

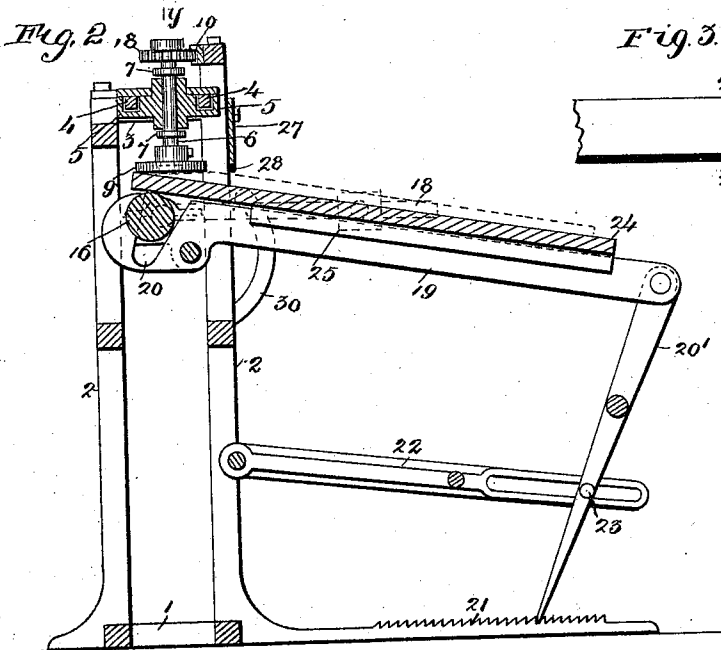
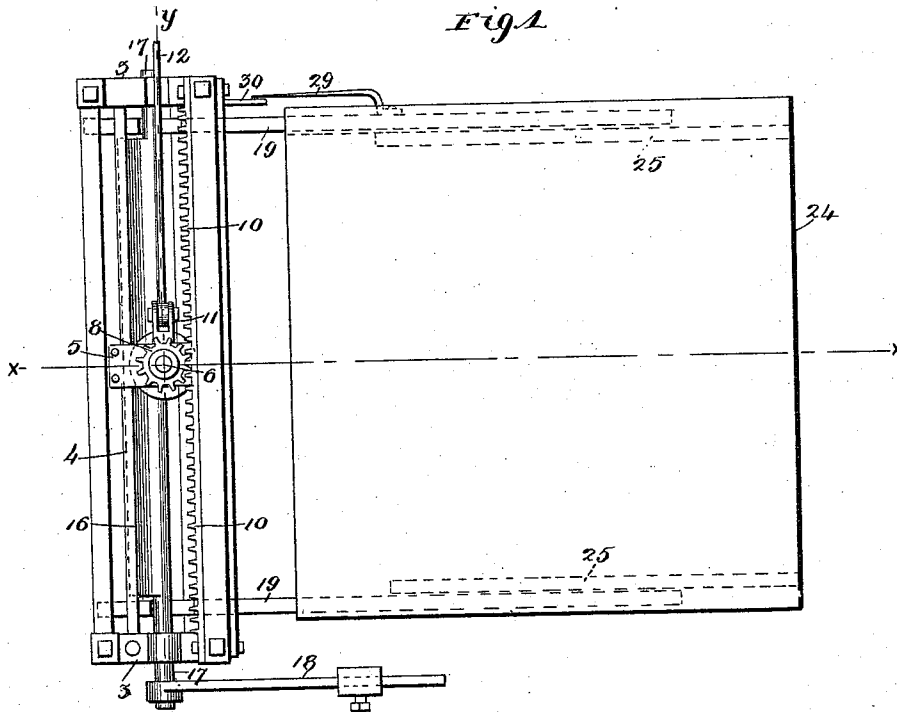
(No Model.)

2 Sheets—Sheet 1.

R. A. SCHLEGEL.
MACHINE FOR BEVELING PLATE GLASS.

No. 575,575.

Patented Jan. 19, 1897.



