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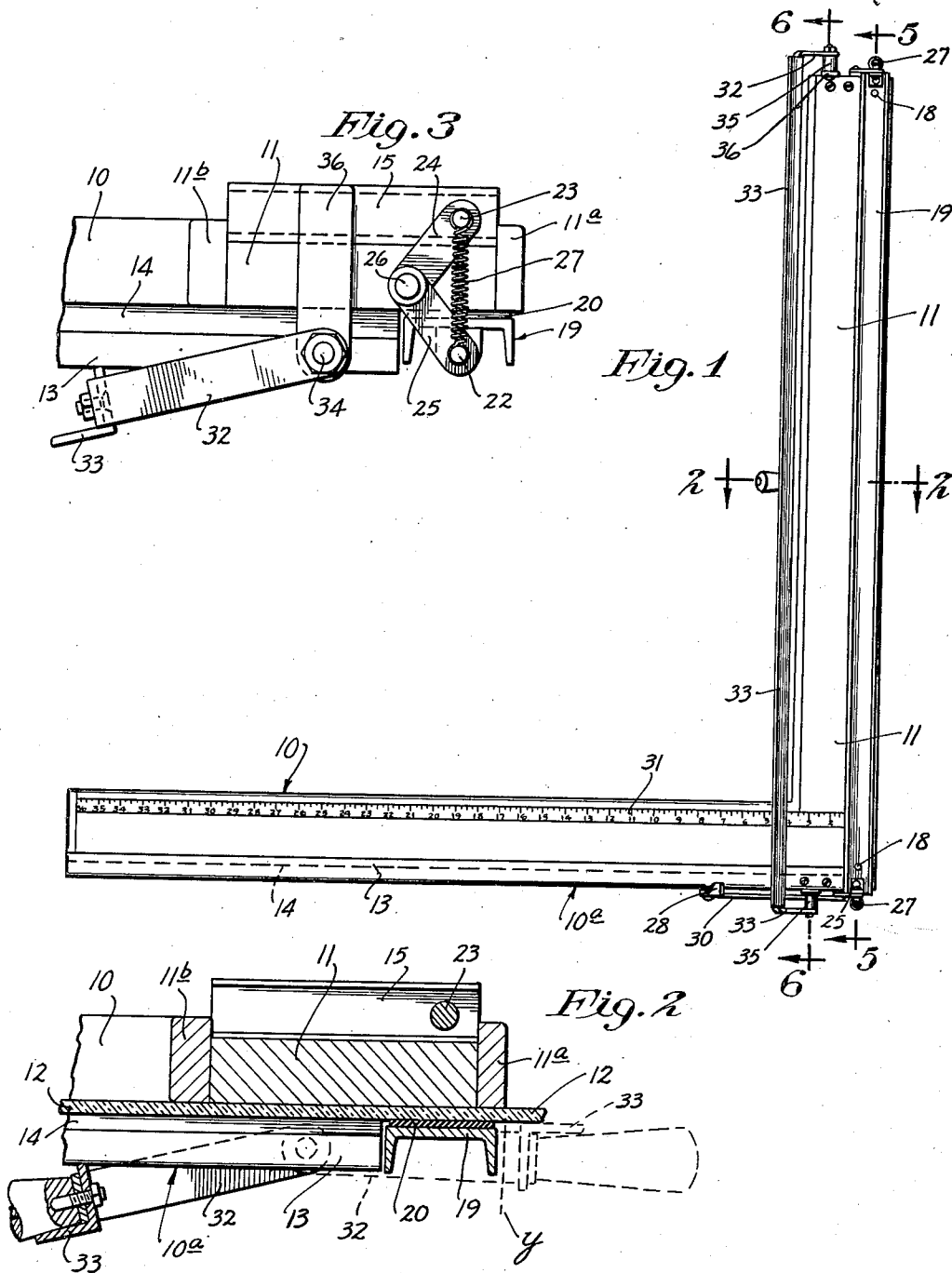
E. E. NORDGREN

