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PLATE GLASS SURFACING TABLE

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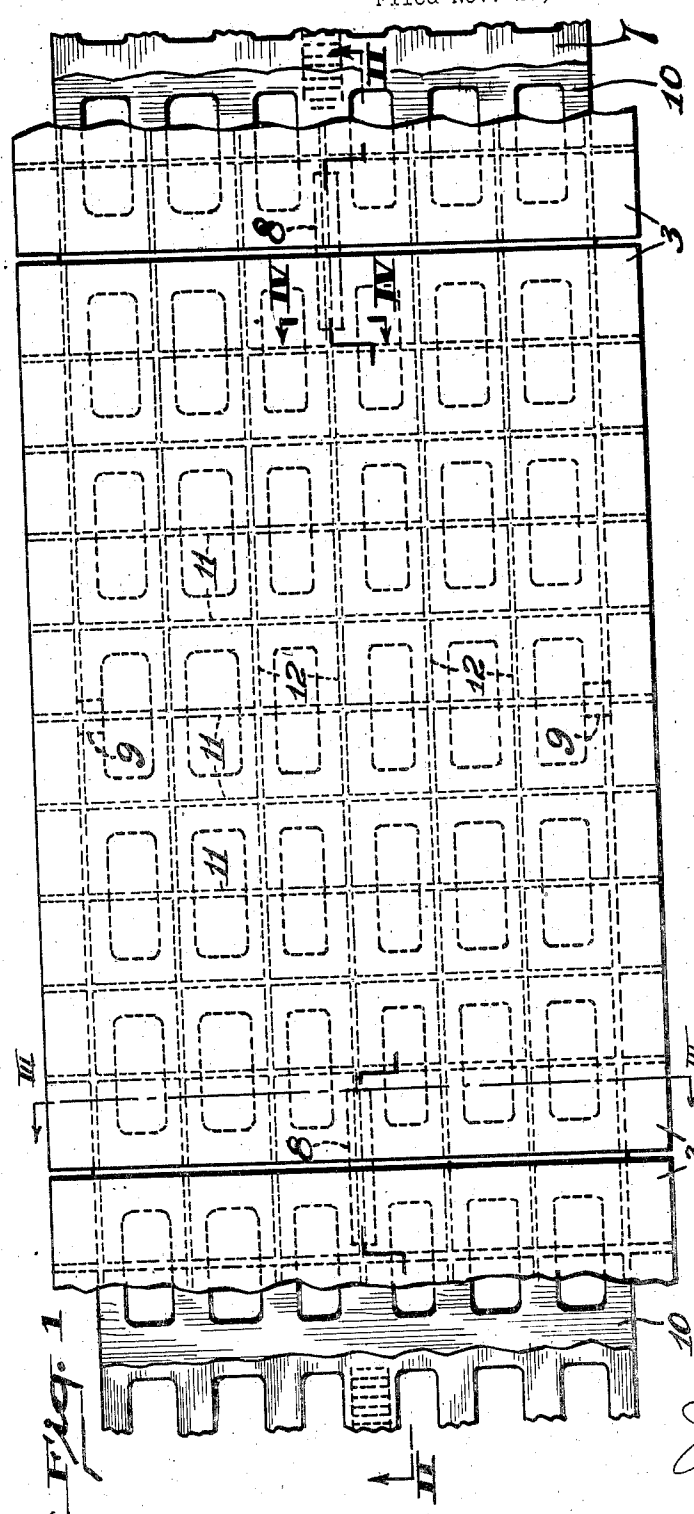


