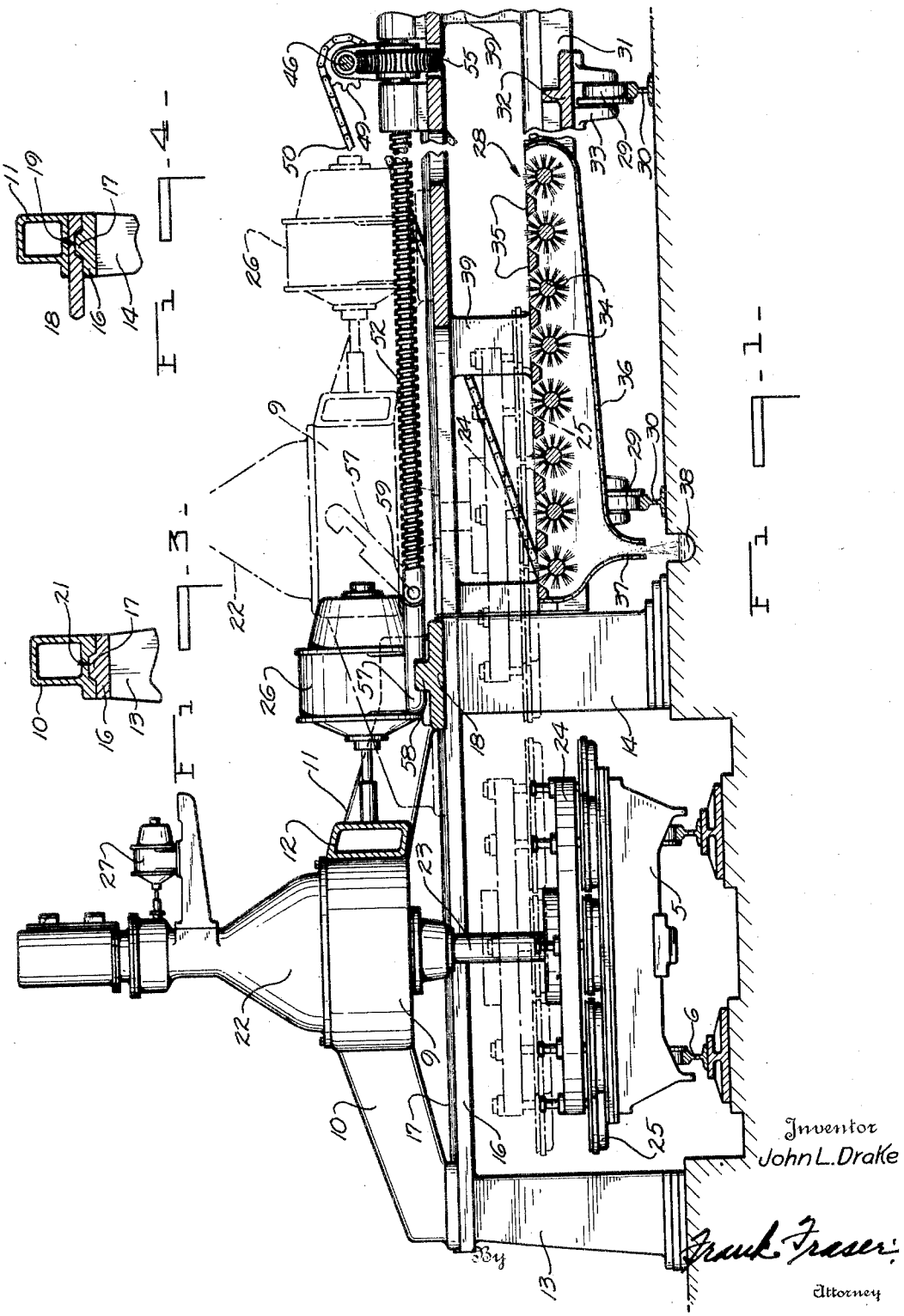
May 3, 1932. J. L. DRAKE 1,856,129

APPARATUS FOR CLEANING PLATE GLASS POLISHING RUNNERS

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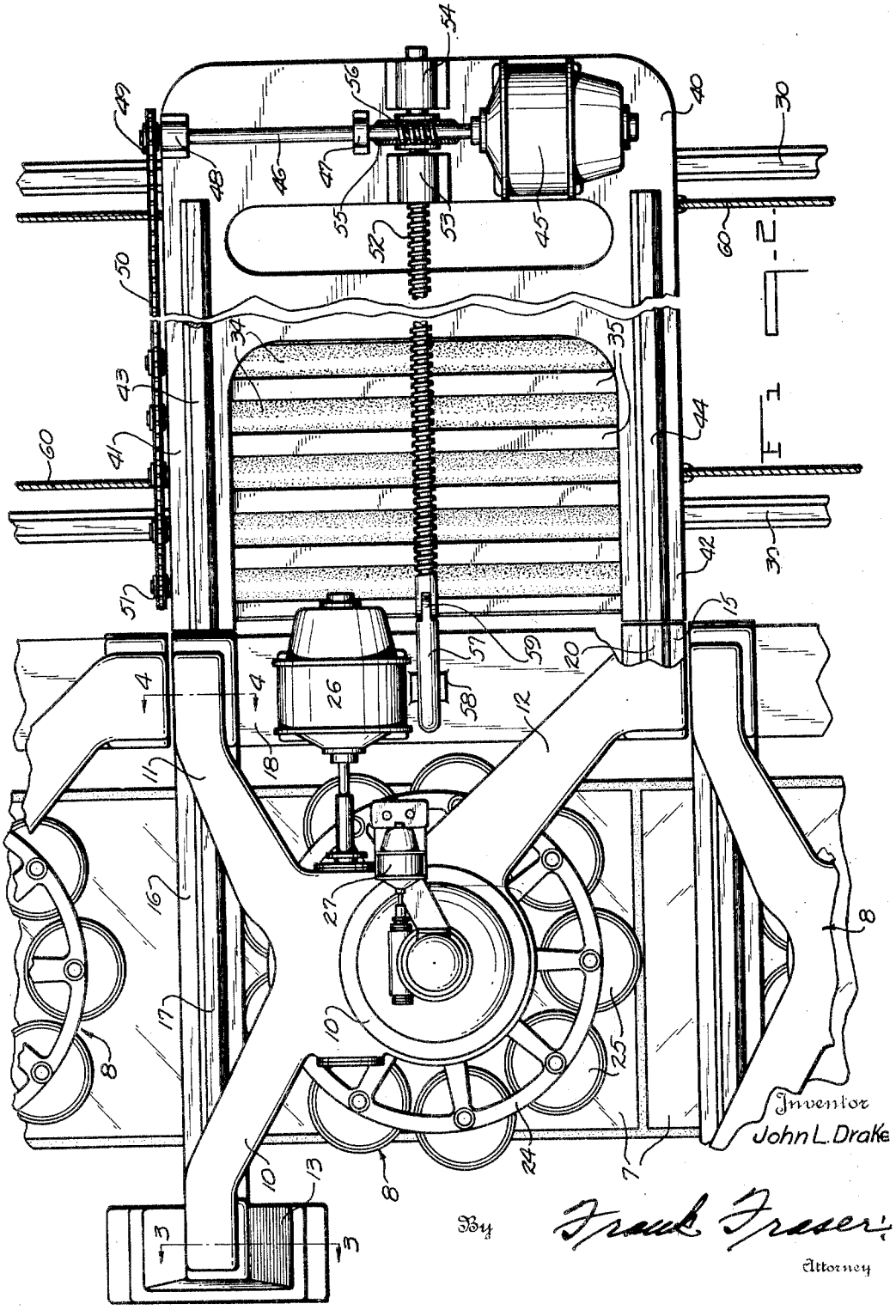
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APPARATUS FOR CLEANING PLATE GLASS POLISHING RUNNERS

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UNITED STATES PATENT OFFICE

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APPARATUS FOR CLEANING PLATE GLASS POLISHING RUNNERS

Application filed June 28, 1929. Serial No. 374,402.

This invention relates to apparatus for polishing plate glass and particularly to that form of apparatus in which the glass to be polished is carried beneath a series of polishing machines on cars or other carrier apparatus.

After a certain period of use, the felts of the runners of the polishing machines become caked with the rouge or other polishing material used and their efficiency is reduced so that it becomes desirable to wash and clean the felts.

The principal object of the present invention is to provide a simple convenient arrangement for washing and cleaning the felts of the runners of the various polishing machines as desired and without interfering with the continuous operation of the apparatus.

Another object of the invention is the provision of apparatus whereby any one of the polishing machines may be bodily removed laterally from the polishing line independently of and without disturbing the operation of any of the other machines to the end that a selective cleaning of the machines may be readily effected.

