

Jan. 13, 1931.

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1,788,931

SHEET GLASS SURFACING APPARATUS

Filed Oct. 25, 1926

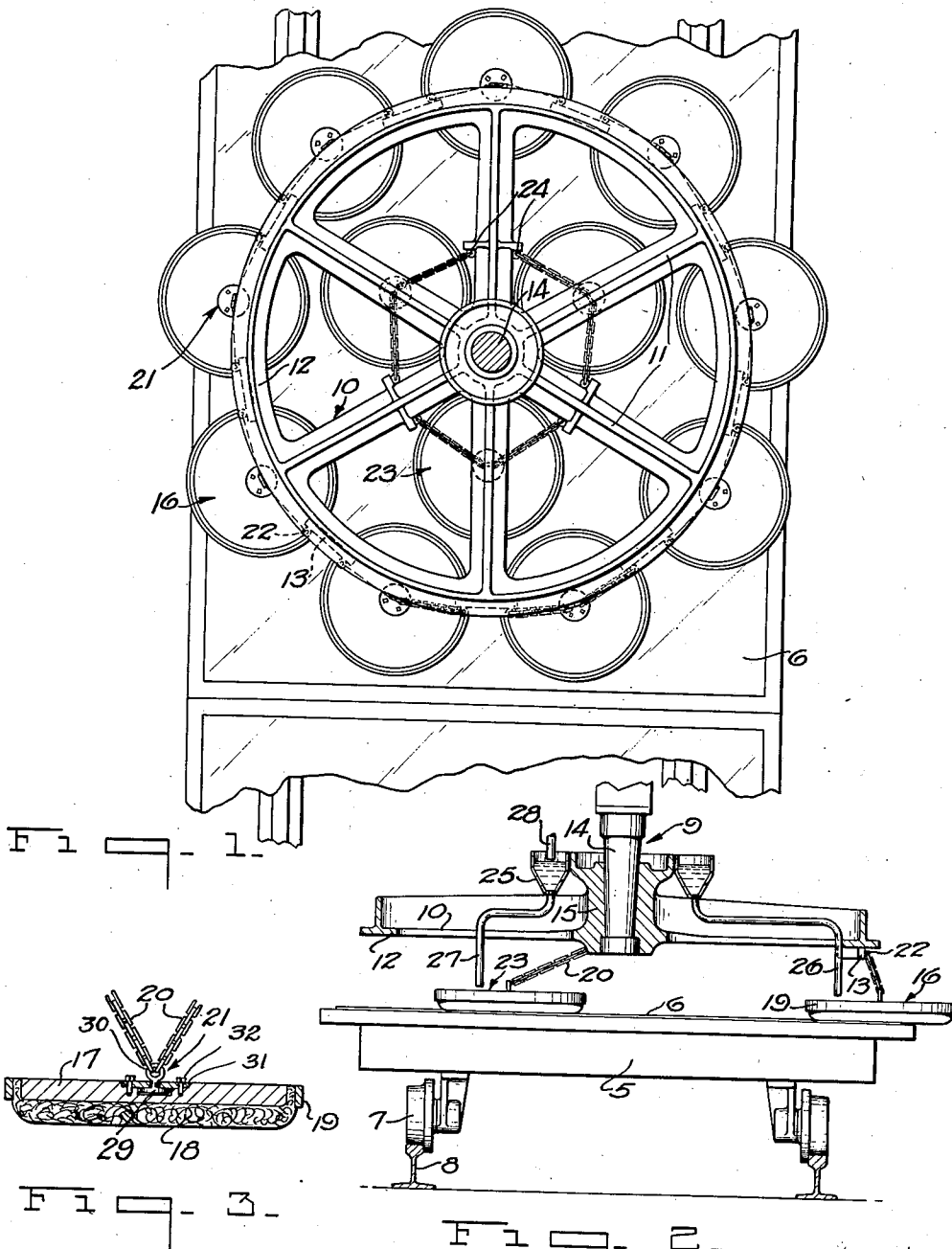


Fig. 2.

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SHEET-GLASS-SURFACING APPARATUS

Application filed October 25, 1926. Serial No. 143,816.

This invention relates to new and useful improvements in sheet glass surfacing apparatus.

5 An object of the present invention is to provide an apparatus particularly well adapted for the surfacing of flat glass, and includes means whereby a plurality of surfacing members are moved upon the sheet to surface the same.

10 Another object of the invention is the provision of improved sheet glass surfacing apparatus including novel means for mounting a plurality of polishing blocks so that the entire weight of said blocks will at all times rest upon the glass.

15 Another object of the invention is to provide means for flexibly supporting the polishing blocks so that the free rotation of said blocks will be assured.

20 Another object of the invention is to provide improved surfacing apparatus including a supporting frame and flexible means for connecting the polishing blocks to said frame.

25 A further object of the invention is the provision of means carried by the supporting frame for feeding abrasive to the glass between the polishing blocks.

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

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

40 Fig. 1 is a top plan view of a surfacing apparatus constructed in accordance with the present invention with the abrasive feeding means removed.

Fig. 2 is a vertical sectional view through the improved apparatus disclosing the abrasive feeding means, and

45 Fig. 3 is a detail sectional view showing the manner in which the flexible supporting elements are secured to the polishing blocks. Some of the blocks are removed for the sake of clearness.

