Nov. 24, 1931. J. W. KAVANAGH 1,833,582

BRICKLAYING MACHINE

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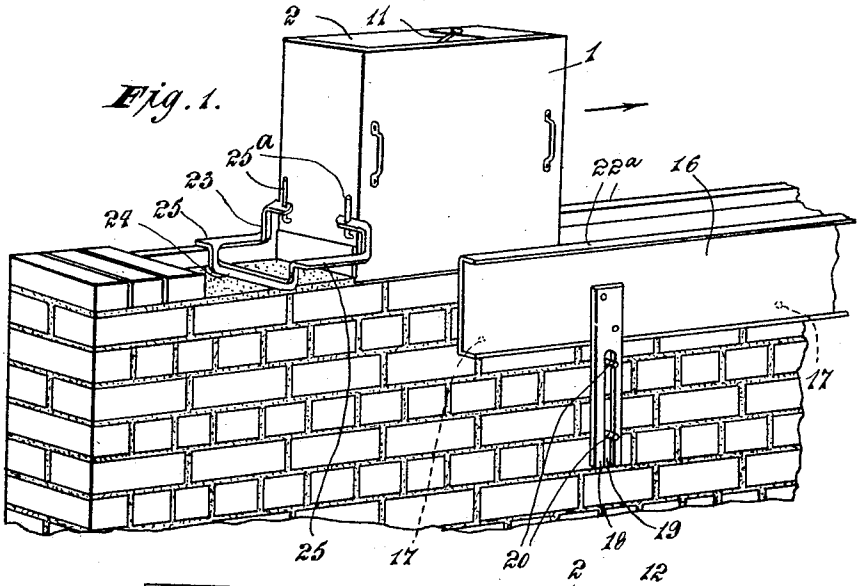


Fig. 1.

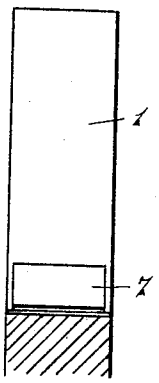


Fig. 3.

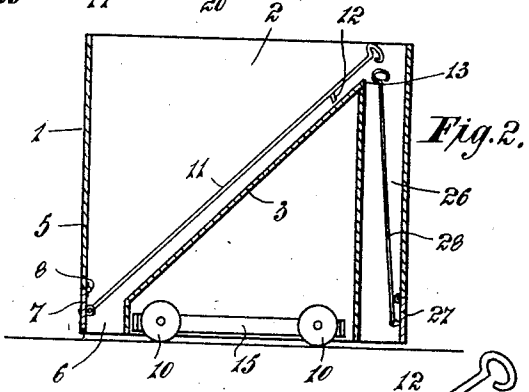


Fig. 2.

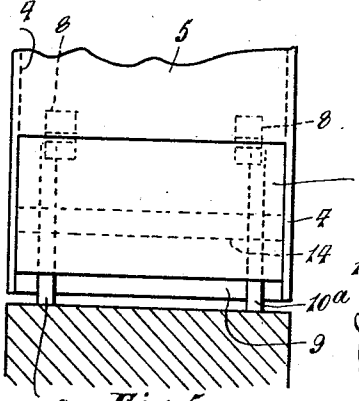


Fig. 5.

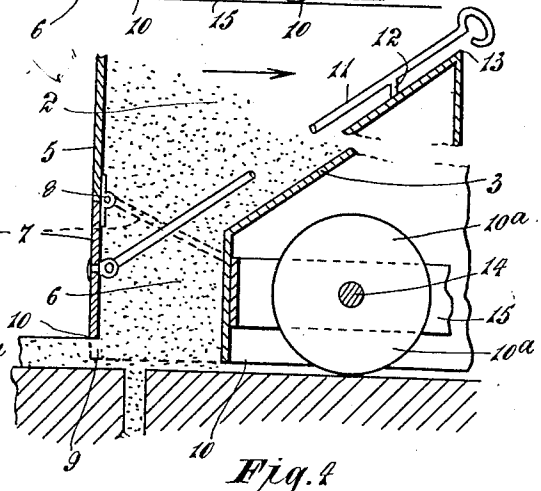


Fig. 4.