Witnesses
Charles Knapp
Alfred A. Mathew

Inventor
R. A. Schlegel
By his Attorneys,
Keller & Storer

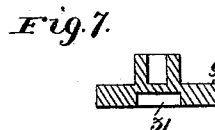
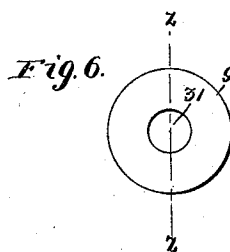
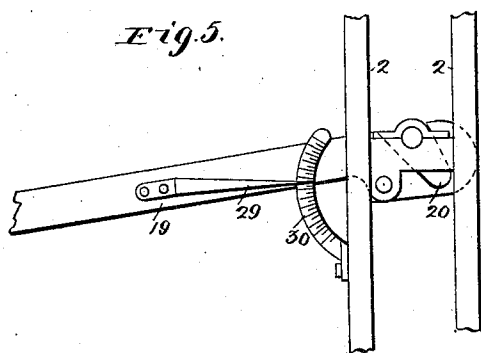
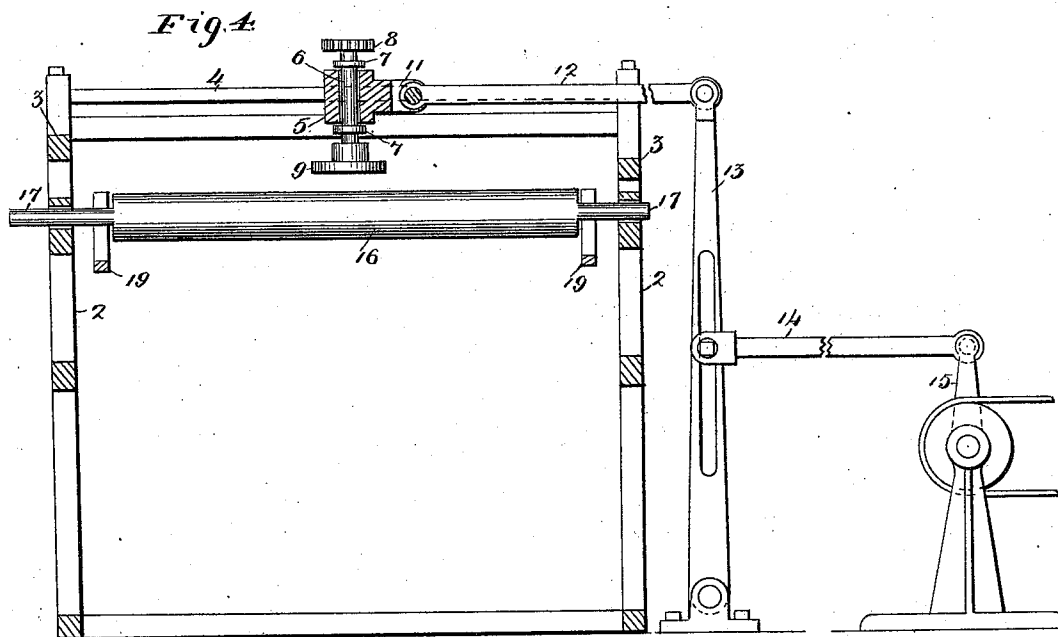
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UNITED STATES PATENT OFFICE.

ROBERT A. SCHLEGEL, OF ST. LOUIS, MISSOURI.

MACHINE FOR BEVELING PLATE-GLASS.

SPECIFICATION forming part of Letters Patent No. 575,575, dated January 19, 1897.

Application filed May 8, 1895. Serial No. 548,514. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. SCHLEGEL, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Machines for Beveling Plate-Glass, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in machines for beveling plate-glass; and it consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claim.

In the drawings, Figure 1 is a plan view of my complete invention. Fig. 2 is a vertical section on xx of Fig. 1. Fig. 3 is a detail in front elevation, showing the deflecting-plate against which the grinding material is adapted to impinge. Fig. 4 is a vertical transverse section on yy of Fig. 1. Fig. 5 is a detail showing the index and graduated arc carried by the supporting-arms of the table and frame, respectively. Fig. 6 is a plan view of the grinding-disk, and Fig. 7 is a section on zz of Fig. 6.

The object of my invention is to construct a plate-glass-beveling machine by which plates of any dimensions can be readily handled and controlled; one in which the plates will be firmly supported at all points of their surface during the beveling operation, thereby resulting in an even distribution of the strain to which the plate may be subjected and thus preventing accidental breakage or cracking; one by which the plate is automatically fed to or kept in contact with the grinding-disk; one in which the angle of the bevel can be readily adjusted, and one presenting further and other advantages, to be hereinafter more fully described.

