Dec. 14, 1926. **1,610,374**

H. S. HEICHERT ET AL

APPARATUS FOR CLEANING PLATE GLASS GRINDING TABLES OR CARS

Filed March 18 1925 3 Sheets-Sheet 1

Fig. 1.

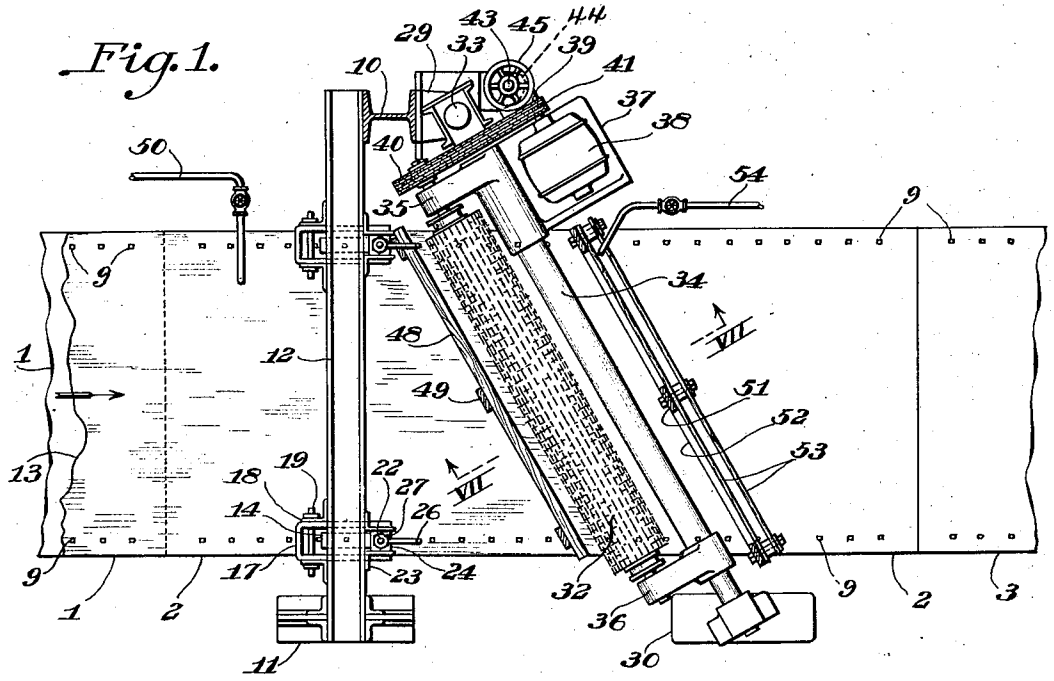
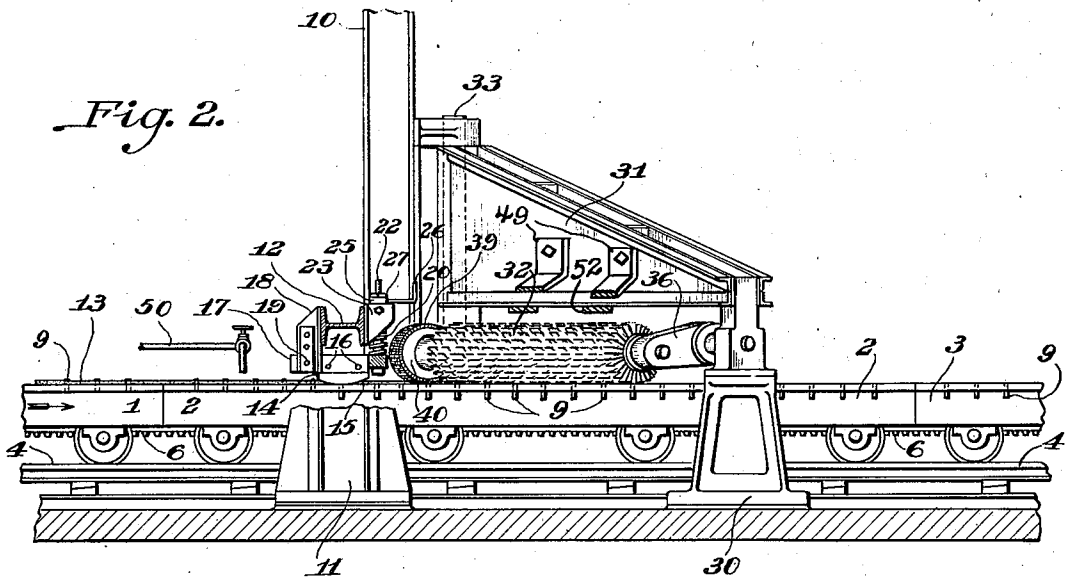


Fig. 2.