Fig. 1

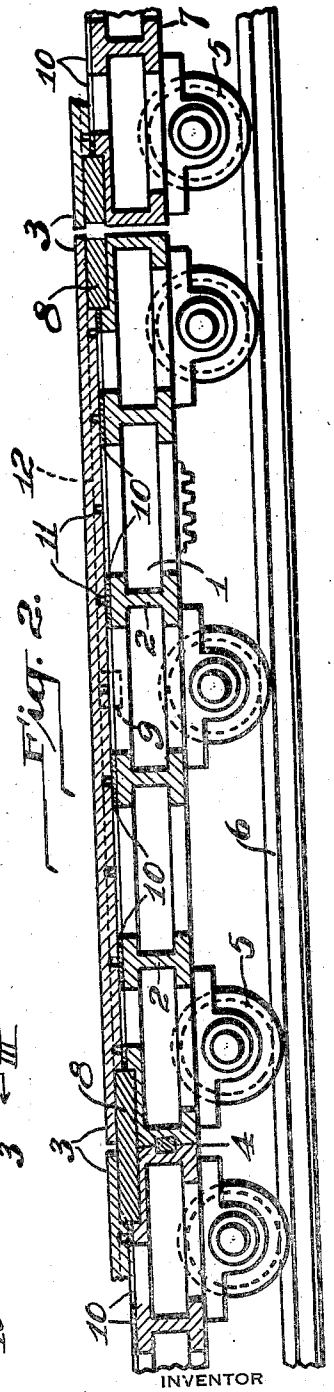


Fig. 2.

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Fig. 3.

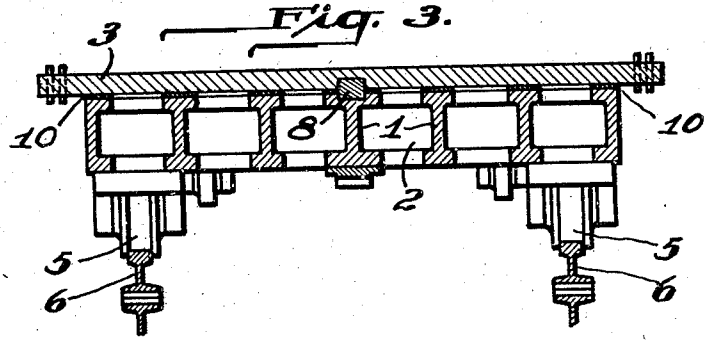


Fig. 4.

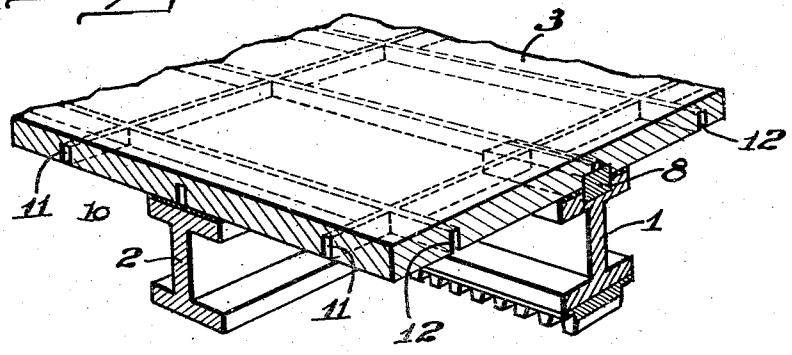


Fig. 6.

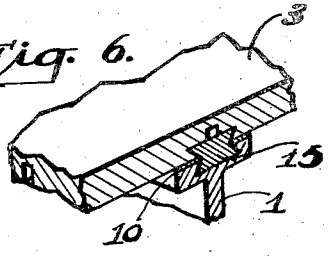
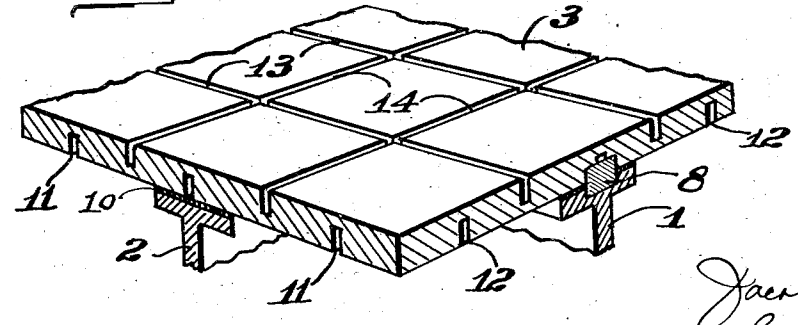


Fig. 5.



