July 21, 1925. 1,547,146

K. E. PEILER

TAKING OUT DEVICE FOR GLASS SHAPING MACHINES

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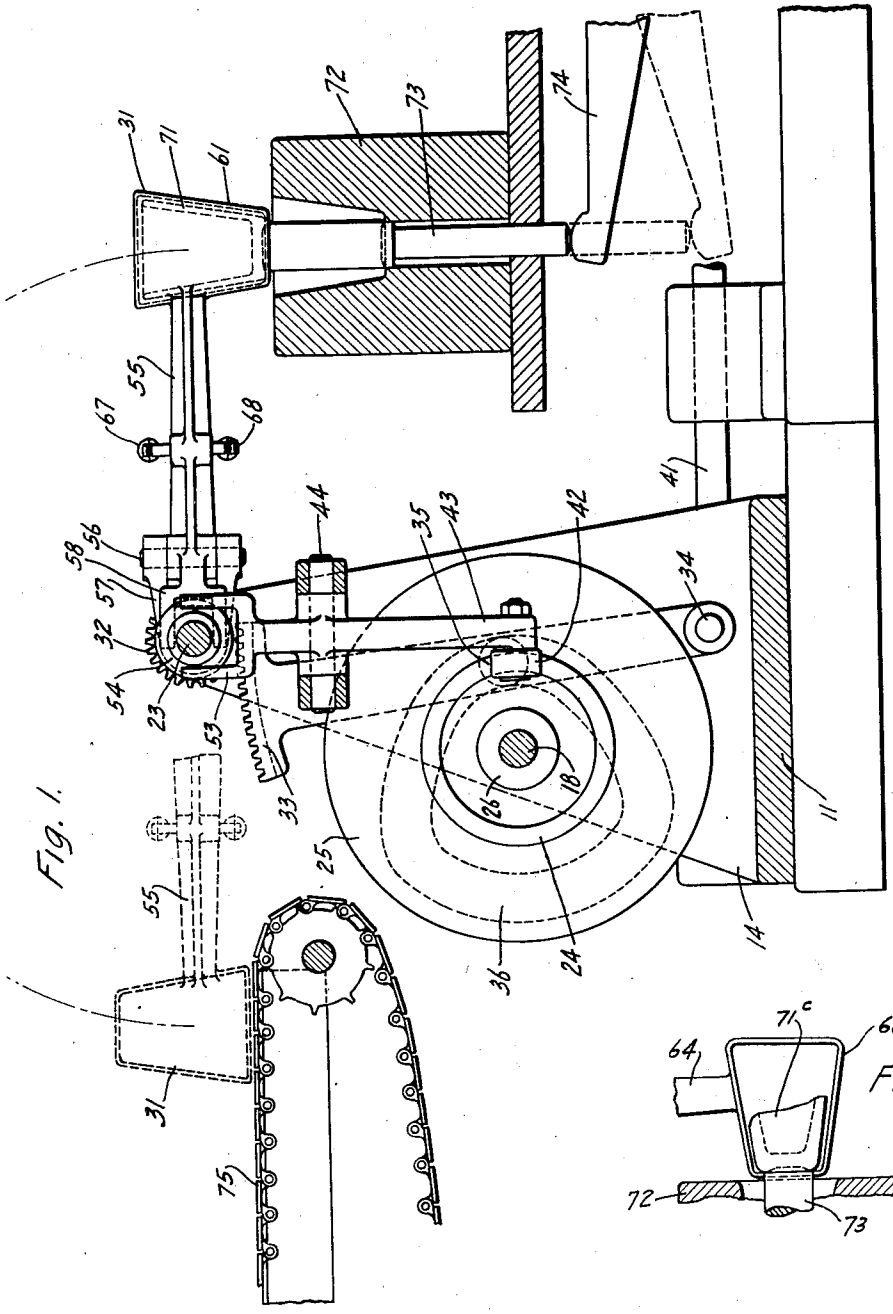



Fig. 1.




Fig. 6.

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Fig. 2.

