July 26, 1932. J. A. BOUSH 1,869,044

GLASS CUTTING MECHANISM

Filed Jan. 21, 1928 2 Sheets-Sheet 1

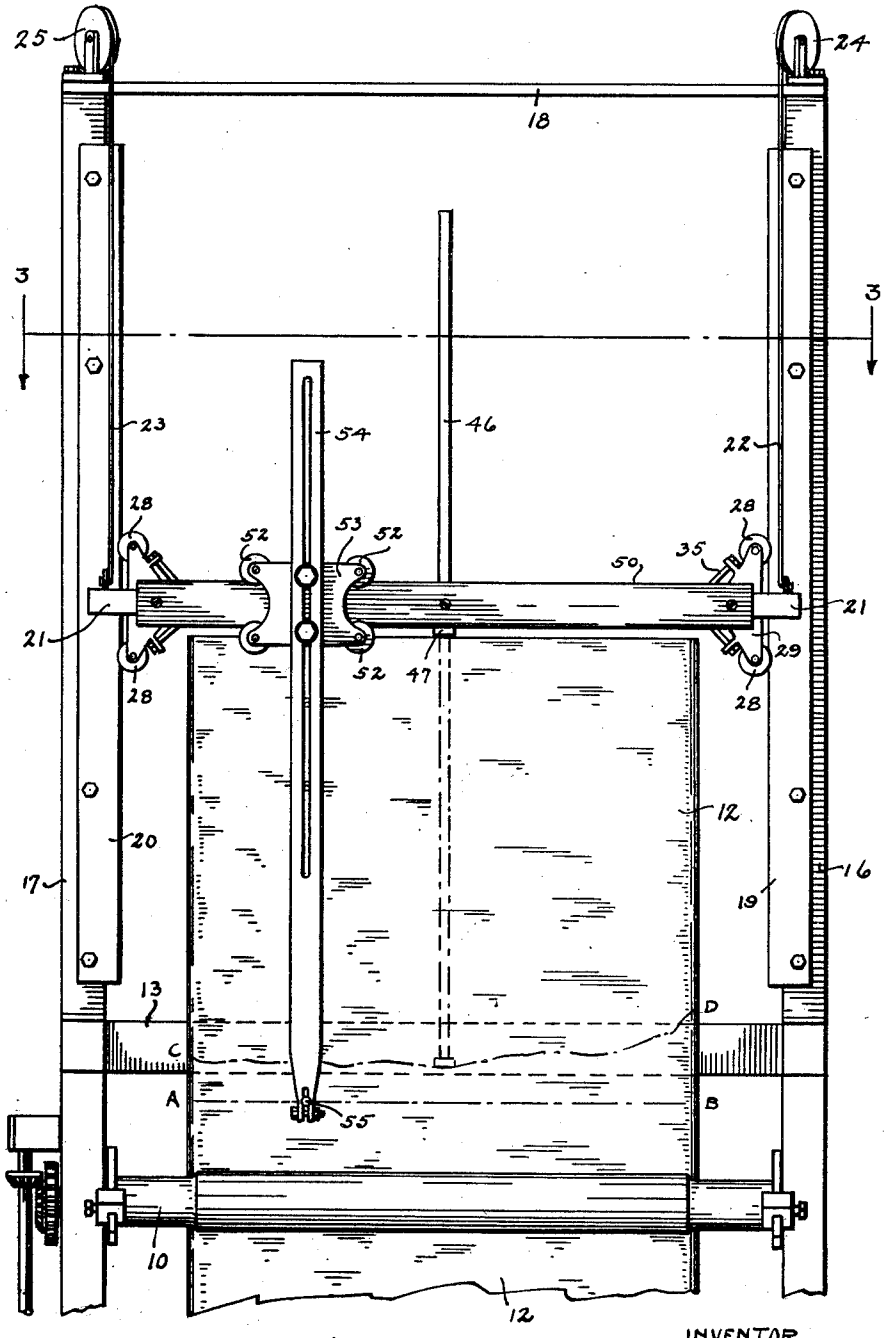


Fig. 1.

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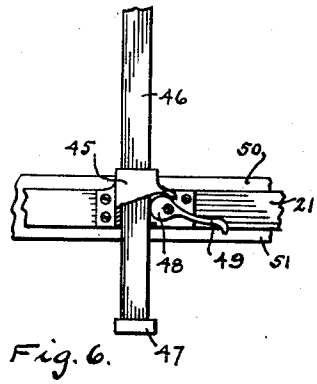


Fig. 6.