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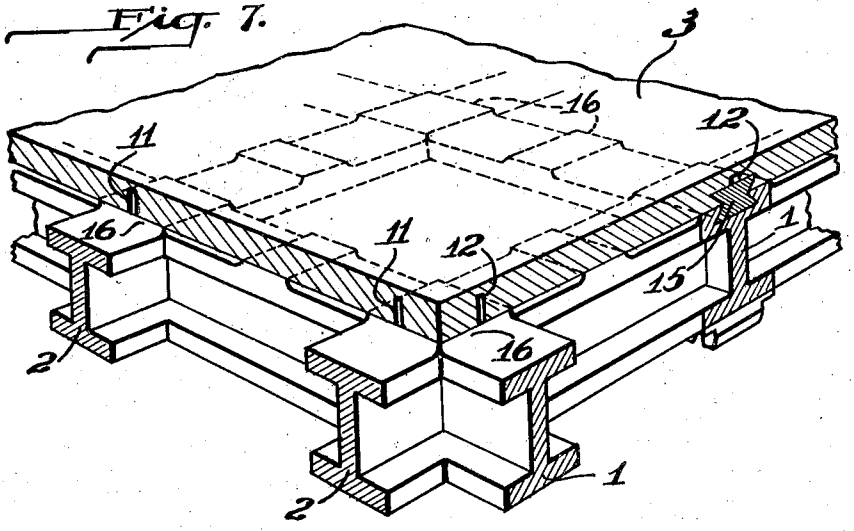
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Fig. 7.



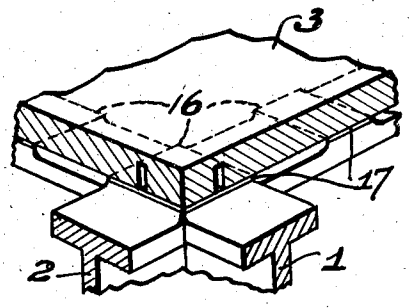
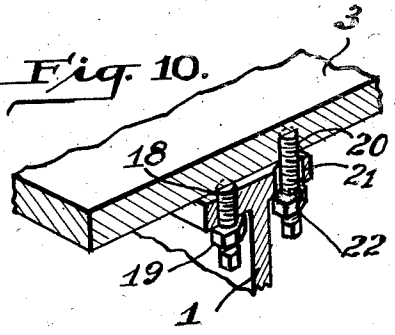


Fig. 8.

Fig. 10.



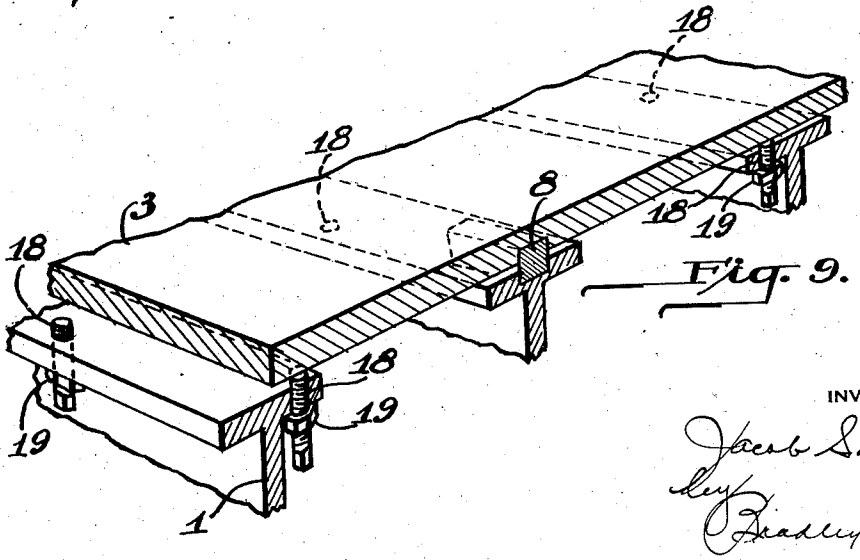


Fig. 9.

