Sept. 22, 1925. 1,554,925

L. SHOWERS

APPARATUS FOR DRESSING CLAY BLOCKS

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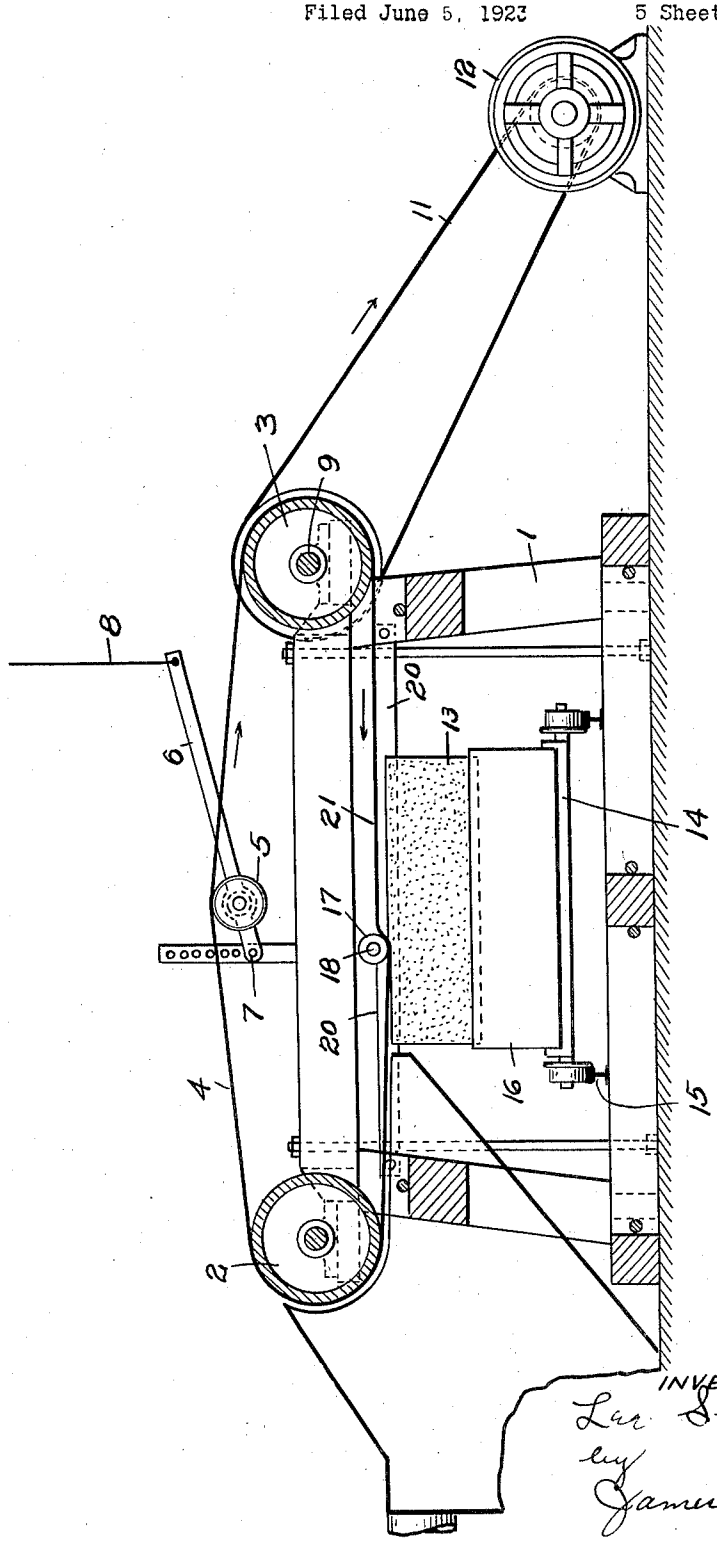


FIG. 1.

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FIG. 3.

