Feb. 22, 1949. T. KIMURA 2,462,644

MORTAR SPREADER

Filed April 5, 1946 2 Sheets-Sheet 1

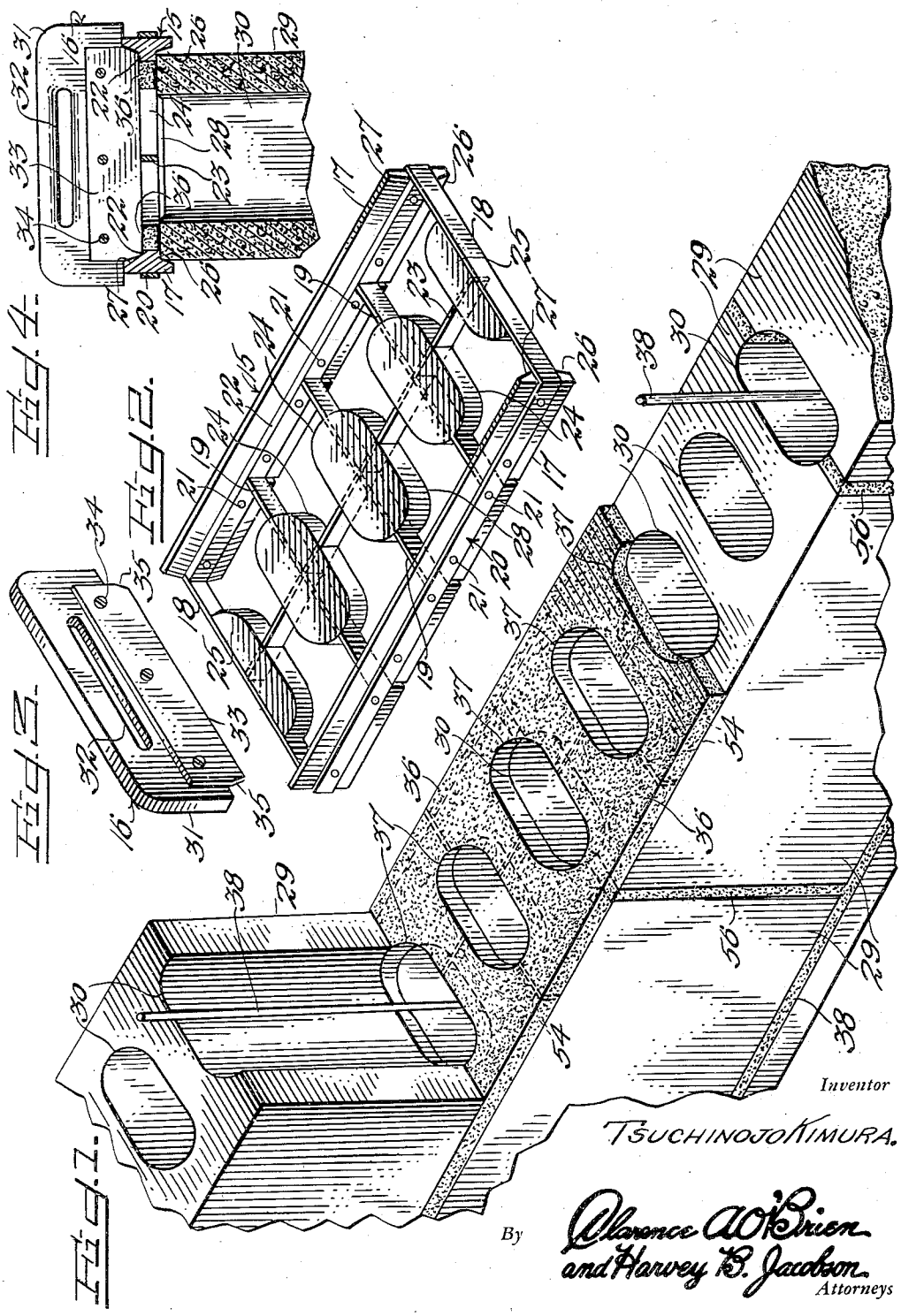


Fig. 4.

Fig. 2.

Fig. 3.

Fig. 7.