INVENTOR

H. S. Heichert

and

A. E. Evans

by Homer C. Bradley

Atty

Dec. 14, 1926. 1,610,374

H. S. HEICHERT ET AL

APPARATUS FOR CLEANING PLATE GLASS GRINDING TABLES OR CARS

Filed March 18, 1925 3 Sheets-Sheet 2

Fig. 3.

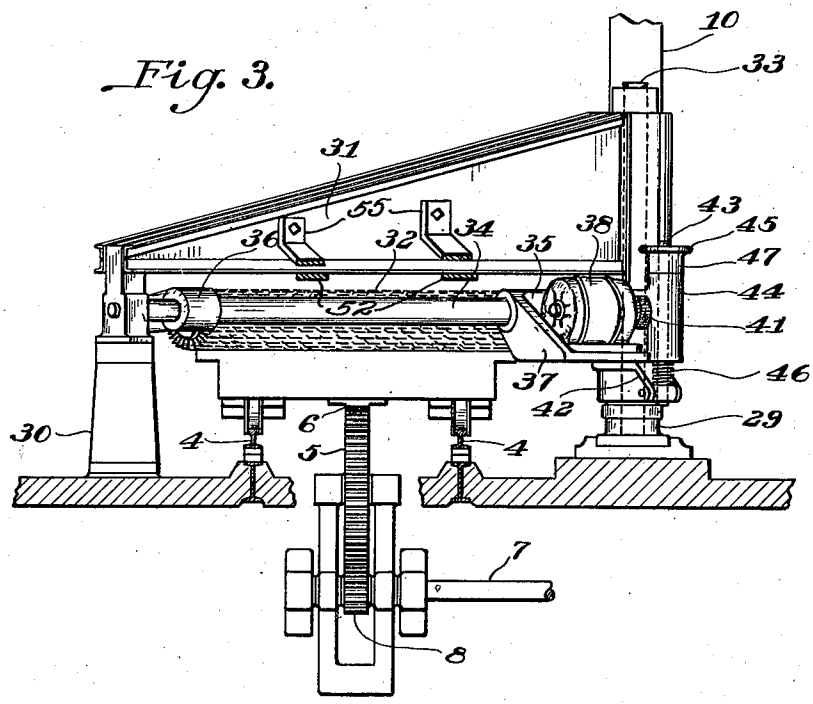
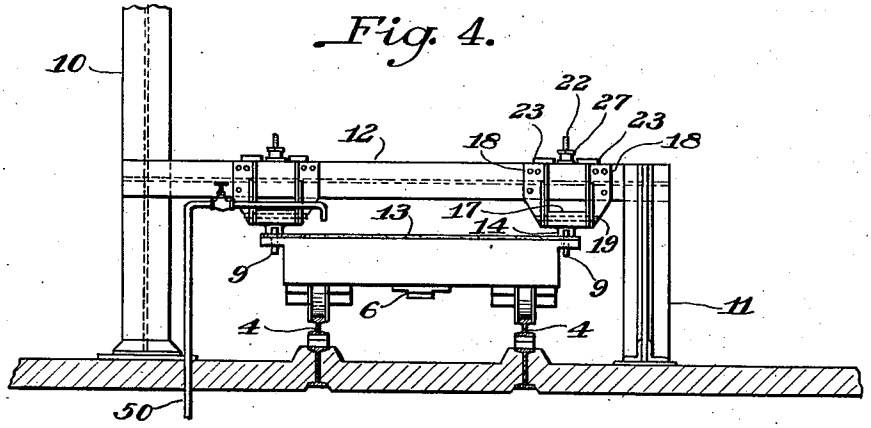


Fig. 4.



INVENTOR

H. S. Heichert Et Al

P. C. Evans

by James C. Bracken

Dec. 14, 1926. 1,610,374

H. S. HEICHERT ET AL

APPARATUS FOR CLEANING PLATE GLASS GRINDING TABLES OR CARS

Filed March 18, 1925 3 Sheets-Sheet 3

Fig. 6.

