June 30, 1936. J. P. CROWLEY 2,046,060

EDGE GRINDING MACHINE

Filed Oct. 9, 1933 4 Sheets-Sheet 1

Fig. 1.

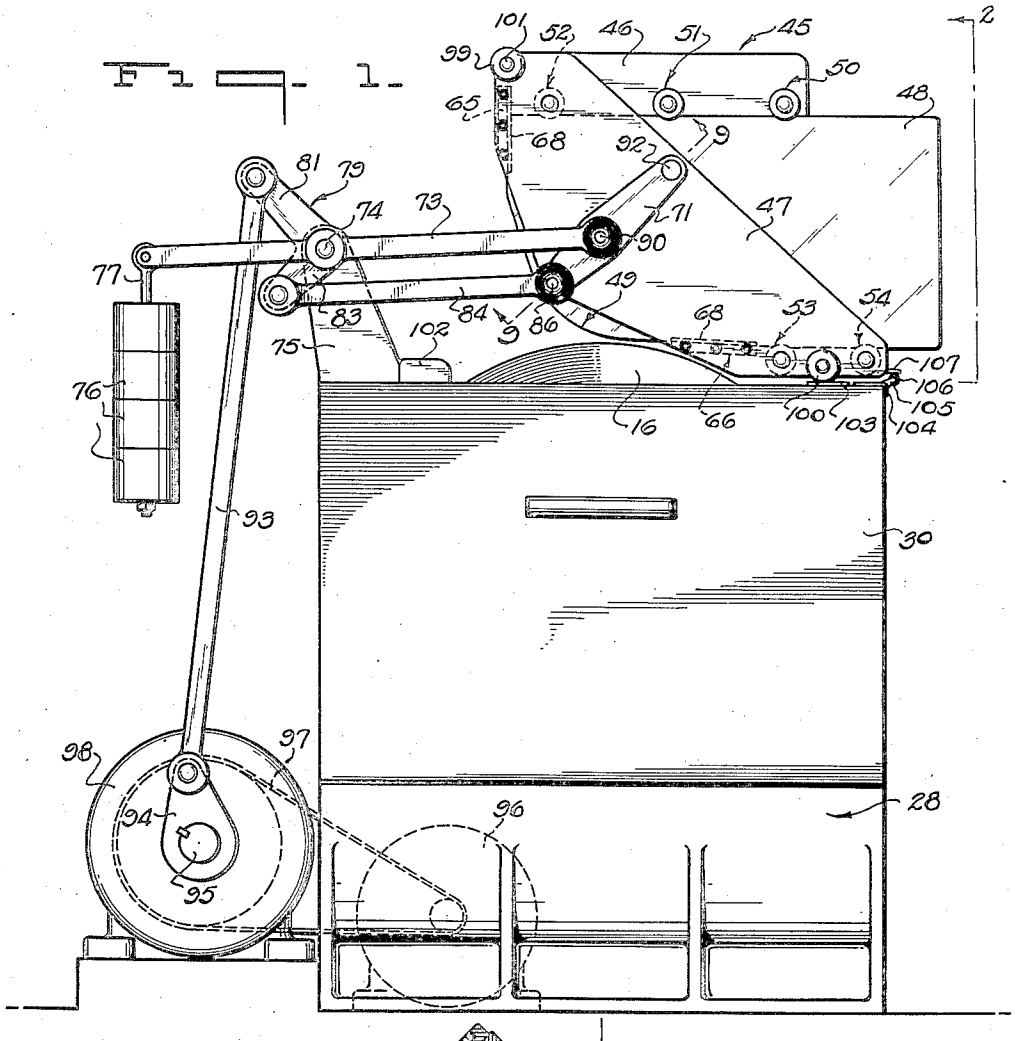


Fig. 9.

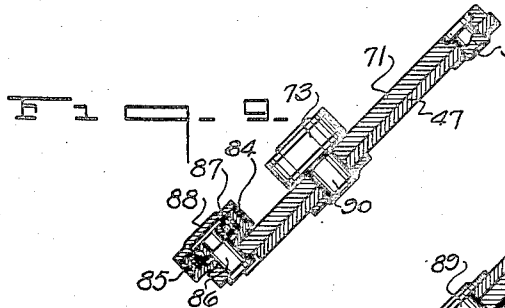
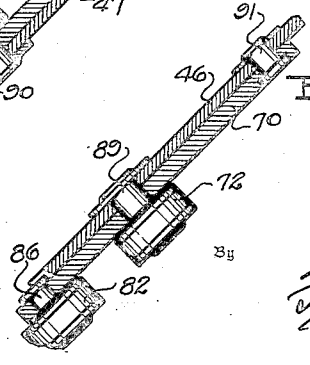


Fig. 10.



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EDGE GRINDING MACHINE.

