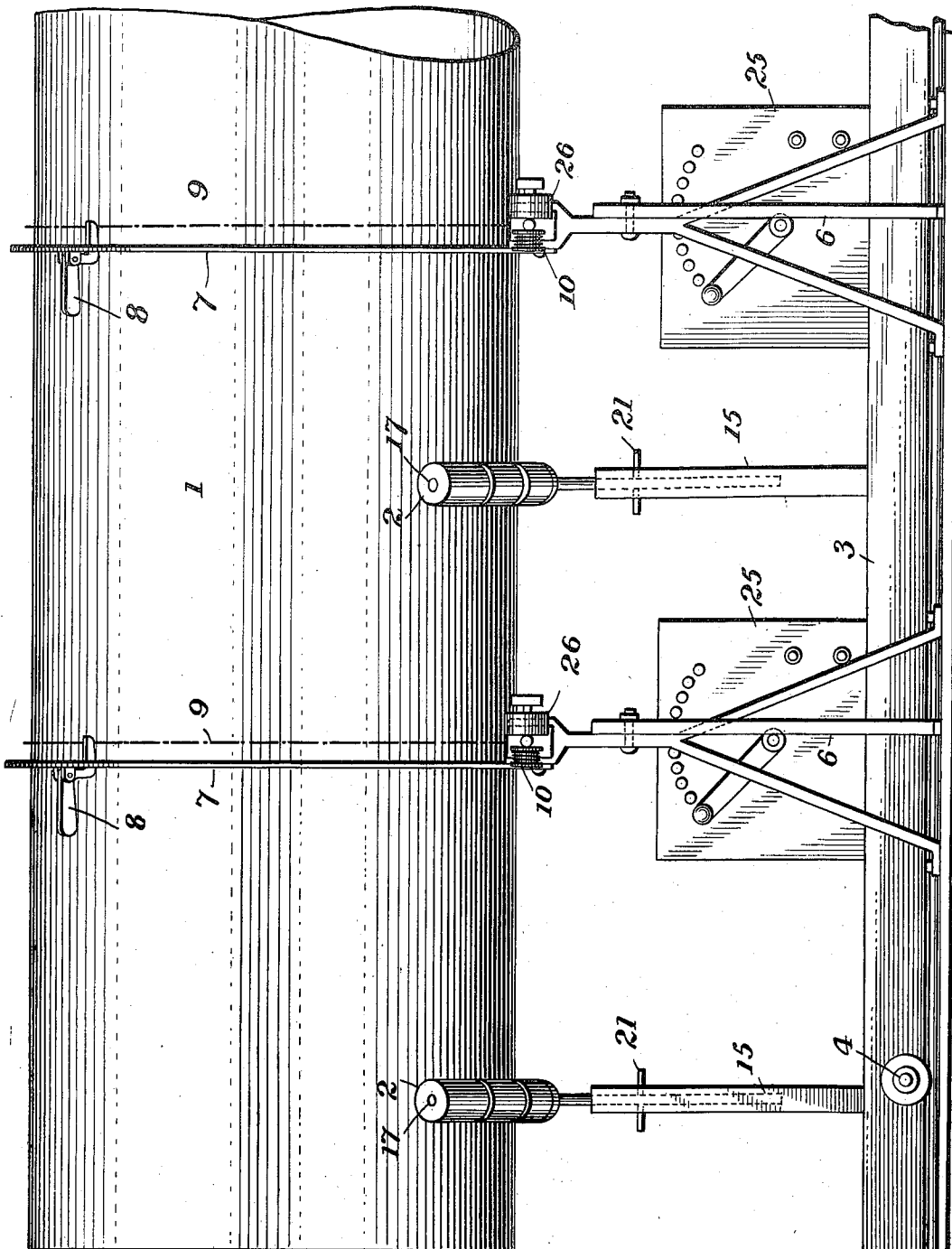


R. H. BOLIN.
 APPARATUS FOR SEVERING GLASS CYLINDERS.
 APPLICATION FILED MAY 4, 1908.

979,740.

Patented Dec. 27, 1910.

2 SHEETS—SHEET 1.



Witnesses
J. J. Stink
Geo. R. Triplett

Fig. 1.

