Feb. 9, 1960 E. BASSO, JR 2,924,044

GLASS SEVERING APPARATUS

Filed Feb. 20, 1959

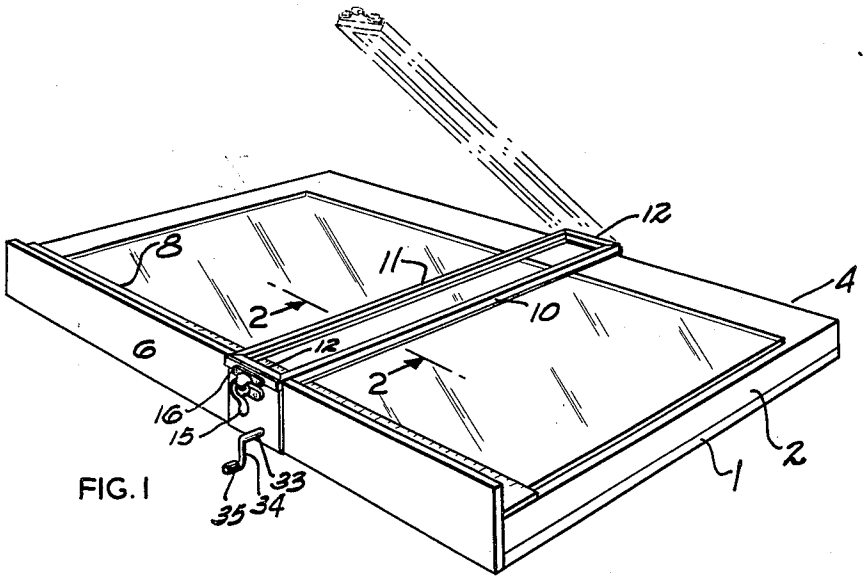


FIG. 1

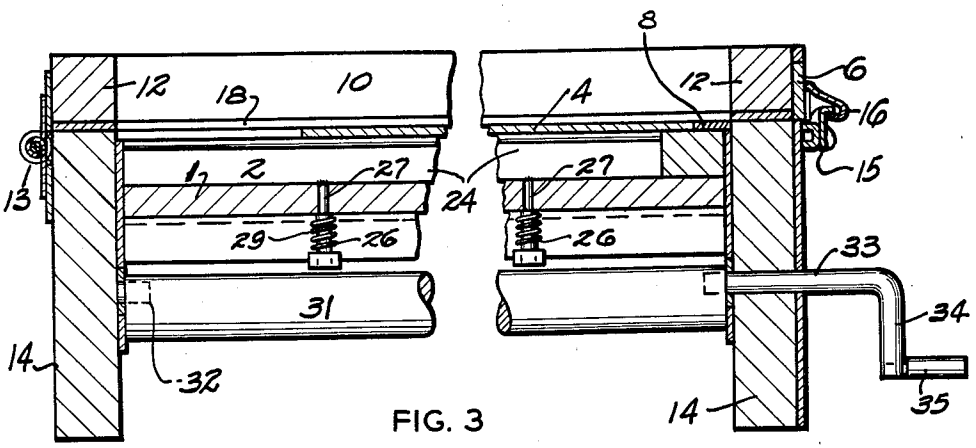


FIG. 3

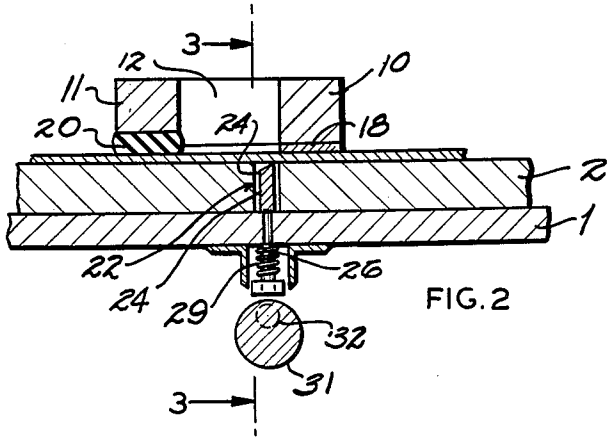


FIG. 2

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United States Patent Office 2,924,044 Patented Feb. 9, 1960

2,924,044

GLASS SEVERING APPARATUS

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Application February 20, 1959, Serial No. 794,595

4 Claims. (Cl. 49—48)

The invention relates to the severing of glass by construction workmen or by clerks in hardware and paint stores, as distinguished from the severing of glass as it is being manufactured. The invention resides in a device for applying pressure transversely of the glass sheet at or adjacent to a scored line so as to bend the sheet about the weakened area.

The objects of the invention are to expedite the cutting of glass to a desired size; to eliminate the risk of undesirable breakage irrespective of the skill of the workman as required for ordinary retail glass cutting operations; to adapt the severing of the glass whether positioned in horizontal or upright planes; to insure that the edge of the cut will be at right angles to the plane of the sheet; and to insure that, if desired, successive cuts will produce sheets of uniform size.

These objects are attained by the structure illustrated in the accompanying drawings, in which:

Figure 1 is a perspective of the apparatus with the glass supporting bed disposed horizontally.