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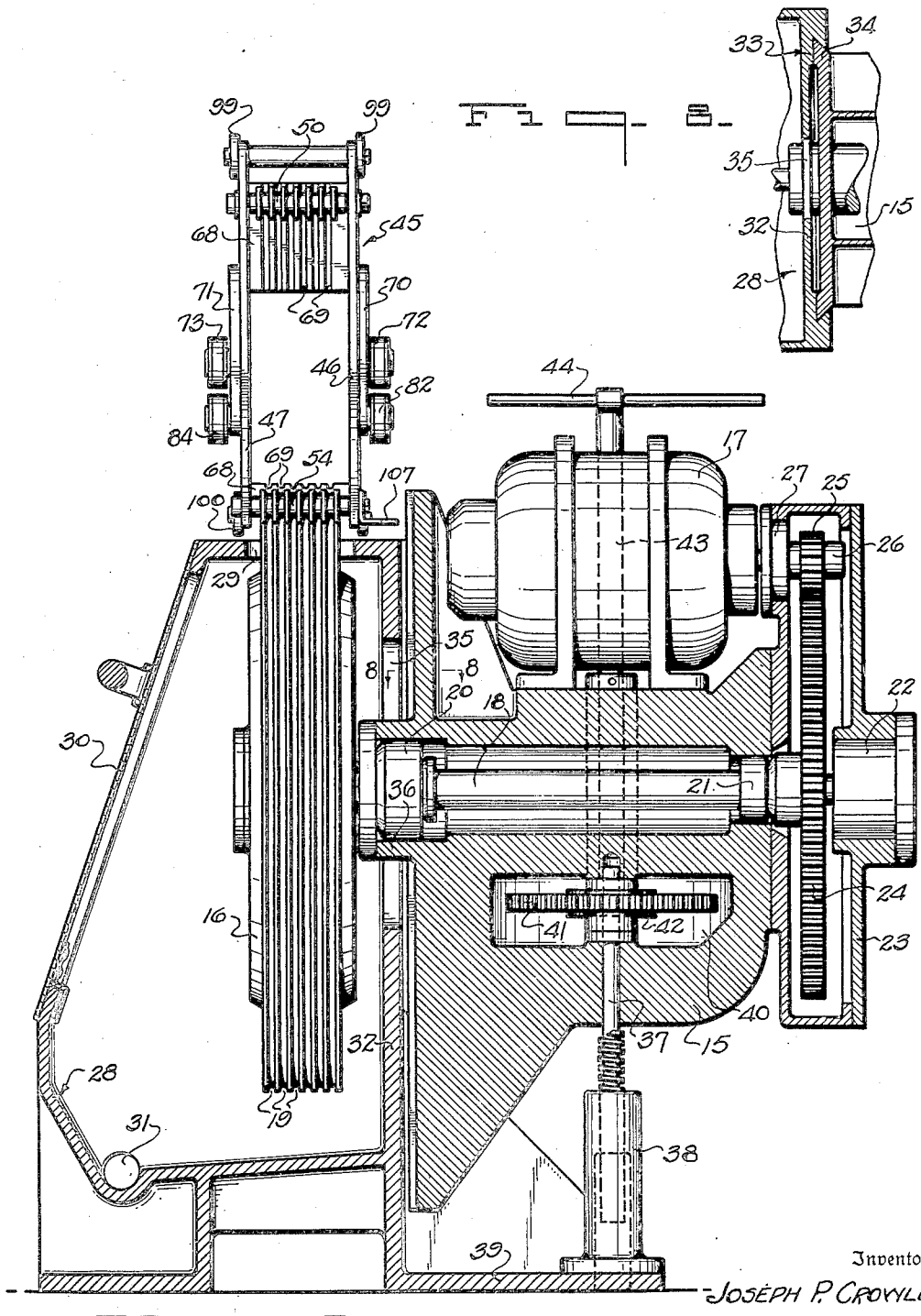


Fig. 2.

Fig. 3.

