

W. W. PILKINGTON.

Apparatus for Manufacturing Window-Glass.

No. 134,926.

Fig 1.

Patented Jan. 14, 1873.

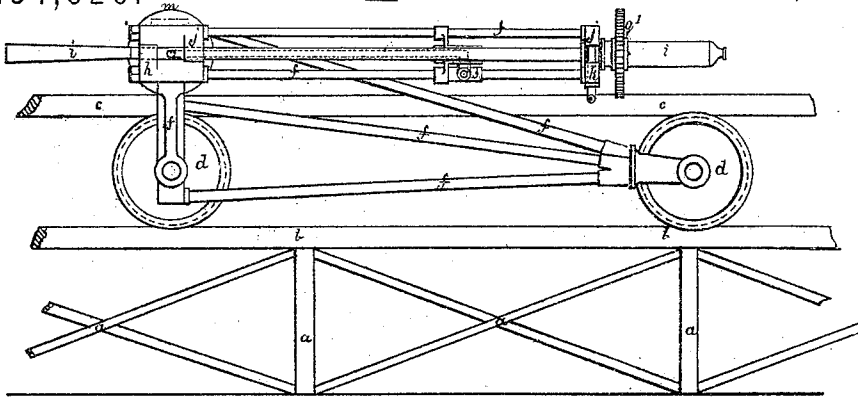


Fig 2.

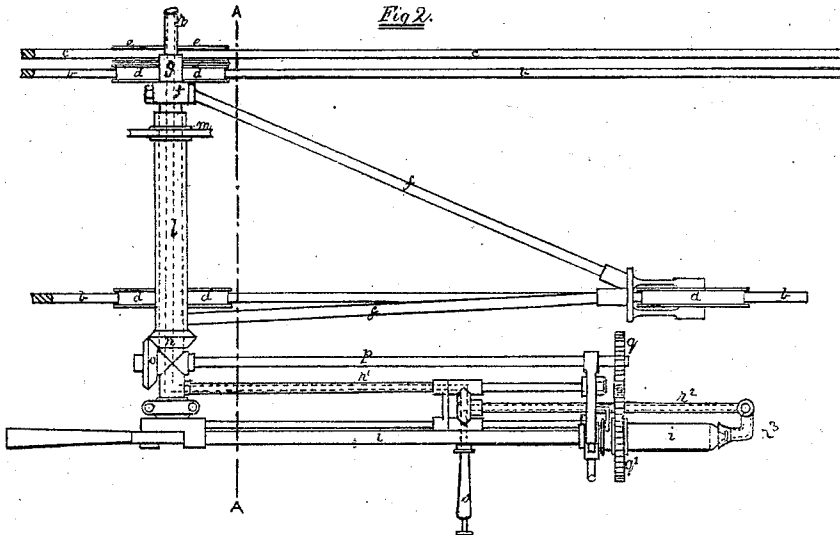


Fig 3.

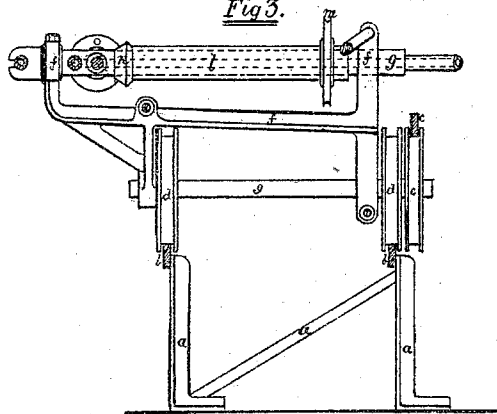
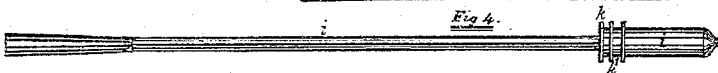


Fig 4.