2,254,541

SHEET GLASS TRIMMING DEVICE

Filed May 23, 1940

2 Sheets-Sheet 1



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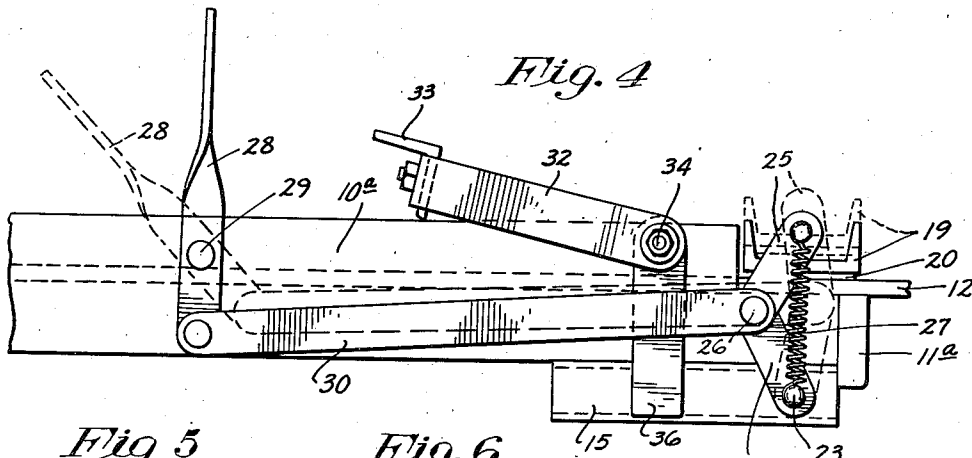
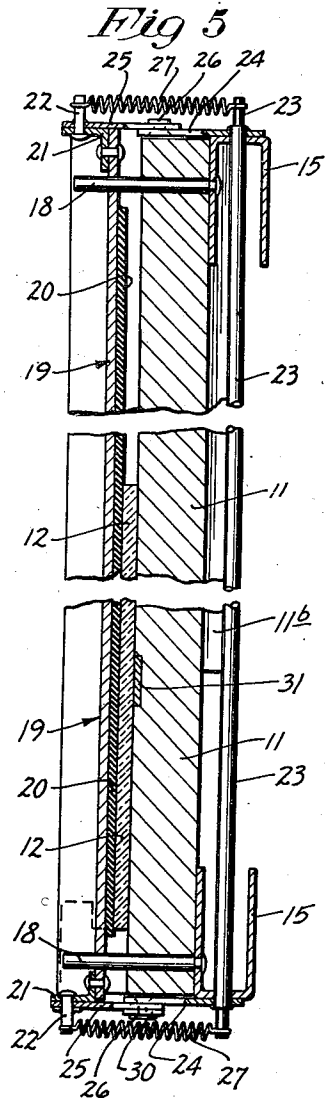
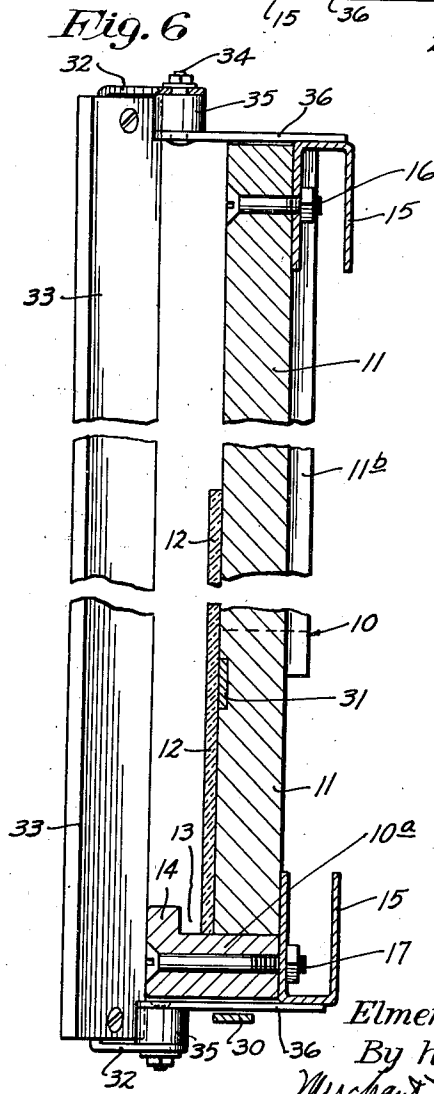
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UNITED STATES PATENT OFFICE

2,254,541

SHEET GLASS TRIMMING DEVICE

Elmer E. Nordgren, Hastings, Minn.