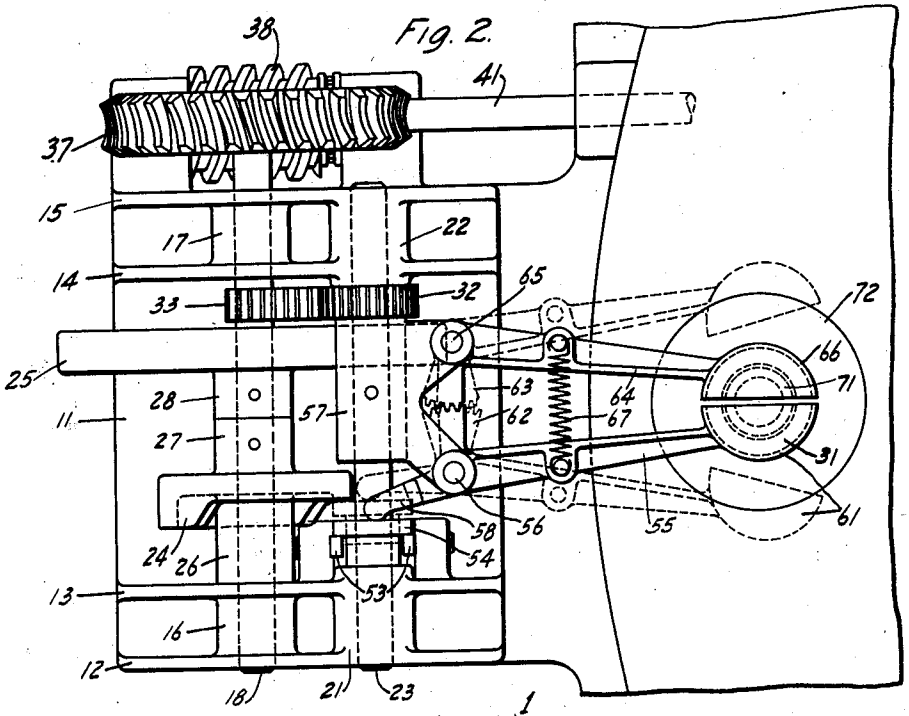



Fig. 3.

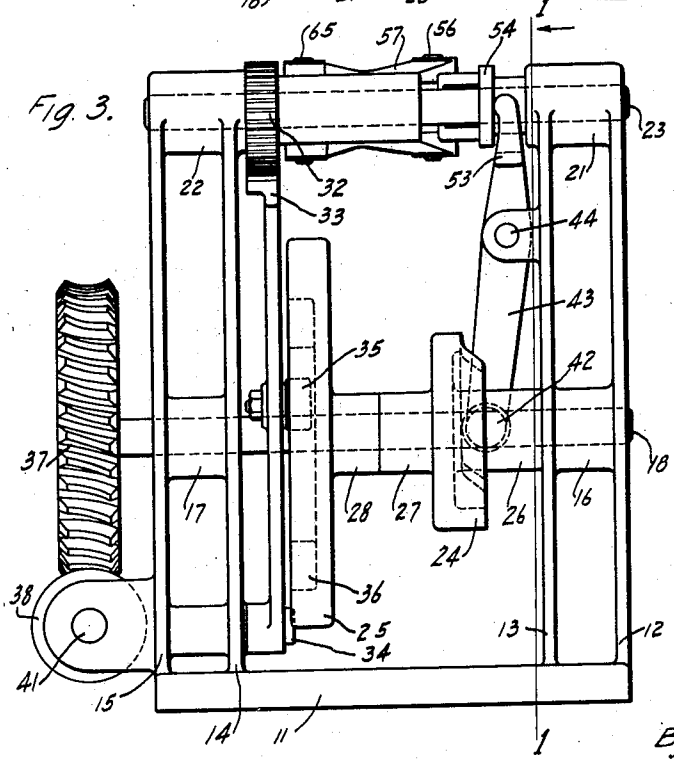



Fig. 4.

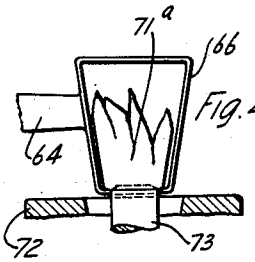
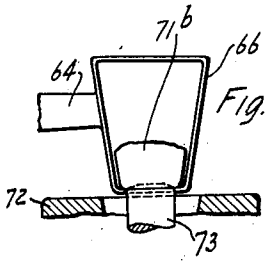



Fig. 5.




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# UNITED STATES PATENT OFFICE.

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## TAKING-OUT DEVICE FOR GLASS-SHAPING MACHINES.

Application filed September 3, 1920. Serial No. 407,868.

*To all whom it may concern:*

Be it known that I, KARL E. PEILER, a citizen of United States, residing at West Hartford, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Taking-Out Devices for Glass-Shaping Machines, of which the following is a specification.