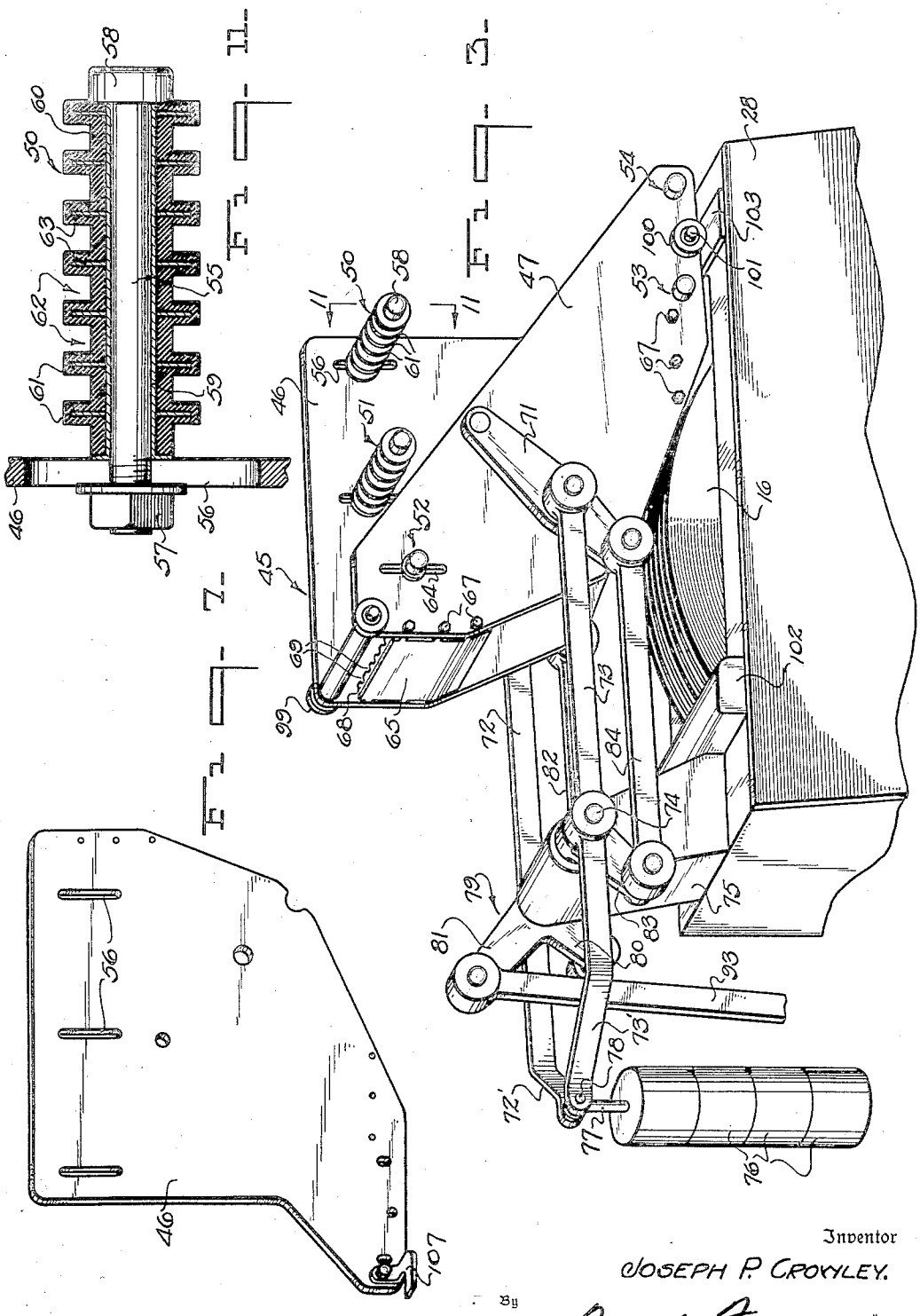
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EDGE GRINDING MACHINE

Filed Oct. 9, 1933 4 Sheets-Sheet 3



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EDGE GRINDING MACHINE

Filed Oct. 9, 1933 4 Sheets-Sheet 4

Fig. 4.

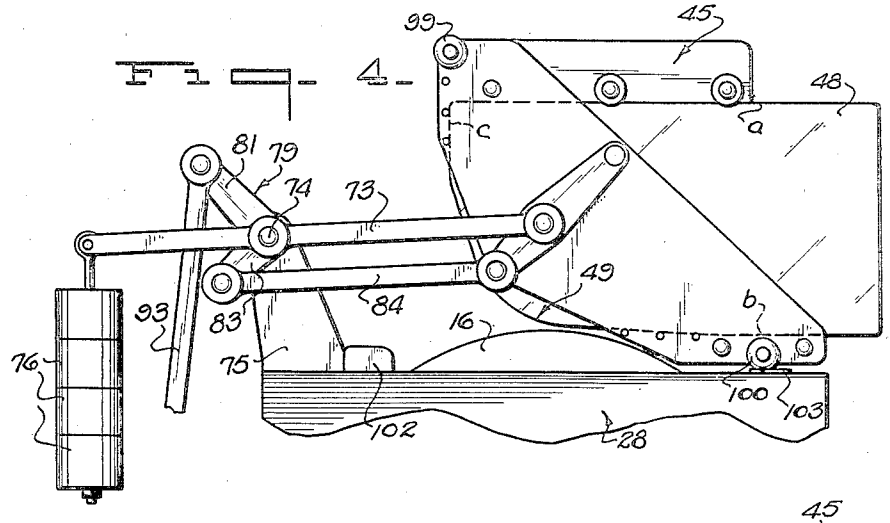


Fig. 5.

