

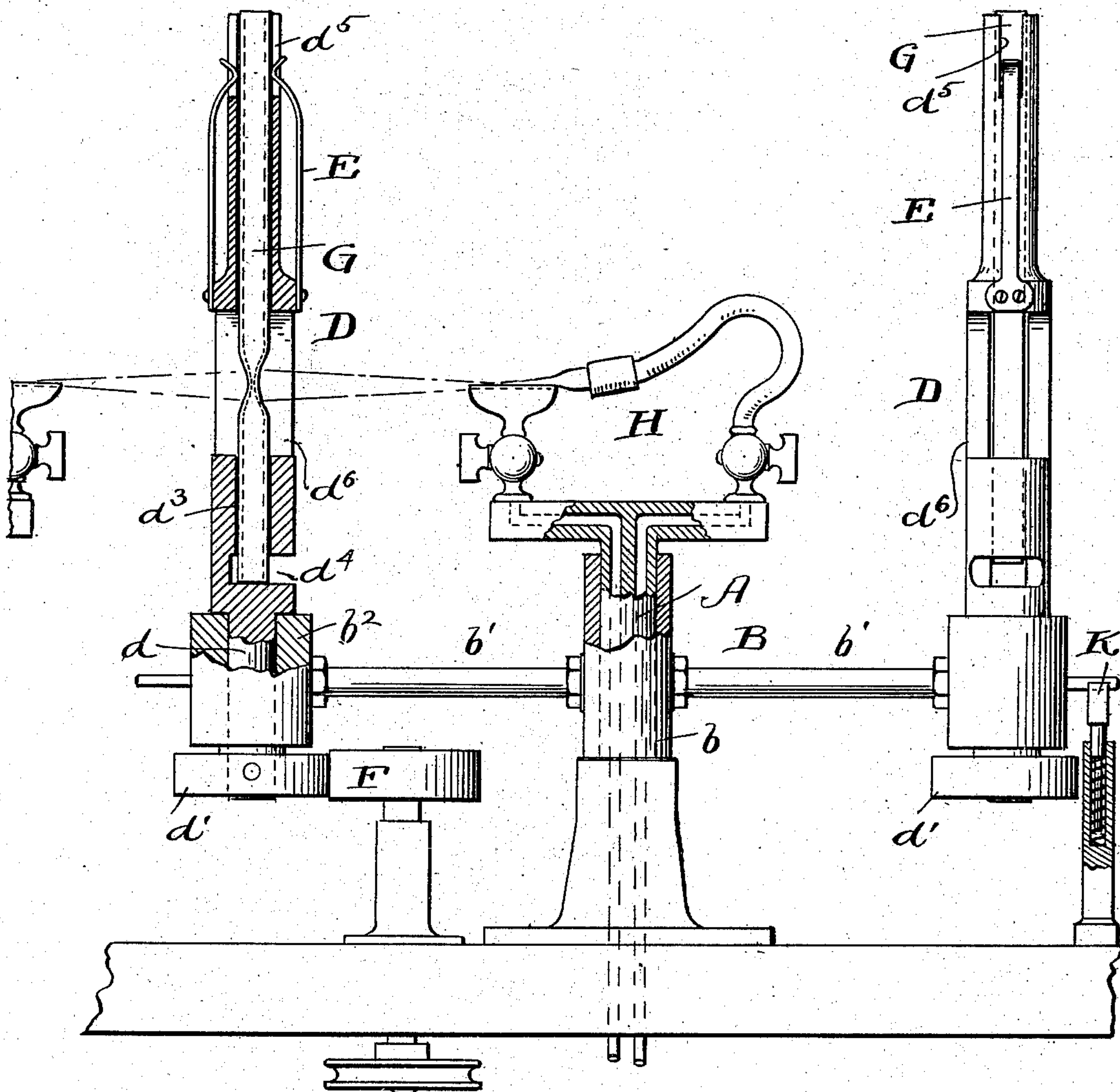
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PATENTED OCT. 20, 1903.

W. N. PACKER.
GLASS TUBE CONTRACTING MACHINE.

APPLICATION FILED DEC. 22, 1902.

NO MODEL.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLARD N. PACKER, OF SHELBY, OHIO, ASSIGNOR TO E. L. THURSTON,
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GLASS-TUBE-CONTRACTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 741,823, dated October 20, 1903.

Application filed December 22, 1902. Serial No. 136,105. (No model.)

To all whom it may concern:

Be it known that I, WILLARD N. PACKER, a citizen of the United States, residing at Shelby, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Glass-Tube-Contracting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

In manufacturing incandescent lamps a glass tube is attached to each bulb and through this tube the air is exhausted. Before these tubes are attached it is desirable to contract them in the plane where they are finally to be parted and sealed. The machine constituting the present invention is for the purpose of producing quickly and economically this initial contraction of the glass tube without danger that the tubes may be bent during the operation, whereby the tubes will be adapted to be used for the purpose stated.

