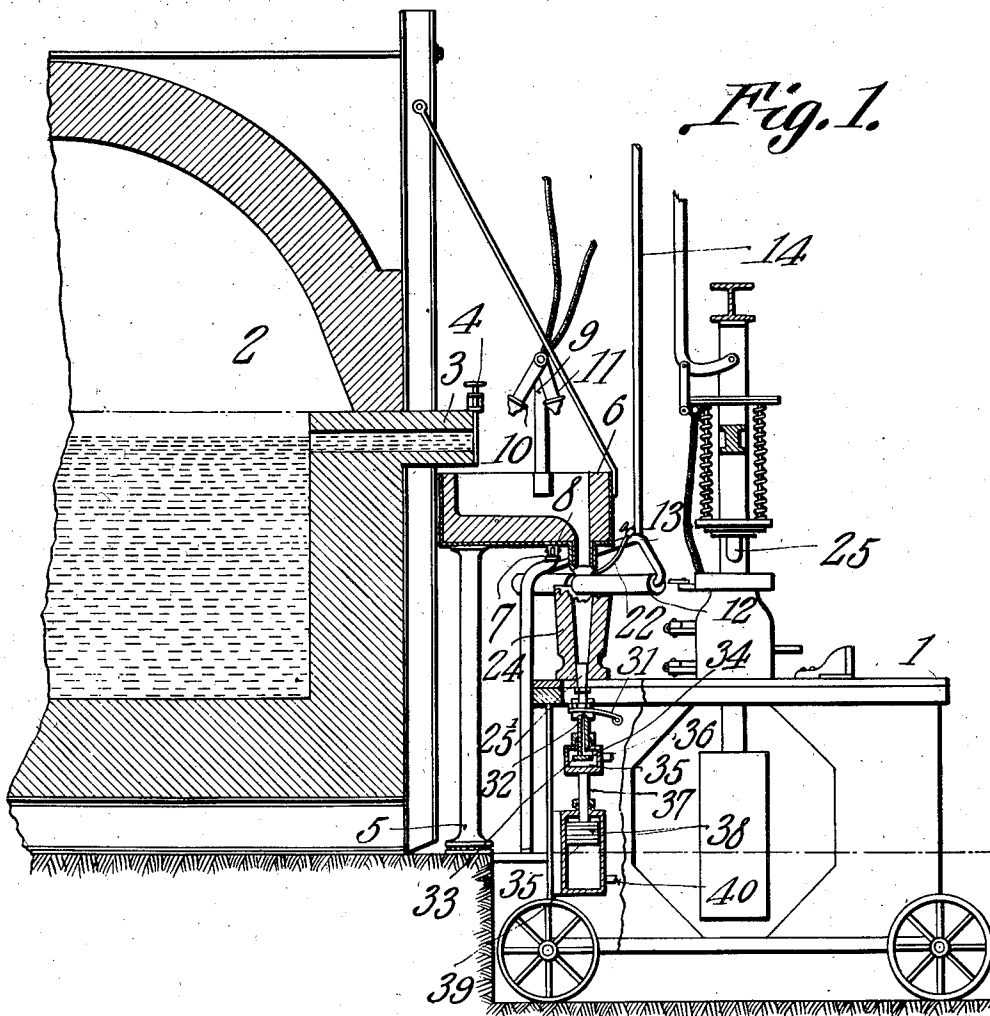


L. STEELMAN.
GLASS MACHINE.
APPLICATION FILED DEC. 24, 1909.

979,045.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 1.



Witnesses

E. F. Hunt
J. T. Lawson

Inventor

Lewis Steelman.