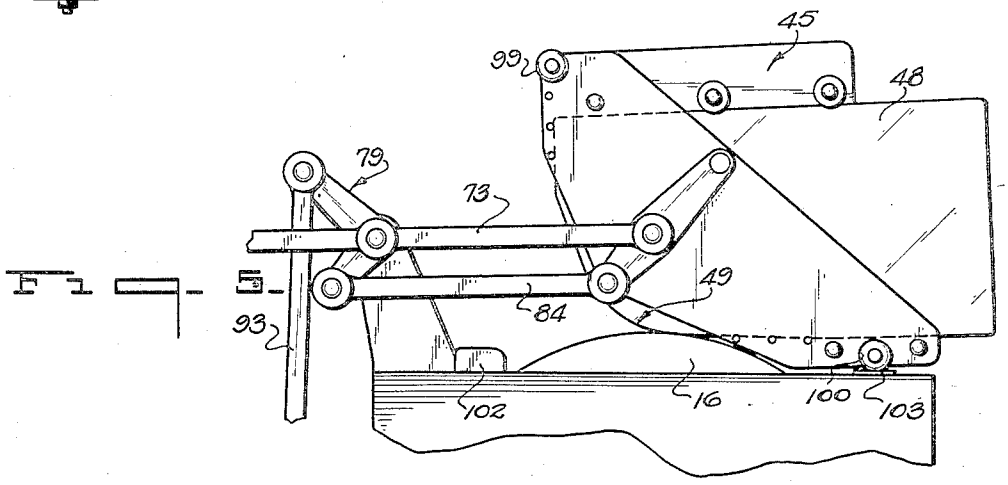
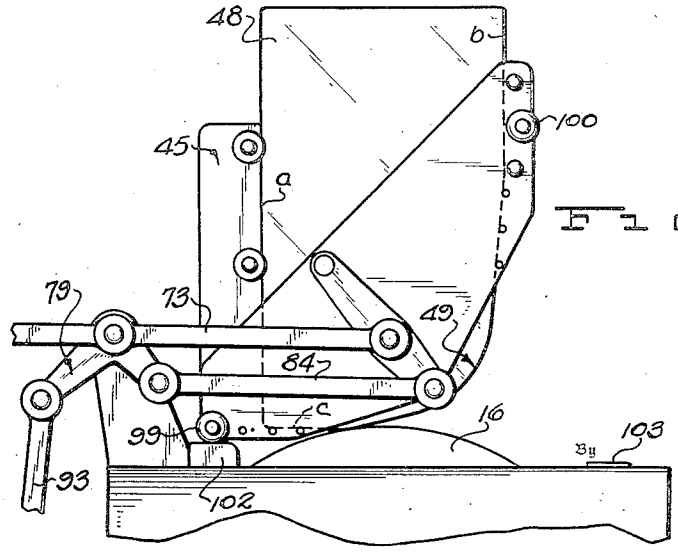


Fig. 6.



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Patented June 30, 1936 2,046,060

UNITED STATES PATENT OFFICE

2,046,060

EDGE GRINDING MACHINE

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Application October 9, 1933, Serial No. 692,784

11 Claims. (Cl. 51—96)

The present invention relates broadly to improvements in grinding machines generally and more particularly to a machine for rounding and/or finishing the edges of sheets or plates of glass and the like.

An important object of this invention resides in the provision of a grinding machine of simplified and inexpensive construction primarily designed for use in grinding the curved edges or corners of sheets or plates of glass which are to be employed as door or window lights in automotive vehicles, although it is of course in no way restricted to such use.

Another object of the invention is the provision of such a grinding machine of the above character which will round and finish the curved edges of the glass sheets or plates rapidly, accurately, and economically, and with a minimum effort and attention on the part of the operator, whereby uniformly rounded edges with well finished surfaces may be secured.

A further object of the invention is the provision of such a grinding machine of the above character capable of grinding curved edges of different contours and embodying a rotary grinding wheel, means mounted above said wheel for supporting a plurality of glass sheets to be ground, and means for rocking said supporting means to move the glass sheets backward and forward with the curved edges thereof to be ground over and in engagement with the grinding wheel, said supporting means being mounted in such a manner that it is capable of free vertical floating movement during the rocking thereof and depending upon the curvature of the edges being ground.

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

In the drawings wherein like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of a grinding machine constructed in accordance with the present invention,

Fig. 2 is a vertical section therethrough taken substantially on line 2—2 of Fig. 1,

Fig. 3 is a perspective view of the upper portion of the machine showing particularly the means for supporting the glass sheets,

Figs. 4, 5 and 6 are side views of the upper portion of the machine showing the different positions assumed by the sheet supporting means and glass sheets during the grinding operation.

Fig. 7 is a view of one of the side members of the glass supporting means,

Fig. 8 is a detail section taken substantially on line 8—8 of Fig. 2,

Fig. 9 is a detail section taken substantially on line 9—9 of Fig. 1,

Fig. 10 is a similar section taken at the opposite side of the machine, and

Fig. 11 is a section taken substantially on line 11—11 of Fig. 3.

Referring now to the drawings and particularly to Fig. 2, the grinding machine herein provided includes a base 15 which is adapted to support the rotary grinding wheel 16 and the motor 17 for driving the same, said motor being mounted upon the top of said base and the grinding wheel being arranged to one side thereof.

The grinding wheel 16 is keyed to one end of a horizontal shaft 18 and is provided in its periphery with a plurality of grooves 19 within which the edges of the glass sheets or plates to be ground are adapted to be received, as will be more clearly hereinafter apparent. The shaft 18 is rotatably supported in the spaced bearings 20 and 21 carried by the base 15, said shaft projecting rearwardly beyond said base and journaled at its outer end in a bearing 22 carried by a gear case 23 suitably secured to the base 15. Keyed to the shaft 18 within gear case 23 is a relatively large gear 24 meshing with a relatively smaller gear 25 fixed to the shaft 26 of motor 17, said shaft being preferably journaled in a bearing 27 also carried by gear case 23. Upon operation of the motor 17, it will be readily apparent that the shaft 18 will be driven through the intermeshing gears 24 and 25 to effect the positive rotation of the grinding wheel.