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BRICKLAYING MACHINE

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Fig. 6.

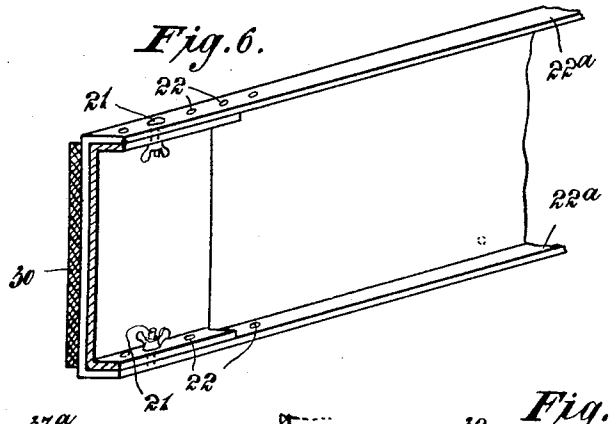


Fig. 7.

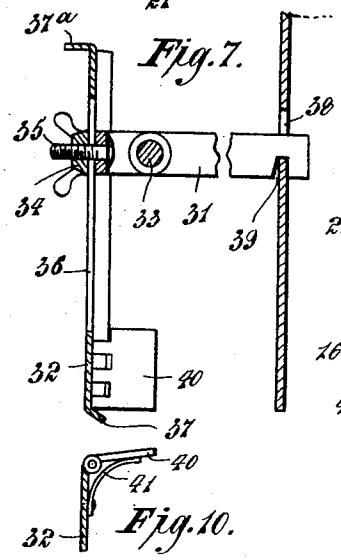


Fig. 8.

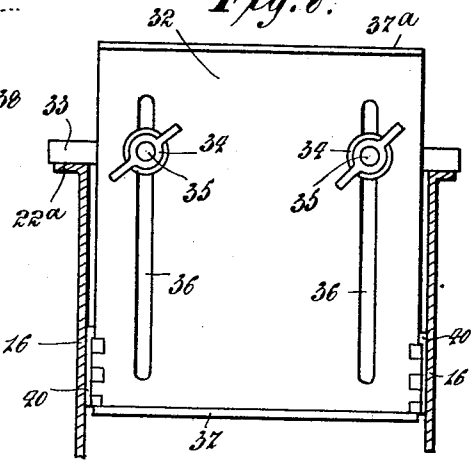
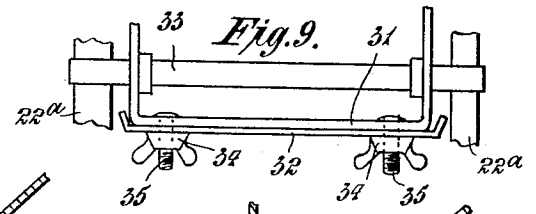


Fig. 10.

Fig. 9.



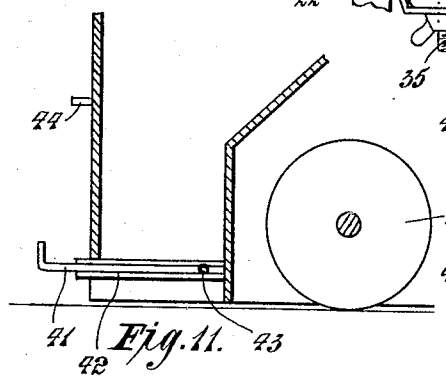


Fig. 11.

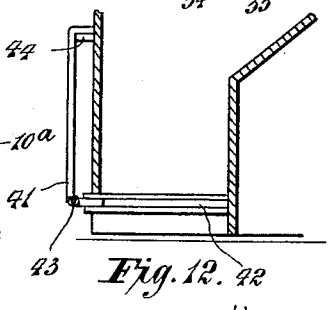


Fig. 12.

