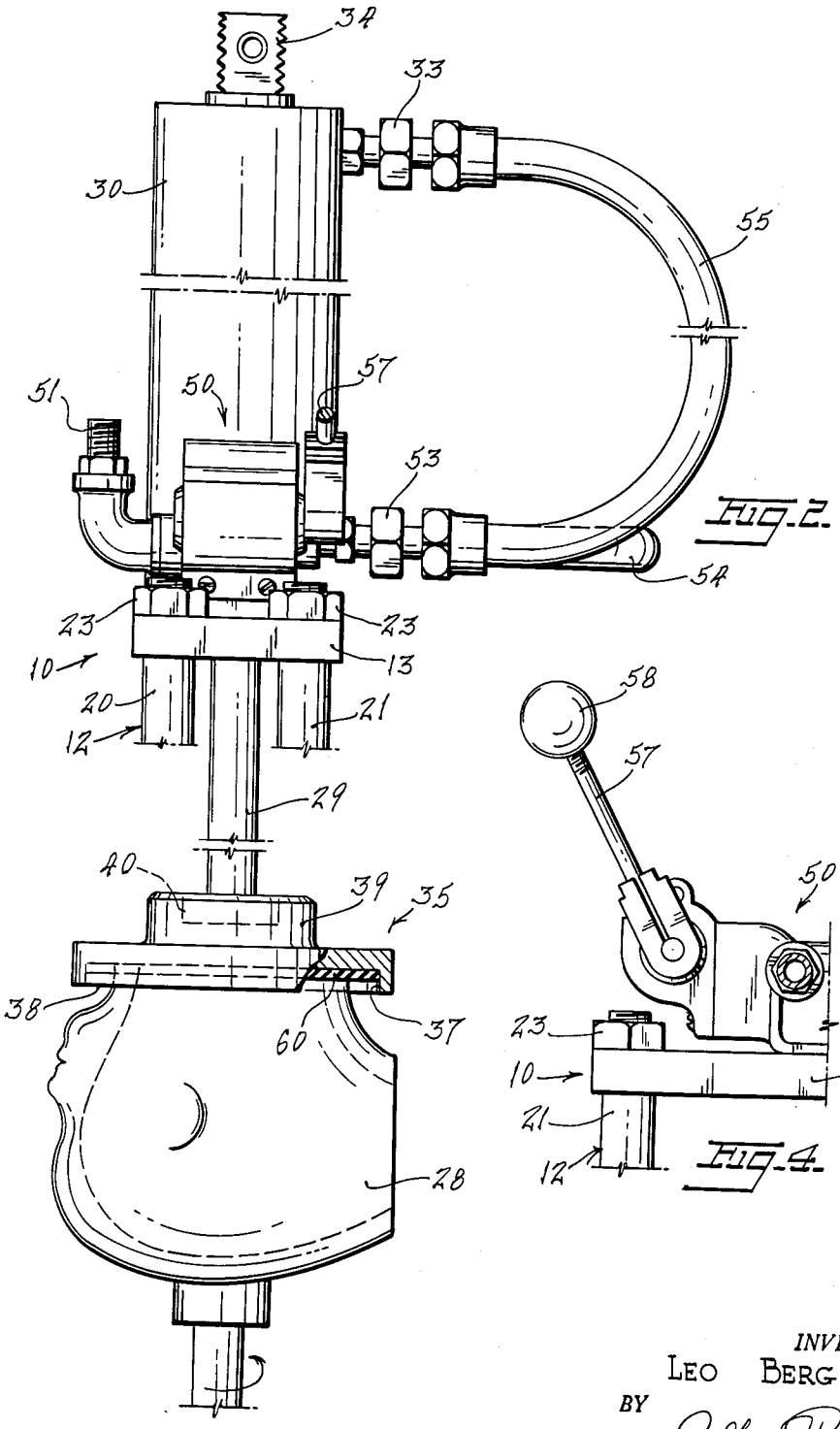


Fig. 2.

Fig. 4.

