C. M. RESSLAR.

WINDOW GLASS DRAWING MACHINE.

APPLICATION FILED MAR. 30, 1909.

951,222.

Patented Mar. 8, 1910.

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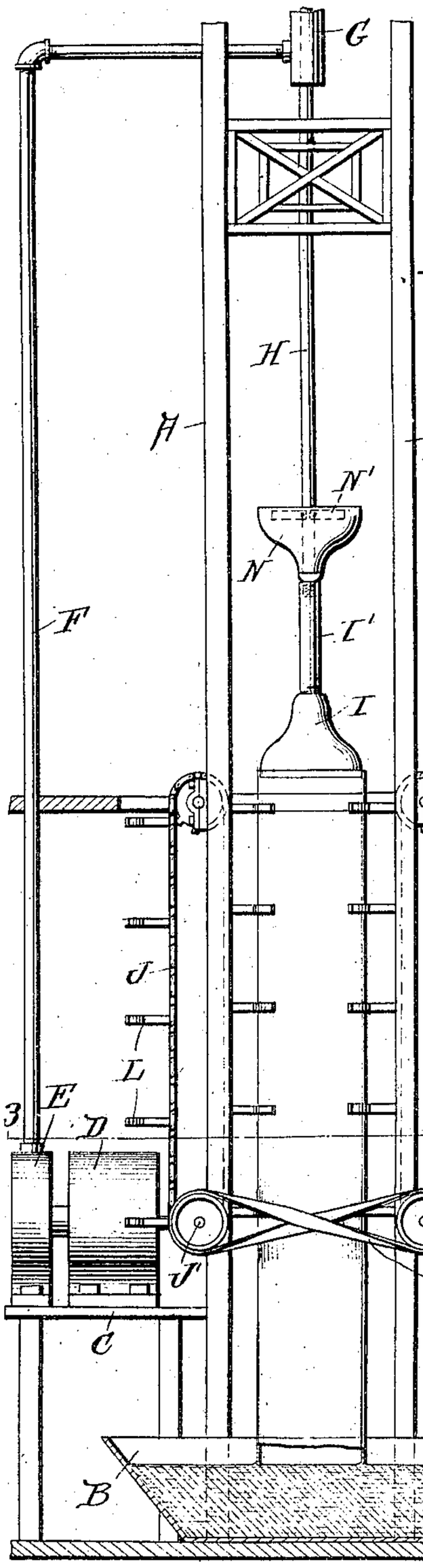