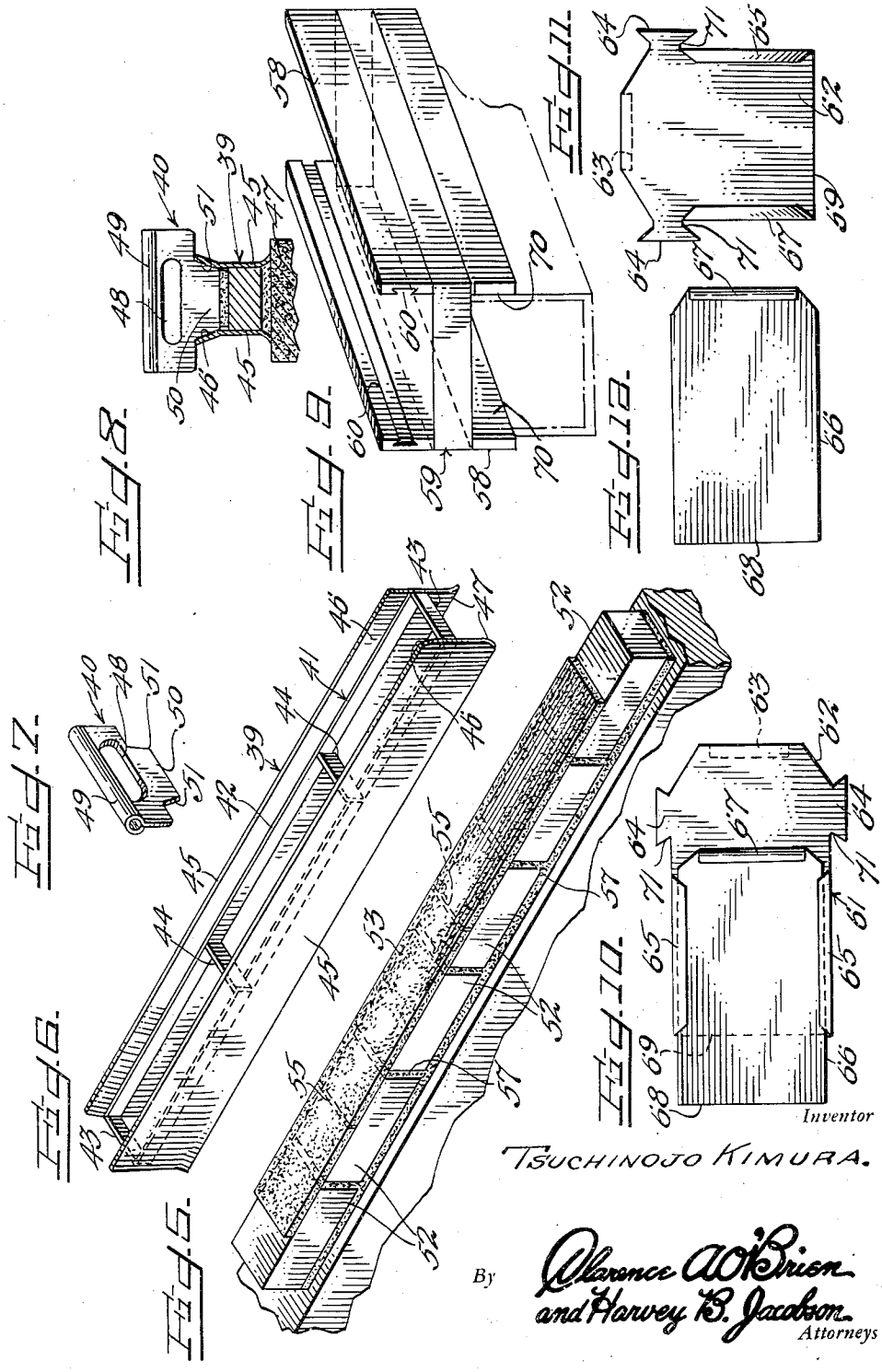
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2,462,644

MORTAR SPREADER

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1 Claim. (Cl. 72—128)

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This invention relates to new and useful improvements and structural refinements in mortar spreaders and the principal object of the invention is to provide a device of the character herein described, whereby mortar may be applied to courses of masonry such as bricks, stone, concrete blocks, or the like, in a novel, systematic and a highly efficient manner.

Generally, the invention consists of a matrix adapted for positioning on the course of masonry, the mortar being applied to this matrix and distributed by an associated spreader plate. The spreader plate enters the matrix to a predetermined depth and not only serves to distribute the mortar equally, but also assures that the density and thickness of the mortar are uniform throughout the entire area to which it is applied. In addition, the spreader plate has a compressive action which substantially minimizes the formation of air bubbles, and all surplus mortar gathers at one end of the matrix where it can be conveniently reclaimed to prevent waste. In the instance of concrete block masonry where the blocks are formed with cored holes, provision is made in the matrix to prevent the mortar from flowing into such holes, and the matrix is also adapted to accommodate reinforcing rods, such as are usually employed in concrete masonry. Finally, means is provided on the spreader plate for forcing mortar between the adjacent ends of the bricks or blocks as well as for spreading the same on the upper surfaces thereof, thereby eliminating the necessity of separately performing the former operation.