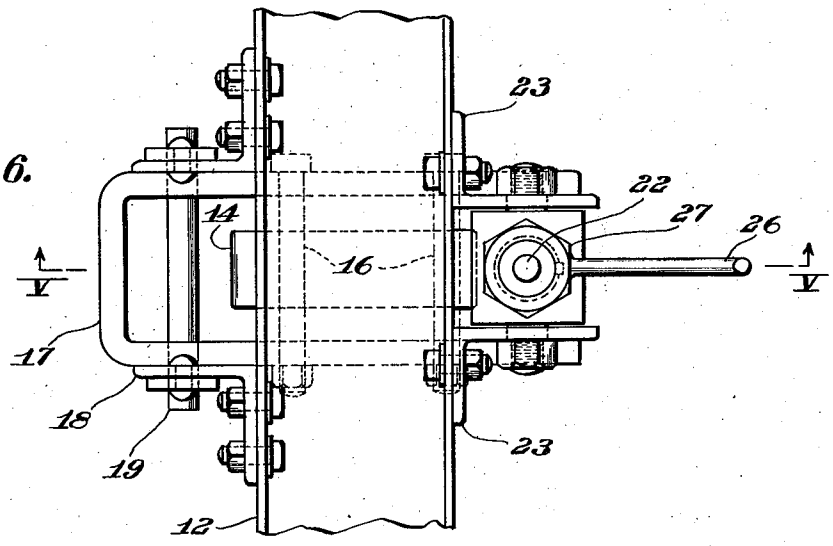


Fig. 5

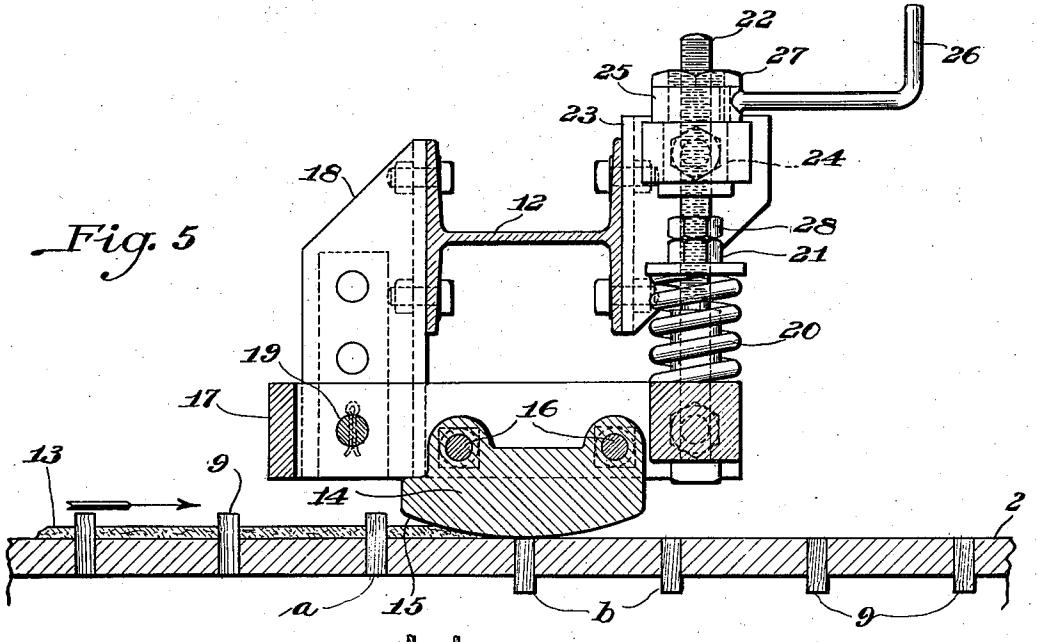
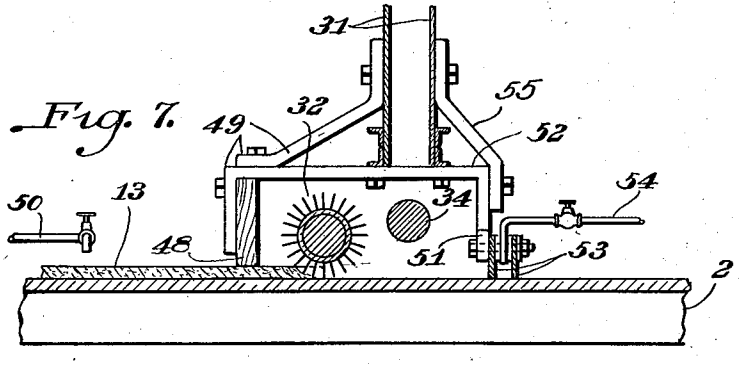


Fig. 7.