Arranged at the front of the base 15 is a receptacle 28 within which the grinding wheel 16 is received, said receptacle being adapted to contain a suitable abrasive material within which the lower portion of the said wheel is adapted to be immersed in a manner well known in the art. The top of the receptacle 28 is provided with a slot 29 through which the upper portion of the grinding wheel projects. The receptacle is also preferably provided with a door 30 to permit access thereto and with a drain outlet 31 at one corner thereof.

The base 15 is slidably associated with the receptacle 28 so that it can be moved vertically relative thereto to either raise or lower the grinding wheel. To this end, the rear vertical wall 32 of the receptacle is formed with a vertical undercut channel or way 33 (Fig. 8) within

which the slide 34 formed on or carried by the base 15 is received. The rear wall of said receptacle is also provided with a vertical slot 35 through which projects the annular portion 36 of the base 15 within which bearing 20 is mounted.

The base 15 is supported upon a screw 37 threaded at its lower end within a vertical cylinder or sleeve 38 carried upon the base portion 39 of the receptacle 28. The base 15 is formed with a recess 40 and keyed to the upper end of screw 37 within said recess is a relatively large gear 41 meshing with a relatively smaller gear 42 keyed to the lower end of a vertical shaft 43 which passes downwardly through the said base. Extending transversely through the upper end of the shaft 43 is a rod 44, constituting a handle which may be grasped by the operator to facilitate the turning of shaft 43. From the above, it will be seen that when it is desired to either raise or lower the base 15 and consequently the grinding wheel 16, it is simply necessary for the operator to grasp the handle 44 and turn the shaft 43 in the desired direction. The rotation of gear 42 will serve to effect a corresponding rotation of gear 41 and upon rotation of gear 41, the screw 37 will be threaded downwardly or upwardly within the sleeve 38 to effect either the raising or lowering of the base and grinding wheel.

The means for supporting the glass sheets to be treated comprises a box or holder designated in its entirety by the numeral 45, said holder being mounted above the grinding wheel 16 for free vertical and rocking movement as will be more fully hereinafter described. The work holder 45 comprises a pair of spaced vertical side members 46 and 47 between which a plurality of glass sheets 48 to be ground are adapted to be received, said sheets being disposed in a vertical position and the said side members being so shaped that the curved edges or corners 49 of the glass sheets to be treated project therebeyond as clearly illustrated in Figs. 1 and 4 to 6, so that upon rocking of the work holder, the said edges will be moved backward and forward over and in engagement with the grinding wheel.

Arranged transversely between and carried by the side members 46 and 47 of the work holder, adjacent the upper end thereof, are the three horizontally aligned rollers 50, 51 and 52, while arranged transversely between said side members adjacent the opposite end thereof are the aligned rollers 53 and 54, said rollers being adapted to receive the glass sheets 48 therebetween and to maintain them in proper position during the grinding operation.

Each roller 50 and 51 comprises a horizontal bolt 55 having its inner end extending through a vertical slot 56 in the side member 46 and being secured in place by a nut 57 threaded thereupon outwardly of said side member. The opposite or outer end of the bolt 55 is provided with a head 58. Mounted upon the bolt 55 is a metal bushing 59 carrying a sleeve 60 preferably made of relatively soft rubber. This sleeve is formed with a plurality of uniformly spaced annular flanges 61 which define therebetween a plurality of grooves 62 within which the adjacent edges of the glass sheets 48 are adapted to be received, the grooves 62 in the rollers being in registry with the grooves 19 in grinding wheel 16. The rubber flanges 61 are adapted to be strengthened by the provision of metal plates 63 embedded therein.

The roller 52 is of the same construction and arrangement as rollers 50 and 51, with the exception that the bolt 55 thereof also extends through a vertical slot 64 in the side member 47. Due to the provision of the slots 56 and 64, it will be readily apparent that the rollers 50, 51 and 52 may be moved toward or away from rollers 53 and 54 to accommodate glass sheets of different sizes. The rollers 53 and 54 are likewise of the same construction as rollers 50, 51 and 52 with the exception that they are not adjustably mounted, the bolts 55 thereof simply passing through circular openings in the side members 46 and 47.

Also positioned between and carried by the side members 46 and 47 of the work holder are the rectangular metal plates 65 and 66 respectively, each being secured in place by a plurality of screws or the like 67. The plates 65 and 66 are disposed at substantially right angles relative to one another closely adjacent different edges of the side members and secured to the inner face of each is a relatively soft rubber pad 68 having a series of grooves 69 formed therein, said grooves being in registry with the grooves in the rollers 50 to 54 and being adapted to receive the adjacent edges of the glass sheets 48 therein.

Carried upon the outer surfaces of the side members 46 and 47 of the work holder and extending diagonally thereof are the plates 70 and 71 respectively to which are pivotally connected the inner ends of a pair of substantially horizontal parallel supporting arms 72 and 73 respectively, said arms being also freely mounted intermediate their ends upon a horizontal shaft 74 passing transversely through a block 75 supported upon the top of the receptacle 28. The outer ends of the supporting arms 72 and 73 are bent inwardly towards one another as at 72' and 73' respectively, and suspended therefrom are a plurality of weights 76, said weights being hung upon an eye bolt 77 attached at its upper end to the supporting arms by a transverse pin 78. The weights 76 are provided to counterbalance the work holder 45 so that the glass sheets being ground rest more or less freely upon the grinding wheel. However, by varying the weights, the pressure of the glass sheets upon the grinding wheel may be increased or decreased as desired.