It will thus be apparent that by using the invention, the mortar spreading operation may be performed with relatively greater speed and efficiency than has heretofore been possible and that highly skilled labor is not necessary in order to satisfactorily accomplish the same.

A further object of the invention is to provide a mortar spreader which may be easily and economically manufactured in various shapes and sizes to accommodate different sizes of bricks or blocks.

A still further object of the invention is to provide a mortar spreader which is of simple construction and which cannot easily become damaged.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

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Figure 1 is a fragmentary perspective view, showing a course of concrete blocks and mortar applied thereto by the invention,

Figure 2 is a perspective view of the matrix,

Figure 3 is a perspective view of the spreader plate,

Figure 4 is a cross-sectional view, showing the invention in use,

Figure 5 is a fragmentary perspective view, illustrating a course of bricks and mortar applied thereto,

Figure 6 is a perspective view of a modified embodiment of the matrix, the same being adapted for use with bricks,

Figure 7 is a perspective view of the spreader plate used with the matrix shown in Figure 6,

Figure 8 is a cross-sectional view, illustrating the modified matrix in use,

Figure 9 is a perspective view of a further modified embodiment of the matrix,

Figure 10 is a plan view of the spreader plate assembly used with the matrix shown in Figure 9,

Figure 11 is a plan view of the spreader plate per se, and

Figure 12 is a plan view of a pusher plate used with the plate in Figure 11 to form the assembly of Figure 10.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings, more particularly to the Figures 1 to 4 inclusively, the invention consists of the matrix designated generally by the reference character **15** and the spreader plate **16**.

The matrix **15** comprises a pair of spaced parallel side members **17**, connected together by the end pieces **18** and by the intermediate struts **19**. In effect, the end pieces **18** are formed by a perimetric strip **20**, this being secured to the side members **17** by suitable bolts **21**, the latter also being used to attach the side strips **22** to the side members, for the purpose of supporting the struts **19**.

The matrix is of an elongated form and a longitudinal strut **23** connects the ends pieces **18** and intersects the struts **19**, as will be clearly apparent from the accompanying drawings.

The core blocks **24** are provided at the intersection of the struts **19** and **23** and further core blocks **25** are formed at the junction of the struts **23** with the end pieces **18**.

The inner lower edge portions of the side members 17 are bevelled downwardly and outwardly as indicated at 26 and the inner upper edge portions are bevelled upwardly and outwardly as at 27. The underside of one or more of the blocks 24 and 25 may also be formed with a bevelled portion 28, the purpose of which will presently be described.

The matrix 15 is adapted for application to a course of masonry such as the concrete blocks 29, this being best shown in Figure 4. It will be noted that the bevelled portions 26 will assist in the application of the matrix to the blocks and the bevelled portion 28 will engage one of the cored holes 30 usually provided in the blocks 29, the portion 28 thus serving to center the matrix in position.

The blocks 24 and 25 will effectively cover the holes 30 to prevent the flowing of mortar thereinto, the mortar being poured or otherwise suitably applied to the matrix, approximately to or slightly above the level of the upper edges of the struts 19, 23.

The spreader plate 16 is then used to distribute the mortar, this plate consisting of a holder 31 provided with a suitable slot 32 to form a convenient handle, and a blade 33 is secured to the holder 31 by the screws or bolts 34.

The lower corners of the blade 33 are chamfered as at 35 in conformity with the bevelled portions 27 and when the spreader is placed in use, it is slid along the upper edges of the side members 17, as will be clearly apparent from the accompanying drawings. The blade 33 will extend into the matrix 15 to a predetermined depth, thereby assuring that the mortar 36 is of uniform thickness.

The outwardly bevelled edges 27 will add a trough-like effect to the matrix and as the scraper 16 is operated, the surplus mortar will be pushed toward one end of the matrix, wherefrom it may subsequently be conveniently reclaimed. If desired, the invention may be used in pairs, the same being longitudinally aligned and placed end-to-end, and the surplus mortar from one matrix being pushed into the matrix adjacent thereto. When this operation is completed, the first matrix may again be positioned adjacent to the second and the waste eliminating and time-saving character of the invention thus becomes readily apparent.

It will be noted that by applying even pressure to the spreader plate 16, the layer of mortar 36 will possess uniform density. This pressure is applied by tilting the spreader forwardly in its direction of travel and the formation of air bubbles in the mortar will also be thereby eliminated.

After the matrix is removed from the masonry, the mortar will assume the form best illustrated in Figure 1, wherein the openings 37 were formed by the blocks 24, 25, over each of the cored holes 30. If desired, suitable reinforcing rods 38 may be passed through the masonry, as will be clearly apparent from the accompanying drawings.

