B. REHM.

BEVEL GLASS POLISHING MACHINE.

APPLICATION FILED JULY 2, 1917.

1,290,659.

Patented Jan. 7, 1919.

2 SHEETS—SHEET 1.

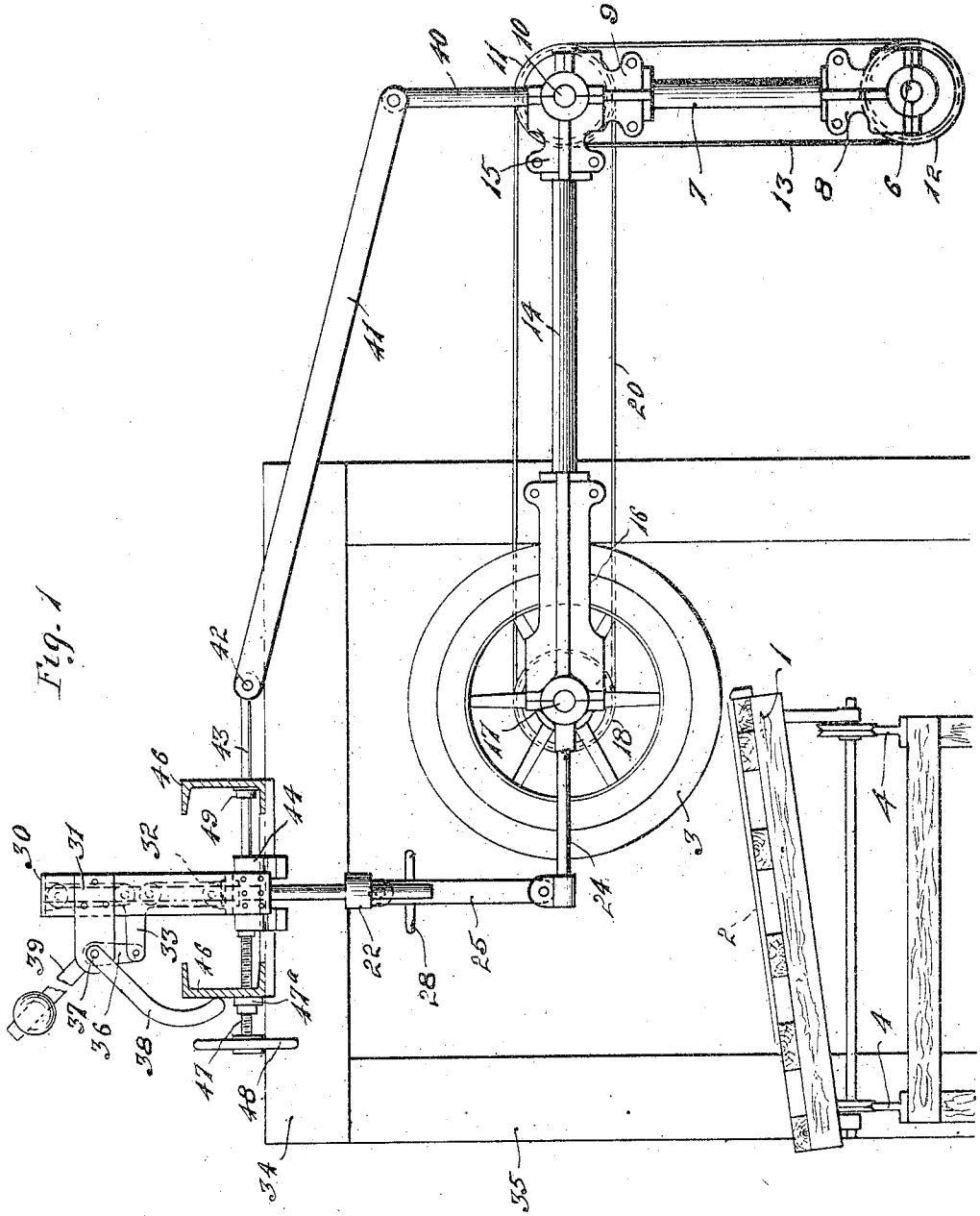


Fig. 1

WITNESS

INVENTOR.

Benjamin Rehm.

by Bynon Brown Bradley & Lechner & Fawkes.

