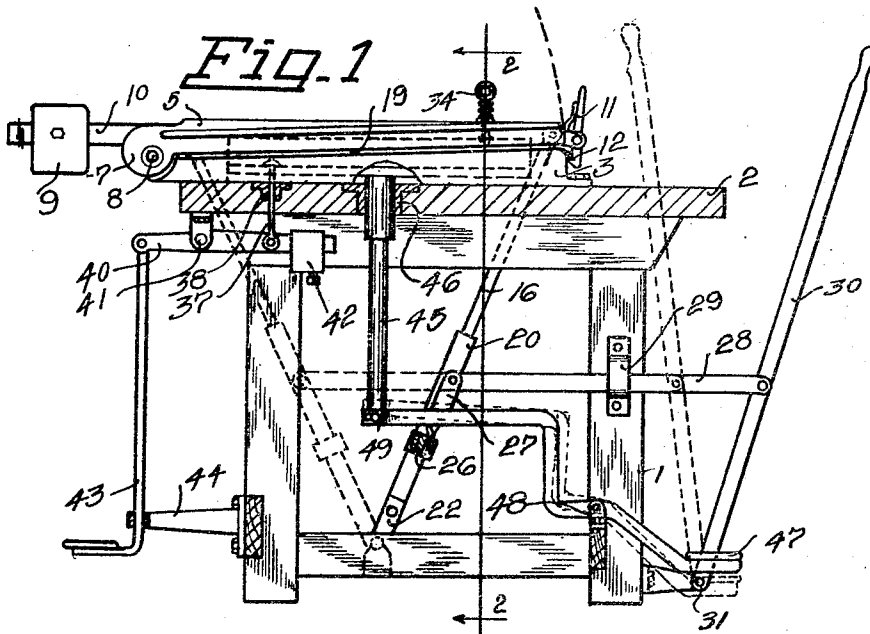
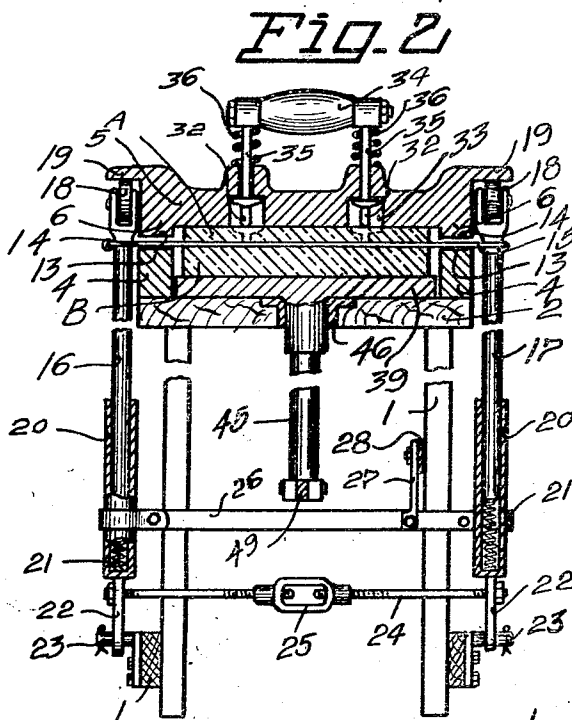
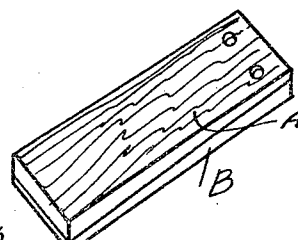


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A. B. FOSSEEN
TILE MAKING MACHINERY
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ARTHUR B. FOSSEEN, OF SPOKANE, WASHINGTON.

TILE-MAKING MACHINERY.

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To all whom it may concern:

Be it known that I, ARTHUR B. FOSSEEN, a citizen of the United States, residing at Spokane, in Spokane County and State of Washington, have invented certain new and useful Improvements in Tile-Making Machinery, of which the following is a specification.

My present invention relates to improvement in tile making machinery and is especially applicable for use in the manufacture of tile shingles from plastic material, which shingles conform generally to the size and shape of the well known type of wooden roofing shingles.

The machine in which the invention is embodied is adapted for the production of duplex tiles or a pair of tile shingles which are cut to form and shape; nail holes having countersunk portions for the head are punched in the tiles; and the tiles are grained, all of these operations being performed, preferably by manual or pedal actuated mechanisms.

The invention consists in certain novel features of construction and arrangements and combinations of parts as will be hereinafter more fully set forth and claimed, wherein a chunk of plastic material, as clay is retained and pressed to shape, then the core of the clay is cut into duplex tiles by the single stroke of a cutter moving and being guided through the core on a line to form the wedge shaped tile. Other novel combinations and arrangements of parts involve the oppositely acting punches for providing countersunk nail holes and an ejecting table for the cut and punched tile, as will be pointed out.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged according to the best mode I have thus far devised for the practical application of the principles of my invention.