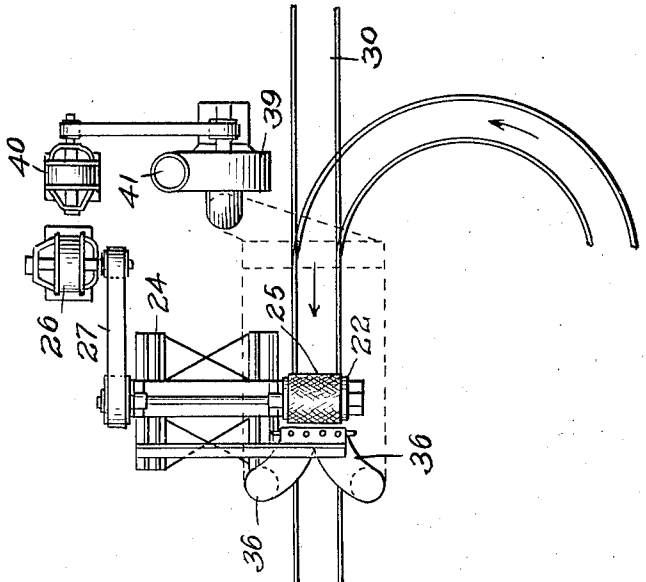
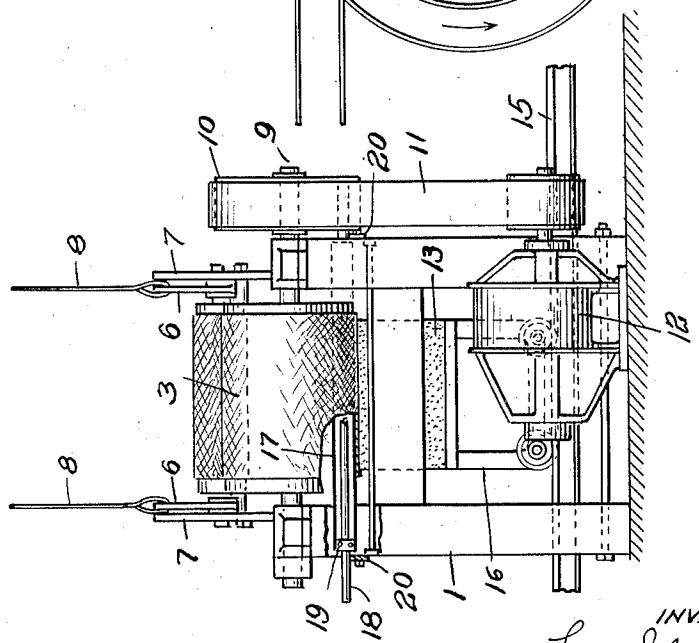


FIG. 2.



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FIG.4.

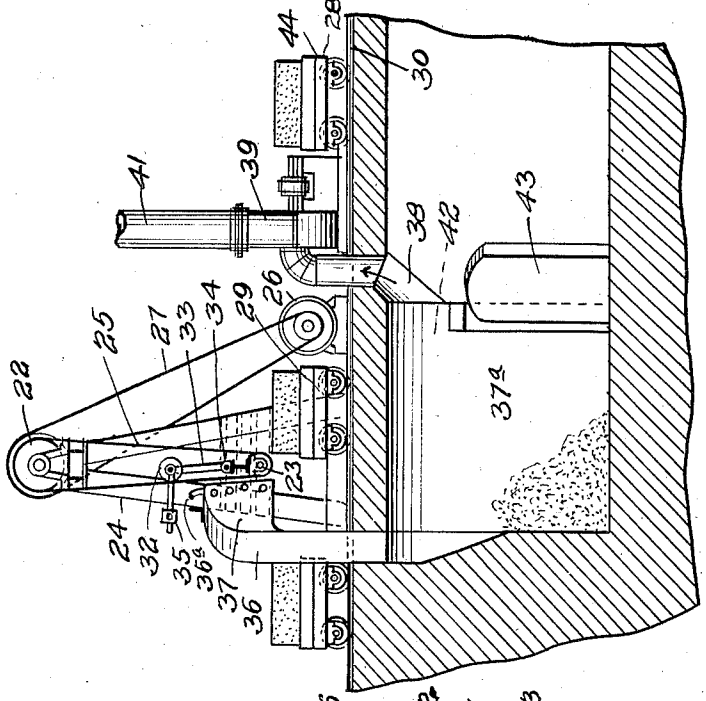
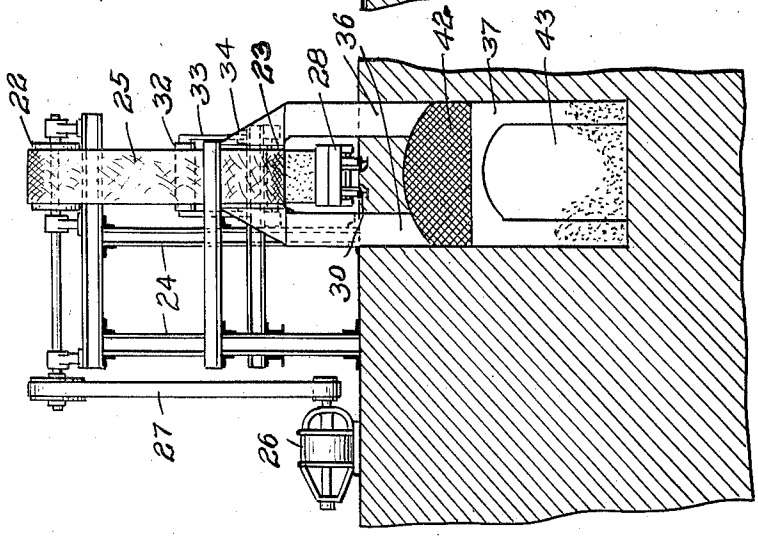