By

C. A. Snow & Co.

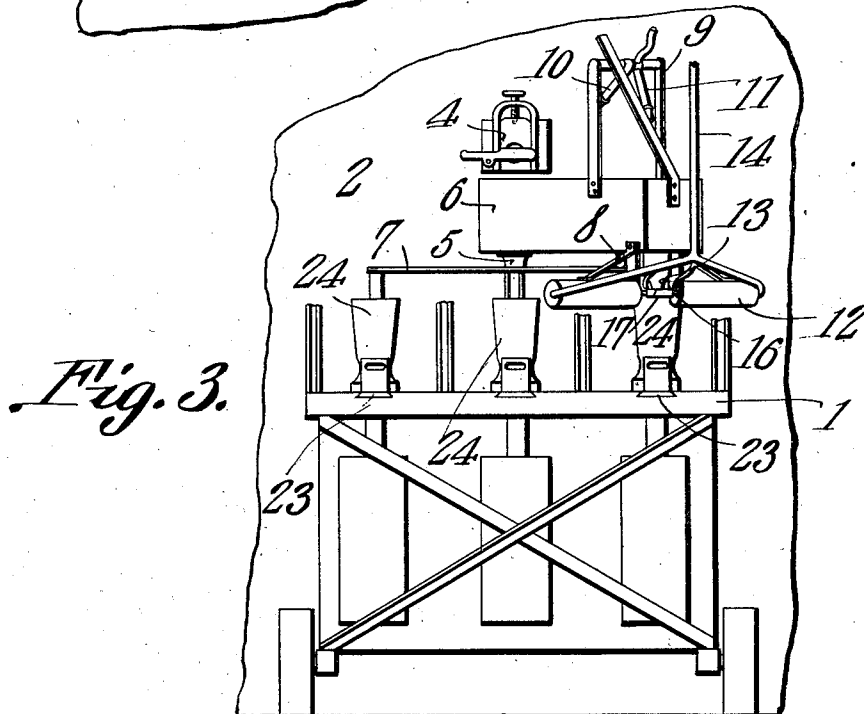
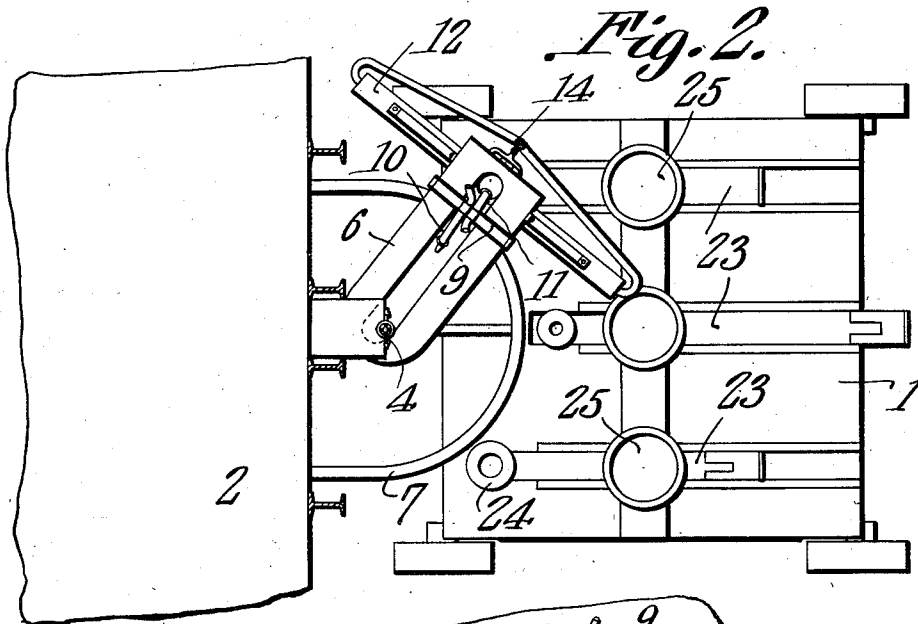
Attorneys

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3 SHEETS-SHEET 2.