Figure 1 is a vertical sectional view of the supporting frame and its top showing the machine and its operating parts in side elevation, dotted lines being used to indicate different positions of operating parts.

Figure 2 is a transverse sectional view at line 2—2 of Figure 1.

Figure 3 is a perspective view of the

duplex tile after having been cut and punched, but before being separated.

In carrying out my invention I utilize a supporting frame or structure designated as 1 having a fixed top 2 extending horizontally at a desired height above the supporting floor for convenience of the operator or operators. The tile press is supported on this fixed top and comprises a fixed bottom half or base 3 with side walls 4 and closed ends to form a hollow space therein for the reception of the chunk of clay or other plastic material which is to be formed into the duplex tiles A and B.

The top plate 5 of the press has a pair of depending side flanges 6 complementary to the fixed walls 4 of the base of the press, and at one end this top plate is fashioned with a head 7 that is hinged at 8 to the base of the press in order that the top half of the press may swing on this hinge as a center, as indicated by the dotted line in Figure 1, to open the press. The hinged top is counterbalanced on its hinge by the utilization of an adjustable weight 9 slidable on the arm 10 of the hinged top, and at the end of the press opposite to the hinge a spring latch 11 is pivoted on the hinged top to co-act with a hook 12 on the base for securing the hinged top in place.

The top edges 13 of the side walls of the fixed base and the complementary bottom edges 14 of the flanges 6 of the hinged lid or top of the press extend along parallel inclined lines forming an inclined, longitudinally extending groove from end to end of the press, which is designed to guide a cutting-wire 15 which extends transversely of the press and is adapted to be reciprocated longitudinally in the slot between these guide edges.

The ends of the cutting wire are supported outside the press by a pair of complementary, forked, arms 16 and 17 arranged to swing in vertical planes at the sides of the press and carrying in their forked ends anti-friction or guide rollers 18 at their upper extremities. These rollers are designed to roll along the under faces of the lateral flanges 19 which extend along the top edges of the hinged lid when the lid is locked in fixed position as in Figure 1, and of course the contact faces of the flanges are parallel with the guide slots at the sides of the press.

The supporting arms for the cutter are carried by and telescope within a pair of tubular heads 20 and a spring 21 is interposed between the lower ends of the arms and the bottoms of these hollow or tubular heads which spring urges the arms upwardly to cause their rollers to engage the faces of the flanges 19. As the rollers ride upwardly the springs project the arms and the rollers are held in frictional contact with their guides thus causing a freedom of movement of the wire cutter through the guide slots therefor.

Each head 20 is provided with a shank 22 that is pivoted on a stud 23 fixed to the frame 1, and a cross brace 24 which is adjustable by turning the turn-buckle 25 connects these two shanks. In addition a cross arm 26 is connected with the two hollow heads 20, and these four members or elements are thus joined as a rigid structure with the shanks adapted to swing on the aligned studs 23 as centers, whereby the cutting wire is caused to reciprocate through the guide slots and through the chunk of clay or plastic material.

A rocker arm 27 is fixed to the cross arm 26 has a longitudinally extending link 28 pivoted thereto and guided in a bracket 29 on the main frame, and a cutting lever 30 is pivotally connected to this link and pivoted at 31 to a fixed bracket on the frame 1. Thus by manipulating the lever 30 as indicated in dotted lines in Figure 1, the cutting wire may be manually operated to cut the clay chunk into two duplex tiles, as indicated in Figure 3.

After the chunk of clay has been severed into duplex tiles while retained within the closed press, the tiles are separately punched with countersunk nail holes which pass through the tiles near their thinner ends, as indicated in Figure 3.

The upper tile is punched manually by the pair of spaced punches 32 that pass through openings in the hinged lid and reciprocate in sockets 33 in the under face of the lid, said punches being shaped to form a hole through the tile and also countersink the upper edge of the hole. The handle 34 of the hinged lid is utilized as the handle for the manually operated punches and the handle is attached to the complementary ends 35 of the punches above the hinged lid with springs 36 coiled about these ends or shanks and interposed between the handle and the lid. Normally the springs hold the punches and handle elevated.

Pressure of the hand on the handle 34 will cause the punches to enter the plastic material of the upper tile to punch the countersunk holes and when pressure is released the springs elevate the punches and handle to normal position as in Figure 2.

The lower one of the duplex tiles is pref-

erably punched by pedal operated mechanism which accomplishes the same result as the punching device just described, by the formation of countersunk nail holes in the thin end of the lower tile. These punches, one of which is indicated at 37 in Figure 1 pass through guide collars 38 in the fixed top 2 of the frame, and also through an ejecting bed or plate 39 as will be described. A link 40 is pivoted at 41 below the fixed top 2 and is provided with a weight 42 which holds the punch in normal inoperative position, and the weighted end of the link is pivoted to the punches 37. A depressible pedal 43 is pivoted to the link 40 and moves through a guide bracket 44 fixed to the main frame of the machine, and it will be apparent that by depressing this pedal the punches will be forced upwardly through the lower tile to perforate it, the weight 42 restoring the punches to inoperative position when power is released from the pedal.

