(No Model.)

D. J. LORDEN.

MACHINE FOR MAKING GLASS GLOBES, SHADES, &c.

No. 345,979. Patented July 20, 1886.

Fig: 1.

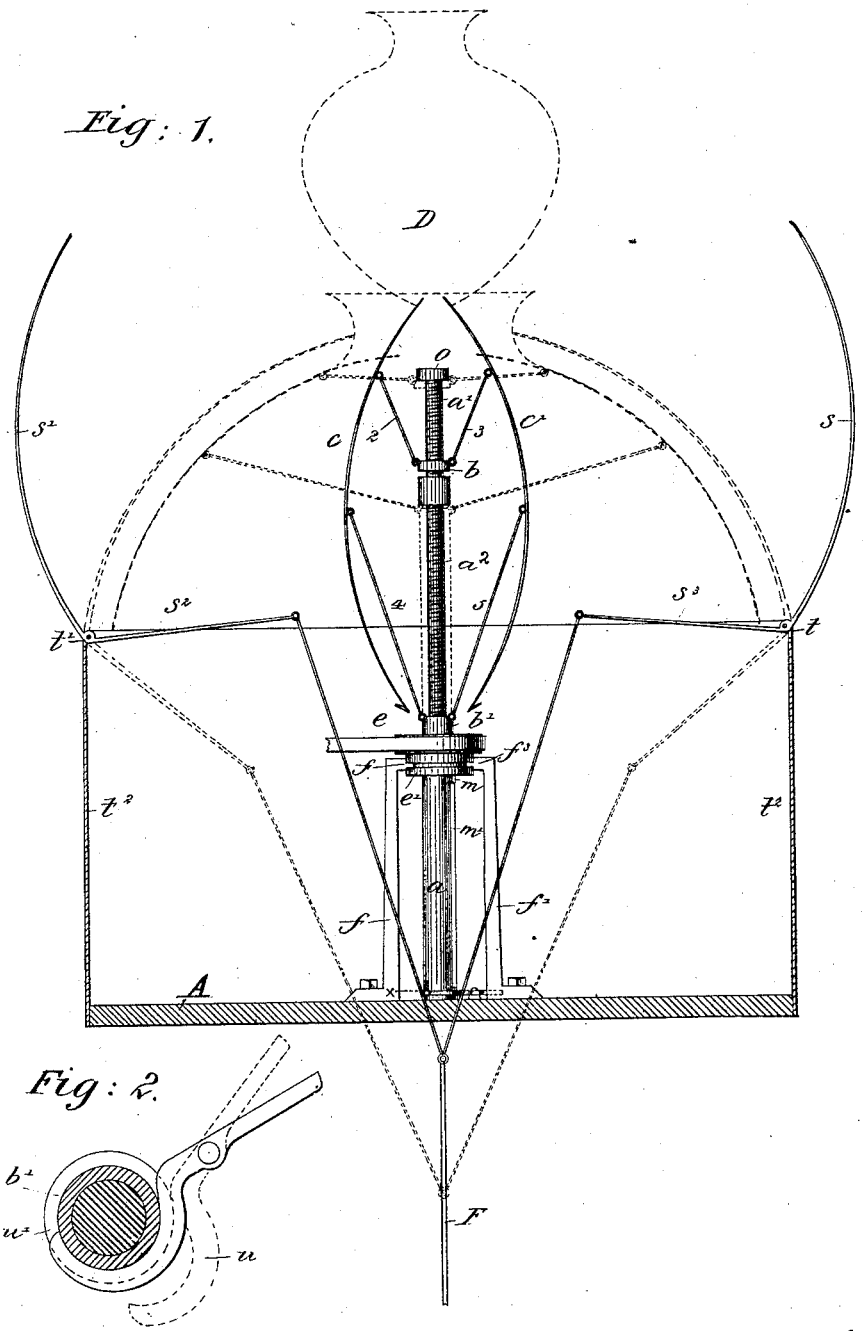

Fig: 2.

Witnesses:
John A. Rennie
John F. C. Brinkerhoff

Inventor,
Dennis J. Lorden
Per: Crosby & Gregory
his attys.