With reference now to the accompanying Figures 5 to 8 inclusively, the same illustrate a modified embodiment of the invention, adapted for the application of mortar to courses of bricks and consisting of the matrix 39 and the spreader plate 40.

The matrix 39 consists of a perimetric strap 41 forming the side strips and end pieces 42 and 43 respectively, and supporting the intermediate struts 44.

The side members 56 are suitably secured to the

strips 42, the members 45 being formed with the upper and lower bevelled portions 46, 47 respectively.

The spreader plate 40 is formed with a finger slot 48 and a handle 49, the blade 50 being formed integrally with the body of the spreader and provided with bevelled side edges 51.

When this embodiment of the invention is placed in use, the matrix is applied to the course of bricks 52 and the layer of mortar 53 is formed in the manner already described. It should be pointed out that in this embodiment, as in the one already set forth, the struts 19, 23, 44, will leave a slot, so to speak, in the layer of mortar when the matrix is removed. This condition is indicated in the two embodiments by the phantom lines 54, 55 respectively, but it should be understood that the width of such slot is relatively so small that the semi-fluid consistency of the setting mortar will automatically engulf the same, without detrimental effects.

In the two foregoing embodiments of the invention, the layer of mortar has been applied only to the top surfaces of the bricks or blocks, while the mortar 56, 57 between the adjacent ends of the bricks or blocks respectively, would necessarily have to be individually applied before the bricks or blocks are positioned in the course.

To eliminate this necessity and to substantially increase the utility of the invention, the further modified embodiment of the matrix and spreader plate has been designed, as illustrated in Figures 8 to 11 inclusively.

This additional embodiment may be applied to either or both the concrete block and the brick variations of the invention, and consists of providing the side members 58 of the matrix 59 with a pair of elongated, dove-tailed recesses 60, the same being disposed in the inner surfaces adjacent the upper edges of the side members, as is best shown in the accompanying Figure 9.

The spreader 61 assumes the form of a spreader plate 62, this being formed with a handle 63, the same being disposed at one end of the plate 62 and extending to one side thereof. The plate 62 is also formed with a pair of projecting ears 64, the latter being adapted for slidable engagement with the recesses 60 when the spreader is inserted into the matrix 59.

The side edges 65 of the plate 62 are inturned to form suitable guide channels and a pusher plate 66 is slidable in these channels, for the purpose presently to be described.

The plate 66 is also formed at one end thereof with a suitable hand grip 67, this being disposed at the relatively opposite side to the handle 63, in order that the handle and the hand grip do not interfere as the plate 66 is manipulated in the plate 62.

When this embodiment of the invention is placed in use, the presser 61 as a whole is positioned in the matrix with the ears 64 engaging the recesses 60 and by raising the plate 66 so that the lower edge 68 thereof is above the lower edge 69 of the plate 62, and by sliding the assembly 61 longitudinally in the matrix, the lower edge 69 will distribute and compress the horizontal layers of mortar (36, 53), in the manner already described.

Simultaneously, the spaces between the adjacent ends of the bricks or blocks may be effectively filled by sliding the plate 66 upwardly and downwardly a number of times in the plate 62, so that the lower edge 68 will force the mortar into the spaces, as shown at 56 and 57. The in-

creased utility of the invention thus becomes clearly apparent.

It will be noted that the inner lower edge portions 70 of the side members 58 are not bevelled as were the aforementioned edge portions 26, the portions 70 being substantially straight to prevent the oozing of mortar outwardly from the spaces 56 and 57. If the straight walls 70 are detrimental to convenient positioning of the matrix on the course of masonry, the lower portions of the side members 58 may be hinged and permitted to swing outwardly while the matrix is being applied. After such application is made, the hinged portions may be swung against the masonry and securely locked in position.

Such modification however, is only a mechanical expedient which is to be taken into consideration when the invention is being constructed for use and it should be noted in this connection, that various combinations of the components herein described may eventually be employed, such as the possible use of the plate 62 in association with the matrix 39, with the recesses 71 of the ears 64 sliding on the upper edges of the side members 45.

Therefore, while in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

A mortar spreading apparatus comprising in combination, a matrix adapted for positioning upon the work and including a pair of spaced parallel side pieces, a spreader comprising a substantially upright plate positioned between said side pieces, said plate including a work-contacting lower edge portion, a handle provided at the upper edge of said plate, a pair of laterally projecting ears formed at the side edges of said plate adjacent said upper edge, said ears slidably engaging said side pieces, the remaining side edge portions of said plate being inturned and doubled upon themselves to form a pair of spaced parallel guide channels, a panel slidably positioned in said channels, the lower edge portion of said panel being retractably projectable beyond said work-contacting edge portion, and a hand grip provided at the upper edge of said panel.

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