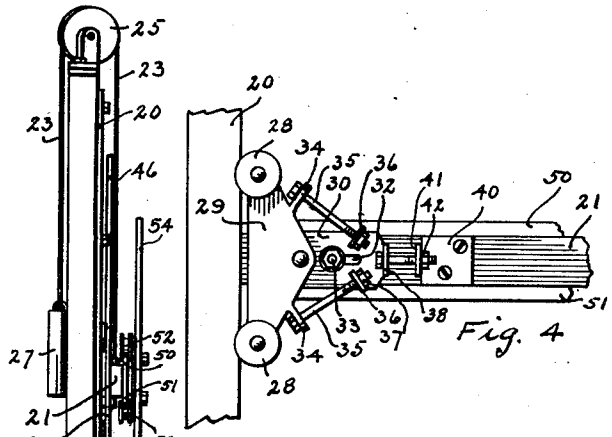


Fig. 4

Fig. 5.

Fig. 2.

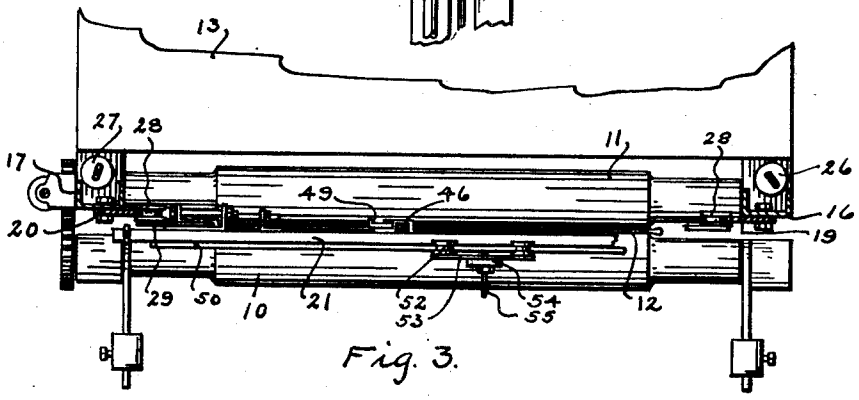


Fig. 3.

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UNITED STATES PATENT OFFICE

JOHN A. BOUSH, OF VINCENNES, INDIANA, ASSIGNOR TO BLACKFORD WINDOW GLASS COMPANY, OF VINCENNES, INDIANA, A CORPORATION OF INDIANA

GLASS CUTTING MECHANISM

Application filed January 21, 1928. Serial No. 248,346.

My invention relates to apparatus for accurately cutting a continuous ribbon of glass into sheet lengths.

An object of the invention is to move the ribbon of glass in a vertical direction and score it transversely to its direction of travel while so moving; all of the scores being parallel to each other.

A further object is to provide a pressure foot to contact the top edge of the glass ribbon and transmit corresponding vertical travel to a glass cutter which simultaneously moves horizontally to score the ribbon.

The object is to score and break the glass ribbon while being held vertically, to facilitate the removal of the sheet lengths from the cutting machine.

Other objects and advantages of the invention will become apparent during the course of the following description when taken in connection with the accompanying drawings.

My invention is here described in one particular form as shown in the accompanying drawings, in which—

Fig. 1 is a front elevation of my invention;

Fig. 2, a side elevation;

Fig. 3, a section on the line 3—3 in Fig. 1;

Fig. 4, a detail in rear elevation of the transverse bar adjusting means;

Fig. 5, a fragmentary top plan view of the detail as shown in Fig. 4; and

Fig. 6, a fragmentary rear elevation of the adjustable glass stop.

Like characters of reference indicate like parts throughout the several views of the drawings.

I apply my invention at the extreme top end of the vertically positioned column of rollers 10 and 11 which draw the glass in a continuous sheet 12 directly from a molten mass of glass in a drawing chamber of a furnace below (not shown), the method and means of drawing the glass not forming a part of this particular invention. A platform 13 extends backwardly from the top of the roller columns 14 and 15 in the usual manner.

On each side of the forward end of the platform 13 just behind the plane of the glass 12, I mount the vertically positioned columns 16 and 17 and tie them together at the top by the brace 18 to have the columns 16 and 17 substantially parallel. On the forward faces of the columns 16 and 17, I attach the guide plates 19 and 20 respectively to have their inner edges project inwardly beyond the columns and to be exactly parallel on to the other and also parallel to the longitudinal edges of the glass 12.