Referring to the drawings, 1 represents a suitable frame, and 2 2 the lateral terminal supporting-standards forming a part of the same. The upper ends of each pair of standards are connected by a casting or cross-piece 3, between which are disposed the parallel guide-rods 4. Along the guide-rods 4 is adapted to reciprocate a block 5, said block having loosely mounted therein a vertical shaft 6, held in its place by the collars 7, the upper end of the shaft having secured thereto a

pinion 8 and the lower end carrying a grinding-disk 9. The pinion is adapted to mesh with the rack-bar 10, disposed along the top of the standards 2 parallel to the guide-rods 4. The guide-block is provided with a fork 11, between the members of which is pivoted a connecting-rod 12, whose opposite end is pivotally secured to the upper end of a slot-arm 13, pivotally secured at its lower end to a suitable casting, the said arm being adapted to be oscillated about its basal pivot by the reciprocating connecting-rod 14, operated by the crank-arm 15, driven from any suitable source of power. The length of the stroke imparted to the upper end of the arm 13, and consequently to the block 5, carried by the free end of the rod 12, is varied by shifting the point of connection between the arm 13 and connecting-rod 14 along the slot of said arm 13. As the block 5 is thus reciprocated back and forth along the guide-rods 4 the shaft 6, carrying the grinding-disk 9, will rotate in opposite directions with each stroke of the block, this being due to the fact that the pinion 8 is in engagement with the rack-bar 10 during the reciprocations of the block.

Mounted within suitable bearings below the grinding-disk and disposed parallel to the guide-rods 4 is a cam shaft or bar 16, that is, it is supported by extensions or trunnions 17, eccentrically arranged. To the outer projecting end of one of the trunnions is secured a weighted arm 18, the position of the weight being shifted according to circumstances. Pivoted to the frame at either end and immediately below the cam-shaft 16 is a supporting-arm 19, whose inner end has a suitable cut-away portion 20, adapted to suitably embrace the extensions 17 and allow for the free tilting of the supporting-arms 19 about their pivotal points. The free ends of the arms 19 are provided with the pivotal supporting-legs 20', the lower ends of the legs being adapted to engage a toothed rack 21, whereby the arms 19 can be tilted to any angle and supported at that angle according to the bevel to be ground along the edge of the glass plate. The medial portions of the legs 20' are reinforced by the slotted guide-arms 22, pivoted to the frame, their slotted ends guiding the legs along the bolts 23, by which,

after a certain angular adjustment has been determined, the legs are firmly clamped to the guide-arms. Upon the arms 19 is placed a supporting-table 24, being held in place on said arms against lateral displacement by the guide-strips 25, secured to the bottom of the table. Upon the table 24 the glass plate to be beveled is laid, and as the machine is set in motion the reciprocating disk 9 is rotated in opposite directions with each sweep of the connecting-rod 12, and as the edge of the glass plate is being beveled it is kept against the disk by the cam-shaft 16, gradually rotating under the action of the weighted arm 18, which shaft in its gradual rotation presses the supporting-table toward the grinding-disk. The heavier the plate to be operated on the nearer the free end of the arm 18 is the weight shifted to secure a corresponding increase in the leverage.

The material used for grinding may be sand, emery, filings, and the like, and so far as the present machine is concerned is introduced by hand. To prevent the abrading particles from spattering and running down along the glass, a deflecting plate or shield 27, having a rubber edge 28, adapted to engage with the surface of the glass, is adjustably supported at either end of the frame immediately under the rack-bar 10.

To determine the angle to which the table supporting the plate-glass shall be tilted, and thus determine the angle of the bevel of the glass, I provide one of the arms 19 adjacent to its pivotal point with an index 29, cooperating with a graduated arc 30, secured to the frame.

That a certain quantity of the grinding or abrading material can always be retained in contact with the glass, I provide the rotating disk 9 with a central depression 31, (see Fig.

7,) into which the said material will find its way during the grinding operation, thus insuring the necessary abrasion to which the edge of the glass shall be subjected.

As seen from Fig. 3, the deflecting-plate is adjustable vertically to accommodate variable thicknesses of glass operated on. The object of having the grinding-disk reverse its rotation for each reciprocation thereof is to enable the disk to remove with each stroke the blemishes and scratches formed on the plate at each previous stroke, so that thereby a superior finish results with such operation. Instead of securing the deflecting-plate 27 to the frame, it is obvious that it may be secured to the tilting table by means of suitable arms projecting on either side (not shown) of the same. Under such a construction the deflecting-plate would be tilted along with the table. The present device could of course be used for polishing as well as beveling.

Having described my invention, what I claim is—

In a machine for beveling plate-glass, a suitable reciprocating and rotating grinding-disk, means for reversing the rotation thereof with each reciprocation of the same, a tilting table for the plate, a cam-shaft at one end of the table, said shaft and table adapted to simultaneously support the plate, and a weighted arm controlling the rotation of the cam-shaft during the grinding of the plate, whereby the plate is kept in constant engagement with the grinding device, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT A. SCHLEGEL.

Witnesses:

CHARLES KNAPP,

ALFRED A. MATHEY.