Inventor

Witnesses
E. J. Stewart
J. T. Lawson

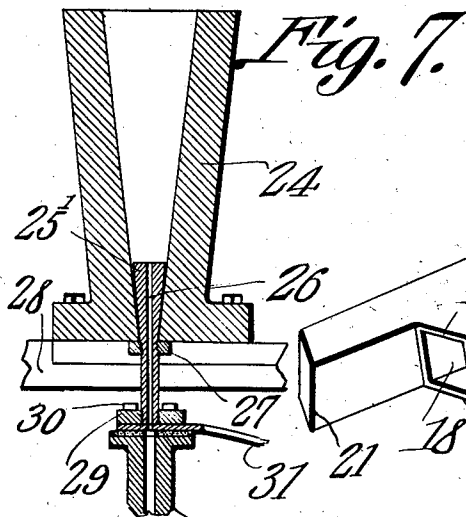
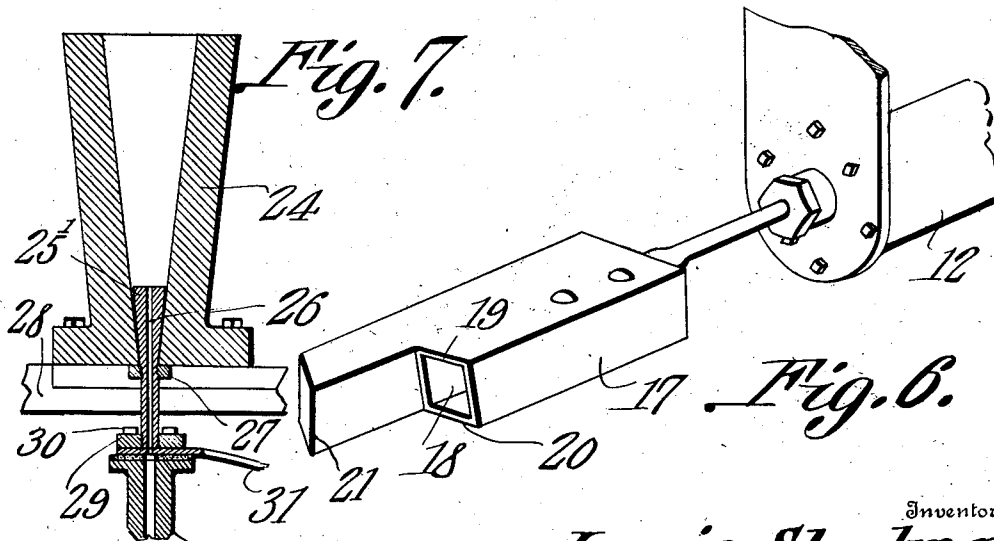
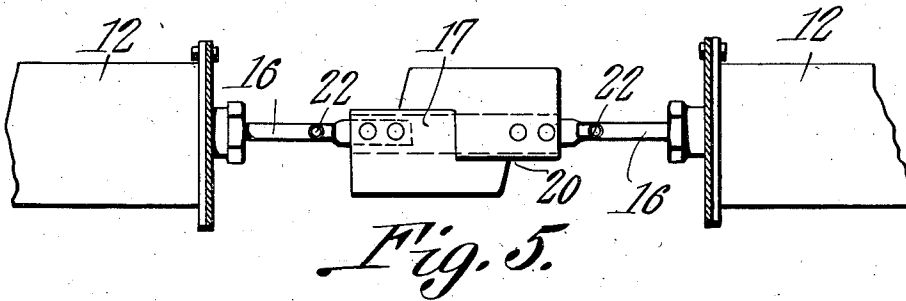
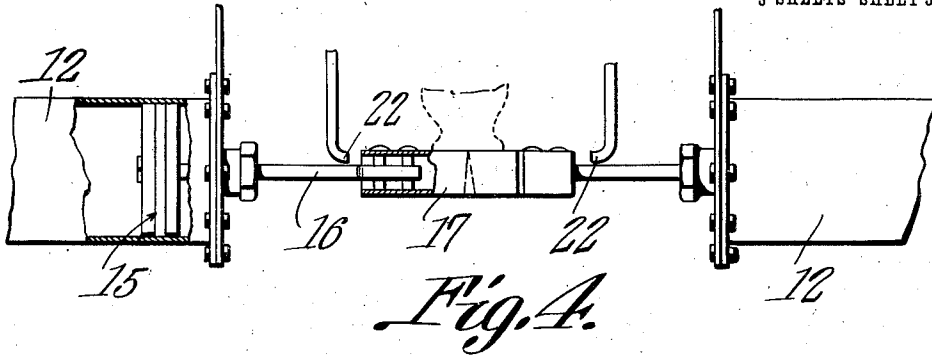
Lewis Steelman:
By *C. A. Snow & Co.*
Attorneys

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3 SHEETS-SHEET 3.



Witnesses
J. J. Lawson

Inventor
Lewis Steelman
By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

LEWIS STEELMAN, OF ALEXANDRIA, VIRGINIA.

GLASS-MACHINE.

979,045.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed December 24, 1909. Serial No. 534,758.

To all whom it may concern:

Be it known that I, LEWIS STEELMAN, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented a new and useful Glass-Machine, of which the following is a specification.

This invention has relation to apparatus for dividing glass metal batch and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a divider of the character indicated adapted to be used in conjunction with a furnace and a press or blowing machine for the purpose of dividing the metal batch as it comes from the furnace and delivering the same to the press or blowing machine in uniform predetermined quantities.

Inasmuch as the furnace and the press or blowing machine form no parts of the present invention only so much of these structures will be shown and described as will enable those skilled in the art to which the invention relates to make and use the same.

The batch dividing apparatus includes a trough which is pivotally mounted below the delivery end of the glory hole of the furnace and above which are located means for cooling or heating the metal batch as it passes through the trough as may be desired. Knives of peculiar configuration and arrangement are arranged to operate below the delivery end of the trough and a batch receptacle is located below the said knives but may be moved to position under operating parts of the mold or blowing machine and means is provided for creating suction in the lower portion of the said batch receptacle when the metal is dropped therein and also means is provided for completely exhausting the air from the lower portion of the said receptacle to cause the batch of metal to promptly enter the same and completely fill the interior thereof.