During these described operations the chunk of clay or plastic material is supported on the ejecting table 39 within the press, said table being of rectangular shape, located between the side walls of the lower half or base of the press, and resting normally on the frame top 2, within the press. An actuating bar 45 is centrally secured at the lower side of the ejecting table and passes through a guide collar or bearing sleeve 46 in the frame top 2, the bar depending a suitable distance below the frame top as shown. An angularly shaped pedal lever 47 is pivoted at 48 in the main frame and provided with a slotted pivotal connection at 49 to the upright bar 45 of the ejecting table 39. It will be apparent that by bearing down upon the pedal 47 the table may be elevated to lift or eject the duplex tiles.

In operating the machine, with the hinged lid of the press turned upwardly and backwardly on its hinge 8, a chunk of plastic clay or other material is placed upon the ejecting table within the hollow base of the press. The plastic material constitutes a chunk of the proper size and shape for formation within the press of the duplex tiles and when the hinged lid is closed down and secured by the latch 11 the chunk is compressed and ready for cutting and punching. The cutting and punching operations are performed as heretofore described, after which the lid is released and turned back and the ejecting or elevating table is raised to bring the duplex tiles to position in order that they may be removed from the press. After removal the top faces of the tiles may be combed with a suitable tool to provide a "grain" on the surface of the tile, which when the tile is used as a roof shingle, is not only ornamental, but the grain is useful in that it causes the water or moisture from

the elements to run freely down the roof of the building on which the shingles are used.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a tile making machine, the combination with a press having lateral guide slots in its walls, of a cutter extending transversely through the press and adapted to reciprocate in said slots, an extensible supporting arm for each end of said cutter and alined pivots for said arms, and means for swinging said arms to reciprocate the cutter in its slots.

2. In a tile making machine the combination with a receptacle having lateral guide slots, of a transversely extending cutter adapted to reciprocate in said slots, extensible supporting arms for said cutter, alined pivots for said arms, and lever actuating mechanism connected to said arms for swinging them to reciprocate the cutter.

3. In a tile making machine the combination with a receptacle having lateral guide slots, of a transversely extending cutter adapted to reciprocate in said slots, pivoted, extensible supporting arms for said cutter and means for swinging said arms, spaced tracks on said receptacle, and rollers carried by said arms for co-action with said tracks.

4. The combination with a receptacle having lateral guide slots, of a transversely extending cutter reciprocable in said slots, pivoted supporting arms for said cutter having anti-friction rollers at their upper ends, complementary tracks on said receptacle for said rollers, rigidly connected and pivoted supporting heads for said arms, springs interposed between said heads and arms, and means for swinging said heads and arms.

5. In a tile making machine the combination with a receptacle having complementary, lateral, inclined slots, of a transversely extending cutter reciprocable in said slots, extensible supporting arms, for said cutter and guiding means for said extensible arms, and means for swinging said arms to reciprocate the cutter.

6. In a tile making machine the combination with an ejecting table and operating means therefor, of cutting means comprising slotted walls at the sides of said table, a cutter reciprocable in said slotted walls above

the table, extensible pivoted supporting arms for said cutter, and means for swinging said arms.

7. In a tile making machine the combination with a receptacle having upper guide faces on its side walls, of a hinged lid having complementary guide faces on its side walls to form a pair of spaced slots, a transversely arranged cutter reciprocable in said slots, and means for reciprocating the cutter.

8. In a tile making machine the combination with a fixed base having side walls with complementary inclined faces, of a hinged lid having side flanges with complementary inclined faces whereby the four faces form two complementary slots, a transversely arranged cutter adapted to reciprocate in said slots, and means for actuating the cutter.

9. In a tile making machine the combination with a base having side walls with inclined faces and a hinged lid having side flanges with inclined faces forming complementary slots, of a transversely arranged cutter adapted to reciprocate in said slots, pivoted extensible supporting arms connected with said cutter, and means for actuating said arms.

10. In a tile making machine the combination with a base having side walls with inclined faces and a hinged lid having complementary inclined faces forming complementary guide slots, of a transversely arranged cutter adapted to reciprocate in said slots, a pair of spaced rigidly connected pivoted heads and means for oscillating said heads, a pair of supporting arms for the cutter telescoping within said heads and springs interposed between said heads and arms, guide flanges on said lid, and rollers carried by said supporting arms for engagement with said flanges.

11. In a duplex-tile machine the combination with means for cutting a chunk of plastic material into complementary tiles, of means for punching the respective tiles to form nail holes.

12. In a duplex-tile machine the combination with means for cutting a rectangular chunk of plastic material into wedge shape tiles, of means for punching the respective tiles to form nail holes.

In testimony whereof I affix my signature.

ARTHUR B. FOSSEEN.