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TRANSFERRING DEVICE

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2 Sheets-Sheet 1

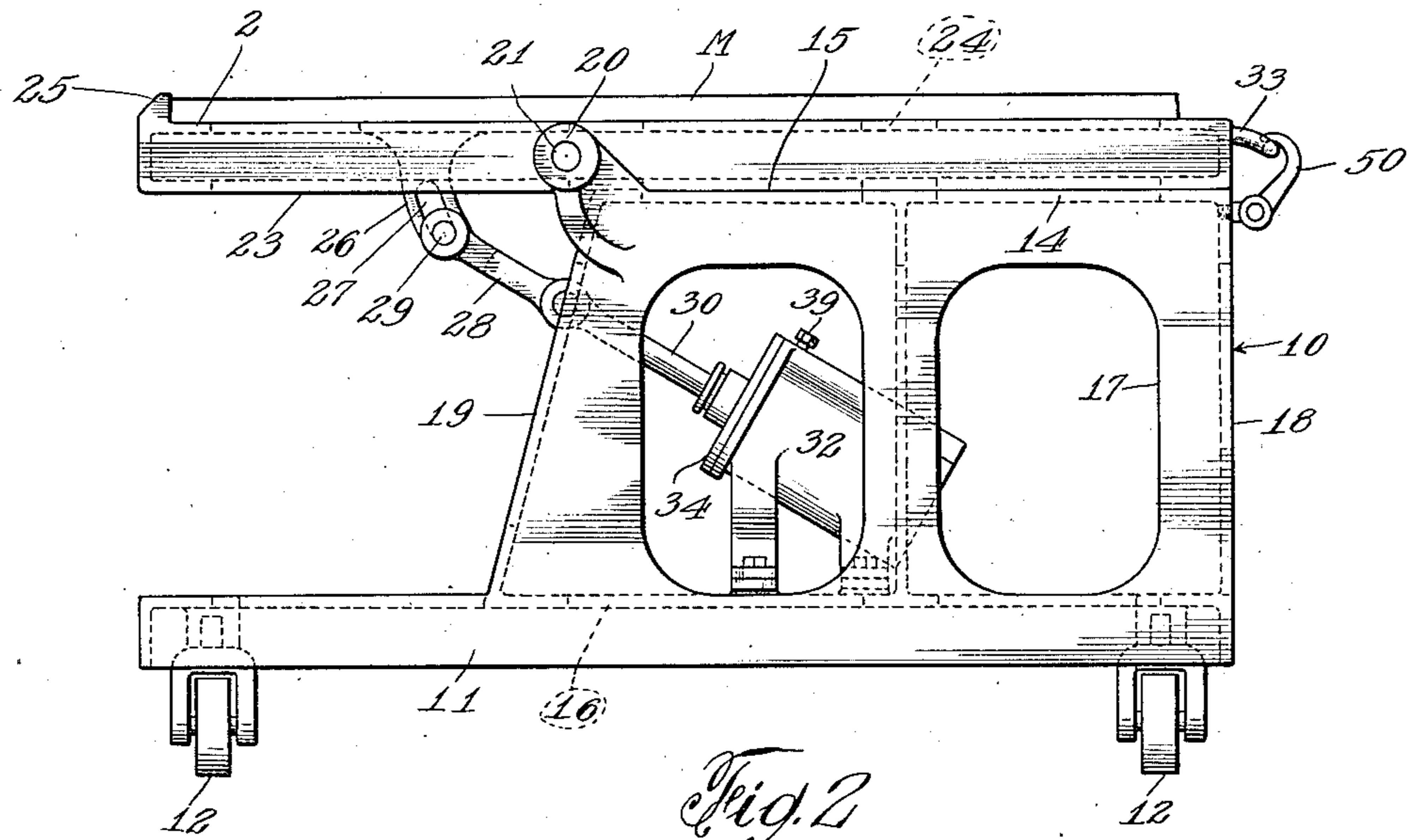


Fig. 2

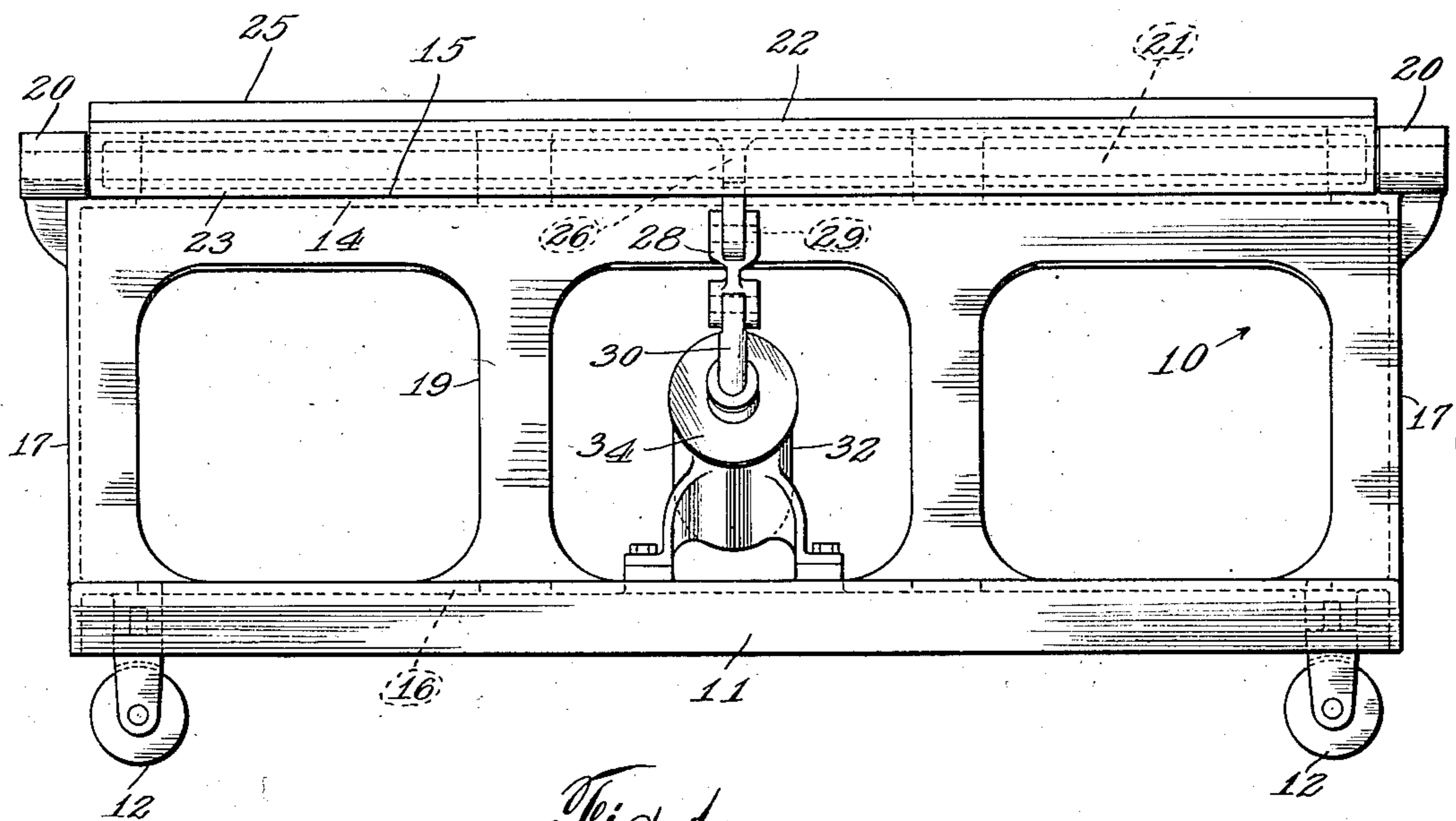


Fig. 1

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TRANSFERRING DEVICE

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3 Claims. (Cl. 254—3)

This invention appertains to improvements in transferring devices which are utilized to transfer relatively fragile materials such as slabs of marble from a place of storage to a machine for performing one of a number of operations necessary to finish the product.

Slabs of unfinished marble are usually stored in an upright position so that whenever it is necessary to finish a marble slab of a desired thickness or quality, these features and characteristics may be easily observed. The marble slabs are then transferred to a finishing machine such as a saw or a planer which are provided with a horizontal bed for receiving the marble slab.

Heretofore, the transferring of marble slabs from an upright position to the horizontal machine beds required a manual operation engaging several workmen and so far as I am aware, no attempt has been made to simplify this transferring operation. While marble has enduring qualities, yet, when it is in the form of relatively thin slabs having an area of several score square feet, it is comparatively fragile due to imperfections caused by loosening of the seams or joints. This is especially true of the highly decorative marble, since the veining which gives this marble its distinctive appearance is formed by a system of complex joints indicating an inherent weakness.