Application May 23, 1940, Serial No. 336,740

5 Claims. (Cl. 33—76)

My invention provides an extremely simple and highly efficient sheet glass trimming device which involves means for holding the glass sheet or plate in position for cutting, for guiding the glass cutter, and for breaking the plate on the cut line. Generally stated, the invention consists of the novel devices, combinations of devices and arrangement of parts hereinafter described and defined in the claims.

The device involves a frame, which is preferably approximately L-shaped or much in the form of a carpenter's "square," combined with an efficient device for firmly clamping the glass plate, and for breaking off the cut edge or portion. The lower or horizontal portion of the frame has a shelf or ledge formed with a channel that assists in positioning the glass plate against the faces of the horizontal and vertical portions of the frame. The clamping device extends along the vertical portion of the frame and is guided for substantial straight line movements toward and from the face of the latter. Moreover, this clamping bar has a straight edge extended parallel and closely adjacent to the vertical edge of the vertical or upright portion of the frame and serves to guide the glass cutting tool along the line to be cut. The breaking device is an independent element associated with the upright portion of the frame and the clamping bar in a novel manner to be hereinafter more fully described.

A commercial form of the device is illustrated in the accompanying drawings wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a front or face elevation of the complete device;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1, some parts being broken away;

Fig. 3 is a plan view of the device, some parts being broken away;

Fig. 4 is a bottom plan view of the device, a portion of the base or horizontal member of the frame being broken off;

Fig. 5 is a transverse vertical section taken on the line 5—5 of Fig. 1, some parts being broken away; and

Fig. 6 is a transverse vertical section taken on the line 6—6 of Fig. 1, some parts being broken away.

The frame may be made of suitable materials but, preferably and conveniently, may be made of wood. It involves a horizontal bar or member 10 and a vertical bar or member 11, which mem-

bers 10 and 11 extend at right angles, one in respect to the other. The glass-supporting surface of the horizontal bar 10 is formed by a rigidly attached supplemental bar 10a on which the lower edge of a glass plate or pane 12 is adapted to rest in a channel 13 formed by a raised ledge 14 on the outer edge of said member 10a. The upright bar 11, in the particular structure illustrated, is shown as provided with rigidly secured facing strips 11a and 11b which function as integral parts of the said member 11. This frame is adapted to be secured to a wall or upright support and for that purpose is shown as provided with anchoring brackets 15, the upper bracket being rigidly secured to the upper end of the upright 11 by nut-equipped bolts 16, and the lower bracket 15 being secured at the base of said upright 11 by a nut-equipped bolt 17 shown as applied through the supplemental bar or member 10a, as best shown in Fig. 6. Horizontal guide pins or studs 18 are riveted or otherwise rigidly secured to the upper and lower anchoring brackets 15 and project through and extend beyond the upright member or portion 11, as best shown in Fig. 5. As will presently be noted, these pins or studs 18 afford guides for a clamping bar.

The clamping bar may take various cross-sectional form but, as shown, and preferably, is a metallic channel bar 19 having holes through which the guide pins 18 extend so that said clamping bar 19 will be guided for approximately straight line movements toward and from the face of the upright frame member or bar 11. For direct contact with the glass plate or pane 12, the clamping bar 19 is preferably faced with a pliable strip 20 of rubber, leather or like material. In this particular structure angle brackets 21 are riveted or otherwise secured to the upper and lower ends of the clamping bar 19 and are provided with projecting studs 22.

The numeral 23 indicates an upright rock shaft that is extended through and journaled in the anchoring brackets 15. The studs 22 and the extended ends of the rock shaft 23 are connected by toggles made up of links 24 and 25 pivotally connected at 26. The links 24 are welded or otherwise rigidly secured to the ends of the rock shaft 23 so that they act as crank arms on said rock shaft; but the links 25 are pivoted on the studs 22. The studs 22 are connected to the ends of the rock shaft 23 by coiled springs 27 that exert a yielding force tending to keep the toggles buckled, and press the facing 20 of the clamping bar against the glass plate.

For manipulating the toggles, that is, for moving the same from one side to the other of dead centers, I provide a lever 28 pivoted to the supplemental portion 10a of the base member or bar 10 at 29 with its short end connected by a link or thrust bar 30 to the intermediate joint or pivot of the lower toggle, see particularly Fig. 4. It is important to note that when the toggles are buckled, as shown by dotted lines in Fig. 4, the clamping bar 19 will be held retracted or in an inoperative plate-releasing position, it being assumed that the lever 28 is limited in its backward swinging position shown by dotted lines in Fig. 4 by a suitable stop such as a pin or the like applied on the frame 10a.