INVENTOR
H. S. Heichert
and
A. E. Evans.
by James L. Bradley
Atty

Patented Dec. 14, 1926. 1,610,374

UNITED STATES PATENT OFFICE.

HERMAN S. HEICHERT AND ALBERT E. EVANS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNORS TO PITTSBURGH PLATE GLASS COMPANY, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR CLEANING PLATE-GLASS-GRINDING TABLES OR CARS.

Application filed March 18, 1925. Serial No. 16,409.

The invention relates to apparatus for removing the plaster from plate glass supporting tables or cars such as are employed in a straight away grinding and polishing operation recently developed in this country. The glass sheets are secured to the tops of the tables by plaster of Paris and after the sheets have been ground and polished and pried loose from the plaster, it becomes necessary to remove the layer of plaster remaining preliminary to the application of another sheet. Heretofore, this has been accomplished by hand labor, the workers climbing upon the tables with scrapers and pounding and scraping the surfaces of the car to remove the relatively hard adherent plaster. The difficulty of the operation is increased by the wood holding pegs which are arranged in series along each side of the car with their upper ends projecting slightly above the surface of the car. These pegs prevent the scrapers from sliding clear to the edges of the tables so that it becomes necessary to drive each one down so that its top is flush with the top surface of the table, which operation takes considerable time and effort. The present invention is designed to provide for the removal of the hard layer of plaster without hand labor and also to automatically drive the pegs down out of the way so that the table is completely freed from plaster from edge to edge. It is further designed to accomplish this result without cutting or wearing away the tops of the cars or tables, being so arranged that a thin film of protecting plaster is left on the surface of each car. This film of plaster has been found to give a firmer connection with the fresh plaster which is applied than was secured between the table tops and the fresh plaster when the film was completely removed so that the danger of the sheets becoming loosened during the subsequent grinding and polishing operation is materially reduced. In carrying out the operation, a brush made up of metallic strips or fibers is preferably employed (although some other form of cutter might be used) for cutting away the plaster, and the life of this cutting member and also that of the holding pegs is greatly increased by the expedient of forcing down the pegs preliminary to the application of the cutter. It has also been found desirable to apply scraper means both in front of and behind the cutting brush, the one in advance serving to clear away any broken glass or other detritus left on the surface of the plaster, and the one following the brush serving to wipe away any loose plaster left after the cutting operation, the latter function being facilitated by applying a flow of water along the scraper. One embodiment of the invention is illustrated in the accompanying drawings wherein:

Figure 1 is a sectional plan view of the apparatus. Fig. 2 is a sectional side elevation. Fig. 3 is a sectional rear elevation. Fig. 4 is a front elevation. Figs. 5 and 6 are enlarged detail elevations of the plaster crushing and peg pushing devices, Fig. 5 being a side elevation and Fig. 6 being a plan view. Fig. 7 is an enlarged section on the line VII—VII of Fig. 1.

Referring to the drawings, 1, 2, 3, etc., are a series of tables or cars upon which the sheets of glass have been ground, but from which such sheets have been stripped, and which carry upon their tops, layers of plaster which must be removed preliminary to the laying and grinding of other glass sheets. These tables or cars are mounted upon the track 4 and are moved slowly along upon such track by spur gears 5 arranged at intervals along the track and engaging rack bars 6 secured to the bottoms of the cars or tables. The spur gears are themselves rotated from the drive shafts 7 by means of pinions 8 meshing with such spur gears. The track 4 is a continuation of the track upon which the cars are carried beneath the grinders and polishers and the cars are moved beneath such grinders and polishers by operating means, of which the parts 5, 6, 7 and 8 constitute a unit.

9 are the wood pegs arranged in series along each side of the tables and cars and serve as positive means for holding the glass on the tables against lateral movement. These pegs have a driving fit in the openings extending through the metal table tops so that they will maintain themselves at any position to which they are moved in the tables. When acting as holders for the glass, they are driven up to the position indicated at *a* in Fig. 5 with their tops projecting above the surface of the table, but a trifle below the top surface of the glass.