This invention relates to an improvement in ware taking out mechanism and it is the principal object of the invention to provide means for holding a finished article without damage thereto, or an occasional imperfect article or unshaped mold charge, in such a manner as to prevent its dropping out of the holder before it reaches its intended delivering position.

The invention is herein illustrated by a device designed particularly for automatically performing the function known to glass workers as "taking out" which is to receive the glassware from a shaping machine or mold in which it has been formed, as by pressing or blowing, and transferring it to a conveyor by which it is transported to other apparatus for further treatment.

In the accompanying drawings in connection with the following description, there is disclosed the preferred form of the invention, although various other forms of mechanical arrangements may be used without departing from the spirit of the invention as set forth herein and defined in the claims appended hereto, the form shown being selected merely for illustrative purposes.

Fig. 1 is a vertical longitudinal section on plane 1—1 of Fig. 3; showing most of the apparatus in side elevation;

Fig. 2 is a plan view;

Fig. 3 is an end elevation.

Figs. 4, 5 and 6 are vertical detail sections through the ware holders and the articles carried thereby, Fig. 4 showing the grasping of a broken article, Fig. 5 of an unpressed mold charge, and Fig. 6 of a partly pressed mold charge.

The principal function of the machine is best illustrated in Fig. 1 in which the ware holders 31, shown at the right in full lines, are receiving the ware 71 from a forming mold. From this position the ware holders are swung over to the left through the semi-circular path indicated by a dot and dash line, and deposit the ware in an inverted position on a carrier or receiving plate or other desired member, the ware holders being opened and closed at one or both of these stations as may be desired.

The supporting frame of my machine comprises a suitable base 11 on which are mounted brackets 12, 13, 14 and 15, which provide bearings 16 and 17 for a shaft 18 carrying cams 24 and 25, and bearings 21 and 22 for a rock shaft 23.

The mechanism for transferring the ware comprises ware holders 31, which consist of a pair of arms 55 and 64 pivoted at 56 and 65 in a housing 57 on rock shaft 23 and normally held together by springs 67 and 68. The outer ends of the arms terminate in cup shaped members 61 and 66, forming a holder which has projections at both top and bottom, thus overlapping the ends of the ware to retain it in the holder. The inner ends of the arms comprise toothed sectors 62 and 63, so that swinging arm 55 will oscillate arm 64 through the interengagement of the sectors. The arms are oscillated to open and close the cup shaped members through a forked projection 58 on arm 55 to which motion is imparted by a collar 54 when the latter is moved by the forked end 53 of a lever 43, pivoted at 44 to bracket 13, the opposite end of lever 43 carrying a roller 42 which is actuated by cam 24.

The ware holders 31 are swung from one side of the machine to the other by a gear 32, mounted on rock shaft 23 and rotated by a toothed sector 33 that is pivoted at 34 to brackets 14 and 15, and carries a roller 35 operating in slot 36 in closed cam 25.

The shaping machine carries a series of molds 72 which are successively positioned adjacent to the take-out as shown in Fig. 1. Each mold has a bottom part 73 known as a "valve" which may be raised to eject an article 71 therefrom to the desired height for reception by the ware holders. Although the particular mechanism for raising the mold valve 73 and thus for raising an article from a mold forms no part of the present invention and is not described in detail, this operation may be effected by any well-known means, as by causing a lever 74, actuated by a suitable cam, to raise the valve 73 at the proper time.

The apparatus may be driven from or in synchronism with the associated shaping

machine, and for the purpose of illustration shaft 18 is shown as having a worm wheel 37 which meshes with a worm 38 on the drive shaft 41 of the shaping machine.

Assuming the ware holders 31 to be open at the delivering position, or left of the machine, the rotation of shaft 18 and cams 24 and 25 will oscillate toothed sector 33, swinging the ware holders over to the receiving position at the right of Fig. 1, where they surround the valve and the molded article as the latter is ejected from the mold. The rotation of cam 24 permits the springs 67 and 68 to close the cup shaped members around the article. The ware holders will then be swung back to the delivering position by the operation of cam 25, and cam 24 will open the members 61 and 66, permitting the article to drop onto the conveyor 75 and be carried away for further treatment, after which the same steps are repeated.

As herein shown the cup shaped members remain open while the ware holders are being swung from the delivering to the receiving position and hence are opened and closed only once for each revolution of shaft 18, although by suitable shaping of cam 24 they can be opened and closed when and where desired. The ware or other article may be deposited on a conveyor as here shown, or it may be deposited onto a table or dropped into a chute, the invention being equally adapted for these purposes. Although the ware holders are shown as swinging in a vertical plane, the invention is not limited to this construction, inasmuch as they may be swung in a horizontal plane.