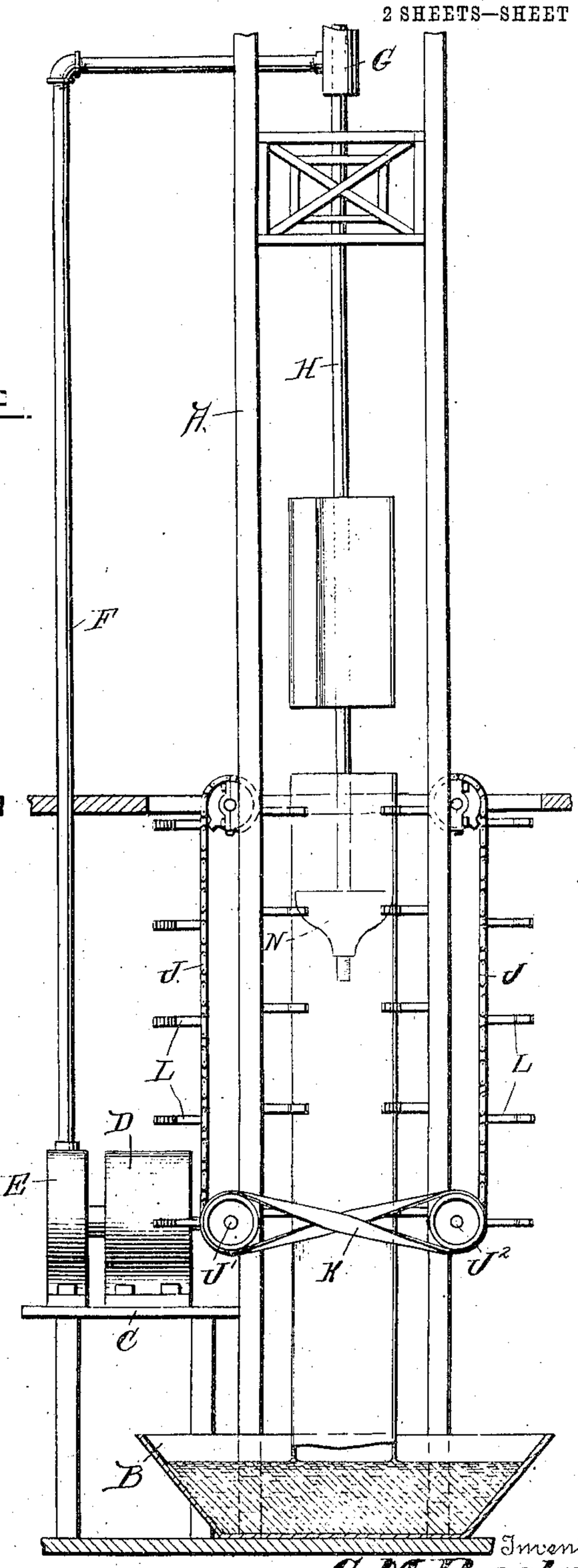

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Fig. 3.