When not in service and during the cleaning operation, as later described, they occupy a lower position, as indicated at *bb* in Fig. 5 with their upper faces flush with the top surface of the table so that they will not interfere with the operation of removing the layer of plaster.

Extending transversely of the track and tables and supported upon the vertical columns 10 and 11 (Fig. 1) is a beam 12 which carries the devices for forcing the pegs down to the positions *bb* and simultaneously crushing the plaster 13 (Fig. 5) along the sides of the tables and surrounding the pegs. The devices for automatically accomplishing this purpose as the tables move along consist of a pair of shoes or cams 14 having their lower surfaces rounded as indicated at 15 and secured by means of the bolts 16 to the yokes 17. The yokes 17 are supported from the transverse beam 12 by means of brackets 18 to which the yokes are pivoted by means of the rods 19. The other ends of the yokes are pressed yieldingly downward by means of springs 20 bearing upon the yokes and held under compression by means of the nuts 21 upon the vertical threaded rods 22. These rods extend through brackets 23 bolted to the beam 12. They are threaded into sleeves 24 fitting into the brackets and each sleeve may be rotated to move the rod up and down and so adjust the tension of the spring 20 by means of the nut 25 keyed to the upper end of the sleeve and provided with the handle 26. Lock nuts 27 and 28 serve to fix the positions of the nuts 25 and 21 respectively. By this means the pressure of the shoes can be adjusted to exactly the right amount in order to crush the plaster and push the pins down and at the same time not exert an undue amount of pressure on the table tops. The shoes 14 thus serve to break up the plaster at the edges of the table and press the pins 9 down so that the cutter device (the brush as later described) can properly perform its function of cleaning the table throughout its width and also reduce the wear upon the brush and pins such as would be involved if the pins were not pressed down out of the way. The shoes constitute only one of a number of possible devices that might be employed for accomplishing the desired function, such shoes, however, constituting the best means so far developed for performing this function.

Mounted on opposite sides of the track are a pair of standards 29 and 30 for supporting the transverse frame 31 upon which the rotating cutter brush 32 is mounted. This frame is pivotally supported at one end upon the pivot rod 33 carried by the standard 29, while the other end of the frame is releasably supported upon the standard 30 by bolts (not shown) so that upon the release of the frame from the standard 30, it may be swung around the pivot rod 33 to one side of the table, thus providing clearance space above the tops of the tables, this being a desirable arrangement under certain conditions. The frame is provided with a pivot shaft 34 upon which are mounted the swinging arms 35 and 36 in which the ends of the brush 32 are journalled. The arm 35 has an extension or platform 37 on the opposite side of the shaft 34 on which is mounted the motor 38 for driving the brush 32 through the intermediary of a pair of sprocket wheels 39 and 40 on the ends of the motor shaft and brush shaft respectively and the sprocket chain 41.

The brush is made up of radial fibers in the form of light metal strips which have an abraiding effect upon the plaster on the table when the brush is driven at a high rate of speed, and means are provided for adjusting the pressure of the brush upon the plaster so that just the right amount of cutting pressure may be exerted in order to cut away the major portion of the plaster, leaving the thin film heretofore referred to. This method of procedure not only prevents the gradual wearing away of the top surface of the table, such as would occur if the entire layer of plaster were cut away, but it has also been found that there is less tendency of the glass sheets to loosen during the grinding and polishing operation when the fresh plaster is laid upon a film of plaster than is the case when the fresh plaster is applied directly to the metal table tops. The adjusting device for the brush comprises a bracket 42 secured to the bottom of the motor support 37 and the threaded rod 43 extending through the hub 44 integral with the standard 29 and adjustable by means of the hand wheel 45 provided with a suitable nut. A spring 46 is interposed between the end of the bracket 42 and the bottom of the hub 44 which serves to move the brush upward as the nut 47 is unscrewed.