It sometimes happens that the article will not be formed intact, as shown at 71 in Fig. 1, but will be broken as shown at $71^a$ in Fig. 4, only partly pressed, as shown at $71^c$ in Fig. 6 or that a mold charge will be ejected from the mold without having been pressed, as at $71^b$ in Fig. 5, as may sometimes occur in the operation of the machine, and by referring to these figures it will be seen that this device provides for securely retaining the article or glass, regardless of its condition, until it is deposited on the conveyor or other mechanism. This result is made possible by the construction shown; namely, substantially confining the article at the top, bottom and sides, and lifting it from beneath. The ware holders may be skeletonized provided they sufficiently encompass and overlap the ware, and especially the imperfect or distorted forms likely to be found in practice.

I claim:

1. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for actuating said valve to elevate the ware from the body portion of the mold, a take-out device cooperating with said bottom valve, including a pair of ware holders provided with horizontal projections adapted to embrace the valve in its elevated position and to extend beneath the ware for lifting the ware from the valve, and means for actuating said holders to transfer the ware from said valve to a receiving station.

2. The combination with a glass shaping machine, of a ware taking out device therefor, including a pair of ware holders provided with horizontal projections for lifting the ware from beneath, means for moving the holders into and out of operative relation to a mold part, and means for closing the holders when in said relation and opening them when out of said relation.

3. The combination with a glass shaping machine, of a ware taking out device therefor, including a pair of cooperating ware holders each provided with a horizontal projection for lifting the ware from beneath, said projections extending toward each other, to embrace the bottom valve of a shaping mold to lift the ware from said valve.

4. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for actuating said valve to elevate the ware from the body portion of the mold, a take-out device cooperating with said bottom valve, including a ware-receiving holder provided with a member overlapping an end portion of the ware adapted to retain the ware in said holder, and means for actuating said holder to transfer the ware from said valve to a receiving station.

5. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for actuating said valve to elevate the ware clear of the body portion of the mold, an invertible take-out device cooperating with said bottom valve, including a ware holder provided with projections extending in a direction transverse to the axis of the ware to retain the ware in said holder, and means for actuating said holder to lift the ware from said valve and deliver the same in an inverted position at a receiving station.

6. The combination with a glass shaping machine, of a ware taking out device therefor, including a pair of cooperating ware holders each provided with a side portion and an inwardly projecting portion at either end thereof to confine the ware on the top, bottom and sides, thus preventing premature dropping of the ware.

7. The combination with a glass shaping machine, of a ware taking out device therefor, including a pair of invertible cooperating ware holders, each having an inwardly projecting portion to support the ware from beneath in its inverted position and mechanism for inverting and opening and closing the ware holders.

8. The combination with a glass shaping machine having a shaping mold, of a ware taking out device therefor, including a pair of cooperating ware holders guided for motion to and fro and each provided with an inwardly projecting portion to support the ware from beneath, an ejecting device for the mold including a valve, and mechanism for moving said holders to and fro and adapted to position them on either side of the valve with their inwardly projecting portions beneath the upper surface thereof.

9. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for relatively moving the mold and the bottom valve to free the ware from the mold, a ware holder having a lifting surface, and means for actuating the holder to place said lifting surface beneath the bottom of the ware while it is supported free from the mold, and means for actuating said holder to remove the ware from said valve.

10. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for actuating said valve to free the shaped ware from the body of the mold, a ware holder to support the ware by the lowermost surface of the ware, and means for moving the holder into supporting relation to the freed ware and to remove the ware from said valve.

11. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, means for actuating said valve to elevate the ware from said mold, a take-out device provided with a ware holder adapted to enclose the sides and a part of the top and bottom of the ware, means for opening and closing the holder, and means for inverting the holder when closed.

12. The combination with a glass shaping machine embodying a mold having a body portion and a movable bottom valve, of means for actuating said valve to elevate the ware from said mold, a transfer device provided with a two-part ware holder adapted to be closed about the ware while the ware is supported in an elevated position by said valve, means for opening and closing said holder, and means to move the holder toward and from the mold, said holder being shaped to loosely enclose all sides of the ware without gripping engagement therewith.

Signed at New London, Conn., this 1st day of September 1920.

KARL E. PEILER.