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3 Sheets-Sheet 3

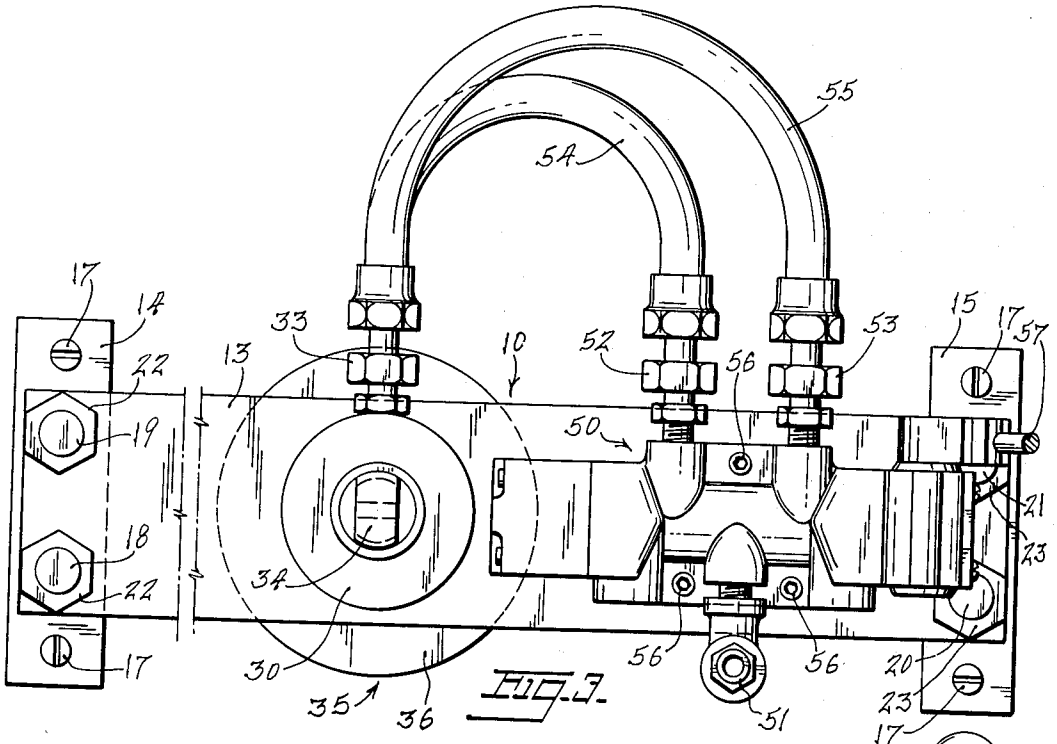


FIG. 3.