Figure 2 is a vertical section on line 2—2 of Figure 1 and drawn to an enlarged scale.

Figure 3 is a detail vertical section on line 3—3 of Figure 2.

The apparatus includes a bed plate shown as two pieces of plywood 1 and 2 disposed horizontally and upon which the glass sheet 4 is placed. On one side of the bed is an upstanding rail 6. Extending along rail 6 is a rule with its measuring scale 8 running in opposite directions from the middle of the bed. The rule also serves as a guide for an edge of the glass.

Extending transversely of the bed plate is a holding frame comprising parallel hold-down bars 10 and 11 with cross pieces 12. A spring hinge 13 mounts frame 10, 11, 12 on the bed support frame 14 to swing from the horizontal position, shown in full lines in Figures 1, 2 and 3, to the position shown in broken lines in Figure 1. The spring hinge will tend to raise frame 10, 11, 12 elevated, leaving the operator's hands free to position the glass. A window sash type lock 15 engages the glass holding frame to secure it in lowered position. The underside of bar 10 may be faced with a strip 18 of relatively hard, unyielding material such as vulcanized rubber. The underside of bar 11 is faced with a strip 20 of sponge rubber or similarly yieldable material which is thick enough to distort under suitable pressure and permit the portion of the glass therebeneath to bend upwardly slightly from the bed plate until the breaking action begins.

Bed plate top member 2 has a slot 22 extending substantially from side to side of the bed. A steel blade 24 is positioned in slot 22 and has an angled upper edge. Pins or studs 26 are slidably vertically fitted in the lower bed plate 1 and have upper ends secured to blade 24 as by shouldered threaded ends 27. Blade 24 is positioned lengthwise of the bed plate so that its right hand face (Figure 2) is slightly offset from the left hand face of hold-down 10. Coil springs 29 thrust studs 26 and blade

24 downwardly to yieldingly retract the upper edge of the blade below the top face of the bed. An elongated roller 31 immediately beneath the heads of studs 26 is journaled eccentrically in the bed support frame 14 by trunnions 32, 33, the latter forming a crank 34 having a handle 35 by which it is manually operated.

With frame 10, 11, 12 moved to the dotted line position shown in Figure 1, the glass sheet 4 is placed on the bed plate and moved to the desired position along scale 8. Frame 10, 11, 12 is moved to the full line position and secured with its strips 18, 20 engaging one face of the glass sheet and holding the sheet so that it is firmly supported by the bed, whether the bed is horizontal or vertical. The workman then scores the glass with the usual hand tool bearing against the left hand face of hold-down 10. Roller 31 is then rotated by crank 34 to apply thrust to studs 26 and blade 24 simultaneously throughout the length of the latter. Strip 20 will yield to accommodate the thrust on the left hand portion of the sheet and the glass will be severed in a clean, straight line extending from edge to edge of the glass. Frame 10, 11, 12 is then released and the glass sheet removed and the operation is complete.

Any glass to the right of the blade remains undisturbed until removed by the workman. There is no necessity of catching the off fall as is present in many cutting operations.

The apparatus is simple, effective, and relatively inexpensive to construct, and attains the advantages set forth in the introductory portion of the specification.

The details of the structure may be varied without departing from the spirit of the invention and the exclusive use of those modifications coming within the scope of the claims is contemplated.

I claim:

1. In a glass severing mechanism a flat bed for supporting a glass sheet and provided with a through straight slot, a straight substantially rigid holding bar adjacent one side of said bed and adjacent one side of said slot and movable away from and toward said bed for clamping a sheet of glass to the bed, said bar having an upright face substantially aligned with one side of said slot, a blade with one elongated edge normally adjacent the opposite side of said bed and movable through said slot and alongside said bar face, means for thrusting the blade transversely of the general plane of the bed against a glass sheet thereon, and a second bar spaced along the first-mentioned bed side from said first bar and having a compressible liner opposing said bed for engaging the adjacent portion of the glass sheet but yieldable to thrust on the glass from said blade by said means.

2. A glass severing mechanism according to claim 1 in which the means for moving the elongated blade comprises a similarly elongated roller having eccentric mounting elements with a common axis substantially parallel to the length of the blade, said roller being rotatable on said mounting elements about their axis to engage the blade and move it as described.

3. In a glass severing mechanism, a bed having a face for supporting a glass sheet and having a through slot, an elongated edge blade movable transversely of the plane of said bed, through the slot toward and beyond said face, glass sheet hold-downs substantially parallel to each other and opposing said face and spaced apart adjacent to said slot for enough to receive said blade between them, and means for moving said blade as described against the glass sheet simultaneously throughout the length of the blade, one of said hold-downs having a glass sheet contacting face yieldable against movement of the glass sheet away from the bed by the thrust of said blade, and the other of said hold-downs positively resisting such movement.

4. In a glass severing mechanism, a flat bed for supporting a glass sheet, a frame hinged to one side of the bed and comprising a pair of parallel bars spaced apart and having bed opposing faces, one of said faces being substantially hard and the other of said faces being relatively yielding, means for securing said frame to said bed in glass-holding position, an elongated blade having a sharp edge movable through the bed in alignment with a face of the first mentioned bar perpendicular to the bed, and means for thrusting said blade as described substantially simultaneously throughout its length.

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