O. WALTER.

ROOFING TILE MACHINE.

APPLICATION FILED JUNE 15, 1911.

**1,022,282.**

Patented Apr. 2, 1912.

3 SHEETS—SHEET 1.

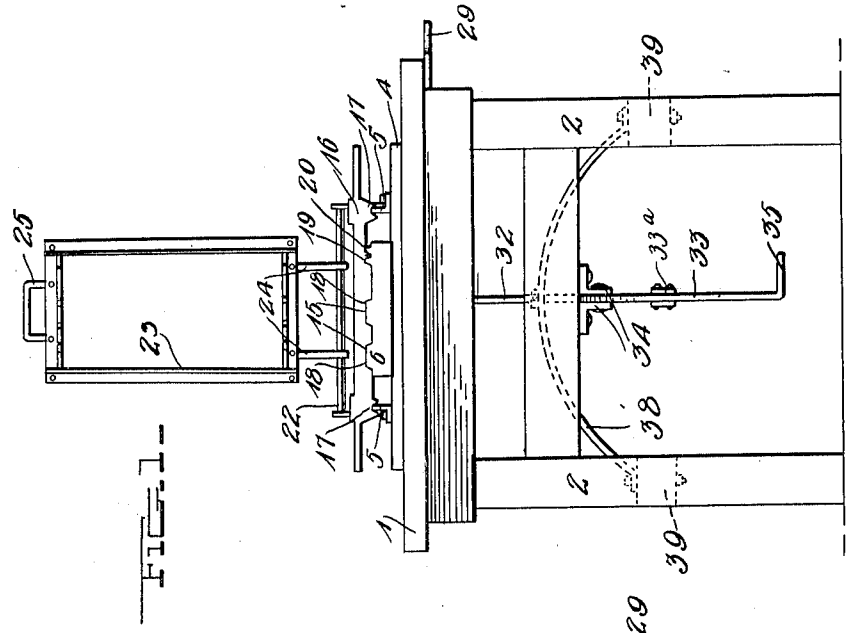

FIG. 1.

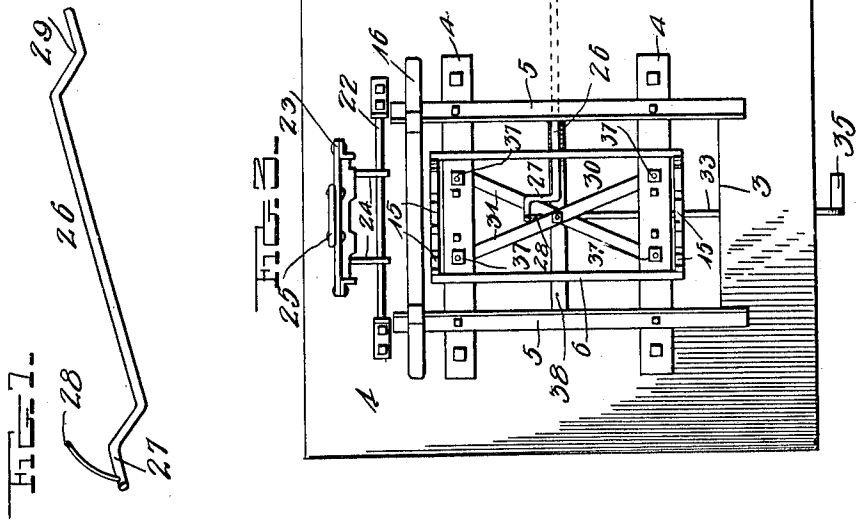

FIG. 2.



FIG. 3.