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UNITED STATES PATENT OFFICE

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PLATE GLASS SURFACING TABLE

Jacob Soderberg, Pittsburgh, Pa., assignor to Pittsburgh Plate Glass Company, a corporation of Pennsylvania

Application November 23, 1933, Serial No. 699,425

9 Claims. (Cl. 51—240)

The invention relates to tables for use in surfacing plate glass in which the tables are passed in a continuous train beneath a series of grinding and polishing runners. The heat developed in the polishing operation causes the tops of the tables to warp or bow slightly so that they are no longer true and flat, and when returned to the grinding end of the cycle for reuse, this bowed or warped condition persists to a certain extent so that the glass sheets are not ground to uniform thickness, the sheets being ground thinner in the portions overlying the centers of the tables than those overlying the sides of the tables. The object of the present invention is to provide an improved table construction in which the warping of the table tops due to the heat developed in polishing is substantially eliminated. Briefly stated, this is accomplished by making the table top separate from the frame and supporting it upon the frame on spaced lugs, so that the area of contact between the top and frame is reduced to a minimum with a consequent minimum heat transfer from the top to the frame. Under these conditions, the top is held flat by its own weight and has little tendency to bow or warp. This condition is further improved by interposing insulating means between the top and the supporting lugs and by grooving the top so as to divide it into rectangular sections, each of relatively small area. In some cases, means are also provided between the top and frame for positively counteracting any bowing or warping of the top with respect to the frame. Certain embodiments of the invention are illustrated in the accompanying drawings, wherein:

Figs. 1, 2, 3 and 4 show one form of apparatus, Fig. 1 being a plan view, Figs. 2 and 3 being sections on the lines II—II and III—III respectively of Fig. 1, and Fig. 4 being an isometric section on the line IV—IV of Fig. 1. And Figs. 5 to 10 are isometric sections showing various modifications.

Referring to Figs. 1 to 4, the frame of the car is made up of intersecting longitudinal and transverse ribs 1 and 2, preferably welded together or in the form of a casting, and 3 is the top plate resting on the tops of the ribs which constitute the frame. The frame may be in a single casting or may be made up of two or more castings abutting, as indicated at 4, with an interposed key and suitably secured together by bolts, not shown. The frame is mounted upon wheels 5 carried on the rails 6, and the table or car abuts another adjacent car 7, to which it is secured by a suitable coupling apparatus, which is not shown. It will be understood that the cars or tables constitute a continuous train on which the glass sheets to be ground and polished are mounted and that such train passes beneath a series of suitable grinding and polishing units. The top plate 3 merely rests upon the tops of the ribs 1 and 2, and is free to expand longitudinally and laterally when heat is developed in the plate incident to its passage beneath the polishing units.

In order to prevent any bodily movement of the plate longitudinally or laterally of the frame, the keys 8, 8 and 9, 9 are provided, such keys fitting in keyways in the frame ribs and in the top plate, as most clearly indicated in Fig. 4. The key-ways are of such length that there is no interference with the expansion of the table in either direction so that there is no tendency to warp the top due to a restriction of movement by the keys. The keys 9, 9 prevent the top plate from moving bodily longitudinally of the table frame, while the keys 8, 8 prevent the bodily movement of the top plate transversely of the table frame.

In order to reduce the heat transfer from the top plate to the ribs 1 and 2, suitable insulation is provided between the ribs and the top plate in the form of rubber or cork board sheets 10. Due to the use of this insulation, very little heat is transmitted to the frame of the car so that there is no tendency of the frame to warp due to heating of the top plate. In order to still further reduce any tendency of the top plate to warp, it is preferably slotted on its under side by the intersecting grooves 11 and 12.

Fig. 5 illustrates a modification in which the top 3 is provided with grooves 13 and 14 in its upper surface in addition to the grooves 11 and 12 in its lower surface. This still further reduces any slight tendency of the top to warp incident to varying heat conditions.

Fig. 6 illustrates a further modification in which positive means are provided for holding the top 3 against movement away from the supporting framework. This is accomplished by providing keys 15 of dovetail shape, which engage corresponding key-ways in the top plate and the supporting framework.