FIG.5.



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FIG. 6.

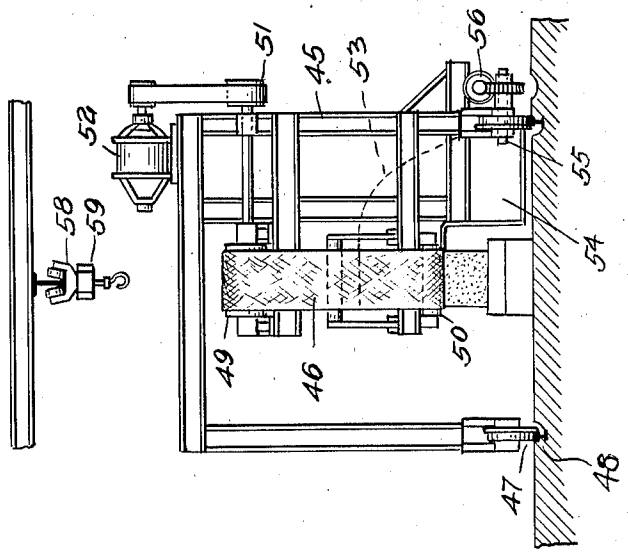
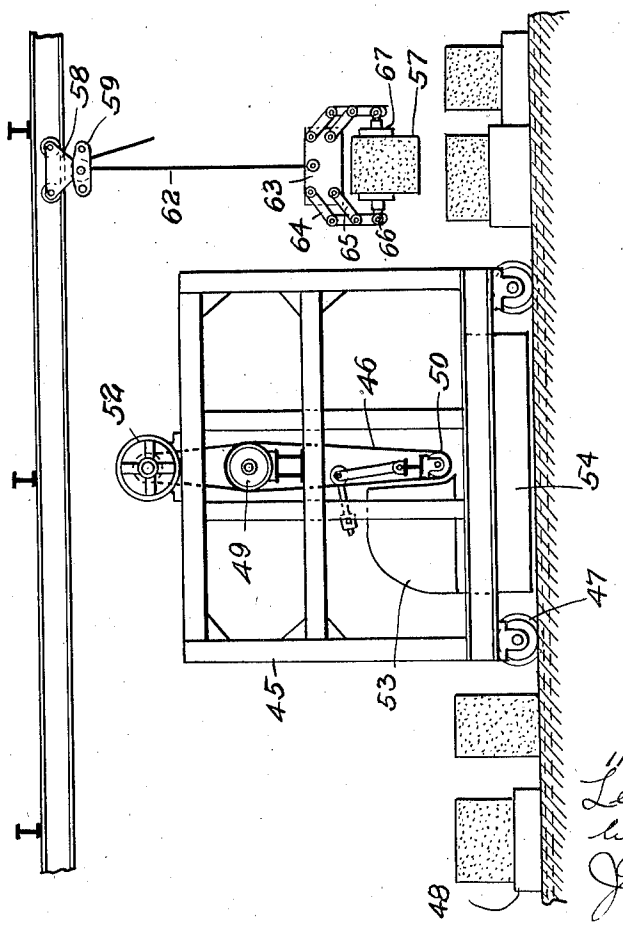


FIG. 7.