A transverse bar 21 is carried in front of the plates 19 and 20 by the cables 22 and 23 secured to near the respective ends of the bar 21, which cables pass up over around the pulleys 24 and 25 and down behind the columns 16 and 17 to carry the counter-balance weights 26 and 27. The bar 21 is maintained always in a horizontal position exactly normal to the inner edges of the plates 19 and 20 by means of trolley wheels 28 engaging the inner edges of the plates, and adjustably carried by the bar 21.

Referring to Figs. 4 and 5, a pair of the wheels 28 are rotatably carried in a spaced apart relation on a wheel plate 29 which is pivotally attached to a sliding bracket 30. This bracket 30 has the flanges 31 engaging along the top and under sides of the bar 21, and a central longitudinal slot 32 through which is slidingly passed a bolt 33 to be secured in the bar 21. The wheel plate 29 has an ear 34 on each side of the pivot point and bolts 35 are passed through the ears 34 and also through ears 36 on the bracket 30, whereby by selectively tightening and loosening the nuts 37 on the bolts 35, the wheel plate 29 may be rocked about its pivot and maintained at any precise angle desired. The inner end of the sliding bracket 30 carries an ear 38 through which is passed the bolt 39, and a

bracket 40 fixed to the bar a short distance in from the sliding bracket likewise has the ear 41 to receive the other end of the bolt 39 therethrough so that by turning the nut 42 the sliding bracket 30 may be moved longitudinally along the bar 21 to move the trolley wheels 28 correspondingly. When the desired adjustment is secured, the nut 43 on the bolt 33 is tightened to grip the bracket 30 against the bar 21. The bar 21 is provided with the above described adjusting means on each end.

To the back side of the bar 21 is attached a bracket 45 through which a stop bar 46 is slidingly, vertically guided. A foot 47 is carried on the lower end of the bar 46 and is preferably made of a material that is not heat-conducting. A cam 48 eccentrically pivoted in the bracket is rocked by the lever 49 to press against the side of the bar 46 to retain the bar at desired elevations.

The transverse bar 21 carries the upwardly and downwardly extending flanges 50 and 51 substantially along its length over which are engaged the wheels 52 of carrier 53. On the front side of the carrier is attached the vertical rule 54 here shown (Fig. 1) as having a slot throughout a major portion of its length so that the rule may be raised or lowered in respect to the bar 21 and secured at selected elevations to give desired lengths of glass. A glass cutter 55 is held in the lower end of the rule 54 to project backwardly toward the glass 12.

Normally the stop bar 46 is raised and secured in the position shown in Fig. 1, and the bar 21 is pushed down by an operator standing on the platform 13 to allow the glass 12 coming upwardly from between the rollers to contact the foot 47, and as the bar 21 and the parts carried thereon are counter-balanced by the weights 26 and 27, but a very slight pressure is required to carry the bar 21 along upwardly as the glass 12 moves. An operator below the platform 13 in front of the glass 12 moves the cutter 55 along over the glass to describe a line AB (Fig. 1) which line AB is normal to the edge of the glass, although the cutter 55 has been carried upwardly by the bar 21 while the operator has moved it horizontally across the glass.

The platform operator pushes the bar 21 upwardly out of the way, grasps the glass 12 by its side edges and snaps it backwardly whereupon a clean break is had along the line AB. The bar 21 is again lowered to permit the oncoming glass 12 to contact the foot 47 as before to repeat the foregoing operations.

Occasionally, due to improper annealing, the glass has internal stresses which upon the slightest provocation cause a crack to start running through the glass and the oncoming sheet of glass 12 will break across somewhat on a line CD (Fig. 1). In order to square up the glass after such a break without having to waste an appreciable length, the stop bar 46 may be quickly dropped as indicated by the dash line position in Fig. 1, to allow the foot 47 to contact the oncoming glass so that the cutter 55 may be run across on the line AB just below the broken edge sufficiently to prevent the starting or running of new cracks or checks, so that the portion of glass between the lines AB and CD may be removed and the straight edge AB then be presented against the foot 47 which has been returned to its normal position.