In the accompanying drawings:—Figure 1 is a side elevation of a portion of a molding machine and a sectional view of a portion of a furnace showing the batch dividing apparatus located between them and in vertical section. Fig. 2 is a top plan view of the instrumentality shown in Fig. 1. Fig. 3 is a side elevation of the same. Fig. 4 is a side elevation of the knives used in

the apparatus, with parts in section. Fig. 5 is a top plan view of the said knives. Fig. 6 is a perspective view of one of the knives. Fig. 7 is an enlarged sectional view of the metal receptacle and adjacent parts.

As illustrated in the accompanying drawings 1 indicates the pressing or blowing machine which may be of the same type as that illustrated and described in the patent to Jonathan Haley and Harry H. Bridge- water No. 654,451, issued July 24, 1900; but any other form or type of pressing or blowing machine may be employed.

2 represents a melting furnace of the glory hole type having a discharge outlet 3. The outlet 3 is controlled by the usual gate 4.

A standard 5 is pivotally mounted under the discharge end of the outlet 3 and the inner end of a trough 6 is mounted upon the upper end of the said standard. A semi-circular track 7 is located under the outer portion of the trough 6 and a wheel 8 is located under the outer portion of the said trough and is adapted to travel along the track 7. A yoke 9 is mounted upon the intermediate portion of the trough 6 and supports an air nozzle 10 and an oil nozzle 11. The said nozzles are connected with flexible hose for conveying their respective materials to them.

Oppositely disposed cylinders 12 are supported at the outer end of the trough 6 and have their inner ends disposed toward the discharge outlet 13 of the said trough. An air supply pipe 14 is connected with the outer ends of the cylinders 12 and in each cylinder is located a piston 15. Piston rods 16 are attached to the pistons 15 and project through the inner heads of the cylinders and carry at their inner ends knives 17 of peculiar arrangement and configuration. As the said knives are of the same dimensions and configuration a description of one will answer for both. Each knife is rectangular in transverse section and is provided at one side with a longitudinally disposed opening extending therethrough with a cutting edge 19 at its upper side and its lower side 20 terminating short of the vertical plane in which the cutting edge 19 lies. Each knife is also provided with a vertically disposed cutting edge 21 which is located approximately in the median vertical longitudinal plane of the knife. Air nozzles 22 are located between the cylinders 12 and the

knives 17 and have their discharge outlets located in alinement with the openings 18 through the said knives 17. The said nozzles 22 may be connected with the air pipes 14 or any other source of supply.

A series of slides 23 is mounted upon the bed of the machine 1 and a batch receptacle 24 is mounted upon the end portion of each slide 23. When the slides 23 are moved longitudinally away from the furnace 2 the said receptacles 24 are carried under the plunger mechanisms 25 of the machine 1 and the contents of the said receptacles are operated upon by the said plunger 25 in the usual manner to form bottles or similar articles.

A plunger 25' is located in the bottom of each receptacle 24 and is centrally perforated as at 26. A shoulder 27 is located upon the exterior of the plunger 25' at a point below the lower end of the receptacle 24. The upper portion of the plunger is conical and fits snugly in a similar opening provided in the bottom of the receptacle 24 when the said plunger is in its lowermost position in the said receptacle. The slide 23 is provided with an opening 28 through which the lower portion of the plunger 25' projects. The collar 27 is adjustably mounted upon the plunger 25'. A collar 29 is mounted upon the lower end of the plunger 25' and a flat spring 30 is fixed at one end to the slide 23 and bears at its other end against the upper side of the collar 29. The said spring 30 is under comparatively weak tension with a tendency to hold the plunger 25' in its lowermost position. A comparatively strong spring 31 is fixed at one end to the frame of the machine 1 and when the receptacle 24 is under the discharge outlet of the trough 6 the lower end of the plunger 25' is upon the free end of the spring 31 and the said spring 31 is under relatively strong tension with a tendency to hold the plunger 25' in an elevated position in the receptacle 24.

A nipple 32 is located under the spring 31 and is provided at its lower end with an enlarged head 33. The lower end of the nipple is further provided with a laterally disposed outlet 34. A chamber 35 receives the lower end of the nipple 32 and incloses the enlarged head 33 thereof. A suction pipe 36 is connected with the chamber 35. Each chamber 35 is mounted upon the upper end of a piston rod 37 the lower end of which is connected with a piston 38 slidably mounted in a cylinder 39 which in turn is mounted upon the frame of the machine 1. The cylinder 39 is provided with a laterally disposed fluid pressure outlet 40.