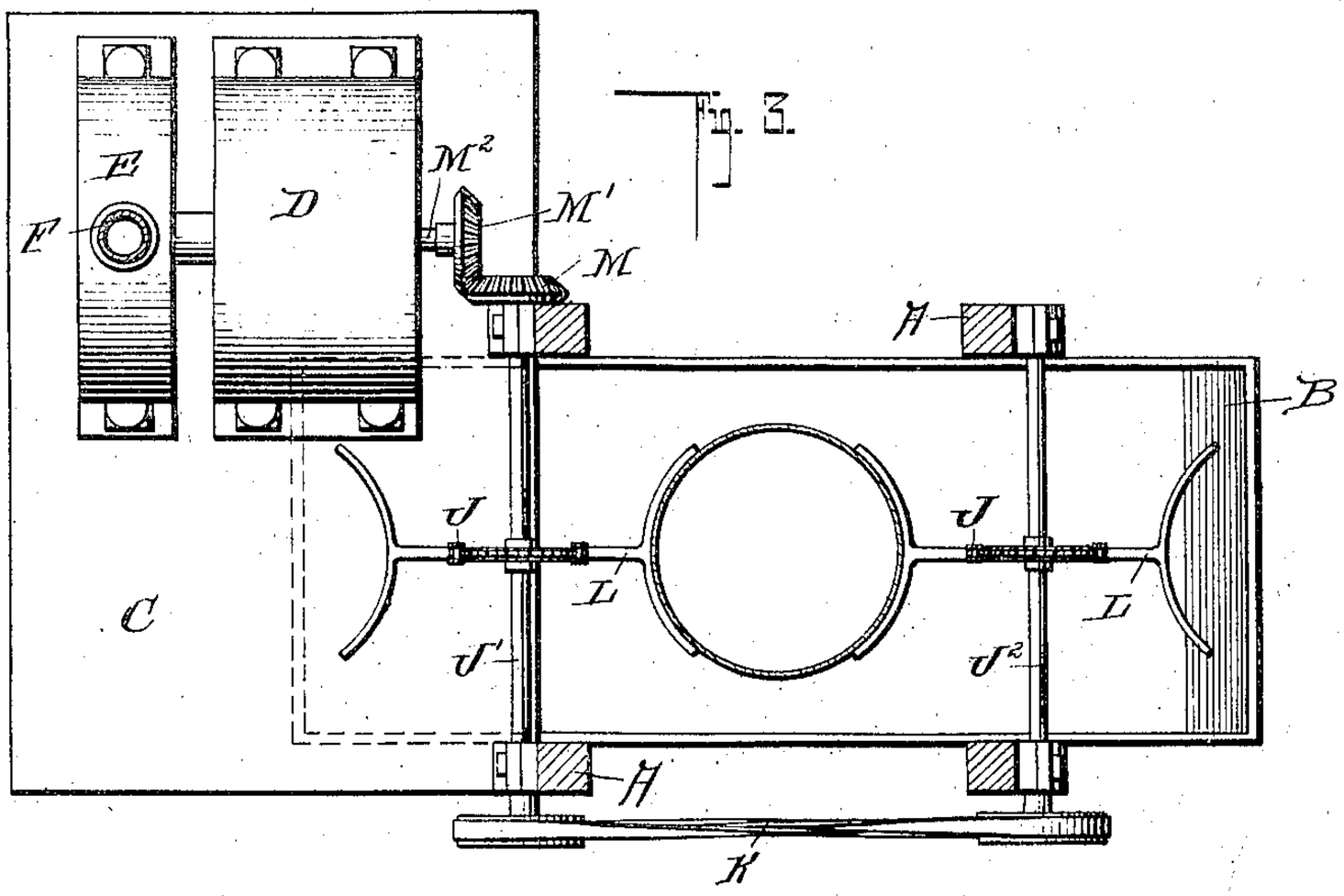


Fig. 4.

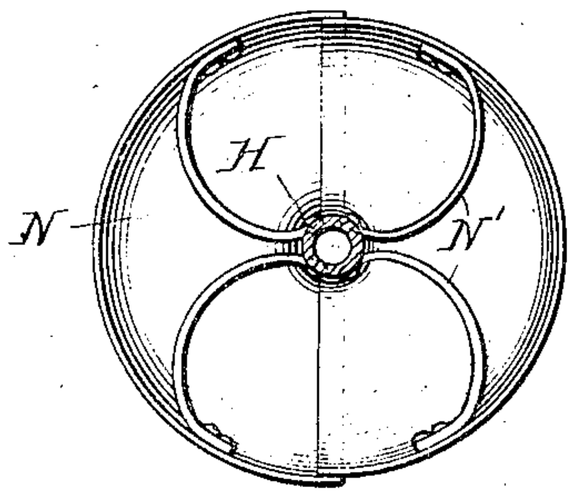
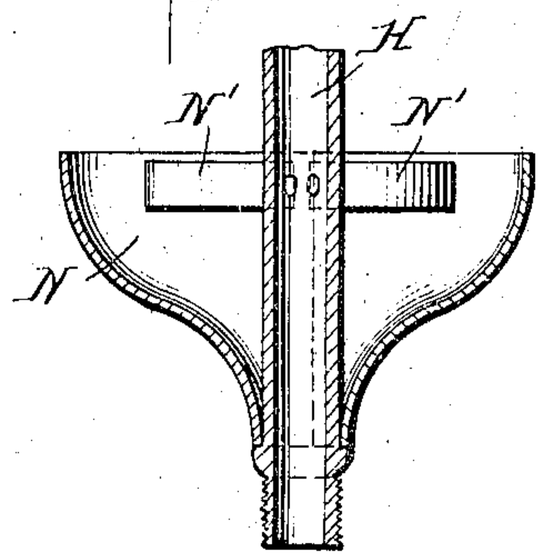


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WINDOW-GLASS-DRAWING MACHINE.

951,222. Specification of Letters Patent. **Patented Mar. 8, 1910.**

Application filed March 30, 1909. Serial No. 486,677.

To all whom it may concern:

Be it known that I, CHARLIE M. RESSLAR, a citizen of the United States, residing at Jeannette, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Window-Glass-Drawing Machines, of which the following is a specification.

This invention relates to a continuous window glass drawing machine, the object of the invention being to provide a machine which is so constructed that the glass cylinders now manufactured for forming window glass can be formed continuously so as to overcome the difficulties now existing of having to repeat the operation of forming a new cylinder after the same has been drawn to the desired length.

A still further object of the invention is to provide means for supporting the cylinder, said means comprising conveyers so that the same will be securely held whereby the plunger carried by the air pipe can be lowered into the same so that the cylinder can be moved upwardly and by repeating this operation a continuous cylinder will be formed it of course being understood that the upper end of the cylinder is cracked off into the desired length.