While I have here described and shown my invention in the form now best known to me, it is obvious that the structure so shown may be varied considerably without departing from the spirit of the invention, and I therefore do not desire to be limited to the precise structure, nor any more than may be required by the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a machine for cutting a moving sheet of glass, a pair of spaced apart guides, a transverse bar movable in advance of the moving sheet of glass, means for movably tracking the transverse bar on the guides, a carrier, means for movably supporting it on the transverse bar, a rule, means for adjustably supporting the rule from the carrier, a glass cutter supported by the rule, a stop-bar having a member to contact the oncoming glass, and means for supporting the stop-bar from the transverse bar.

2. In a machine for cutting a moving sheet of glass, a pair of spaced apart guides, a transverse bar movable in advance of the moving sheet of glass, means for approximately balancing it, means for movably tracking the transverse bar on the guides, a wheeled carrier, means for movably supporting it on its wheels by the transverse bar, a rule, means for supporting the rule from the wheeled carrier, said rule being adjustable longitudinally, a glass cutter supported by the rule, a stop bar having a foot member to contact the oncoming glass, said stop bar being supported by the transverse bar and adjustable longitudinally to vary the distance of the foot member from the transverse bar.

3. In a machine for cutting a moving sheet of glass, a pair of spaced apart guide plates parallel to the direction of travel of the sheet, a transverse bar normal to the inner edges of the plates and movable in advance of the moving sheet of glass, said bar having longitudinal flanges, means comprising trolley wheels tracked on the inner edges of the plates for movably maintaining the bar, a carrier movably mounted on the flanges of the bar, a rule secured to the carrier adjustable in the length of the rule, a glass cutter carried by the rule, and a stop bar carried by the

transverse bar said stop bar having a foot to contact the oncoming glass.

4. In a machine for cutting a moving sheet of glass, a pair of spaced apart guides, a transverse bar movable in advance of the moving sheet of glass, a cord and weight at each end of the bar to approximately balance it, a trolley means at each end of the transverse bar tracking the bar on the guides, a carrier, wheeled means for movably mounting the carrier on the transverse bar, a rule having a longitudinal slot, bolts through the slot attaching the rule to the carrier, a glass cutter carried by the rule, a stop-bar having a foot extending into the path of the oncoming glass and clamp means for adjustably securing the stop-bar to the transverse bar.

5. In a machine for cutting a sheet of glass moving up vertically, a pair of vertical guides, a transverse bar movable in advance of the moving sheet of glass, means for movably supporting it constantly normal with and by the guides, a carrier, means for movably supporting it on the transverse bar, a vertical rule, means for supporting the rule from the carrier, a glass cutter supported by the rule, a vertical stop-bar having a foot projecting into the path of the glass and means for adjustably securing the stop-bar to the transverse bar.

6. In a machine for cutting a vertically moving sheet of glass, a pair of relatively fixed spaced-apart guides, a transverse bar located between the guides movable in advance of the moving sheet of glass, adjustable means between the ends of the bar and the guides comprising a rocking plate having members to bear against the guides and bolts to adjust the plate, a carrier, means for movably supporting it on the transverse bar, a rule, means for adjustably supporting the rule from the transverse bar, a glass cutter supported by the rule, a stop-bar having a member to contact the oncoming glass and means for supporting the stop-bar from the transverse bar.

7. In a machine for cutting a vertically movable sheet of glass, a pair of relatively fixed spaced apart guides, a transverse bar located between the guides movable in advance of the moving sheet of glass, a pair of spaced apart trolley wheels at each end of the bar tracking on the guides, wheel plates connecting the wheels with the ends of the bar, means for adjusting the angles of the plates relative to the bar, means for varying the positions of the plates longitudinally of the transverse bar, means to move the transverse bar by contact with the oncoming glass, a carrier movably mounted on the transverse bar, a rule supported by the carrier and a glass cutter supported by the rule.

8. In a device for cutting lengths from a vertically moving sheet of glass, a transverse bar above the glass movable in advance of the moving sheet of glass, said bar having top and bottom longitudinal flanges, a foot carried by the bar to contact the glass and move the bar by pressure of the glass against the foot, said foot being adjustable in the distance from the bar, a carrier having members engaging the top and bottom flanges of the transverse bar between them, a rule carried by the carrier, said carrier being movable laterally of the glass and a cutter carried by the rule, said rule being adjustable longitudinally to vary the distance of the cutter from the bar.

In testimony whereof I affix my signature.

JOHN A. BOUSH.