Fixed upon the shaft 74 at one end thereof, inwardly of supporting arm 72, is a bell crank lever 79 comprising the two angularly disposed portions or legs 80 and 81. Pivoted to the outer end of leg 80 of the bell crank lever is one end of a substantially horizontal connecting rod 82 pivotally connected at its inner end to the plate 70 adjacent the lower end thereof beneath supporting arm 72. Keyed to the opposite end of shaft 74, inwardly of supporting arm 73, is a lever 83 and pivotally connected thereto is one end of a substantially horizontal connecting rod 84 extending parallel with rod 82 and being pivotally connected at its inner end to the plate 71 beneath supporting arm 73.

The inner end of each of the connecting rods 82 and 84 is formed with an opening and is adapted to have a pressed fit over an annular cup-like member 85 (Fig. 9) freely mounted upon a pin 86 passing through the respective plate 70 or 71. Arranged within the cup member 85 and encircling the pin 86 is a ball bearing arrangement 87 which is provided to facilitate the pivotal action of the connecting rod upon said pin. The cup member 85 is covered by a cap 88 which serves to hold the ball bearing arrange-

ment in place. Likewise, in order to facilitate the rocking movement of the work holder 45, the inner ends of the supporting arms 72 and 73 are similarly mounted upon pins 89 and 90 respectively (Figs. 9 and 10) passing transversely through the side members 46 and 47 and plates 70 and 71, said pins being in horizontal alignment with one another and constituting the horizontal axis about which the work holder rocks. The plates 70 and 71 may also be secured to the side members 46 and 47 of the work holder by rivets or the like 91 and 92 respectively.

Pivoted to the outer end of the leg 81 of the bell crank lever 79 is the upper end of a substantially vertical pitman 93 pivotally connected at its lower end to a crank 94 keyed to a horizontal shaft 95, said shaft being driven from a motor 96 through a suitable chain and sprocket drive 97 and reduction gearing located in the housing 98. Upon rotation of the shaft 95, the pitman 93 will be given a substantially vertical upward and downward motion to effect the turning of the horizontal shaft 74 first in one direction and then the other to impart a substantially horizontal forward and backward motion to the connecting rods 82 and 84, it being of course understood that these rods work in unison. The reciprocation of the connecting rods will cause the work holder 45 to be rocked upon the pins 89 and 90, thereby causing the glass sheets 48 to be moved backward and forward with the curved edges 49 thereof to be ground over and in engagement with the grinding wheel 16.

In the operation of the machine described above and when it is desired to grind the curved edges or corners 49 of a plurality of sheets of glass 48, the work holder 45 is first moved to the position illustrated in Figs. 1 and 4, at which time the pitman 93 is at substantially the extreme limit of its upward movement, while the connecting rods 82 and 84 are in retracted position. The glass sheets to be ground are then inserted horizontally into the outer open end of the holder between the upper rollers 50, 51 and 52 and the lower rollers 53 and 54, the upper edges *a* of the said sheets being received within the grooves 62 in rollers 50, 51 and 52, while the bottom edges *b* thereof are received within the grooves in rollers 53 and 54 and likewise within the grooves 69 formed in the rubber pad 68 carried by plate 66. The glass sheets are moved inwardly until the inner edges *c* thereof abut the pad 68 carried by plate 65, being received within the grooves formed therein.

After the glass sheets have been properly positioned, the motor 96 is placed in operation to rotate the shaft 95 and draw the pitman 93 downwardly, this movement of the pitman causing the shaft 74 to be rocked in a counter-clockwise direction and imparting a forward movement to the connecting rods 82 and 84. This forward movement of the connecting rods will cause the work holder to be also rocked in a counter-clockwise direction upon the pins 89 and 90 and, during the turning of the said work holder, the curved edges 49 of the glass sheets 48 will of course be moved over and in engagement with the grinding wheel 16 being received within the grooves 19 thereof. The grinding wheel is being simultaneously driven preferably in the opposite direction. The work holder is turned approximately 90 degrees and at the limit of its backward movement will assume substantially the position illustrated in Fig. 6, at which time the glass sheets will be supported by the plate 65.

When the work holder is in this position, the crank 94 has completed approximately one-half a revolution so that upon continued turning of the said crank, the pitman 93 will be started upwardly, thereby causing the shaft 74 to be rocked in a clockwise direction to effect backward movement of the connecting rods 82 and 84. This movement of the connecting rods will in turn cause the work holder 45 to be rocked upon the pins 89 and 90 in a clockwise direction to return it to its starting position shown in Figs. 1, 3 and 4.

It will of course be readily apparent that upon rocking of the work holder 45, the said holder will be permitted to simultaneously move freely vertically depending upon the curvature of the sheet edges being ground. This is due to the fact that the supporting arms 72 and 73 are freely mounted upon shaft 74. The pins 89 and 90 may therefore be said to constitute a floating axis upon which the work holder may be rocked. Due to the above construction, curved edges of different contours can be readily and conveniently ground upon the machine and without necessitating any special adjustment to take care of each particular curve. This renders the machine capable of a wide use and permits the grinding of a plurality of sheets of glass rapidly, accurately, and economically, and with a minimum effort and attention on the part of the operator. While the machine has been referred to above as a grinding machine and also while it is primarily designed for this purpose, yet it may be readily adapted for polishing the curved edges of the glass sheets by the substitution of a suitable polishing wheel for the grinding wheel 16.