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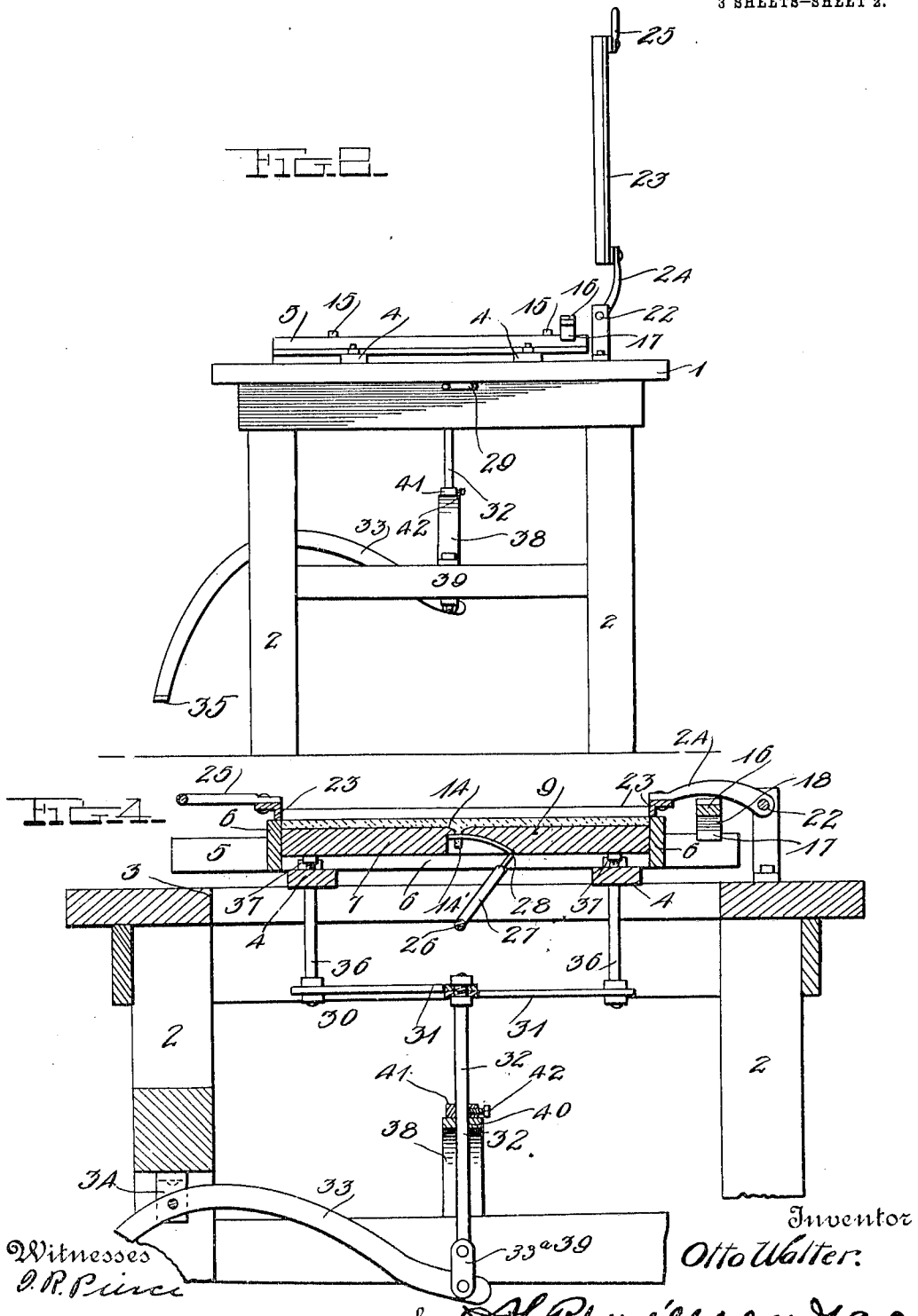


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3 SHEETS—SHEET 3.

FIG. 5.

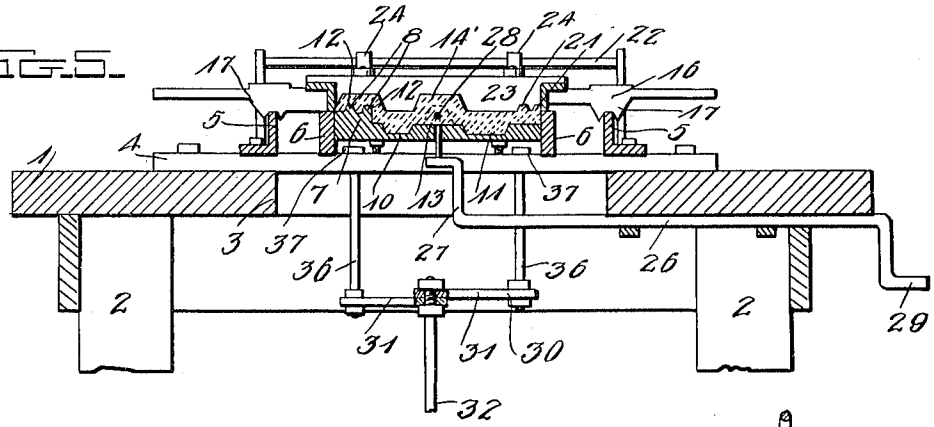


FIG. 6.

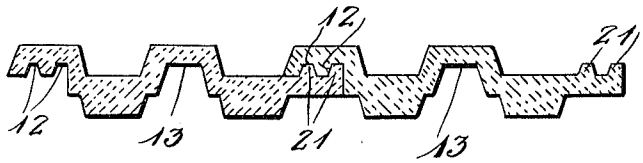


FIG. 6.