Another object of the invention is to provide the air pipe with a forming bait which is adapted to be lowered into the vessel containing the molten glass, said air pipe having a piston which is adapted to be forced downwardly into the cylinder after the bait has been removed whereby the air can be forced into the cylinder in the same manner, said cylinder being held while this operation is being performed by arms carried by the endless conveyers.

A still further object of the invention is to provide a spring actuated piston formed of two sections which are so mounted that they are adapted to adjust themselves to the size of the glass cylinder so as to form an air tight joint.

A still further object of the invention is to provide novel means for operating the device whereby the conveyers are so geared and connected together that the arms will strike the opposite sides of the glass cylinder at the same time in such a manner that all danger of the cylinder being broken is prevented.

With these objects in view, my invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described, pointed out in the claims and shown in the accompanying drawings, in which,

Figure 1 is a side elevation of my improved machine showing the cylinder drawn upwardly from the vessel of molten glass by the bait. Fig. 2 is a similar view showing the nipple detached and the air pipe carrying the piston forced down into the cylinder so that the cylinder can be drawn upwardly whereby the upper portion of the same can be cracked off and removed so as to form window glass. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is a top plan view of my improved piston showing the air pipe in section and, Fig. 5 is a vertical section through the air pipe and piston.

In carrying out my improved invention, I employ a frame A formed of four uprights which are adapted to be arranged within a building, the uprights being of such a length that they will extend above the first floor of the same upon which the glass cylinders are removed after they have been cracked off as will be hereinafter fully described.

Arranged between the uprights on the bottom floor of the building is a tank B adapted to contain molten glass from which the cylinders are formed and mounted on a platform C arranged to one side of the uprights is an engine D for driving a fan E provided with a conducting pipe F which is connected to a vertical pipe G arranged between the uprights at their upper ends in which is slidably mounted an air pipe H which is provided with a bait I carried by a stem I′ which is screw threaded on the lower end of the air pipe H so that it can be readily detached, said bait being adapted to be lowered into the tank of molten glass so as to form a cylinder when the same is drawn upwardly it of course being understood that air is being forced into the same at the same time this being the ordinary manner of forming a glass cylinder and is only given so that the operation of my improved machine can be readily understood.

Mounted between the uprights are endless conveyers J which work over sprocket chains carried by shafts J′ and J² which are provided with pulleys over which passes a twisted belt K so that the same will be moved in unison, said conveyers being provided with a plurality of curved arms L adapted to

embrace the sides of the glass cylinder when the same has been drawn upwardly by the nipple and as the conveyers are moved they draw the cylinder upwardly. For operating the conveyers I provide one of the shafts with a beveled gear M which meshes with a beveled gear M′ carried by a power shaft M^2 which is driven by the engine through the medium of a reducing gear not shown whereby the same can be readily started and stopped by controlling the engine so that the cylinder can be held in any position desired.

Mounted on the air pipe H is a conical piston N formed of two sections overlapping one another and connected to the air pipe H by bowed springs N′ which normally hold the sections apart so that when the same are forced into a glass cylinder they will yield sufficiently to allow the same to be moved downwardly within the cylinder and at the same time the springs are strong enough to force the sections of the piston outwardly so as to form an air tight joint around the same. The pipe H works through a gage mounted between the uprights so that the upward movement of the cylinder can be controlled and it will be seen that by removing the bait I from the air pipe after the cylinder has been drawn upwardly into the position shown and forcing the piston down into the cylinder and at the same time starting the engine so as to cause the cylinder to be moved upwardly by the conveyers it of course being understood that air is being forced into the cylinder by the air pipe at the same time, the cylinder is drawn upwardly so that the upper end of the same can be readily cracked off horizontally and then vertically so that the cylinder can be removed from around the pipe H as shown in Fig. 2 and by repeating this operation the cylinder can be drawn continuously when the piston is being forced into the cylinder and when the cylinder is being cracked off at its upper end it will be seen that by this construction after the cylinder is once started by the temporary bait used a continuous cylinder is formed until the molten glass has been consumed in the tank thereby saving a great deal of expense and trouble of having to form each cylinder separately as is the case with machines of this character now in use.