Another object of the invention is the provision of a movable carriage mounted adjacent to and movable along the series of polishing machines, said carriage including preferably a plurality of rotatable cleaning brushes, and means for moving the desired machine laterally to bring the runners thereof into operative relation with respect to said cleaning brushes.

Another object of the invention is the provision of a common drive means for the cleaning brushes and the means for moving the polishing machine laterally, together with means upon which the runners may rest during the cleaning thereof.

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 forming a part of this application and wherein like numerals are employed to designate like parts throughout the same,

Fig. 1 is a vertical longitudinal section through cleaning apparatus provided by the present invention and shown in operative position with respect to one of the polishing machines.

Fig. 2 is a top plan view thereof.

Fig. 3 is a detail section taken substantially on line 3—3 of Fig. 2, and

Fig. 4 is a detail section taken substantially on line 4—4 of Fig. 2.

Referring to the drawings, 5 designates a series of tables or trucks mounted upon tracks 6 and adapted to carry upon the tops thereof a series of sheets of glass 7 placed end to end and which are to be polished. Arranged in series above the tables or trucks 5 are a series of polishing machines 8, 8, 8 etc., any desired number being used depending upon the length of polishing line preferred. Each of these machines comprises a supporting framework including a hub 9 from which extend the three substantially horizontal supporting arms 10, 11 and 12, supported at their outer ends upon the vertical columns 13, 14 and 15 respectively. The supporting arms 11 and 12 extend to one side of the machine and the supporting arm 10 to the opposite side with the outer ends of the supporting arms 10 and 11 in substantial horizontal alignment with one another.

Extending between and secured to the tops of columns 13 and 14 is a horizontal supporting member 16 having the longitudinally extending raised guide rail 17 formed on the upper surface thereof. Secured to the bottoms of the supporting arms 11 and 12 and extending therebetween at their outer ends is a horizontal supporting member 18 resting at its opposite ends upon the member 16 and column 15 respectively, said supporting member 18 being provided in its undersurface with grooves or channels 19 adapted to receive the guide rails 17 and 20 formed on the member 16 and top of column 15 respectively. The bottom surface of supporting arm 10 is also provided with a groove or channel 21 adapted to receive the guide rail 17.

Carried by and supported upon the hub 9

of the supporting framework is a housing 22 within which is journaled the vertical drive spindle 23, said spindle carrying at its lower end a rotating runner frame 24 supporting the individual polishing runners or blocks 25, each polishing runner or block being preferably covered with felt or some other suitable material. The drive spindle 23 is adapted to be driven from a motor 26 and the said spindle is also adapted to be raised and lowered upon operation of the motor 27, said motors 26 and 27 having operative drive connections with the spindle. Since any conventional or preferred means may be provided for driving the spindle and for raising and lowering the same, a detailed showing and description of such means is not thought to be necessary.

The washing and cleaning apparatus herein provided comprises a carriage 28 mounted upon wheels 29 which roll upon spaced rails 30 extending parallel with and to one side of the rails 6 along which the glass supporting tables 5 are movable. The carriage 28 is therefore adapted to be moved along the rails 30 parallel with the polishing machines and to a position opposite any one of the machines, the runners of which it may be desired to wash and clean. The carriage 28 comprises opposite horizontal parallel side members 31 (only one of which has been shown) and these side members are connected by the transversely extending parallel end members 32 which carry the trucks 33 supporting the wheels 29. Extending between and journaled in the opposite side members 31 are a plurality of spaced horizontal cleaning brushes 34. Positioned between adjacent brushes 34 are the transversely extending supporting bars 35 upon which the runners of the polishing machine are adapted to rest during the cleaning thereof as will be more clearly hereinafter apparent. Also carried by the carriage and arranged beneath the brushes 34 is a pan 36, the bottom thereof slanting downwardly to an outlet 37 through which the water used in washing and the material removed from the polishing felts may be discharged into a trench or gutter 38.