The operation of the apparatus is as follows:—The trough 6 is manually swung upon the standard 5 so that its discharge end is above any one of the series of batch

receptacles 24. The gate 4 of the discharge outlet 3 of the furnace 2 is then opened and the metal batch is permitted to flow into the trough 6 and toward the outlet thereof. Should the temperature of the metal in the furnace be so high as to cause the metal to flow too freely under the gate 4 a blast of cool air may be discharged against the stream of metal from the nozzle 10 which will chill the metal to such an extent as to retard its flow. If however the metal while in the trough 6 should become chilled to such an extent as to move sluggishly an ignited spray of oil discharged from the oil nozzle 11 may be directed against the stream of metal at the discharge end of the trough, which will heat the metal to such an extent as to cause it to flow promptly through the outlet of the trough.

From the discharge end of the outlet of the trough 6 the metal falls into the receptacle 24 located under the outlet of said trough. As the metal enters the said receptacle 24 in the form of a sphere and closes the upper end of the said receptacle a column of air is exhausted from the cylinder 39 through the outlet 40 and the piston 38 descends in the cylinder 39 carrying down with it the piston rod 37, chamber 35 and nipple 32. Thus support is removed from the free end of the spring 31 and under the weight of the material in the upper portion of the receptacle 24 and the stress of the spring 30 the plunger 25' descends to its lowermost position in said receptacle. Thus air contained within the receptacle 24 is rarefied and will have a tendency to draw the batch of metal into the upper end portion of the receptacle 24. At the same time suction is created through the pipe connection 36 with the chamber 35 and the nipple 32 moves down in the said chamber so that its outlet 34 becomes uncovered and the direct communication is established through the said nipple and the openings 26 in the plunger 25' with the interior of the receptacle 24 whereby the volume of air in said receptacle is exhausted therefrom and the batch of molten metal promptly descends into the receptacle 24 and completely fills the same.

When the receptacle 24 is filled with metal as indicated air is admitted into the outer ends of the cylinders 12 from the pipe 14 and the pistons 15 of the said cylinders are forced toward each other. The knives 17 carried at the inner ends of the piston rods 16 overlap each other laterally and shear the stream of batch just below the discharge outlet of the trough 6. The said knives when brought completely together form a closure for the discharge outlet of the trough 6 and check further flow of the material therefrom.

In cutting the metal the vertical edge of one knife 17 passes along the outer side

of that portion of the other knife having the opening 18 therein and vice versa, and the cutting edges 19 of both knives come together in the same horizontal plane while the continually reducing thread of batch 5 lying between the approaching cutting edges 19 of the said knives, may when the cut is completed, fall into the receptacle 24 through the space afforded between the retracted edges 20 of said knives. When the 10 knives have become overheated by reason of contact with the batch, cool air is discharged through the openings 18 from the nozzles 22 which will have the effect of reducing 15 the temperature of the knives to the proper degree. By adjusting the collar 27 upon the stem of the plunger 25 the extent to which the said plunger will project into the receptacle 24 when the lower end of the 20 plunger rests upon the spring 31 and is elevated thereby, may be regulated. Thus the receptacle may receive any desired quantity of metal.

Fig. 7 of the drawing does not show the 25 plunger in position when the receptacle is about to receive a charge of metal but shows the plunger closing the lower end of the receptacle after the free end of the plunger has been depressed. After the blank is de- 30 posited in the receptacle 24 the said receptacle is carried under the plunger 25 and

the blank is formed into an article as hereinbefore stated.

Having described my invention, what I claim as new and desire to secure by Letters 35 Patent is:

1. In an apparatus as described a batch conducting means and a knife for cutting the batch having an air passage there- 40 through.

2. In an apparatus as described, means for conducting the batch, a knife for cutting the batch having an air passage there-through and an air blast nozzle having its outlet lo- 45 cated in alinement with said passage.

3. In an apparatus as described, means for conducting a batch, cooperating knives lo- 50 cated below the discharge outlet of said means each knife having a vertically disposed blade and a horizontally disposed 55 blade, the vertically disposed blade of one knife adapted to shear along the side of the other knife and vice versa and the hori- zontally disposed blades of the two knives adapted to meet in the same plane.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LEWIS STEELMAN.

Witnesses:

C. E. DOYLE,
C. E. PREINKERT.