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APPARATUS FOR DRESSING CLAY BLOCKS

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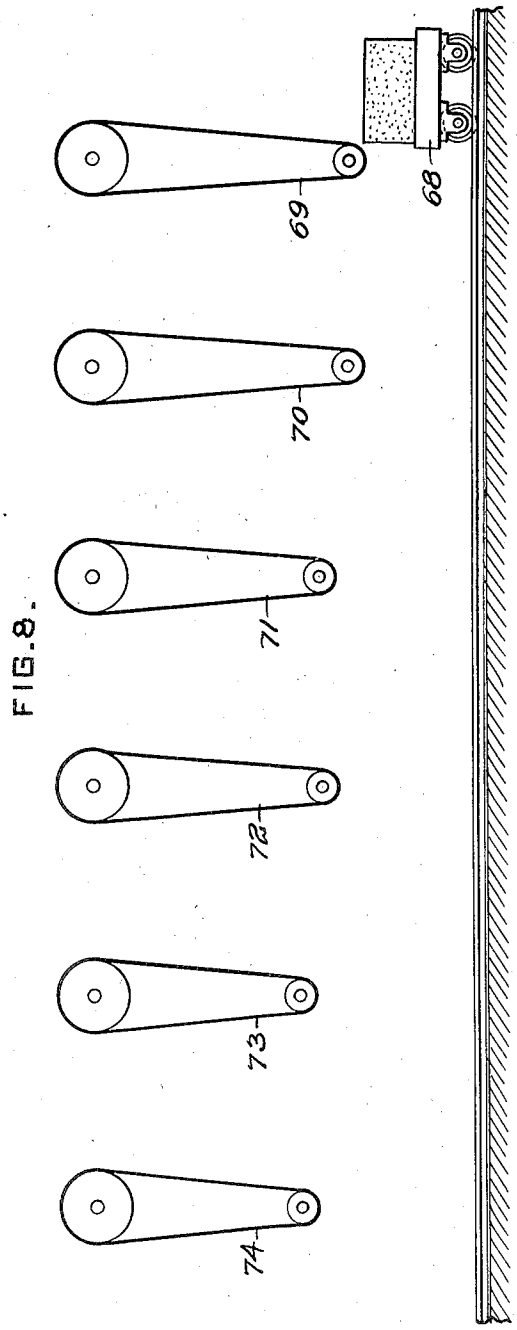


FIG. 8.

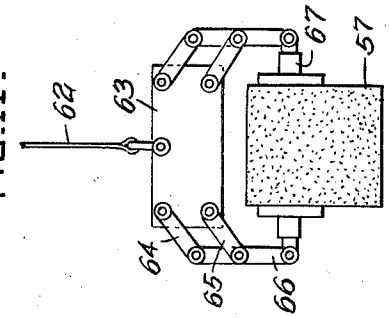


FIG. 11.

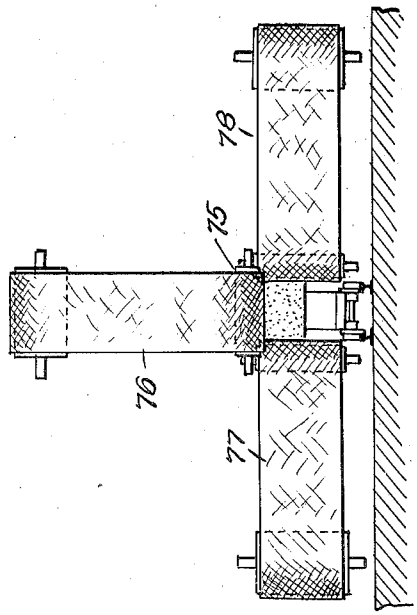


FIG. 10.

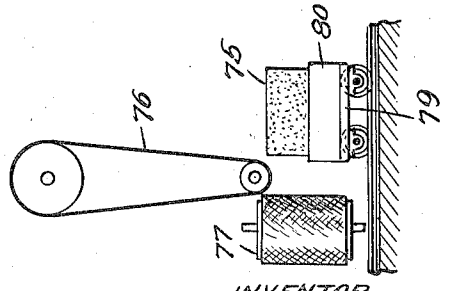


FIG. 9.

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UNITED STATES PATENT OFFICE.

LEE SHOWERS, OF CHARLEROI, PENNSYLVANIA, ASSIGNOR TO PITTSBURGH PLATE GLASS COMPANY, A CORPORATION OF PENNSYLVANIA.

APPARATUS FOR DRESSING CLAY BLOCKS.

Application filed June 5, 1923. Serial No. 643,572.

To all whom it may concern:

Be it known that I, LEE SHOWERS, a citizen of the United States, and a resident of Charleroi, in the county of Washington and State of Pennsylvania, have made a new and useful invention in Improvements in Apparatus for Dressing Clay Blocks, of which the following is a specification.