Hence, when marble slabs, and especially those of the class discussed above, are transferred manually from an upright to a horizontal position, the lack of support for the underside of the marble slab and the unequal strains at the edges thereof as the several workmen lift the slab, cause seams or joints in the marble slab to open. When marble slabs with open seams are in the various processes of manufacture, a considerable portion of the marble will shatter, resulting in excessive waste and increased cost of production.

It is therefore the main object of this invention to obviate these disadvantages by providing a transferring mechanism having a hinged table on which marble slabs may be received in an upright position, the hinged table being adapted to be swung to a horizontal position from which position the marble slab may be easily skidded onto the horizontal bed of a marble working machine.

A further object of my invention resides in the provision of a movable transferring device comprising a hinged top on which marble slabs may be received in an upright position, the hinged table being adapted to be swung to a horizontal

position to rest upon a suitable supporting surface, and a cushioning means for the hinged table arranged in a manner whereby the hinged table comes to rest gently on its supporting surface without transmitting undue shocks to the marble carried by such hinged table.

Other objects and advantages which are inherent in the construction of my improved transferring device will be apparent as the following specification is read in connection with the accompanying drawings in which

Figure 1 is a front elevation of my improved transferring device;

Figure 2 is a side elevation of Figure 1;

Figure 3 is a central vertical section of the device shown in Figure 1 but with the hinged table in its other position, and

Figure 4 is an enlarged sectional view of a portion of Figure 3.

On these drawings, 10 designates the transferring device as a whole, and 11 is a base frame which is mounted on the casters or rollers 12. Carried by the base frame 11 is a rigid table 14, having a horizontal supporting surface 15 disposed a substantial distance above the base frame 11 but preferably below the plane of the horizontal bed of a marble working machine (not shown).

The base frame 11 includes a perforate top web 16 from which extend other webs forming the perforate end walls 17, rear wall 18 and front wall 19. By this web formation, the necessary rigidity is imparted to my improved transferring device and at the same time the weight thereof does not exceed reasonable limits. Due to its relatively slight weight the transferring mechanism may be moved manually, although if found expedient, a power drive therefor may be utilized.

At each perforate end wall 17 there is formed a bearing member 20 constituting a bearing for the shaft 21 which extends from one end wall to the other end wall. This shaft 21 carries a table 22 and constitutes an axis about which this table pivots. The pivotally movable table 22 is of box like shape, having a bottom web 23, adapted to rest on the horizontal surface 15 of the rigid table 14. Intersecting horizontal and transverse webs 24 form the upper surface of the movable table 22 and support marble slabs which are transferred thereonto in a manner which will be fully described.

Whenever a marble slab is to be transferred from the storage rack to a finishing machine the movable table 22 is swung to the position as shown in Figure 3. It will be observed that

the front wall 19 is declined downwardly so that it is pitched at a slight angle from the perpendicular. The movable table 22 rests on this front wall as shown in Figure 3 and the proportion of the parts is such that no latches or locks are required to retain the movable table in this position. A clamp hoist firmly grips the marble slab, such as that shown at M and transfers the same in its upright position onto the upper surface of the movable table; the lower edge of the marble slab rests on the ledge 25 extending outwardly beyond the plane of the upper surface. With the marble slab in this upright position on the movable table, it is then ready to be returned to a horizontal position as shown in Figure 2, and it will be observed that when the movable table rests on the upper surface of the rigid table 14, the greater portion of the movable table is supported on the rigid table, thus insuring a steady support. If desired, a hook 50 may engage the handle 33 to prevent accidental displacement of the table 22.

In order that the movable table may not strike the rigid table with considerable force which might damage the marble slab, I provide a cushioning device of the character now to be described. An arm 26 is carried by the movable table 22 and it is provided with an arcuate slot 27 which engages a link 28 as at 29. The link 28 is connected to piston rod 30 having a piston 31 on one end thereof reciprocally mounted in a cylinder 32. This cylinder 32 is filled with a fluid such as oil and as the piston moves in the cylinder, the oil is forced from one side of the piston to the other side thereof.