ATTORNEYS

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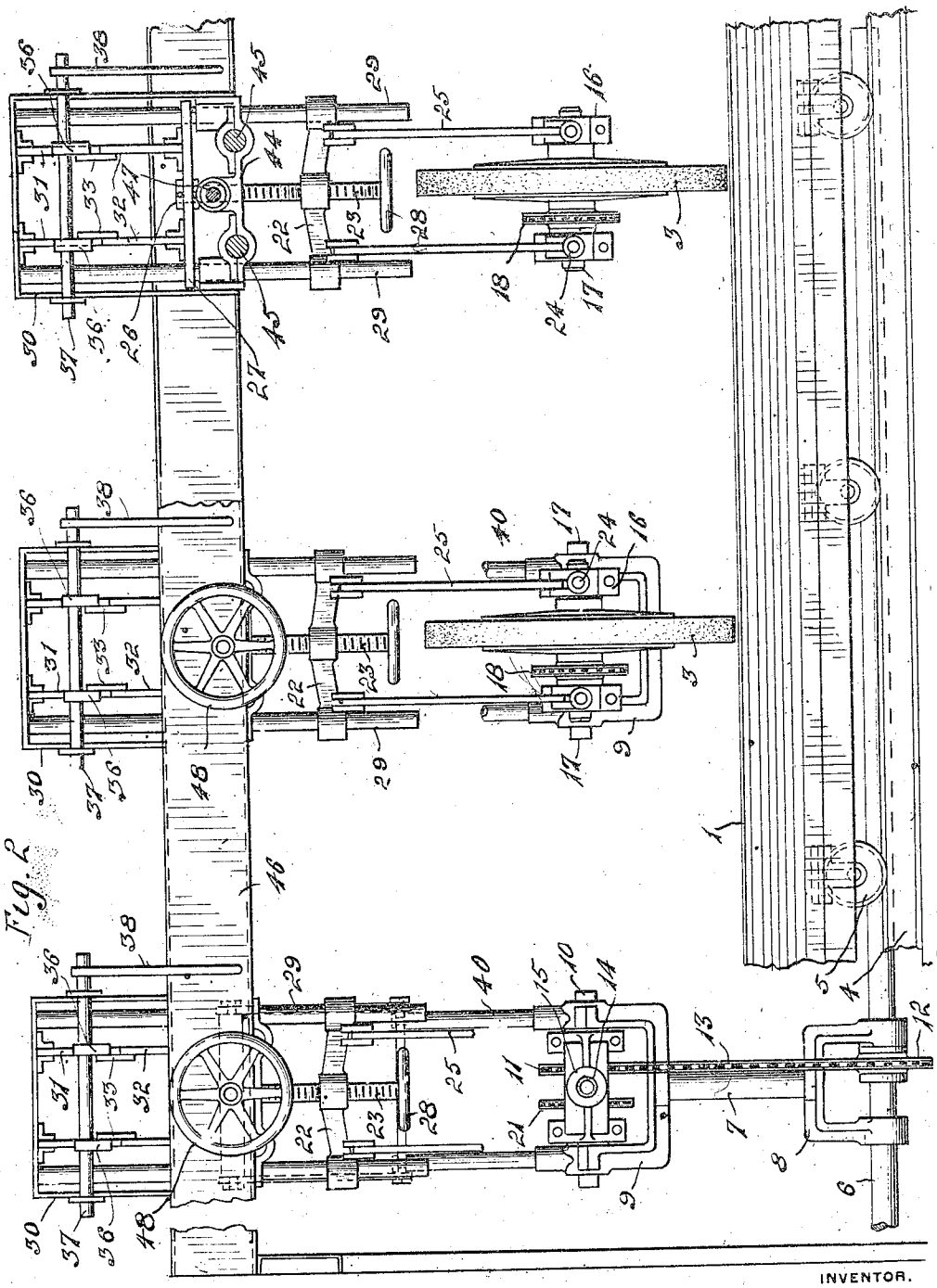


Fig. 2

WITNESS

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UNITED STATES PATENT OFFICE.

BENJAMIN REHM, OF CRYSTAL CITY, MISSOURI, ASSIGNOR TO PITTSBURGH PLATE GLASS COMPANY, A CORPORATION OF PENNSYLVANIA.

BEVEL-GLASS-POLISHING MACHINE.

1,290,659. Specification of Letters Patent. Patented Jan. 7, 1919.

Application filed July 2, 1917. Serial No. 178,179.

To all whom it may concern:

Be it known that I, BENJAMIN REHM, a citizen of the United States, residing at Crystal City, in the county of Jefferson and State of Missouri, have invented certain new and useful Improvements in Bevel-Glass-Polishing Machines, of which the following is a specification.

The invention relates to machines for polishing the beveled surface at the edges of sheets of material such as plate glass. It has for its primary objects, the provision of a machine having simplified and improved means for securing the application of the polishing wheels or disks to the glass at the proper angle; and the provision of improved means for securing the application to and withdrawal of the wheels or disks from the work. One embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the apparatus, and Fig. 2 is a front elevation with certain of the parts broken away to more fully disclose the construction, the lower left-hand portion of the apparatus being broken away and also the upper right-hand portion.