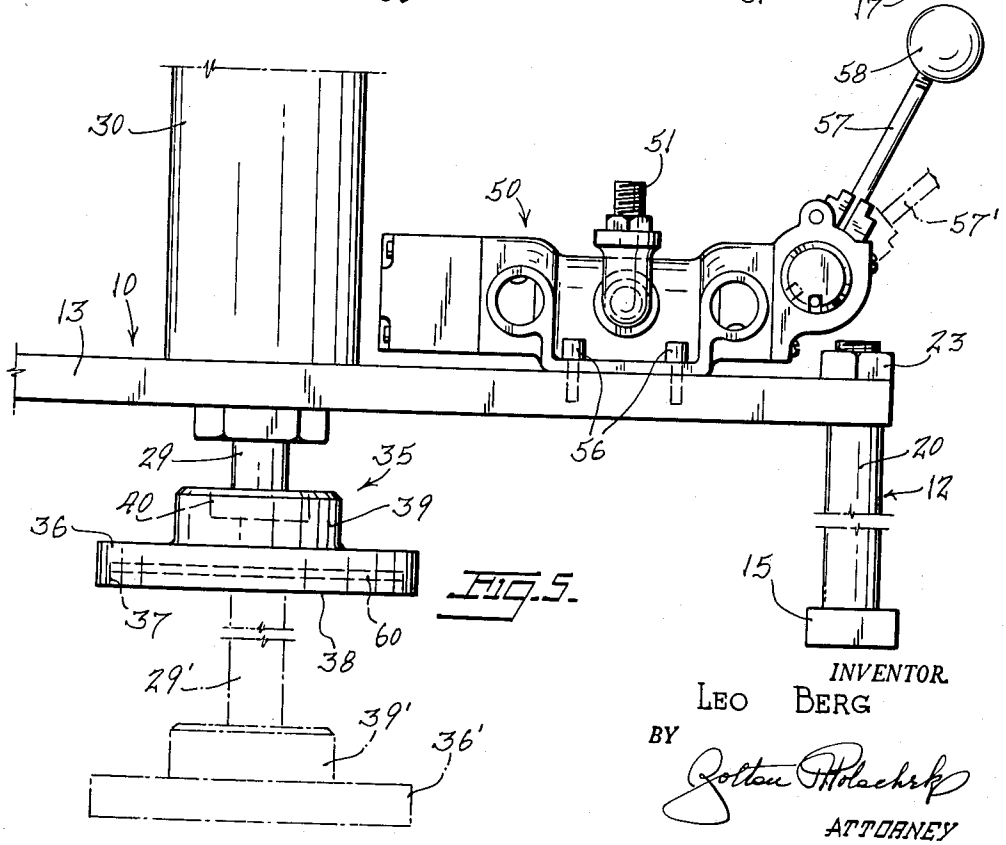


FIG. 5.

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AIR CYLINDER LOCKING MEANS FOR SPINNING MOLD FIXTURES

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Application August 30, 1952, Serial No. 307,337

1 Claim. (Cl. 18—26)

This invention relates to a new and improved machine for molding hollow articles and more particularly a molding machine of the spinning type.

The particular embodiment of the present invention which is illustrated in the drawings and which will be described hereinafter in greater detail, comprises generally, an upstanding rotatable shaft, a depending shaft axially aligned with and spaced from the first named shaft, and a closure plate rotatably secured to the depending end of the second named shaft.

It is a principal object of the present invention to provide a simple and efficient means for producing bubble free hollow articles, such as doll heads and the like.

Another object of the present invention is to provide a molding machine of the spinning type in which the mold is securely held at opposite ends.

Still another object of the present invention is to provide a molding machine of the spinning type in which the molding material is sealed in the mold during spinning.

Yet another object of the present invention is to provide a molding machine adapted to operate with molds of various sizes.

It is a further object of the present invention to provide a molding machine of the spinning type having a minimum of moving parts.

Still a further object of the present invention is to provide a molding machine which reduces production time and loss of material.

Yet a further object of the present invention is to provide a molding machine which is simple and durable, which is effective for its intended purposes and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a device constructed in accordance with the present invention showing a mold in operating position.

Fig. 2 is a fragmentary side view of Fig. 1.

Fig. 3 is a top view of Fig. 1.

Fig. 4 is a rear fragmentary view showing the valve actuating means.

Fig. 5 is a fragmentary front elevation view showing an alternate position of movement of the closure plate in dotted outline.

Referring now more particularly to the drawings, the embodiment of the invention illustrated therein comprises a frame, generally designated **10**, which includes a pair of spaced standards or uprights **11** and **12**, and a cross member **13**. A pair of base or mounting plates **14** and **15** are arranged in spaced relation with respect to each other and fixedly secured to base **16** by volts **17**. Each of the uprights **11** and **12** include a pair of vertically disposed parallel spaced rods or poles **18, 19, 20**, and **21**

having their lower ends fixedly secured in base plates **14** and **15**. The cross member **13** extends between the uprights **11** and **12** and is formed to receive the end portions of rods **18, 19, 20** and **21**, which rods are provided with threaded portions adjacent their upper ends for engagement with hold-down nuts **22** and **23**.

Extending upwardly through base **16** and journaled therein is a rotatable stub-shaft **24**, which is spaced below and under the cross member **13**. The stub-shaft **24** is adapted to be rotatively driven by means of the bevel gears **25, 26**. A bushing **27** formed in the bottom of a mold **28** is frictionally secured to the upper end of the stub-shaft **24**.

Depending from cross member **13** in axial alignment with and spaced above stub-shaft **24** is a vertically shiftable shaft **29**. Mounted on the upper side of cross member **13** is a vertically disposed cylinder **30** which is arranged in alignment with shafts **24** and **29**. The upper end of shaft **29**, extends through cross member **13** and is secured to a piston **31**, the latter being slidable in cylinder **30**. Cylinder **30** is provided with conduit connections **32** and **33** adjacent its opposite ends, and a blow-off valve **34** in its upper end.