UNITED STATES PATENT OFFICE.

DENNIS J. LORDEN, OF SANDWICH, ASSIGNOR OF ONE-HALF TO JOHN J. CROWLEY, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MAKING GLASS GLOBES, SHADES, &c.

SPECIFICATION forming part of Letters Patent No. 345,979, dated July 20, 1886.

Application filed November 23, 1885. Serial No. 183,602. (No model.)

To all whom it may concern:

Be it known that I, DENNIS J. LORDEN, of Sandwich, county of Barnstable, and State of Massachusetts, have invented an Improvement in Machines for Making Glass Globes, Shades, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the manufacture of glass globes or shades of the dome class for lamps, &c., the usual glass tube for a portion of its length is first blown to an oval shape. The free open end which is to form the top of the shade is then turned outward to give to the said top an ornamental appearance. The usual "post" or "snap" is then attached to the said open end or top, and the shade is then detached from the remaining portion of the tube. The open end left by detaching the shade from the tube is then turned outward or spread to complete the shade by means of a hand-tool, the bodies being previously heated.

This invention has for its object to construct a simple apparatus which may be employed to spread the oval-shaped bodies as detached from the tube into the shape they shall ultimately assume, thereby expediting and facilitating the manufacture of glass globes or shades of this class.

The invention consists in the combination, with two or more pivotally-connected expanding devices or bows, two sleeves to which the said expanding devices are pivoted, a stationary screw-threaded rod or spindle upon which the said sleeves are mounted to rotate, and means, substantially as will be described, for rotating the sleeves upon the screw-threaded rod, whereby the bows are expanded, of two or more pivoted formers or bows arranged to be brought into contact with the exterior of the globe or shade to prevent the expanding devices from giving to the globe or shade too great dimensions at any or all parts thereof.

The expanding devices herein described consist of two or more bows pivotally connected at two points intermediate of their length by connecting-rods to two sleeves, the said sleeves being mounted to rotate upon a stationary screw-threaded rod, so that as said sleeves are rotated they will travel upward upon the screw-threaded rod, and thereby turn the bows outward. Suitable retaining devices are supplied whereby one sleeve is permitted to travel upward upon the screw-threaded rod in advance of the other. A suitable pulley or drive-wheel surrounds one of the said sleeves and is held in suitable bearings, while a projection extending inward toward the center of the pulley enters a slot or guideway in the sleeve, thereby engaging and rotating the sleeve while also permitting the said sleeve to travel upward upon its screw-threaded rod.

The formers for the exterior of the globe to be shaped consist of pivotal bows and suitable means whereby the said formers may be brought into operation at any time desired.

Figure 1 shows in side elevation an apparatus constructed in accordance with this invention, a portion of the frame-work being broken away to show the parts within; and Fig. 2, a detail of the retaining device.

The base A has rigidly connected with it, at or near its center, a spindle or rod, *a*, which is screw-threaded at its upper end, as at a', and also for a portion of its length, as at a^2, below the said portion a', the two portions a' a^2 being thereby separated by a short portion of the spindle, which is deprived of screw-threads. Two sleeves, *b* b', are mounted upon the said spindle *a* to rotate freely, normally being located at the portions of the said spindle which are deprived of screw-threads. To the sleeves *b* b' are pivoted two or more expanding devices or bows, *c* c', by connecting-rods 2 3 4 5, respectively.

The drive-wheel or pulley *e* surrounds the lowermost sleeve, b', and is provided with a grooved hub, e', suitable uprights, $f f'$, rising from the base A, and having projections f^2 f^3, entering the grooves in said hub e', thereby retaining the pulley in suitable position.

The drive-pulley *e*, with its hub e', is provided with an inwardly-extended projection, *m*, which enters a groove or slot, m', passing lengthwise of the sleeve b'.

The drive-pulley *e* is rotated in a horizontal plane, and as it rotates the projection *m*, engaging the sleeve b', rotates the said sleeve, and as said sleeve travels upward upon the

screw-threaded portion a^2 of the spindle the projection m follows in the groove or slot m'.