Witnesses

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# UNITED STATES PATENT OFFICE.

OTTO WALTER, OF DE KALB, ILLINOIS.

## ROOFING-TILE MACHINE.

1,022,282. Specification of Letters Patent. Patented Apr. 2, 1912.

Application filed June 15, 1911. Serial No. 633,311.

*To all whom it may concern:*

Be it known that I, OTTO WALTER, a citizen of the United States, residing at De Kalb, in the county of Dekalb and State of Illinois, have invented certain new and useful Improvements in Roofing-Tile Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in machines for forming roofing tiles.

One object of the invention is to provide a simple and improved machine of this character by means of which roofing tiles may be rapidly and accurately formed from cement or other plastic material.

Another object is to provide a machine of this character having means for forming a hole in a projecting part of the lower side of the tile to receive the wire or other object for fastening the tile to the roofing boards of very steep roofs and having means to facilitate the removal of the pallet and finished tile from the machine.

With these and other objects in view the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a front end view of my improved tile forming machine; Fig. 2 is a side view thereof; Fig. 3 is a top plan view of the same; Fig. 4 is a central vertical longitudinal section showing a pallet and tile in place in the machine and the tile trimming frame swung down in operative position; Fig. 5 is a central vertical cross section; Fig. 6 is a vertical longitudinal section showing the tile trimming frame swung upwardly and the pallet and finished tile in the machine in position to be readily removed therefrom; Fig. 7 is a detail perspective view of the device for forming the hole in a projecting part of the under side of the tile for receiving the fastening wire for securing the tile to the roof; Fig. 8 is a cross sectional view through two tiles formed by my machine showing the manner in which the same interlock or engage each other when placed in position on the roof.

Referring more particularly to the drawings, 1 denotes the table or bench upon which my improved machine is supported for operation, said table being arranged at any suitable elevation upon supporting legs 2 and has formed in its upper side a centrally disposed opening 3 over which the machine is arranged. The machine comprises a pair of transversely disposed main supporting bars 4 which are bolted or otherwise secured to the table and to which are secured longitudinally disposed angle iron guide bars 5, said plates being spaced apart at a suitable distance and are provided for a purpose hereinafter described. Secured to the bars 4 over the center of the opening 3 is my tile forming frame 6 which is here shown as of rectangular oblong form, but which may be constructed in any suitable shape. The frame 6 is adapted to receive a pallet 7 on which is placed the cement or other plastic material for forming the tile. The sides of the frame 6 are spaced a suitable distance from the guide bars 5 and the edges of the opening 3, thus permitting any surplus cement which may fall from the frame to drop through the opening thus dispensing with the necessity of cleaning the table each time the machine is used. The pallet may have arranged thereon any desired configuration for imparting the desired form or surface to the tile.

In the present instance the pallet has formed on its upper side adjacent to one edge a pair of longitudinally disposed upwardly projecting parallel ribs 8 the walls of which preferably taper or incline toward their upper edges as shown. The pallet has also formed therein a central upwardly projecting longitudinally disposed rib 9. In the board between the ribs 8 and 9 is formed a longitudinally disposed groove or channel 10 and on the opposite side of the rib 9 is formed a longitudinally disposed groove or channel 11. By thus constructing the pallet the tile when formed thereon will be provided on its under side adjacent to one edge with longitudinally disposed grooves or channels 12 and in its central portion with a longitudinally disposed groove or channel 13 which correspond respectively with the ribs 8 and 9 of the pallet.

In the center of the longitudinal rib 9 is formed a transverse recess 14 into which the material passes and by means of which a transverse web or integral lug 14′ will be formed in the groove 13 by the tile. The ends of the form 6 have arranged on their upper edges upwardly projecting extensions

15 corresponding to the shape of the ribs formed on the pallet.

Slidably mounted on the angle iron guide bars 5 is a scraping bar 16 by means of which the surplus cement or plastic material is scraped from the pallet and the upper surface of the tile formed. The scraping bar 16 has on its lower edges pairs of V-shaped guide lugs 17 which slidably engage the upper edges of the guide bars 5 and thus hold the scraping bar in position when the latter is drawn across the material on the pallet. Also formed in the lower edge of the bar 16 over the ribs 8 and 9 of the pallet are notches 18 which provide space for the material in which the grooves 12 and 13 are formed by the ribs of the pallet. In the lower edge of the scraper bar 16 adjacent to the opposite side of the pallet from that having the ribs 8 are formed notches 19 and a tooth 20 which, when the bar is drawn across the material on the board form longitudinal parallel ribs 21 on this edge of the tile. The ribs 21 when thus formed are adapted to fit into the grooves 12 in the lower side of the overlapping tile when the tiles are laid or arranged for use, said engagement of the ribs with the grooves forming a water tight joint between the overlapping edges of the tile.