As illustrated, the polisher comprises a table 1 for supporting a sheet of glass 2, and three polishing or buffing wheels or disks 3 (Fig. 2), but it will be understood that the number of wheels may be varied to suit requirements. The wheels themselves and the means for operating and positioning them are the same so that the same reference numerals are used for each set of mechanisms and a description of one set of mechanisms for operating a single disk will be sufficient for all. The wheels or disks are preferably made independently adjustable so that differences in the size of the various wheels or disks may be compensated for by the independent adjustments.

Beneath the table 1 are the tracks 4 upon which ride the wheels 5 carried by the table so that the table can be moved back and forth beneath the set of polishing disks causing the disks to engage the entire length of the bevel edge which the machine is designed to polish. The polishing disks or wheels may be made of any desired construction, this being immaterial in so far as the present invention is concerned, and in the operation of the machine any ordinary polishing powder, such as rouge, may be employed.

Power for driving the disks 3 is supplied from the power shaft 6, such power shaft being supported in suitable bearings, which are not shown. Mounted at its lower end upon the drive shaft 6 is the upright frame 7, such frame preferably consisting of a tube provided at its lower end with a yoke 8 and at its upper end with a yoke 9 (Fig. 2). The upper yoke 9 is provided with a shaft 10, and this shaft 10 carries a sprocket wheel 11 which is driven from the sprocket wheel 12 on the shaft 6 by means of the chain 13.

Extending horizontally from the yoke 9 is the lateral frame 14, such frame being provided at its right-hand end with the yoke 15 (Fig. 1), and its left-hand end with the yoke 16. The yoke 15 fits inside the yoke 9 and is mounted upon the shaft 10. The yoke 16 carries the shaft 17 upon which are mounted the sprocket wheel 18 and the polishing disk 3 (Fig. 2). The sprocket wheel 18 is driven by means of the chain 20 from the sprocket 21 carried by the shaft 10 in the yoke 9. A drive is thus provided from the shaft 6 to the polishing disk and this drive is not interfered with by any adjustments which may be given the supporting frames or the disks in order to suit the wheel to bevels of varying angles.

The vertical adjustment of the frame 14 and the disk carried thereby is secured by means of the cross-head 22 and screw 23 (Fig. 2). The cross-head 22 is secured to the yoke 16 in which the disk is mounted by means of the bars 24 and the links 25, such links 25 being pivoted at their lower ends to the bars 24 and at their upper ends to the cross-head 22. The screw 23 has a swivel connection with the plate 27 at its upper end (Fig. 2) so that when the hand wheel 28 at the lower end of the screw is rotated the cross-head is moved vertically, the cross-head at such time being guided upon the depending bars 29. The plate 27 in which the screw 23 is swiveled is suspended from the framework 30 by means of the pairs of toggle links 31 and 32, which sets of links are pivoted at their adjacent ends to the bars 33.

The framework 30 is rigidly secured upon the frame members 34 which are in turn

carried upon the uprights 35. The screw 23 provides a means for adjusting the polishing wheel vertically to meet requirements as to the angle of bevel, while the toggle members 31, 32, are designed to provide for the disengagement of the disk or wheel with respect to the sheet which is being polished. In order to secure this movement the lever arms 36 are provided, such arms being keyed to the shaft 37, and this shaft is rotated to swing the toggle links out of vertical position and raise the polishing disk by means of the handle 38 also carried by the shaft 37. The shaft 37 is also provided with the counterweighted levers 39, normally holding the links 31 and 32 in the vertical position illustrated.

In order to move the frame 14 endwise and so give a further adjustment to the position of the polishing wheel, the yoke 9 is provided with a pair of upright bars 40 having pivoted to their upper ends the connecting bars 41, such connecting bars being provided at their left-hand ends with a transverse rod 42, to the center of which is connected a rod 43. The rod 43 is screwed at its left-hand end (Fig. 1) into the cross-head 44, and this cross-head 44 is mounted slidably upon a pair of bars 45 (Fig. 2), such bars 45 being rigidly secured between the channel beams 46 mounted upon the frame members 34. The cross-head 44 is movable back and forth by means of a screw 47, working through the seat 47a, such screw carrying the hand wheel 48 at its outer end and being swiveled at its inner end in the cross-head 44. The rod 43 is slidably guided in a bearing 49 carried upon the channel 46, and the operation of the screw causes the movement of the connecting member 41 and thus the longitudinal movement of the frame 14.