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Patented Nov. 24, 1931 1,833,582

UNITED STATES PATENT OFFICE

JAMES WILLIAM KAVANAGH, OF WELLINGTON, NEW ZEALAND

BRICKLAYING MACHINE

Application filed January 22, 1930, Serial No. 422,659, and in New Zealand February 4, 1929.

This invention relates to a machine for use in bricklaying.

The object of the present invention is to enable the bricks to be laid more efficiently and quickly than at present, and also to eliminate the manipulation by hand of the mortar or other composition used.

According hereto, the apparatus comprises broadly a container adapted to be loaded with the composition with which the bricks are to be laid, and is adapted to travel along the upper surface of the wall that is being built and to deposit through an outlet sufficient of the composition to fill all the joints of the last laid course of bricks, and to lay the bed for the next course.

In conjunction with the apparatus straight edges are preferably used to align the travel of the apparatus and the courses of the brickwork.

The invention will be described in detail with the aid of the accompanying drawings, wherein:—

Figure 1 is a perspective view of the machine in use in the building of a brick wall.

Figure 2 is a longitudinal sectional elevation of the machine.

Figure 3 is an end elevation.

Figure 4 is a cross section through the mouth of the machine, but drawn to a larger scale than the preceding views.

Figure 5 is an end elevation of the lower end of the machine.

Figure 6 is a perspective view of a detail.

Figure 7 is a side elevation partly in section of a gauge used with the machine.

Figure 8 is a front view of the gauge, and Figure 9 is a plan.

Figure 10 is a view of the scraper for the gauge, and

Figure 11 and Figure 12 are cross sections through a portion of the device showing a modified form of the method of controlling the mouth of the machine.

Referring to the drawings, the machine consists of a container 1 of a width corresponding to the width of the wall to be built. The drawings show, for example, a machine for a wall of two stretcher bricks in thickness. The container 1 has a hopper portion 2 for containing the mortar or other bricklaying composition, such hopper being formed by a sloping wall 3 by the sides 4 and by the end wall 5. The lower portion of this hopper terminates in a neck 6 extending across the width of the machine, and controlled by a door 7 hinged to the end wall 5 by hinges 8. This door 7, as shown in Figures 4 and 5, has its lower edge so positioned as to leave a mouth 9 above the lower edges 10 of the side walls between the brickwork and the lower edge of the door. This mouth corresponds to the thickness of the layer of mortar required for the bed on the upper surface of each course of brickwork. The door is controlled by a rod 11 whereby it may be brought into the position shown in dotted lines in Figure 4, thereby closing the neck 6 and held in that position by a book 12 engaging the edge 13 of the wall 3. Wheels 10*a* (of which there may be any required number) on axles 14 in a frame 15, fixed to the inner side of the walls 4 of the container as shown, are adapted to run on the upper surface of the upper course of the brickwork. When the container is in working position upon a wall and the door 6 opened to the position shown in full lines in Figure 4, mortar will pass through the neck 6 on to the brickwork and, as the container is moved in the direction of the arrow in Figures 1 or 4, the mouth 9 beneath the lower edge of the door will permit mortar to pass through to the thickness required, filling as it goes the vertical joints between the bricks. This movement of the container and the mortar passing through the mouth will give to the mortar within the container a movement which aids the filling of the vertical joints as the neck and mouth pass over them. When a bed of mortar has been so placed on the upper course another course of bricks is placed on such mortar, as indicated in Figure 1, and the machine then raised on to such course. In order to provide for the alignment of each course of bricks, straight edges 16 are used in conjunction with the machine. The straight edges shown are of metal and are of a width preferably to take two or more courses of bricks, and are supported by nibs 17 and by vertical pieces 18 fixed to the straight

edges. These vertical pieces are provided with vertical slots 19 which enable the straight edges to be secured at the desired height on the wall by inserting plugs 20 through the slots 14, and into a horizontal joint of the brickwork. The inner sides of the vertical pieces are flush with the inner sides of the straight edges so as to ensure that each course will be in perpendicular alignment with the courses below. The straight edges may be joined together for any length of wall by telescoping one within the other, as shown in Figure 6, and secured by bolts 21 passing through holes 22 in their flanges 22*a*.