It has been found preferable that one of the sleeves should commence to travel upon its screw-threaded portion of the spindle a in advance of the other, and to this end a retaining-device consisting of a lever pivoted to the base-plate A, and having a semicircular engaging portion, n, which enters a groove, n', in the lower end of the sleeve b', is provided, the said retaining device being moved on its pivot by any suitable means, yet herein shown as moved by the hand of the operator.

In accordance with this invention the oval-shaped body shown in dotted lines at D, and supposed to be attached to any usual post or snap, is placed upon the apparatus herein described, the bows or expanding devices $c\ c'$ entering the opening formed by detaching the said body from the tube. The drive pulley e is then rotated, the sleeve b' being normally engaged by the retaining device. As the sleeve b' rotates, the sleeve b, through the intervention of the connecting-rods and bows, is also rotated, and at once commences to travel upward upon the screw-threaded portion a' of the spindle, expanding the bows and spreading the hot bodies D, placed upon them, until the said sleeve b strikes the stop o. At this time the retaining device for the sleeve b' is released, and the said sleeve b' at once travels upward upon the screw-threaded portion a^2 of the spindle a, thereby turning the bows $c\ c'$ upon their pivotal connections into the dotted line position.

To prevent the globes or shades from assuming too great dimension at any particular point, caused by the centrifugal action of the expanding devices, suitable formers are provided, each one consisting of two or more curved arms, $s\ s'$, and straight arms $s^2\ s^3$, pivoted at $t'\ t'$ to suitable uprights, $t^2\ t^2$, rising from the base-plate A. The arms $s^2\ s^3$ are connected by a suitable cord or wire to the connecting-rod F, operated by any suitable treadle or other means. These formers are normally spread outward upon their pivots when the article being operated upon is near its completion, the said formers, by the connecting-rod F, being brought into contact with the exterior of the globe or shade at such time.

It is obvious that many devices may be devised for rotating the sleeve b'; but the construction herein shown being simple is the one I prefer to use.

While it is obvious that the retaining devices herein shown fully accomplish the results sought for, yet many other devices capable of producing the same result may be employed with equally beneficial effects, and without departing from my invention.

I claim—

1. In a machine for making glass globes or shades, the combination, with two or more pivotally-connected expanding devices or bows, of two sleeves, $b\ b'$, to which the said expanding devices are pivotally connected, a stationary spindle or rod having screw-threaded portions $a'\ a^2$, upon which the sleeves $b\ b'$, respectively, travel, and means, substantially as described, for rotating the said sleeves, causing them to travel upon the screw-threaded portions of the spindle and thereby expand the bows, as set forth.

2. The combination, with two or more expanding devices or bows, two sleeves, $b\ b'$, to which the said expanding devices are pivotally connected at two points by connecting-rods 2 3 4 5, respectively, of a stationary spindle having screw-threaded portions $a'\ a^2$, upon which the sleeves $b\ b'$ respectively travel, and means, substantiatly as described, for rotating the said sleeves, whereby the expanding devices are moved outward, as set forth.

3. The combination, with two or more pivotally-connected expanding devices, and two sleeves to which the said expanding devices are pivoted, of the stationary spindle having screw-threaded portions $a'\ a^2$, upon which the two sleeves respectively travel, and retaining devices, substantially as described, co-operating with the lowermost sleeve to prevent the said sleeve from traveling upon its screw-threaded portion of the spindle until permitted so to do by the operator.

4. The combination, with two or more pivotally-connected expanding devices, two sleeves, a stationary spindle having screw-threaded portions $a'\ a^2$, upon which the said sleeves respectively travel, of a drive-pulley, e, having a grooved hub, e', turning in the uprights or bearings $f\ f'$, and the projection m, following in the groove or slot m' in the lowermost sleeve, all substantially as and for the purpose set forth.

5. The combination, with two or more pivotally-connected expanding devices, means, substantially as hereinbefore set forth, for moving the same, of two or more formers, consisting of pivoted levers arranged to be brought in contact with the exterior of the article being operated upon, and means, substantially as described, for moving the said formers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DENNIS J. LORDEN.

Witnesses:
B. J. NOYES,
C. M. CONE.