As pointed out above, it is preferable that the weights 76 be such as to just counterbalance the work holder 45, so that the only pressure exerted upon the sheet edges being ground will be the weight of the sheets themselves. However, by removing some of the weights so that they are not sufficient to counterbalance the holder 45, the pressure upon the sheet edges being ground will be increased, whereas by adding additional weights, the pressure upon the sheet edges can be reduced.

It is desirable in the operation of the machine to effect a slight raising of the glass sheets at the completion of the movement of the work holder in either direction to lift the said sheets out of contact with the grinding wheel in order to prevent "burning" of the edges being ground. To this end, there is carried by the work holder 45, adjacent one corner thereof, a pair of freely rotatable rollers 99 and at the opposite diagonal corner a similar pair of rollers 100, each pair of rollers being mounted upon the opposite ends of a pin 101 passing transversely through the side members 46 and 47. The rollers are arranged outwardly of the said side members and are of such diameter that they project slightly beyond the edges thereof. Mounted upon the top of the receptacle 28, adjacent one end thereof, is a transversely arranged block 102, while mounted upon the top of said receptacle, adjacent the opposite end thereof, is a transverse plate 103.

Upon rocking of the work holder 45 to the left and when the said holder reaches the end of its movement in this direction, the rollers 99 engaging block 102 will effect a slight tilting of

the said holder sufficient to lift the glass sheets out of contact with the grinding wheel. Likewise, when the work holder is returned to its starting position and when it reaches the end of its movement in this direction, the rollers 100 engaging plate 103 will serve to lift the glass sheets out of contact with the grinding wheel as clearly illustrated in Figs. 1 and 4. Upon loading of the work holder preparatory to the grinding operation, the said holder is adapted to be in this position so that the curved edges 49 of the glass sheets will not contact with the grinding wheel as the said sheets are being placed in position. When the motor 96 is placed in operation to rock the work holder, the curved edges of the glass sheets will be gradually lowered to engage the grinding wheel as illustrated in Fig. 5.

Ordinarily, it will be found that one backward and forward rocking movement of the work holder is sufficient to effect the desired grinding of the glass sheets. Therefore, the present invention contemplates the provision of means for automatically shutting off the motor 96 and stopping the rocking movement of the work holder at the completion of the grinding operation. For the accomplishment of this object, there is carried by the receptacle 23, a switch 104 (Fig. 1) connected in circuit with and adapted to control the operation of motor 96, said switch being provided with a control arm 105 having a roller 106 at its outer end. Secured to the side member 46 of the work holder 45 for cooperation with the switch 104 is a trip member 107 (Figs. 1 and 7). In operation, after the work holder has been rocked in a counter-clockwise direction to the position illustrated in Fig. 6 and is returned to its starting position shown in Fig. 4 to complete the grinding cycle, the trip member 107 engaging the roller 106 will force the control arm 105 downwardly to open the switch 104, thereby breaking the circuit through the motor 96 and stopping the movement of the work holder. The trip member 107, however, is not adapted to actuate the switch 104 until after the rollers 100 engaging plate 103 have caused the glass sheets to be lifted out of contact with the grinding wheel.

It is to be understood that the form of the invention herewith shown and described is to be taken as the preferred embodiment of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a machine for grinding the curved edge of a glass sheet or plate, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means arranged above said wheel for supporting the glass sheet to be ground on edge in a substantially vertical position, means for rocking said supporting means and sheet carried thereby to move the curved edge of the sheet to be ground over and in engagement with said grinding wheel, means for pivotally mounting the supporting means upon a floating axis so that it is capable of free vertical floating movement during the rocking thereof, and means for counterbalancing said supporting means.

2. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means for supporting the glass sheets to be ground on edge in a substantially vertical position embodying a box arranged above said wheel and including spaced vertical side members between which the sheets are received, means carried by and arranged between said side members for maintaining the sheets in position during grinding, means for mounting said box for rocking movement including an arm pivotally connected thereto and forming an axis about which the box is adapted to be rocked, and means for rocking the said box about said axis to move the curved edges of the glass sheets to be ground over and in engagement with said grinding wheel.

3. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontally axis, means for supporting the glass sheets to be ground on edge in a substantially vertical position embodying a box arranged above said wheel and including spaced vertical side members between which the sheets are received, means carried by and arranged between said side members for maintaining the sheets in position during grinding, means for mounting said box for free vertical and rocking movement including an arm pivotally connected at one end thereto and forming an axis about which the box is adapted to be rocked, said arm being also pivotally mounted adjacent its opposite end to turn freely about a fixed axis, and means for rocking said box about said first-mentioned axis to move the curved edges of the glass sheets to be ground over and in engagement with said grinding wheel while simultaneously allowing said box to move bodily vertically about said fixed axis.

4. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means for supporting the glass sheets to be ground on edge in a substantially vertical position embodying a box arranged above said wheel and including spaced vertical side members between which the sheets are received, means carried by and arranged between said side members for maintaining the sheets in position during grinding, means for mounting said box for free vertical and rocking movement including a substantially horizontal arm pivotally connected at one end thereto and forming a horizontal axis about which the box is adapted to be rocked, said arm being also pivotally mounted intermediate its ends to turn freely about a fixed horizontal axis, means for rocking said box about said first-mentioned axis to move the curved edges of the glass sheets to be ground over and in engagement with said grinding wheel while simultaneously allowing said box to move bodily vertically about said fixed axis, and means carried by said arm outwardly of said fixed axis for counterbalancing said box.

5. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means for supporting the glass sheets to be ground on edge in a substantially vertical position embodying a box arranged above said wheel and including spaced vertical side members between which the sheets are received, means carried by and arranged between said side members for maintaining the sheets in position during grinding, means for mounting said box for free vertical and rocking movement including a substantially horizontal arm pivotally connected at

one end thereto and forming a horizontal axis about which the box is adapted to be rocked, said arm being also pivotally mounted adjacent its opposite end to turn freely about a fixed horizontal axis, and means for rocking said box about said first-mentioned axis to move the curved edges of the glass sheets to be ground over and in engagement with said grinding wheel including a substantially horizontal rod pivotally connected at one end to said box, a motor, and operative connections between said motor and the opposite end of said rod to effect forward and backward movement of said rod upon operation of said motor.

6. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means for supporting the glass sheets to be ground on edge in a substantially vertical position embodying a box arranged above said wheel and including spaced vertical side members between which the sheets are received, means carried by and arranged between said side members for maintaining the sheets in position during grinding, means for mounting said box for free vertical and rocking movement including a substantially horizontal arm pivotally connected at one end thereto and forming a horizontal axis about which the box is adapted to be rocked, said arm being also pivotally mounted intermediate its ends to turn freely about a fixed horizontal axis, means for rocking said box about said first-mentioned axis to move the curved edges of the glass sheets to be ground over and in engagement with said grinding wheel including a substantially horizontal rod pivotally connected at one end to said box, a motor, and operative connections between said motor and the opposite end of said rod to effect forward and backward movement of said rod upon operation of said motor, and means carried by said arm outwardly of said fixed axis for counterbalancing said box.

7. In a machine for simultaneously grinding the curved edges of a plurality of glass sheets or plates, a rotary grinding wheel positioned to rotate about a substantially horizontal axis and having a plurality of grooves formed in the periphery thereof, means for supporting the glass sheets to be ground on edge in a substantially vertical position including a box arranged above said wheel and comprising spaced vertical side members between which said sheets are received, a plurality of rollers carried by and arranged between said side members for maintaining the glass sheets in position during grinding, said rollers having grooves in registry with the grooves in the grinding wheel and within which the edges of the sheets are received, a pair of stationary mats also carried by and arranged between the side members and having grooves in registry with the grooves in the grinding wheel and rollers and within which the edges of the sheets are received, said mats being arranged at substantially right angles relative to one another, means for mounting said box for free vertical and rocking movement, and means for rocking the box to move the glass sheets back and forth with the curved edges thereof to be ground over and in engagement with said grinding wheel.

8. In a machine for grinding the longitudinally curved edge of a glass sheet or plate, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means mounted above said wheel for supporting the glass sheet to be ground on edge in a substantially vertical position, means for rocking said supporting means and sheet carried thereby back and forth in the plane of said sheet to move the longitudinally curved edge thereof to be ground over and in engagement with said grinding wheel, means for pivotally mounting the supporting means upon a floating axis so that it is capable of free vertical floating movement during the rocking thereof depending upon the curvature of the said edge being ground, and means for counterbalancing said supporting means.

9. In a machine for grinding the curved edge of a glass sheet or plate, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means mounted above said wheel for supporting the glass sheet to be ground on edge in a substantially vertical position, an arm to which the supporting means is pivoted on a horizontal axis for rocking movement to carry the curved edge of the glass sheet over the grinding wheel, a pivotal support for the arm at one side of the axis of rotation of the grinding wheel about which the arm swings freely during the grinding operation, and means for rocking the sheet supporting means.

10. In a machine for grinding the curved edge of a glass sheet or plate, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means mounted above said wheel for supporting the glass sheet to be ground on edge in a substantially vertical position, an arm to which the supporting means is pivoted on a horizontal axis for rocking movement to carry the curved edge of the glass sheet over the grinding wheel, a pivotal support for the arm at one side of the axis of rotation of the grinding wheel about which the arm swings freely during the grinding operation, means for rocking the sheet supporting means, and means for counterbalancing said supporting means.

11. In a machine for grinding the curved edge of a glass sheet or plate, a rotary grinding wheel positioned to rotate about a substantially horizontal axis, means mounted above said wheel for supporting the glass sheet to be ground on edge in a substantially vertical position, an arm to one end of which the supporting means is pivoted on a horizontal axis for rocking movement to carry the curved edge of the glass sheet over the grinding wheel, said arm being also pivotally mounted adjacent its opposite end to swing freely about a fixed axis during the grinding operation, means for rocking the sheet supporting means, and means associated with the outer end of said arm for counterbalancing said supporting means.

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