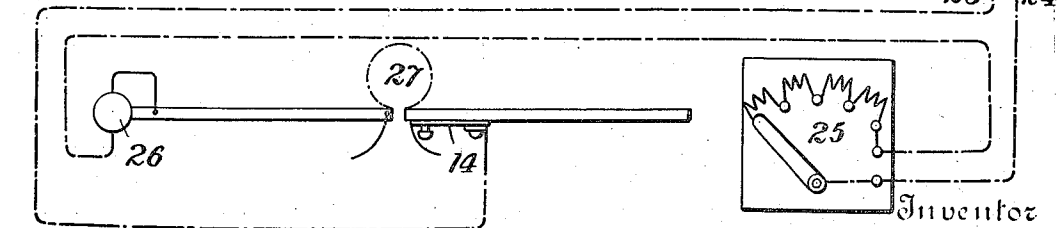
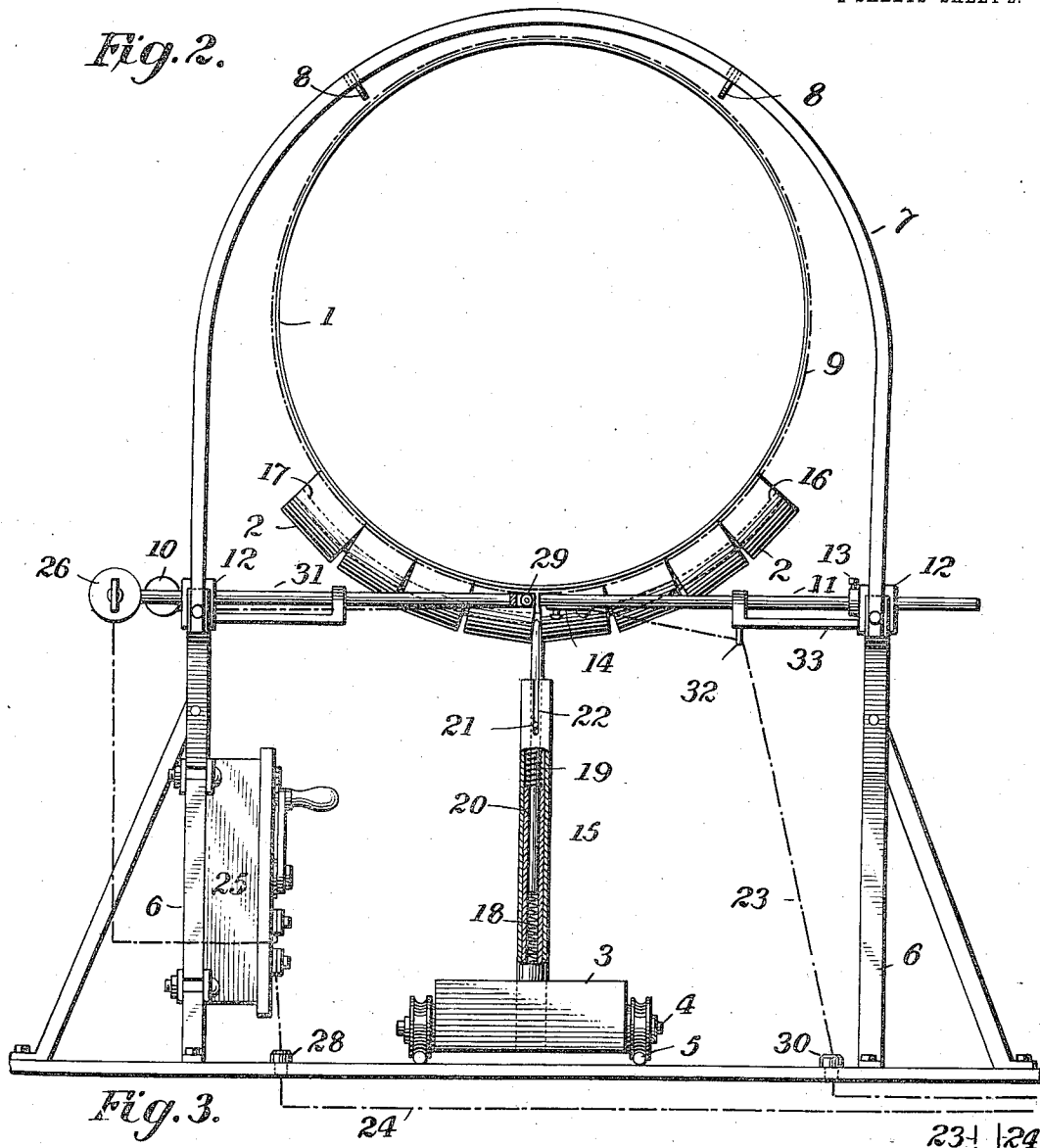
Inventor
Richard H. Bolin
 by *Adrian Singer*
 his Attorneys

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UNITED STATES PATENT OFFICE.