In order to remove any loose glass or other detritus on the forward side of the brush, a wood scraper 48 is employed, (see Fig. 7) such scraper being supported by means of suitable brackets 49 and 52 secured to the frame 31. A flow of water over the surface of the table on this side of the brush is also provided from the pipe 50, the purpose being to soften the plaster preliminary to the action of the cutting brush. A scraper 51 is also provided on the other side of the brush in order to clean the surface of the tables from loose plaster left by the action of the brush. This scraper is also supported from the frame 31 by means of the brackets 52 and 55 and its lower side is preferably provided with

a pair of rubber strips 53 between which water is supplied from a pipe 54. The brackets 49, 52 and 55, above referred to, for supporting the scrapers are preferably in the form of bars or strips of metal arranged at spaced intervals and bolted to the frame 31. This gives an effective cleaning of the table tops and places them in condition so that they are ready for the application of fresh plaster without the necessity of hand cleaning of any kind.

What we claim is:

1. Apparatus for cleaning plaster from tables mounted for movement along a track, comprising a cutter device mounted for rotation above the track and adjusted so that it will cut away the major portion of the plaster upon the tables leaving a thin film remaining on the tables, power means for rotating the cutter device, scraper means across the tables behind the cutter device, and means positioned at one side of the tables for directing a supply of water across the tables along the side of said scraper means.

2. Apparatus for cleaning plaster from tables mounted for movement along a track, comprising a cutter device mounted for rotation above the track and adjusted so that it will cut away the major portion of the plaster upon the tables leaving a thin film remaining on the tables, power means for rotating the cutter device, and scraper means located across the tables in front of said cutter device and behind such device.

3. Apparatus for cleaning plaster from tables mounted for movement along a track, comprising a rotary brush extending across the track and provided with radially extending metallic fibers, an adjustable tilting frame carrying the brush and power means for rotating the brush at a high rate of speed so as to cut the plaster from the tables as they pass beneath the brush, said power means being supported from said frame.

4. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a cutter device mounted above the tables so as to engage the plaster thereon as the tables move beneath such cutter and a cam device on each side of the tables in advance of the cutter adapted to engage and crush the plaster along the sides of the tables and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

5. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a power driven cutter device mounted for rotation above the track and adapted to cut away the plaster on the tables and the pass therebeneath, and a cam device on each side of the tables in advance of the cutter adapted to engage and crush the plaster along the sides of the tables and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

6. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a cutter device mounted above the tables so as to engage the plaster thereon as the tables move beneath such cutter, and a shoe on each side of the tables in advance of the cutter yieldingly pressed downward and adapted to engage and crush the plaster along the sides of the tables and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

7. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a cutter device mounted above the tables so as to engage the plaster thereon as the tables move beneath such cutter, and a shoe on each side of the tables in advance of the cutter yieldingly pressed downward and having its forward end inclined upward and adapted to engage and crush the plaster along the sides of the tables and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

8. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a cutter device mounted above the tables so as to engage the plaster thereon as the tables move beneath such cutter, a cam device on each side of the tables in advance of the cutter adapted to engage and crush the plaster along the sides of the table and force the pegs downward, yielding means for pressing such devices downward, and means for adjusting the pressure of said yielding means.

9. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a presser device on each side of the tables above the side edges of the tables, adapted to engage and crush the plaster along such side edges and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

10. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically

movable glass holding pegs projecting above the surfaces of the tables, comprising a presser device on each side of the tables above the side edges of the tables, and yielding means for forcing such devices downward so that they engage and crush the plaster along such side edges and force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

11. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a presser device on each side of the tables above the side edges of the tables, yielding means for forcing such devices downward so that they engage and crush the plaster along such side edges and force the holding pegs downward so that their upper ends are flush with the surfaces of the tables, and means for adjusting the pressure of such yielding means.

12. Apparatus for cleaning plaster from tables mounted for movement along a track and provided along each side with vertically movable glass holding pegs projecting above the surfaces of the tables, comprising a shoe on each side of the tables above the side edges thereof and having its forward end turned up, adapted to engage and crush the plaster along such side edges and to force the holding pegs downward so that their upper ends are flush with the surfaces of the tables.

13. Apparatus for cleaning plaster from tables mounted for movement along a track, comprising a frame extending transversely across the tables and pivotally supported at one end so that it may be swung laterally to bring it to one side of the tables, a brush mounted for rotation in the frame and provided with radially extending metallic fibers adapted to cut the plaster when the brush is rotated at a high rate of speed, and a motor also mounted upon the frame and having driving connection with the brush.

In testimony whereof, we have hereunto subscribed our names this 16th day of March, 1925.

H. S. HEICHERT.
A. E. EVANS.