50 In the production of plate glass, a blank is ground and polished on both sides to pro-

duce a sheet which is practically free from any surface irregularities, the two surfaces being substantially parallel. Various forms of abrasives, such as sand, garnet, emery, rouge, and carborundum, are used in different methods, and the word "abrasive" is used herein to include all of the various abrasives mentioned.

55 In the drawings, the invention has been illustrated as used in connection with a process wherein the sheet to be surfaced is mounted upon a table and moved under a plurality of surfacing units, this type of apparatus being known as the continuous process. In some processes, however, the sheet is supported upon a single rotatable table beneath a single surfacing unit. It is to be understood that the present invention is not limited to any one type of process.

60 In certain apparatus for polishing sheet glass, the polishing members or blocks are secured to vertical spindles journaled in bearing sleeves carried by a main supporting frame. In this type of apparatus, however, it has been found that the spindles frequently bind within the bearings with the result that the polishing blocks do not rotate as freely as they should. Again, when the spindles bind within the bearings, this binding action serves to aid in supporting the polishing blocks, so that the entire weight of said blocks does not rest upon the glass. Also, due to centrifugal force, the polishing blocks are often not parallel with the glass but at an angle thereto, with the result that the polishing blocks have an un- 65 uniform polishing action on the glass. It is the aim and primary purpose of the present invention to overcome these disadvantages by providing a surfacing unit wherein the entire weight of the polishing blocks will at all times rest upon the glass, and wherein the free rotation of said polishing blocks will be assured.

70 In the drawings, the numerical 5 designates a table upon which the sheet 6 to be surfaced is supported. The table 5 is in turn supported by wheels 7, adapted to run on tracks 8, whereby the sheet can be moved beneath a plurality of surfacing units, one 75 80 85 90 95 100

of which has been shown and designated in its entirety by the numeral 9.

The improved surfacing unit 9, provided by the present invention, comprises a supporting or runner frame 10 in the form of a substantially circular spider including a plurality of radiating arms 11 connected at their outer ends by a ring 12 to the under surface of which are secured a plurality of spaced brackets 13. The main runner frame 10 is carried by a spindle or shaft 14 fitted within a sleeve bearing 15.

The spider 10 is adapted to rotatably support a plurality of surfacing members 16, and each of these members, which are shown in the drawings as polishing blocks or runners, comprises a metal runner block 17, to which is secured a sheet or pad of felt or other suitable material 18 held in place by means of a clamping ring 19.

Each of the polishing blocks 16 is adapted to be supported by a pair of divergent chains or other suitable flexible elements 20, swiveled at one end to the block 17 as indicated at 21, and having their opposite ends secured to the opposite adjacent brackets 15, as designated at 22, it being noted that one of the polishing blocks 16 is adapted to be positioned between each pair of adjacent brackets 13. The swivel connection 21 comprises a disk 29 carrying an eye 30 to which the corresponding flexible elements 20 are connected. The disk 29 is loosely received within a recess in the top surface of the runner block 17 and is held therein by a plate 31 suitably secured to said runner block by bolts or the like 32. Arranged inwardly of the blocks 16 is a plurality of polishing blocks 23 constructed and supported in the same manner as the blocks 16, with the exception that the outer ends of the chains 20 are secured to the opposite adjacent arms 11, as indicated at 24.

It will be clearly seen that the swivel connection 21 will permit the polishing blocks to freely rotate, and that due to the flexible connections 20, the entire weight of the polishing blocks will at all times be permitted to rest upon the glass.

For the purpose of supplying abrasive to the sheet during the surfacing thereof, there is secured to and rotatable with the bearing sleeve 15, an annular abrasive containing trough 25 which carries the outlet conduits 26 and 27. The abrasive is initially drawn from a suitable source of supply, and is permitted to discharge into the trough through a suitable hose or pipe 28, and the abrasive is subsequently discharged onto the glass through the outlet conduits 26 and 27. The conduit 26 conveys the abrasive from the trough and discharges it onto the glass between the outer polishing blocks 16, while the conduit 27 discharges the abrasive onto

the glass between the inner polishing blocks 23.

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.

Claims:

1. In combination in apparatus for polishing sheet glass, a rotatable runner frame, a plurality of rotatable polishing runners, and chain connections between said runner frame and polishing runners.

2. In combination in apparatus for polishing sheet glass, a rotatable runner frame, a plurality of polishing runners, and a plurality of claims for connecting each polishing runner to said runner frame, the chains being swivelled to the respective polishing runner in order to allow rotation thereof with respect to said runner frame.

3. In combination in apparatus for polishing sheet glass, a rotatable runner frame, a plurality of polishing runners, and a plurality of flexible elements for connecting each polishing runner to said runner frame, said flexible elements being connected to the frame at spaced points and to the respective runner at substantially a common point.

4. In combination in apparatus for polishing sheet glass, a rotatable runner frame, a plurality of polishing runners, and a pair of flexible elements for connecting each polishing runner to said runner frame, the flexible elements of each pair diverging upwardly and being connected to the runner frame at spaced points and secured to the respective polishing runner at substantially the center thereof.

5. In sheet glass surfacing apparatus, a rotatable runner frame, a polishing runner, and chain devices connecting said polishing runner to said frame to allow a universal rocking movement of the former with respect to the latter.

Signed at Toledo, in the county of Lucas and State of Ohio, this 18th day of October, 1926.

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