When the movable table 22 with its marble slab M is in a position as shown in Figure 3, a workman grasps the handle 33 and pulls the movable table toward the horizontal. The slot 27 permits free movement of this movable table to a position shown by the conventional lines at P in Figure 3, and this position is such that the combined weight of the table and marble above the pivot shaft 21 permits the table to swing toward the horizontal of itself. Such initial movement of the table 22 causes the arm 26 to engage the link 28 for moving the piston 31 toward the cylinder head 34. As the piston 31 moves toward this head 34, the oil in the cylinder 32 will pass through the passage 35 and the orifice 36 and thence through the port 37 to the opposite side of the piston by means of ports such as 38. Since the passage 35 and the ports 37 and 38 are comparatively large, the secondary downward movement of the table 22 and the marble slab will not be at a rate which would be too slow for practicability. However, when the piston 31 begins to cut off the passage 35, the rate of descension will gradually diminish thereby allowing the table 22 to come to rest upon the rigid table 14 very gently. In its later phase, the piston 31 forces the oil through the orifice 36, the effective area of which may be adjusted by means of the valve 39.

After the marble slab M has been skidded off the table 22 onto a horizontal bed of a finishing machine, the movable table may be easily returned to its upright position for loading. When the movable table 22 is in the position as shown in Figure 2, the piston 31 is closely adjacent the cylinder head 34 as shown by the conventional lines in Figure 4. As the table 22 is raised, the oil rearward of the piston will be compressed and thus open the relief valves 40 of the piston 31, causing the oil to flow rapidly to the opposite side of the piston 31. Continued downward

movement of the piston will uncover the orifice 36 and the passage 35 through which oil will be forced into the cylinder, augmenting the oil flow through the relief valves 40. In this manner, the movable table 22 can be placed in loading position very quickly.

While but one embodiment of my invention has been described, others have been considered, substantially as defined by the appended claims.

I claim:

1. A transferring device including a base frame, rollers for said base frame, a rigid table having an upper horizontal surface disposed above said base frame, said rigid table including end, rear and front support members extending upwardly from said base frame, said front support member being declined from the marginal edge of said horizontal surface downwardly at a slight angle from the perpendicular, bearing members carried by said rigid table adjacent the intersection of the horizontal upper surface and the upper edge of said front supports of said rigid table, a horizontally disposed shaft journaled in said bearing members, a movable table carried by said horizontally extending shaft, said table in its one extreme position having one portion thereof on the upper horizontal surface of said rigid table and in its other extreme position resting on the declined front support member for retaining said movable table in a position pitched slightly from the perpendicular, and means for cushioning only the descent of said movable table from such pitched position to its horizontal position on the upper surface of said rigid table.

2. A transferring device including a base frame, rollers for said base frame, a rigid table having an upper horizontal surface disposed above said base frame, said rigid table including end, rear and front support members extending upwardly from said base frame, said front support member being declined from the marginal edge of said horizontal surface downwardly at a slight angle from the perpendicular, bearing members carried by said rigid table adjacent the intersection of the horizontal upper surface and the upper edge of said front supports of said rigid table, a horizontally disposed shaft journaled in said bearing members, a movable table carried by said horizontally extending shaft, said table in its one extreme position having one portion thereof on the upper horizontal surface of said rigid table and in its other extreme position resting on the declined front support member for retaining said movable table in a position pitched slightly from the perpendicular, and means for cushioning only the descent of said movable table from such pitched position to its horizontal position on the upper surface of said rigid table, said cushioning means being inoperative during upward swinging movement of said movable table to its pitched position from its horizontal position.

3. A transferring device including a base frame, rollers for said base frame, a rigid table having an upper horizontal surface disposed above said base frame, said rigid table including end, rear and front support members extending upwardly from said base frame, said front support member being declined from the marginal edge of said horizontal surface downwardly at a slight angle from the perpendicular, bearing members carried by said rigid table adjacent the intersection of the horizontal upper surface and the upper edge of said front supports of said rigid table, a horizontally disposed shaft journaled in said bearing members, a movable table carried by said horizon-

5 tally extending shaft, said table in its one extreme position having one portion thereof on the upper horizontal surface of said rigid table and in its other extreme position resting on the declined front support member for retaining said movable table in a position pitched slightly from the perpendicular, and means for cushioning only the descent of said movable table from such pitched position to its horizontal position on the

upper surface of said rigid table, said cushioning means being inoperative during initial downward swinging movement of said movable table from its pitched position, and said cushioning means also being inoperative during upward swinging movement of said movable table to its pitched position from its horizontal position. 5

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