WITNESSES

James Johnson.
James Glenney

INVENTOR

W. W. Pilkington

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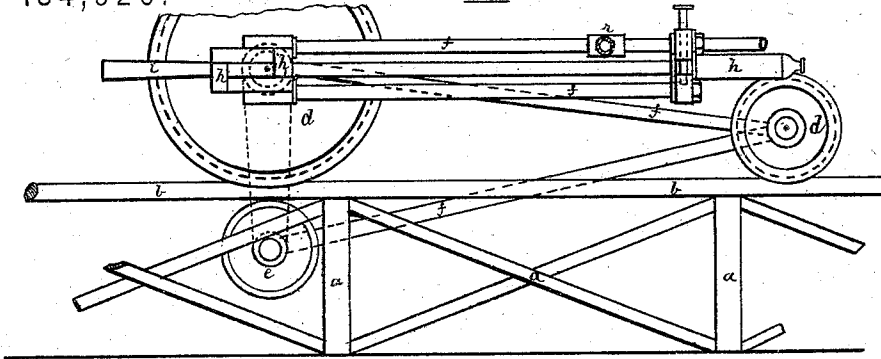


Fig 2.

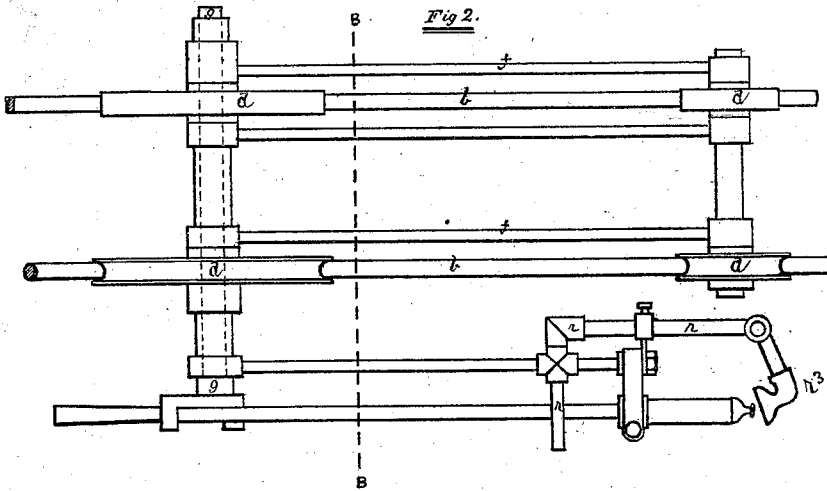
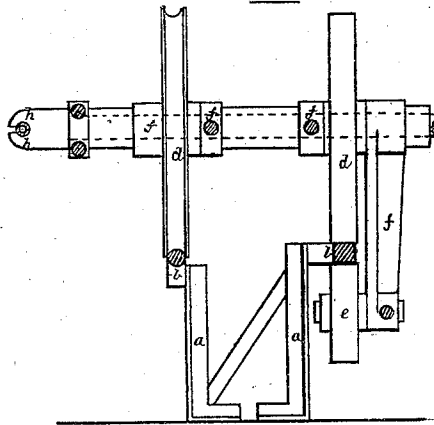


Fig 3.



WITNESSES

James Johnson.
James G. Loring

INVENTOR

W. W. Pilkington

UNITED STATES PATENT OFFICE.

WILLIAM W. PILKINGTON, OF ST. HELENS, ENGLAND.

IMPROVEMENT IN APPARATUS FOR MANUFACTURING WINDOW-GLASS.

Specification forming part of Letters Patent No. 134,926, dated January 14, 1873.

To all whom it may concern:

Be it known that I, WILLIAM WINDLE PILKINGTON, of St. Helens, in the county of Lancaster, England, have invented certain Improvements in Apparatus Employed in the Manufacture of Glass, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to apparatus for facilitating the operations of the "blower." The purposes which the said apparatus is principally intended to serve are, first, supporting the blower's tube and the glass attached thereto; second, aiding the glass-blower to impart the necessary swinging motion with ease; third, imparting rotary motion to the tube and glass by mechanical agency; and, fourth, effecting the blowing by mechanically-compressed air. The carriage or movable frame-work and operating parts of the apparatus are supported on carrying-wheels, and the whole made portable. In practice I prefer to form a way with three rails, two placed parallel to each other on the floor to bear the carriage, and a third fitted over the outer rail at a distance therefrom equal to the diameter of the outer wheel or wheels to prevent the carriage and its attachments from canting. There is a horizontal or nearly horizontal cross-shaft, free to turn in its bearings on the carriage, and at the overhanging end are securing-catches and sockets for the blower's tube. When the latter is mounted in the said bearings and socket the shaft may be rocked and the swinging motion imparted to the cylinder or article being blown. To provide for giving rotary motion to the blower's tube a sleeve is fitted over the horizontal shaft, and caused to rotate by any convenient power. The motion is transmitted by toothed wheels and an intermediate shaft to the socket containing the blower's tube, the socket and tube being made to rotate as one piece. When mechanically-compressed air is used a duct supported by the horizontal shaft and fitted with a regulating-valve is connected to a suitable opening in the glass-blower's tube.