It will be seen from the foregoing that provision is made for the adjustment of the grinding wheel to meet varying conditions of angle in the surface to be polished. The vertical position of the wheel can be adjusted by means of the hand wheel 28 and its horizontal position may be varied by means of the hand wheel 48, both of such wheels being conveniently located above the table which supports the glass. Also that the wheel may be brought down to the work or carried away therefrom by the operation of the handle 38 which controls the movement of the toggle links 31 and 32. Other advantages in the construction incident to its simplicity, compactness and range of adjustment will be readily apparent to those skilled in the art.

What I claim is:

1. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a laterally extending frame carrying the disk, an upright frame having pivotal connection at one end with the end of the lateral frame remote from the disk, a drive shaft upon which the other end of the upright frame is pivotally supported, driving means at the intersection of the two frames, means for transmitting power from the drive shaft to the driving means at the intersection of the two frames, means for transmitting power from said last means to the disk, means for swinging the upright frame about the drive shaft, and means for swinging the lateral frame vertically.

2. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a laterally extending frame carrying the disk, an upright frame having pivotal connection at one end with the end of the lateral frame remote from the disk, a drive shaft upon which the other end of the upright frame is pivotally supported, driving means at the intersection of the two frames, means for transmitting power from the drive shaft to the driving means at the intersection of the two frames, means for transmitting power from said last means to the disk, screw means for adjusting the upright frame about the drive shaft as a pivot, and other screw means for adjusting the end of the lateral frame which carries the disk in a vertical direction.

3. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a laterally extending frame carrying the disk, an upright frame having pivotal connection at one end with the end of the lateral frame remote from the disk, a drive shaft upon which the other end of the upright frame is pivotally supported, driving means at the intersection of the two frames, means for transmitting power from the drive shaft to the driving means at the intersection of the two frames, means for transmitting power from said last means to the disk, screw means for adjusting the upright frame about the drive shaft as a pivot, other screw means for adjusting the end of the lateral frame which carries the disk vertically, and means for moving the last screw means bodily vertically.

4. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a laterally extending frame carrying the disk, an upright frame having pivotal connection at one end with the end of the lateral frame remote from the disk, a drive shaft upon which the other end of the upright frame is pivotally supported, driv-

ing means at the intersection of the two frames, means for transmitting power from the drive shaft to the driving means at the intersection of the two frames, means for transmitting power from said last means to the disk, screw means for adjusting the upright frame about the drive shaft as a pivot, other screw means for adjusting the end of the lateral frame which carries the disk vertically, and lever operated means for moving the last screw means bodily vertically.

5. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk mounted for rotation in a vertical plane transverse to the edge of the sheet, a support for the table permitting of the movement of the table at right angles to the plane of rotation of the disk, supporting means for the disk, driving means for said disk carried by said supporting means, and means whereby the said supporting means may be adjusted vertically and laterally in the plane of rotation of the disk.

6. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a laterally extending frame carrying the disk, an upright frame intersecting the lateral frame and having pivotal connection therewith and itself mounted for swinging movement, driving means on the upright frame, power transmission means extending to the intersection of the two frames and then to the disk, screw means for adjusting the lateral frame vertically, other means for moving the lateral frame vertically, and screw means for moving the upright frame laterally.

7. In combination in a bevel polisher, a table having its surface from front to rear inclined to the horizontal, a disk mounted for vertical rotation in a plane transverse to the upper edge of the table, means for mounting the table whereby said upper edge is carried longitudinally beneath the disk, and means for securing an adjustment of the relative positions of said upper edge of the table and the disk in a direction at right angles to the direction of movement of the table.

8. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a vertically swinging frame pivoted at one end and provided with driving means and carrying the disk at its free end, a means for forcing the free end of the frame and the disk downward, and an adjusting means intermediate the said means and the free end of the frame.

9. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a vertically swinging frame pivoted at one end and provided with driving means and carrying the disk at its free end, overhead operating means for applying downward pressure upon the free end of the frame, such means including a weight and lever means operated thereby, and a screw adjusting means intermediate the lever means and the free end of the frame.

10. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a vertically swinging frame pivoted at one end and provided with driving means and carrying the disk at its free end, a power means normally exerting pressure tending to move the free end of the frame downward, and an adjusting means intermediate the power means and the free end of the frame.

11. In combination in a bevel polisher, a table for supporting the sheet whose beveled edge is to be polished, a disk with its edge positioned so as to engage the beveled edge of the sheet, a vertically swinging frame pivoted at one end and provided with driving means and carrying the disk at its free end, a vertical guide supported above the free end of the frame and projecting down adjacent such end, a cross head mounted on the guide, means for moving the cross head upon the guide, and connections between the free end of the frame and the cross head on each side of the disk arranged to support the frame against movement transverse to the plane of rotation of the disk.

BENJAMIN REHM.