It is now important to note, see particularly Fig. 2, that the front or straight edge-acting portion of the clamping bar is parallel to the front edge or surface of the upright facing bar 11a but is offset therefrom slightly so as to cause the diamond or the cutting wheel of the cutting tool to align with the face of said strip 11a when the tool is drawn along and against the said clamping bar. The dotted line *y* in Fig. 2 indicates the plane of the cutting line and also the plane of the breaking line on which the cut glass will be broken. The numeral 31 indicates a graduated scale shown as set into the face of the base bar or member 10.

For breaking off the glass plate beyond the cut line, I provide a breaker, in the form of a bail, consisting of arms 32 and a breaker bar 33. The arms 32 are pivoted at 34 to offsetting lugs 35 on the extended ends of supporting bars 36. These bars 36 are located one above and one below the frame structure and are welded or otherwise rigidly secured respectively to the upper and lower anchoring brackets 15. By this arrangement the anchoring brackets 15 afford primary supports for the breaker bail, and the arms of the breaker bail are spread so that they will clear the upper and lower portions of the device and permit the bail to be freely swung from its normal or retracted position, shown by full lines, into its operative or breaking position, shown by dotted lines in Fig. 2. As shown by dotted lines in Fig. 2, the bail, when swung to that position, will engage that portion of the glass pane or plate that is beyond the cut line *y*, and when forced slightly further upward than shown by dotted lines in Fig. 2, will cause the glass to be broken on its cut line.

In the commercial manufacture of this device, I found it highly desirable to make horizontal and vertical bars or members 10 and 11 integral out of wood that is made up of layers glued together with the grain of the wood running at right angles, the one layer in respect to the other. Such material is generally known to the trade as ply board. Commercially the frames can be made out of ply board in a very economical manner, and the horizontal and vertical members will be integrally connected without the use of bolts, splices, or other applied joints.

What I claim is:

1. In a device of the kind described, a frame having a flat face adapted for engagement with

a glass plate, said frame having a straight outer edge serving as a straightedge and determining approximately a cutting and breaking line, a clamping bar extended parallel and adjacent to said straightedge, means guiding said clamping bar for straight line movements toward and from the face of said frame, laterally spaced toggles each involving two pivotally connected links, one link of each toggle being pivoted to the adjacent end of said clamping bar and the other link of each toggle being pivoted to a fixed part of said frame, springs connecting the extended ends of the links of said toggles and tending to buckle the same, and means for simultaneously moving said toggles from one side to the other of dead centers.

2. In a device of the kind described, a frame having a flat face adapted for engagement with a glass plate, said frame having a straight outer edge serving as a straightedge and determining approximately a cutting and breaking line, a clamping bar extended parallel and adjacent to said straightedge, guide pins fixed to said frame and projecting through passages in the end portions of said clamping bar and guiding the latter for straight line movements toward and from the face of said frame, said clamping bar having a flat clamping bar that is held parallel to the face of said frame, laterally spaced toggles each involving two pivotally connected links, one link of each toggle being pivoted to the adjacent end of said clamping bar and the other link of each toggle being pivoted to a fixed part of said frame, springs connecting the extended ends of the links of said toggles and tending to buckle the same, and means for simultaneously moving said toggles, from one side to the other of dead centers.

3. The structure defined in claim 2 in which the links of said toggles that are pivotally connected to a fixed part of said frame are rigidly secured to a rock shaft.

4. The structure defined in claim 2 in which the links of said toggles that are pivotally connected to a fixed part of said frame are rigidly secured to a rock shaft, the means for buckling said toggles including a thrust bar pivotally connected to the intermediate joint of one of said toggles.

5. In a device of the kind described, a frame having a flat face adapted for engagement with a glass plate, said frame having a straight outer edge serving as a straightedge and determining approximately a cutting and breaking line, a clamping bar extended parallel and adjacent to said straightedge, means guiding said clamping bar for straight line movements toward and from the face of said frame, laterally spaced toggles each involving two pivotally connected links, one link of each toggle being pivoted to the adjacent end of said clamping bar and the other link of each toggle being pivoted to a fixed part of said frame, yielding means tending to buckle said toggles, and means for simultaneously moving said toggles from one side to the other of dead centers.

ELMER E. NORDGREN.