Description of the Drawing.

On Sheet 1, Figure 1 is a side elevation, Fig. 2 a plan, and Fig. 3 a transverse section

at A A of my apparatus, adapted for facilitating the four operations above named—to wit, supporting, swinging, rotating, and blowing.

The rails on which the apparatus is arranged to run are here shown raised above the ordinary floor on the opposite side of the swing-hole from the blower; but it will be obvious these carrying-rails may rest on the ordinary floor level of the glass-house, and that the platform on which the glass-blower stands may be lowered.

In these views like letters denote the same parts.

a, frame-work supporting the carrying-rails *b*; *c*, rail to prevent the apparatus from canting; *d*, carrying-wheels; *e*, anti-canting pulley; *f*, frame-work of the apparatus; *g*, shaft; this can be caused to rock by the workman, and the whole of the overhung parts hereafter referred to thereby made to swing; *h*, bearings for the blower's tube *i*; *j*, securing-catches. The blower's tube *i* is shown detached in side elevation by Fig. 4; two collars, *k k'*, are formed or secured on it to prevent slipping during swinging. In practice *k* might be dispensed with and *k'* only used. Surrounding the shaft *g* is the sleeve *l*, which is here adapted to be rotated by a cord passed over the pulley *m*. *n*, bevel-wheel gearing with and giving motion to bevel-wheel *o* secured on the intermediate shaft *p*, whose motion is transmitted by the wheels *q q'* to the glass-blower's tube *i*. By these parts it will be seen that while the workman is swinging the machine, and the glass vessel or cylinder attached to the tube, such glass vessel or cylinder is or may be caused to rotate with the glass-blower's tube. Compressed air is supplied in the arrangement shown through the duct *r*, *r*¹, *r*², and *r*³, to the glass-blower's tube—that is to say, from an India-rubber tube at *r*, thence through the shaft *g* and tube *r*¹ *r*², *r*³ being a regulating-valve interposed to moderate the force of and shut off the current of air. The piece marked *r*² is so fitted that it can be withdrawn from the glass-blower's tube, and the mouth of the blower applied. The turning of the piece *r*³ stops the flow of air through it by closing the faucet-joint by which it is connected.

On Sheet 2, Fig. 1 is a side elevation, Fig.

2 a plan, and Fig. 3 a transverse section at B B of a modification, which is the one I prefer for present practice.

Here, as before, *a* denotes the frame-work supporting the rails *b*; *d*, carrying-wheels; *e*, steadying or anti-canting pulley, which in this form runs under one of the supporting-rails *b*; *f*, frame-work; *g*, shaft, free to be rocked; *h*, bearings for the blower's tube; *i*, blower's tube, with one or more collars. Compressed air is supplied when desired through the ducts *r* *r*²; but in practice I find workmen prefer to blow by mouth. The rotating of the glass vessel or cylinder is effected by the workman turning the tube by hand.

Having now described the nature of my said invention, and particularized the same in such manner that others will be enabled to carry the same into effect, I claim as my invention—

1. The carriage-frame *f*, wheels *d*, and anti-canting wheel *e*, in combination with the cross-shaft *g* and glass-blower's tube *i*, all adapted to serve on rails at the side of the swing-hole, as herein specified.

2. The combination of the provisions *m*, *l*, *n*, *o*, *p*, *q*, and *q'* with the glass-blower's tube *i*, so mounted and arranged on the carriage-frame *f* and wheels *d* as to allow of the swinging and revolving motion, as specified.

3. The combination of the ducts *r* *r*² and their connections, and valve *r*³ for blowing and controlling the blowing action, with the tube *i*, carriage *f*, and provisions for allowing the tube to be rotated on the said carriage, as herein specified.

4. The combination of mechanisms for facilitating the several operations in the manufacture of glass, of supporting, swinging, rotating, and blowing, arranged and constructed substantially as herein described.

In testimony whereof I have hereunto set my hand the sixteenth day of August, A. D. 1872.

W. W. PILKINGTON.

Witnesses:

JAMES JOHNSON,
JAMES G. CURRY.