Arranged at one end of the machine is an elevated pivot bar 22 on which is pivotally mounted a trimming frame 23, said frame being pivoted or hingedly connected to the bar 22 by curved hinged members 24 secured to one end of the frame and having on their opposite ends bearing eyes which engage or receive the bar 22 as shown. The outer end of the frame 23 is provided with a suitable handle 25 whereby the frame may be swung upwardly or brought down over the forming frame 6 with which the trimming frame 23 is closely engaged thus cutting off any surplus cement which may project beyond the edge of the forming frame.

After the tile has been formed and while the same is still in the machine I preferably perforate the web or lug 14′ formed by the recess 14 in the pallet, said web being perforated to receive a fastening wire or other device for securing the tile to the roof. In order to perforate the web 14′ I preferably provide a rock shaft 26 which is pivotally mounted in suitable bearings on the under side of the machine and is provided on its inner end with a crank arm 27 having secured thereto a curved finger or needle 28 which when the shaft is rocked in the proper direction will be forced through the walls of the recess 14 in the pallet and through the web of the material and in said recess. As clearly shown in Fig. 6 the transverse recess 14 communicates with a groove formed in the lower surface of the central rib 9 of the pallet 7, the width of which is sufficient to properly guide the needle 28 when operated to form an opening in the web 14′ of the tile, said guide groove having an abutting wall against which the end of the needle comes in contact for limiting the movement thereof. On the outer end of the shaft 26 is formed a handle 29 by means of which the shaft is rocked to project the finger or needle 28 through the web as described.

In order to lift the pallet and finished tile from the forming frame 6, I provide a lifting frame 30 said frame comprising a pair of cross bars 31 connected together at their point of crossing to a vertically disposed rod or bar 32 the lower end of which is pivotally connected to the outer end of an operating lever 33, by short toggle links 33ª, said lever being pivotally mounted in bearing lugs 34 on one end of the table and having its outer end bent downwardly and provided with a treadle 35 which is adapted to be engaged by the foot of the operator and the lever thus actuated to lift the bars 31. To the outer ends of the bars 31 are secured upwardly projecting plunger rods 36 the upper ends of which are slidably engaged with the cross bars 4 of the frame, said upper ends of the bars 36 having formed thereon heads 37 which are adapted to engage the under side of the pallet when said rods are projected upwardly with the bars 31 by the operating lever. When thus forced upwardly the rods will lift the pallet and the tile thereon up out of the forming frame 6 whereupon said pallet and tile may be readily removed from the machine and another pallet placed thereon for forming the next tile.

The rod or bar 32 is guided and caused to move perpendicularly when operated by the lever 33, by a curved or bowed guide bar 38 which is secured at its opposite ends to cross bars 39 arranged between the legs of the table as shown, said bar having formed therein centrally disposed guide passages 40 through which the rod 32 is reciprocated. On the rod 32 is arranged a stop collar 41 which is adjustably secured to the rod by a set screw 42 whereby the same may be secured at the desired position for engaging the bar 38 and thus limiting the downward movement of the rod 32 and the pallet supporting and lifting mechanism. By providing the adjustable stop mechanism for the rod 32 and pallet supporting mechanism the latter may be held at the desired position for forming tiles of different thickness.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion

and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention claimed.

Having thus described my invention, what I claim is:

In a machine of the character described, a suitable supporting frame, a pallet adapted to be removably engaged with said frame, longitudinally disposed ribs formed on said pallet along one edge and through the center thereof, said rib being adapted to form grooves in the under side of the tile, the central rib having arranged therein a transverse groove adapted to receive the material whereby a web is formed in the central groove of the tile, means whereby said web is perforated, said means comprising a rock shaft, a crank arm formed on one end of the shaft, a curved needle arranged on the arm and adapted to be forced through said web, a handle formed on the outer end of said shaft, the lower surface of said central rib of the pallet having a guide groove for receiving and guiding the needle, an abutting wall against which the end of said needle comes in contact for limiting the movement thereof in one direction, and a slidably mounted scraping bar having formed therein a series of notches whereby the upper surface of the tile is formed.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OTTO WALTER.

Witnesses:
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C. F. TOENNIGES,