The invention may be summarized as consisting of the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawing the figure is an elevation, partly in section, of a machine embodying my invention.

In the machine shown there is a fixed standard A, on which a blowpipe H is supported and through which the gas and air ports are formed. The hub *b* of the spider-like frame B is rotatably mounted on this standard. Near the end of each of the arms *b'* of this frame there is a vertical sleeve *b²*, in which the stem *d* of the tube-holder D is rotatively mounted. On the lower end of this stem a friction-wheel *d'* is secured, and when the frame is in a proper position relative to the blowpipe-flame this wheel engages with a rotating driving-wheel F, and thereby the holder is rotated upon a vertical axis.

The holder D has a hole *d³*, extending axially downward from its top a suitable distance, and at the bottom of this hole is a cross-slot *d⁴*. The upper end of the holder is provided with two diametrically-opposed slots *d⁵*, through which project the upper ends of the inwardly-pressing springs E E,

whose lower ends are attached to the holder. Between the top of the holder and the lower end of the hole therein the holder is cut away as much as possible, leaving only enough of the metal, as at *d⁶*, for supporting the upper part of the holder.

To use the machine, a glass tube G is passed from the top down into the hole in the holder until the lower end of the tube is at the required distance above the lower end of said hole, and the tube will be held in this position by the springs E. The glass tube will be placed in the holder, as stated, when the holder is out of the range of the blowpipe-flames—as, for example, the holder at the right side of the drawing. The frame B is then swung until said glass tube is within the range of the blowpipe-flames, at which time, by reason of the engagement between the wheels F and *d'*, the holder will be rotated. The flames soften the glass until it is so weak that the tube below the weakened and softened portion moves downward by reason of its own weight to the bottom of the hole *d³*. This causes the softened part of the glass to contract, as shown, and the walls of this contracted portion are somewhat reduced in thickness. The operator may see through the cross-slot *d⁴* when the lower end of the tube has reached the bottom of the hole, and he knows then that the operation is completed, and he should immediately swing the spider so as to carry the tube out of the range of the blowpipe-flame. The lower part of the hole in the holder has guided the lower part of the glass tube G and preserved its alinement with the upper part. This tube quickly cools when removed from the influence of the flame, and by the time the frame has been so swung as to carry it around to the operator it may be removed. The operator has in the meantime put another glass tube into the opposite holder, which will be within range of the blowpipe-flame when the operator is removing the tube already finished. A spring-latch K may engage with the frame B to hold it in the operative position.

Having described my invention, I claim—

1. The combination of a tube-holder rotatable upon a vertical axis and having a hole

extending from its top downward a definite distance whereby the bottom of said hole serves as a stop to limit the elongation of the tube being operated upon, said holder being
5 cut away for a suitable distance between the top and bottom of said hole, means for holding the upper end of a glass tube in said hole, and a blowpipe for heating a part of the glass tube exposed by the cut-away part of said
10 holder, substantially as specified.

2. The combination of a tube-holder rotatable upon a vertical axis and having slots in its upper end and a vertical hole extending from its top downward, a part of said holder
15 between the top and bottom of said hole being cut away, with two inwardly - pressing springs secured to the holder and extending through said slots, and means for directing a blowpipe-flame upon that part of a glass tube,
20 being held by springs, which is exposed through said cut-away part of the holder, substantially as specified.

3. The combination of a frame adapted to be turned about a vertical axis, a holder rotatably mounted on said frame upon a vertical axis and having an axial hole extending from its top downward and a transverse slot
25 d^4 whose lower edge is substantially coincident with the bottom of said hole, and being
30 cut away between the top and bottom of said

hole, means carried by said holder for grasping the upper part of a glass tube which extends down through said hole, and means for directing a blowpipe-flame against that part
of said glass tube which is exposed through
35 the cut-away portion of the holder, substantially as described.

4. The combination of a frame adapted to be turned about a vertical axis and having at opposite sides of its axis a bearing-sleeve,
40 a holder supported by and rotatably mounted in each of said bearing-sleeves, and having on its projecting lower end a friction driving-wheel, said holder having a central longitudinal hole extending from its top downward and
45 being cut away between the ends of said hole, means for grasping the upper part of a glass tube in the hole of said holder, a fixed blowpipe operating in the plane where said holder is cut away, and a rotating friction-wheel
50 with which the friction-wheel on the holder will engage when the holder is in the proper position relative to said blowpipe-frame, substantially as described.

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

WILLARD N. PACKER.

Witnesses:

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