RICHARD H. BOLIN, OF KANE, PENNSYLVANIA.

APPARATUS FOR SEVERING GLASS CYLINDERS.

979,740.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed May 4, 1908. Serial No. 430,686.

To all whom it may concern:

Be it known that I, RICHARD H. BOLIN, a citizen of the Dominion of Canada, residing at Kane, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Severing Glass Cylinders, of which the following is a specification.

This invention relates to an apparatus for adjusting wires to glass cylinders placed horizontally on equalizing supports, and electrically heating the wires as a step in the art of severing the cylinders into sections, and has special reference to enlarged sized cylinders produced by machine drawing.

The objects of my invention are to provide a suitable bed or support upon which long cylinders of glass may be placed without great loss of breakage heretofore occasioned, during the process of severing the cylinders into sections for more conveniently reducing the same into the finished product of window glass.

Other objects thereof are to provide convenient means for encircling the cylinder with the heating wire to predetermined points, applying proper tension to the heating wire to insure its close contact with the glass during the severing operation and providing for a wide variation in sizes of cylinders to be severed as shown.

Other objects of my invention will appear hereinafter.

Referring to the drawings which illustrate my invention: Figure 1 is a side elevation thereof showing a form of apparatus embodying my invention in the act of severing a glass cylinder. Fig. 2 is an enlarged transverse section of one of the severing units and the movable carriage with its cylinder supporting arms or racks mounted thereon. Fig. 3 is a diagram of the electric circuits employed with one of the severing units.

Referring to the accompanying drawings, 1 represents a glass cylinder which is to be severed circumferentially, 2 cylinder supporting arms, shaped to conform with the under body of the cylinder resting thereon, the arms being mounted upon a movable carriage 3, having traction wheels 4, running on the rail 5, suitably mounted on the floor of the operating room. For the purpose of severing these cylinders, I provide one or more cylinder severing units, each of which comprises, as in the case shown, of vertical

standards 6, attached in pairs to the floor or foundation opposite each other on each side of the track upon which the movable carriage "3" operates. A semi-circular band 7 extends from one standard to the other for supporting the wire above the path of the cylinder by placing it on the counter-balanced dogs 8—8 arranged to release the wire 9 when proper tension is applied to the wire by turning the winding reel 10. I do not restrict myself to the means shown of supporting the wire above the path of the cylinder as the wire may be suspended by other suitable means.

From the upper end of each standard extends horizontally adjustable arms or wire holders 11 and 31 slidable in the insulated socket 12, and made fast by set screw 13. Extending from the socket 12 is a guide and support 33 for the slidable wire holders 11 and 31 to rest upon when extended. At the end of wire holder 11 is placed an insulated terminal, 14, to which is attached one end of the heating wire. From the terminal 14, the heating wire passes in the form of a loop up over the cylinder, and is supported above by the counter-balanced dogs 8—8, and thence to the end of the other wire holder 31, where it passes over a sheave and terminates in the winding reel 10.

Upon the carriage 3, at suitable intervals down its center are located a series of vertically extended sockets 15, into which fit a vertically slidable shank of the supporting arm 16. On these supporting arms are placed suitable rollers 17, preferably wooden spools, upon which the cylinder of glass rests during the severing operation. At the bottom of the interior of said socket 15, is placed a spiral spring 18, upon which the end of the shank of the cylinder supporting arm rests. In the upper end of the socket 15 is an enlarged recess in which is placed another spiral spring 19, of less tension than the lower spring 18. The upper spring 19, encircles the shank and rests on the shoulder 20, formed by the enlarged recess in the upper end of the socket, and supports the shank of the cylinder supporting arms by engaging a key 21, passing through the shank and slidable in the guide slot 22, formed in the upper end of the socket 15. The equalizing features of the elastic supporting arms procured by this arrangement constitutes a very important feature in my invention, providing as I do for the com-

pression of two separate springs; the one having a greater compressing resistance than the other. In this way a uniform equalization of the weight of the cylinder as to its bearing on all of the supporting arms is maintained. The equalizing features of the supports allow for a variation in the surface of the cylinder and changes due to its expansion and contraction during the severing operation.

I have found that there is less breakage in placing the cylinders on my equalizing supports while it is fresh from the drawing operation and still hot, and allowing it to cool while thus supported, than in any other way, as an unequal bearing of the weight of the cylinder at different points of support during its contraction and expansion by cooling, is compensated equally at all points of support.