The operation of the machine is as follows: The air pipe carrying the temporary bait is lowered into the tank of molten glass and as the same is raised upwardly by any suitable means not shown and air is forced into the same the cylinder is started and as it reaches the arms of the conveyers it is embraced by the same and carried upwardly into the position shown in Fig. 1 which brings the upper end of the cylinder in line with the second floor of the building so that the temporary bait can be readily unscrewed from the air pipe it of course being understood that the same is cracked off of the upper end of the cylinder in the ordinary manner. The piston carried by the air pipe is then forced down into the cylinder and the engine started so as to cause the cylinder to be drawn upwardly and when it has reached a sufficient length the upper end is cracked off and the operation repeated. By this construction I am enabled to blow glass cylinders of indefinite lengths whereby glass plates can be formed from the same by removing a portion of the upper end of the cylinder as the same grows.

While I have shown and described specific means for raising the cylinder it is of course understood that various other means can be employed without departing from the spirit of my invention.

What I claim is:—

1. In a continuous glass drawing machine the combination with an air pipe, a piston carried by said air pipe and means for raising a glass cylinder after the cylinder has been started.

2. In a continuous glass drawing machine the combination with an air pipe provided with a bait for starting a cylinder, a piston carried by said air pipe adapted to be forced into the cylinder after the bait has been removed and means for raising said cylinder.

3. In a continuous glass drawing machine the combination with an air pipe provided with a detachable bait for starting a glass cylinder, a spring piston carried by said air pipe adapted to be forced within the cylinder after the bait has been removed and means for raising said cylinder.

4. In a machine for forming glass cylinders, the combination with an air pipe provided with a temporary bait for engaging with the molten glass, of a spring piston carried by said air pipe adapted to be forced within the cylinder after the bait has been removed and means for embracing the outside of said cylinder for raising the same.

5. In a machine of the kind described the combination with an air pipe having a bait detachably connected thereto for engaging with molten glass, of a piston formed of two spring actuated sections carried by said air pipe adapted to be forced within the cylinder and conveyers for raising said cylinder.

6. In a continuous glass drawing machine the combination with an air pipe carrying a bait for forming a cylinder, of a piston carried by said air pipe adapted to fit within the cylinder after the bait has been removed and conveyers provided with curved arms for embracing the cylinder and raising the same.

7. In a glass drawing machine, the combination with an air pipe carrying a bait

for forming a cylinder, of a piston mounted on said pipe and means for raising said cylinder.

8. In a glass drawing machine of the kind described the combination with an air pipe carrying a bait, of a spring piston carried by said air pipe adapted to be forced within a cylinder formed by the bait and conveyers for raising said cylinder whereby a continuous glass cylinder can be formed.

9. A continuous glass drawing machine comprising an air pipe provided with a detachable bait for forming glass cylinders, a piston for fitting within said cylinder after said bait has been detached and means for raising said cylinder whereby a continuous cylinder can be formed.

10. A glass drawing machine of the kind described comprising an air pipe having a cylinder forming bait detachably connected to its lower end, a piston carried by said air pipe for closing said cylinder, when said bait is detached and means for raising said cylinder continuously whereby a continuous cylinder of glass can be formed.

11. A glass drawing machine comprising an air pipe carrying a bait for forming a cylinder and a piston for closing said cylinder after said bait has been removed and conveyers provided with arms for embracing said cylinder whereby said cylinder can be raised continuously by lowering said piston into said cylinder as the cylinder grows.

12. A machine of the kind described comprising an air pipe provided with a detachable bait for forming a glass cylinder, a spring piston carried by said air pipe for closing said cylinder and means for raising said cylinder so as to cause the same to grow, whereby by lowering said piston into the cylinder as the same grows a continuous cylinder can be formed.

13. A glass drawing machine provided with an air pipe with detachable means for forming a cylinder, means for supporting said cylinder after it has been formed and a piston carried by said air pipe for closing the same whereby a continuous cylinder can be formed by raising the cylinder and lowering the piston into the same as the cylinder grows.

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