Adjacent the lower end of shaft **29** is a mold closure plate, generally designated **35**. The closure plate is composed of a lower disc **36** having a cavity **37** formed in its lower face **38**.

On top of the disc **36** an integral upper disc **39**, is formed which is provided with a thrust bearing **40** for engagement with the depending end of shaft **29**. The thrust bearing **40** may be of conventional design, such as ball, or roller and is not shown in detail.

For connecting the cylinder **30** to a source of fluid pressure, not shown, a two-way or multiple valve, generally designated **50**, is mounted on the upper side of cross member **13**. The valve **50** is provided with a coupling **51** for connection with a source of fluid pressure, and is also provided with conduit connections **52** and **53** for communication with the lower and upper ends of cylinder **30**, respectively. It has been found preferable to use flexible conduit such as shown at **54** and **55**. The two-way valve **50** is secured to cross member **13** by the bolts **56** and is provided with a vertically swinging actuating lever **57** and hand knob **58**.

In operation, the mold **28** is coupled to shaft **24** and a quantity of fluid vinyl molding compound is inserted therein. It is appreciated that the molding compound may be inserted prior to positioning the mold on shaft **24**. The shaft **29** is lowered by fluid pressure in the upper end of cylinder **30** and a gasket or rubber sheet **60** in the recess **37** is forced against the mold to seal the opening therein. Of course, the closure plate **35** is connected to shaft **29** through the thrust bearing **40** and moved in closing relation with respect to mold **28** before the mold is positioned on shaft **24**.

With the fluid pressure in the upper end of cylinder **30** holding the closure plate firmly against the mold **28**, rotative movement of the mold **28** is effected through the beveled gears **25** and **26**, by a motor or other means, not shown. The rotative or spinning movement of the mold **28** causes the molding material to flow outwardly against the surface of the mold, the gases being forced out of the molding material. Thus, it is seen that a bubble free product will be produced. By this invention, the spinning may be at relatively high speed and it is seen that no molding material can be lost. In practice, a spinning period of 15 seconds has proved satisfactory. After spinning, the mold is removed for heat treatment and liquid cooling, and then the finished article may be pulled out of the mold.

From the foregoing, it is apparent that the invention provides a much safer and faster molding operation than heretofore known in the art. As the mold is firmly se-

cured at one end to shaft 24 by coupling 27 and as the other end of the mold extends into recess 37 and is held firmly against the gasket or rubber sheet 60, it is seen that the mold cannot fly off to cause injury or damage. It is also apparent that the device is adaptable to all size molds, as the closure plate is vertically shiftable with shaft 29 and can be held firmly against a mold in any position of its vertical movement.

The device may be fabricated of any suitable material, such as wood, plastic or metal but it is preferred to select materials having a high resistance to shock and vibration.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

A device for molding hollow articles comprising a base, an upstanding shaft rotatably mounted on said base and adapted to support a mold, a frame mounted on said base and extending over said shaft, a second shaft depending from said frame in axially aligned spaced relation with respect to said first named shaft and movable toward and away from the latter, a means for moving said second shaft toward and away from said first shaft, a mold closure plate arranged transversely of said second shaft adjacent the depending end thereof and rotatably secured thereto, said means comprising an upstanding cylinder arranged above said second shaft and mounted on said frame, a piston slidable in said cylinder and connected to said second shaft, said cylinder being adapted for connection to a source of fluid pressure for effecting the movement of said piston.

References Cited in the file of this patent

UNITED STATES PATENTS

1,318,520	Wolever	Oct. 14, 1919
1,358,435	Frank	Nov. 9, 1920
1,757,274	Underwood	May 6, 1930
1,832,066	Von Webern	Nov. 17, 1931
1,895,245	Geisler	Jan. 24, 1933
2,236,416	Serenyi et al.	Mar. 25, 1941
2,278,858	Fields	Apr. 7, 1942
2,415,620	Woock	Feb. 11, 1947