The invention relates to apparatus for dressing clay blocks for use in glass furnaces and the like after such blocks are dried and before they are burned. It has for its principal objects, the provision of an improved apparatus which will dress or smooth the blocks rapidly and accurately at a minimum expense. Certain embodiments of the invention are illustrated in the accompanying drawings wherein:

Figure 1 is a longitudinal section through one form of apparatus. Fig. 2 is an end elevation of the construction of Fig. 1. Figs. 3, 4 and 5 are plan, side elevation and end elevation views respectively of a modified arrangement of apparatus. Figs. 6 and 7 are end and side elevation views respectively of another modification. Fig. 8 is a diagrammatic side elevation view illustrating another arrangement which may be employed. Figs 9 and 10 are side and end elevation views respectively of another modification. And Fig. 11 is a detail view on an enlarged scale showing the clamp employed in connection with the Fig. 7 construction.

Referring to Figs. 1 and 2, 1 is a supporting framework upon which are mounted a pair of pulleys 2 and 3 over which passes an endless abrading belt 4, such belt being made of a cloth fabric having its outer surface coated with a finely divided abrading material such as carborundum. The belt is maintained at a proper degree of tightness by means of the pulley 5, carried by the levers 6 pivoted at 7 to a suitable bracket and provided at their right hand ends with suitable take-up ropes 8 passing over pulleys, not shown, and carrying weights. The shaft 9 of the pulley 3 is provided with a driving pulley 10 over which passes a belt 11 driven from an electric motor 12, the direction of motion of the belts 11 and 6 being indicated by the arrows.

The clay blocks 13 whose surfaces are to be dressed or smoothed are carried upon trucks 14 mounted upon rails 15 extending transversely beneath the belt 4. The clay blocks are preferably carried by suitable spacer blocks 16 designed to bring the surface to be smoothed at the proper elevation. These spacer blocks are changed to suit conditions, depending upon the thickness of the clay blocks which are to be dressed. If desired, the truck floor might be made vertically adjustable to meet this condition.

Extending transversely of the belt is the presser member or roll 17 mounted to rotate freely upon the shaft 18 preferably by the use of ball bearings as indicated at 19 (Fig. 2). The shaft is extended at each end past the ends of the rolls 17 so as to provide handles and these handles are supported upon suitable guide plates or bars 20 extending longitudinally of the lower flight of the belt.

Fig. 1 illustrates the parts in the positions occupied during the dressing of the top surface of the block 16. The roll 17, starting from the left hand side of the block, is moved to the right by means of an operator at each side of the apparatus who grasps the end of the shaft 18. The shaft is held down against the guide bars 20 and the roll is moved along over the block causing the belt to be pressed down so that it comes into an abrading contact with the clay. The roll is moved to the right until it passes entirely over the block, thus giving a flat, true surface. Due to the whip of the belt and its tendency to follow around the periphery of the pulley 3, it is maintained out of contact with the surface of the block as indicated at 21 until it reaches the pulley 17 so that the only abrading contact between the belt and the block is along a limited area opposite the periphery of the roll. This gives a very effective cutting action, such as would not be secured if the belt was dragged over the entire upper surface of the block. The belt contacts to a certain extent with the surface of the block to the left of the roll 17, but this contact is very light and does not involve any substantial abrading action. The roll 17 rotates very freely upon its shaft so that the wearing effect on the belt due to the contact of the roll is relatively slight.

After one side of the block has been dressed, the truck is moved from beneath the belt and the block turned over to bring an unfinished surface uppermost. The

truck then being moved back beneath the belt and the dressing operation repeated as heretofore described.

Figs. 3, 4 and 5 illustrate a modification in which the endless belt is arranged vertically and the lower pulley around which the belt passes is utilized as the presser roll. Here again as in the first construction, the abrading contact between the belt and the block is limited to the area opposite the periphery of the presser roll. Referring to the drawings, 22 and 23 are pulleys carried by the upright frame 24, and 25 is the abrading belt, the shaft of the upper pulley being driven from the motor 26 by means of the belt 27. The blocks to be dressed are mounted upon the cars 28 and 29 carried by the track 30 which leads from the drying room. An oval track 31 switches into the track 30 so that after a block has been dressed on one side, its truck is switched onto the track 31 and the block turned over. It can then be brought around the track 31 and passed again under the abrading belt. During the movement of the trucks around the track 31, other trucks are brought in over the track 30 so that the machine may be kept continuously in operation. After the last side of a block has been dressed, this truck is run along the left hand end of the straight-of-way track 30 to the burning kilns. The belt 25 is kept in a proper degree of tension by means of the take-up pulley 32 carried by the brackets 33 pivoted at 34 and provided with the weights 35.