Rising from the side and end members 31 and 32 of carriage 28 are a plurality of spaced web members 39 supporting at their upper ends a substantially horizontal platform 40. This platform 40 is substantially U-shaped to provide the spaced side members 41 and 42, upon the upper surfaces of which are formed the guide rails 43 and 44 respectively adapted to register when the carriage is in operative position opposite one of the polishing machines, with the guide rails 17 and 20 on the member 16 and column 20 respectively of the supporting framework. Due to the U-shaped formation of the platform 40, the said platform does not extend over the cleaning brushes as illustrated in Fig. 2. Supported upon the platform 40 is an electric motor 45, the shaft 46 of which is supported in spaced bearings 47 and 48. The motor shaft 46 projects beyond bearing 48 and has keyed thereto a sprocket gear 49 about which is trained a sprocket chain 50, said chain also being trained about sprockets 51 keyed to the ends of brushes 34 so that upon operation of motor 45, all of the cleaning brushes 34 will be driven simultaneously in the same direction.

Also mounted upon the platform 40 of carriage 28 is a horizontal screw shaft 52 journaled through the spaced bearings 53 and 54. Threaded upon the screw shaft between these bearings is a worm gear 55 meshing with and driven from the worm 56 carried by motor shaft 46. Upon operation of the motor shaft 46 to drive the worm gear 55, the screw shaft 52 will be moved in the desired direction through bearings 53 and 54 dependent upon the direction of rotation of said shaft. The screw shaft 52 has pivoted to its inner end a hook member 57 adapted to hook over the projection 58 on the horizontal member 18. The hook member 57 is pivoted to the screw shaft as at 59 and is normally maintained in an elevated position as indicated by the broken lines in Fig. 1. The carriage 28 may be moved along the rails 30 by means of cables 60 or in any other desired manner.

In the operation of the present improved apparatus, the carriage 28 is adapted to be moved along the rails 30 to a position opposite any one of the polishing machines, the polishing belts of which it is desired to clean. When brought to such position, the carriage is stopped so that the guide rails 43 and 44 on platform 40 will be in alignment with the guide rails 17 and 20 of the supporting framework. The hook 58 at the inner end of shaft 52 is then hooked over the projection 58 on member 18 after which the motor 45 is placed in operation to thread the shaft 52 rearwardly through bearings 53 and 54. When this is done, the entire polishing machine will be moved as a unit laterally onto the carriage independently of the remaining machines of the series and without in any way affecting their operation or the polishing of the glass. Prior to the moving of the polishing machine, however, the motor 27 thereof is actuated to raise the spindle 23 and runners 25 to the desired cleaning position which is indicated by the broken lines in Fig. 1. As the polishing machine is moved laterally onto the supporting platform 40 of the carriage, the polishing runners 25 thereof will be carried over and into operative engagement with the rotatable cleaning brushes 34. Simultaneous with the operation of the screw shaft 52 to draw the machine onto the carriage, the cleaning brushes will be driven by the means above described and these brushes engaging the bottom surfaces of the runners will serve to effect a

cleaning of the polishing felts thereof. During the cleaning operation, water or other cleaning fluid can be supplied to the brushes or to the polishing runners or both to facilitate in the washing and cleaning thereof and this cleaning fluid together with the rouge removed from the polishing felts will be caught within the pan 36 and discharged therefrom through outlet 37 into the trench or trough 38. During the cleaning operation, the runners 25 can rest upon the transverse supporting bars 35.

After the polishing runners have been cleaned, the movement of the screw shaft 52 is reversed so as to push the polishing machine back into its operative polishing position over the glass supporting tables and the spindle 23 is then lowered to move the polishing runners into contact with the glass to be polished. During the moving of the polishing machine back into its operative polishing position, the direction of rotation of the cleaning brushes will also be reversed and it is preferred that the brushes rotate in a direction opposite to the direction of movement of the polishing machine thereover although they may, of course, be rotated in the same direction if desired. After the polishing machine has been returned to its operative polishing position, the hook 57 is disengaged from the projection 58 on member 18 and swung upwardly about its pivot to its broken line position indicated in Fig. 1 whereupon the carriage 28 can then be moved along the rails 30 to a position opposite the next machine or to a position opposite any one of the machines, the runners of which it may be desired to clean. Thus, the polishing machines can be selectively cleaned as preferred and the cleaning of any one machine will not necessitate a change in the position of any of the other machines nor will it affect the operation thereof.

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. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising cleaning means positioned outwardly and to one side of the machine to be cleaned, and means for moving the machine bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with said cleaning means.

2. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising cleaning means positioned outwardly and to one side of the machine to be cleaned and including a plurality of cleaning brushes, and means for moving the machine bodily and laterally with respect to the remaining machines to carry the polishing runners thereof over and into operative engagement with the cleaning brushes.

3. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned outwardly and to one side of the machine to be cleaned, cleaning means on the carriage, and means carried by said carriage for moving the machine bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with said cleaning means.

4. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned outwardly and to one side of the machine to be cleaned, a plurality of movable cleaning brushes on the carriage, and means carried by the carriage and engaging the machine for moving said machine bodily and laterally with respect to the remaining machine to carry the polishing runners thereof over and into operative engagement with said cleaning brushes.

5. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned outwardly and to one side of the machine to be cleaned, movable cleaning elements on the carriage, means carried by the carriage and engaging the machine for moving said machine bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning elements, and means arranged between adjacent cleaning elements and upon which the runners may rest during the cleaning thereof.

6. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned outwardly and to one side of the machine to be cleaned, rotatable cleaning elements upon said carriage, means carried by the carriage and engaging the machine for moving said machine bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning elements, and a common drive means for the said cleaning elements and machine moving means.

7. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned outwardly and to one side of the machine to be cleaned, a plurality of rotatable cleaning brushes on said carriage, means carried by the carriage and engaging the machine for moving said machine bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with said cleaning brushes, means interposed between adjacent brushes and upon which the runners may rest during the cleaning thereof, and a common drive means for said cleaning brushes and the machine moving means.

8. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising cleaning means positioned outwardly and to one side of said machines, means for moving the said cleaning means to a position opposite any one of the machines it is desired to clean, and means for moving the polishing machine opposite which the cleaning means is stationed bodily and laterally with respect to the remaining machines to bring the polishing runners thereof into operative engagement with said cleaning means.

9. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned at the side of the series of polishing machines, means for moving said carriage parallel therewith, cleaning means on said carriage, and means carried by said carriage for engaging the machine opposite which the carriage is stationed and for moving the said machine laterally of the series so as to bring the polishing runners thereof into operative engagement with said cleaning means.

10. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned at one side of the series of polishing machines, means for moving said carriage to a position opposite any one of the machines, a plurality of cleaning brushes on the carriage, and means carried by the carriage for engaging the machine opposite which the carriage is stationed and for effecting bodily movement of said machine laterally and independently of the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning brushes.

11. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned at one side of the series of polishing machines, means for moving said carriage to a position opposite any one of the polishing machines, a plurality of rotatable cleaning brushes on said carriage, means carried by the carriage for engaging the machine opposite which the carriage is stationed and for effecting bodily movement of said machine laterally and independently of the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning brushes, and a common drive means for the cleaning brushes and the machine moving means.

12. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned at one side of the series of polishing machines, means for moving said carriage to a position opposite any one of the polishing machines, a plurality of rotatable cleaning brushes on said carriage, means carried by the carriage for engaging the machine opposite which said carriage is stationed and for effecting bodily movement of said machine laterally and independently of the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning brushes, a motor carried by the carriage, operative connections between the motor and the cleaning brushes, and operative connections between the motor and the machine moving means.

13. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising a carriage positioned at one side of the series of polishing machines, means for moving said carriage to a position opposite any one of the polishing machines, a plurality of rotatable cleaning brushes on the carriage, means carried by the carriage for engaging the machine opposite which said carriage is stationed and for effecting bodily movement of said machine laterally and independently of the remaining machines to bring the polishing runners thereof into operative engagement with the cleaning brushes, and means carried by said carriage and upon which the runners may rest during the cleaning thereof.

14. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising independent supporting means for each polishing machine, the last-named means having guide rails thereon, a carriage positioned to one side of the series of polishing machines, means for moving said carriage to a position opposite any one of the machines, cleaning means on the carriage, guide rails on said carriage adapted to be aligned with the guide rails on the means for supporting the polishing machines and means for moving said

machine along the guide rails of the supporting means and onto the guide rails of said carriage so as to bring the polishing runners thereof into operative engagement with the cleaning means.

15. Apparatus for use in cleaning the polishing runners of a series of plate glass polishing machines mounted above means for carrying the glass therebeneath, comprising independent means for supporting the polishing machine, the last-named means having guide rails thereon, a carriage means for moving said carriage to a position opposite any one of the machines, cleaning means on the carriage, guide rails on the said carriage adapted to be aligned with the guide rails on the means for supporting the polishing machines, and means carried by the carriage for engaging the machine and for moving said machine along the guide rails of the supporting means and onto the guide rails of the carriage.

Signed at Toledo, in the county of Lucas and State of Ohio, this 21st day of June, 1929.

JOHN L. DRAKE.