In the modification of Fig. 7, the top 3 and ribs 1 and 2, are as heretofore described, but instead of having the top engage the tops of the ribs throughout the length thereof, the ribs are provided at their intersection with upstanding lugs 16. The contact between the top plate and the ribs is thus reduced to a minimum and the heat

transmission from the top plate to the frame is correspondingly reduced. The plate in this construction is grooved on its lower side as in the construction of Fig. 1, and the top is held to the frame by means of the dovetail keys 15, as described in connection with Fig. 6.

The modification of Fig. 8 is the same as that of Fig. 7 except that sheets of rubber or cork board 17 are interposed between the lugs 16 and the top plate in order to still further reduce the heat transmission from the plate to the frame.

Fig. 9 illustrates a construction in which the top plate 3 rests upon the supporting screws 18 which take the place of the lugs 16 of the Fig. 7 construction. The screws permit of adjustment to level the top plate and are held in adjusted position by means of the lock nuts 19. The keys 8 perform the function heretofore described in connection with Fig. 1 of holding the top plate against bodily movement with respect to the frame, while still permitting longitudinal and transverse expansion and contraction incident to varying heat conditions.

Fig. 10 illustrates a further modification of the Fig. 9 construction. In this construction, the plate 3 is supported upon the bolts 18 as in Fig. 9, but in addition other bolts 20 are provided for positively securing the plate 3 against movement away from the bolts 18 so that these bolts perform the same function as the dovetail keys 15 of the Figs. 6 and 9 construction. In order not to interfere with the expansion and contraction of the plate 3, the holes 21 through which the bolts 20 extend in the flanges of the frame ribs are of larger diameter than the diameter of the bolts so that the necessary clearance is provided to permit the bolts to move when the plate 3 expands and contracts. The bolts are provided with nuts 22.

What I claim is:

1. A plate glass surfacing table of metal comprising an openwork frame made up of a plurality of intersecting spaced longitudinal and transverse metal ribs, a top plate overlying the frame, and interlocking slide means between the lower side of the top plate and the upper edge of the frame permitting the top plate to expand freely longitudinally and laterally but preventing its bodily movement relative to the frame in either direction.

2. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and two sets of keys lying between the frame and top plate and slidingly engaging one of such parts so that the top plate is free to expand longitudinally and laterally but is held against bodily movement in either direction.

3. A plate glass surfacing table of metal comprising an openwork frame made up of a plurality of intersecting spaced longitudinal and transverse metal ribs, a top plate overlying the frame, and held against bodily movement longitudinally or laterally thereof by interlocking slide means between the top plate and the ribs, and insulating means interposed between the frame and the top plate.

4. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and held against bodily movement longitudinally or laterally thereof, and spacing members arranged at intervals along the tops of the ribs and supporting the top plate.

5. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and held against bodily movement longitudinally or laterally thereof, spacing members arranged at intervals along the tops of the ribs, and insulating means interposed between the tops of the members and the lower surface of the top plate.

6. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and held against bodily movement longitudinally or laterally thereof, and vertically adjustable spacing members arranged at intervals along the tops of the ribs and supporting the top plate.

7. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and held against bodily movement longitudinally or laterally thereof, vertically adjustable spacing members arranged at intervals along the tops of the ribs and engaging the top plate, and clamping means between the ribs and the top plate for holding such plate against movement away from said spacing members.

8. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and provided with a plurality of intersecting longitudinal and transverse grooves dividing the plate into rectangular sections, and interlocking means between the top plate and frame permitting the top plate to expand freely longitudinally and laterally but preventing its bodily movement relative to the frame in either direction.

9. A plate glass surfacing table of metal comprising a frame made up of a plurality of intersecting spaced longitudinal and transverse ribs, a top plate overlying the frame, and two sets of keys lying between the frame and top plate and slidingly engaging one of such parts so that the top plate is free to expand longitudinally and laterally but is held against bodily movement in either direction, said keys having dovetail engagement with the frame and top plate, so that the top plate is held against upward movement relative to the frame.

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