In order to take care of the dust formed by the abrading operation, the dust pipes 36 are provided, such pipes merging at their upper ends into a common chamber 37 open toward the belt. Air jets 36^a assist in cleaning the belt. The lower ends of the dust pipes lead to a dust pit 37^a, from which the air is exhausted through a pipe 38 leading to the suction fan 39. The suction fan is operated from a suitable motor 40 and discharges through the vertical stack or pipe 41. The inlet end of the pipe 38 is provided with a screening curtain 42 of fabric, and the dust pit is provided with a suitable door 43 by means of which the dust pit may be emptied from time to time. In this construction, as in the construction of Figs. 1 and 2, the clay blocks are supported upon spacer blocks 44 by mears of which the upper surfaces of the blocks are brought to a level for proper engagement with the abrading belt opposite the pulley 23.

Figs. 6 and 7 illustrate a modified construction similar to that of Figs. 3, 4, and 5, but with the arrangement of parts reversed so that the blocks to be dressed remain stationary and the framework carrying the abrading apparatus is mounted on rails so as to move longitudinally over a series of blocks mounted upon spacing blocks of suitable height. Referring to the drawings, 45 is the movable framework which carries the abrading belt 46, such framework being provided with wheels 47 mounted upon the track 48. The belt 46 passes around the pulleys 49 and 50, the latter of which corresponds to the pulley 23 of the Fig. 4 construction. The shaft of the upper pulley 49 is provided with a pulley 51 driven from the motor 52 mounted upon the top of the framework 45. The framework also carries a dust hood 53 similar to that of the Fig. 4 construction, but discharging to the dust pan 54. The air is exhausted from the dust pan to secure a suction through the hood by means of a suitable fan 55 driven from the motor 56. The clay blocks 57 are brought to position from the drying room by means of an overhead trolley 58 provided with a lifting block 59 and rope 60 carrying the lifting clamp 63. This clamp consists of a central plate to which parallel links 64 and 65 are pivoted, such links being pivoted at their lower ends to the vertical links 66. The lower ends of the links 66 are provided with the clamping brackets 67, the arrangement being such that the weight of the blocks causes the clamping brackets 67 to press inward and frictionally support the block, the pressure increasing with the weight of the blocks.

Fig. 8 illustrates in diagrammatic form an arrangement for facing the various sides of a clay block in one continuous operation, the block being seated upon a car 68 arranged to be moved beneath a series of abrasive belts 69, 70, 71, 72, 73 and 74. The means for driving these belts is similar to that of the Fig. 4 construction, and the pulleys at the lower ends of the belts are arranged at the proper height to engage and smooth each face of the block in turn. After the block has passed beneath the pulley of the belt 69 which dresses or smooths its upper face, the block is turned on the car to bring another face uppermost and is then passed beneath the pulley of the belt 70. This operation is continued as the car moves beneath the various belts until each of the six faces of the block has been smoothed.

Figs. 9 and 10 illustrate another modification designed for smoothing three faces of the clay block 75 simultaneously. In order to accomplish this, one vertical belt 76 and two horizontal side belts 77 and 78 are employed. The block is mounted upon a car 79 supported by a suitable spacer block 80 and the pulleys at the ends of the belts adjacent the block are positioned so that, as the block is passed between the belts as indicated in Fig. 10, its three faces are simultaneously dressed. The block may then be repositioned and its other three faces may be simultaneously faced or smoothed. The belt constructions are shown diagrammatically,

but it will be understood that they are of a construction similar to that shown in Fig. 4 and have suitable driving means. In this construction, as in that of Fig. 8, it is necessary that the belts should be adjustable toward and from the blocks being forced so as to take care of different sizes of blocks, and compensate for wear. In the type of construction of Fig. 1 and Fig. 4, this can be most easily taken care of by regulating the vertical position of the block instead of by adjusting the belt vertically, this preferably being accomplished by the use of the spacer blocks of varying thickness or by making the bed of the car vertically adjustable.

What I claim is:

Apparatus for dressing clay blocks comprising an abrading belt, a pulley for driving the belt, means for supporting a block with the surface to be dressed in opposition to the abrading surface of the belt, and a presser member of circular cross section having a diameter less than one half that of said pulley mounted for rotation back of the belt and extending transversely thereof in opposition to the block, the block and presser member being mounted for relative movement so as to permit the portion of the belt opposite the presser member to contact with the block during such relative movement.

In testimony whereof, I have hereunto subscribed my name this 28th day of May, 1923.

LEE SHOWERS.