An arrangement of the electric circuits, connections, and controlling devices, for one of the cylinder severing units are shown diagrammatically in Fig. 3, where the electrical conductors, as wires 23 and 24, are connected to the power mains leading from a suitable electrical energizer, as a dynamo or the like. Conductor 24, leads to a suitable rheostat, 25, of ordinary construction, thence to one pole of a suitable quick-break switch 26, and from the opposite pole of this switch it is electrically connected with the heating wire 9. Electrically connected to the heating wire at the insulated terminal 14, is the other conductor 23, leading therefrom to the power mains.

When a glass cylinder has been laid in a horizontal position resting on the equalizing supports, preparatory to being severed into sections, the operation is as follows: The wire holders 11 and 31, are drawn back to permit free passage of the cylinder through the loop 27, which has been extended by withdrawing the wire holders at the sides, and supporting the wire above the path of the cylinder on the hooked ends of the counter-balanced dogs 8—8. The carriage with the cylinder supported thereon is then moved under the suspended loop of the heating wire, to a predetermined point where the cylinder is to be severed. When the cylinder is thus placed in the proper position the adjustable wire holders 11—31, are moved toward the cylinder until the heating wires leading therefrom are placed in contact with the cylinder. The winding reel 10, is then turned until the tension thus applied to the heating wire causes the counter-balanced dogs 8—8, to release their hold, and the wire is drawn in close contact with the glass cylinder. The snap switch 26, is then actuated to close the circuit which is as follows: From a suitable source of electrical energy (not shown) through the line wire 24, passing through the insulator, 28,

in the floor, thence to rheostat 25, from which it leads to snap switch 26, which is electrically connected with the winding reel 10, upon which is wound one end of the heating wire 9. The heating wire passes out around the sheave 29, placed in the end of the wire holder 31, and thence over the glass cylinder to the insulated terminal 14, attached to the wire holder 11. Electrically connected with the terminal 14, is the line wire 23, which passes through the insulated supporting eye 32, and down through the insulator 30, in the floor, thence back to the source of power. The electric current passing through the heating wire 9, which is of high resistance, creates an intense degree of heat in the wire, and the heat is imparted therefrom to that circumferential line on the cylinder formed by the contact points of the heating wire. The application of any cold object, preferably a suitable piece of iron, to the heated zone of the cylinder, causes the glass to crack or sever at the point designated. As the severing operation described consumes a required period of time during which the heating wire is brought to the necessary degree of heat, I provide a plurality of severing units which can be operated on the one cylinder independently, or simultaneously as desired. I do not desire to be restricted to the specific mechanism shown, as many modifications may be made without departing from my invention.

Having thus described my invention, I claim:

1. In an apparatus for severing glass cylinders comprising a heating wire, means for adjusting said wire to the glass cylinder, an equalizing carrier for supporting said cylinder during the severing operation, and means for moving the carrier horizontally between the severing operations.

2. In an apparatus of the nature indicated the combination of a vertical frame for holding the heating wire in an annular form, a horizontally reciprocating carrier operatively mounted on a track to move through said frame, a series of yielding supports mounted on said carrier supporting said cylinder during the severing operation.

3. In an apparatus of the nature indicated the combination of a vertical frame arranged for holding in annular form a heating wire, means for expanding and contracting the annular form of said wire to permit of easy access of the cylinder therein, a horizontally reciprocating carrier operatively mounted on a track to move through said frame, a series of vertically yielding supporting arms, elastically mounted on said carrier to support the cylinder during the severing operation.

4. In an apparatus of the nature indicated the combination of a vertical frame supporting a heating wire, adapted to en-

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circle glass cylinders, a movably mounted glass cylinder carrier, consisting of a carriage, a plurality of vertical socket-recessed standards, rigidly fixed to the bed of said carriage, vertically disposed guide rods, 5 elastically mounted in said sockets, with arch shaped cushioned supports, attached to the upper ends of said guide rods, adapted to support glass cylinders thereon.

10 5. In an apparatus of the nature indicated, the combination of a vertical frame for holding an open annular electrical conductor adapted to encircle a glass cylinder, means for applying said conductor in close

contact to the glass cylinder, a movably 15 mounted glass cylinder carrier consisting of a carriage mounted on a suitable track for horizontal movement, a plurality of vertically disposed supports, yieldingly held in retracted position, mounted on the bed of 20 said carrier, and supporting said cylinder during the severing operation.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD H. BOLIN.

Witnesses:

E. WILL GREENE,

LENA O. ROURKE.