The nibs 17 which merely consist of pins projecting into the joint between the courses of bricks, enable the straight edges to be quickly aligned with the past brickwork, and to act as an aid in supporting the straight edges.

The inner side of the straight edges may be covered with a layer of felt 30, or other water absorbent material, so that when the mortar comes into contact with it, the capillary attraction of the felt withdrawing the water from the surface will stiffen the mortar and so form a clean surface joint.

A screed or gauge 23 (see Figure 1) may also be used to run over and regulate the thickness of the bed of mortar. This screed consists of a band of metal bent to the shape shown, and having its lower transverse edge 24 resting on the mortar and its lateral flanges 25 running on the longitudinal flanges 22*a* of the straight edges, while the front ends are vertically movable on pins 25*a* projecting from the end of the container.

Another form of screed is shown in Figures 7 to 10 and consists of a band of metal 31 bent to the shape shown, and having a plate 32, the lower edge of which rests on the bed of mortar, and a roller 33 rotatable in the band 31 so as to run on the longitudinal flanges 22*a* of the straight edges 16. The height of the plate 32 is adjustable by means of the wing nuts 34 which are threaded on pins 35 projecting from the band 31 through the slots 36 in the plate 32. The bottom edge and the lateral edges may be flanged inwardly as at 37 to provide a better cutting or scraping effect, and the top edge is provided with an outwardly bent flange 37*a* acting as a handle. The ends of the band 31 project through slots 38 in the wall of the container and are held by means of the notches 39, which give a hinged motion to the plate 32 permitting is to rise and fall a limited amount. When not in use the screed may be pushed against the wall of the container, the ends of the bar passing through the slots 38 into the container on the sides of the plate 32 at the bottom thereof are provided hinged flaps or scrapers 40, held outwardly by leaf springs 41. These scrapers move along upon the inner side of the straight edges and clean such straight edges.

A compartment 26 (see Figure 2) may also be provided at the other end of the container, also having a door 27 similar to the door 7, and controlled by a rod 28, similar to the rod 11. The object of this compartment is that when the container reaches the end of the wall there will be a portion beneath such container which will not be covered with mortar, and by closing the door 7 and opening the door 27 and reversing the direction of travel of the container, this portion will be covered from the small compartment 26.

In Figures 11 and 12, the mouth of the machine is shown closed by a horizontal sliding door 41, the edges of which slide in grooves 42 on each side wall of the container. This door is in two parts hinged together at 43 so that when the mouth is open, as shown at Figure 12, the longest portion of the door may be carried to a vertical position and held by means of a pin or clip 44 on the end of the container.

What I claim is:—

1. An apparatus for use in bricklaying, comprising a movably supported container provided with a hopper portion to receive the bricklaying composition including a sloping wall, side walls and an end wall, the lower portions of said walls constituting a neck for the hopper portion, a door hinged to the front wall and having its lower edge spaced slightly above the bottom edges of the neck of the hopper, a rod operably connected to the inner face of the door for adjusting the door to open and close the neck, and a hook on the upper edge of the rod adapted for engagement with the upper edge of the sloping wall for holding the door in closed position, substantially as and for the purposes set forth.

2. An apparatus as claimed in claim 1, wherein a supplemental hopper is provided at the opposite end of the container, a secondary door hinged to the rear wall, and a rod for operating said secondary door.

In testimony whereof, I have signed my name to this specification.

JAMES WILLIAM KAVANAGH.