T. G. BRAWLEY.

MACHINE FOR MAKING CONCRETE SHINGLES AND THE LIKE.

APPLICATION FILED MAR. 20, 1911.

1,004,553.

Patented Oct. 3, 1911.

3 SHEETS—SHEET 1.

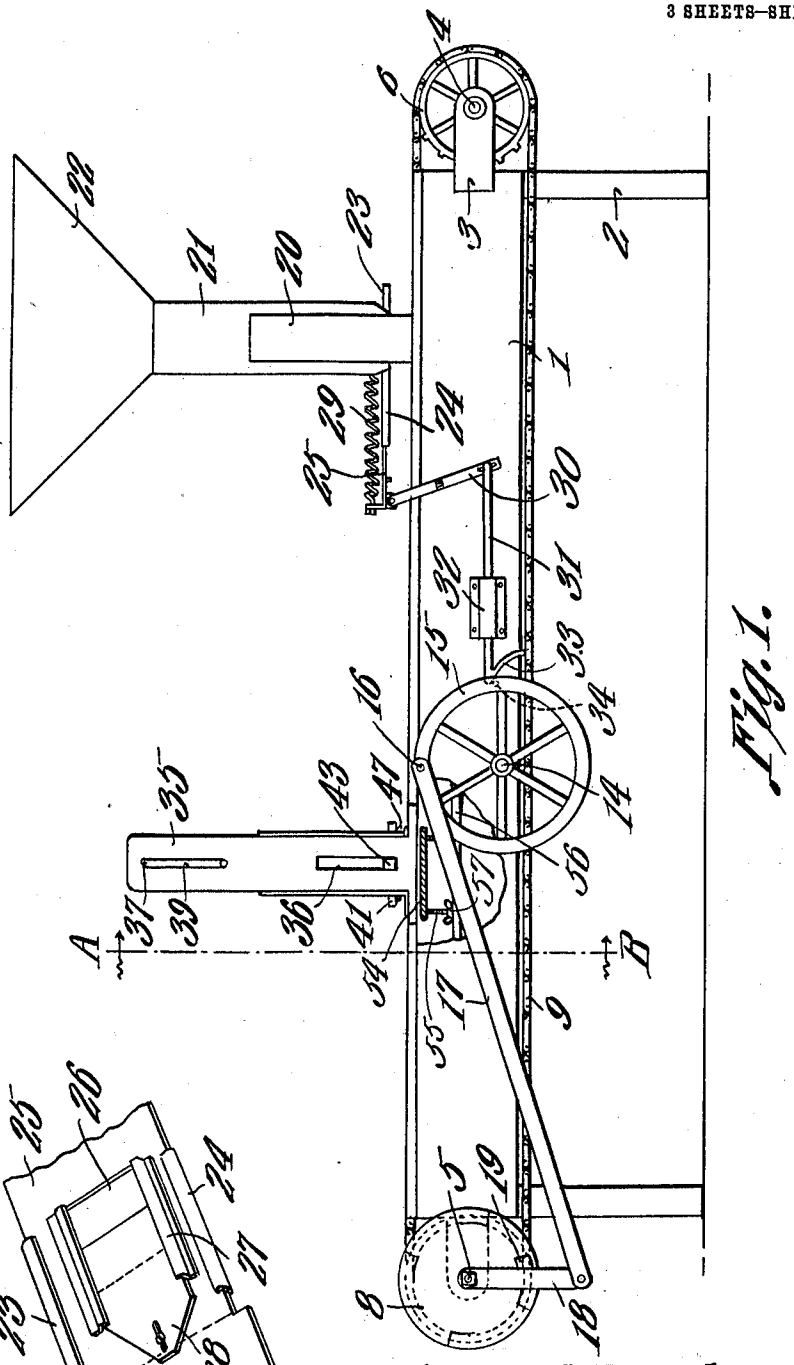

Fig. 1.

Fig. 2.

Witnesses

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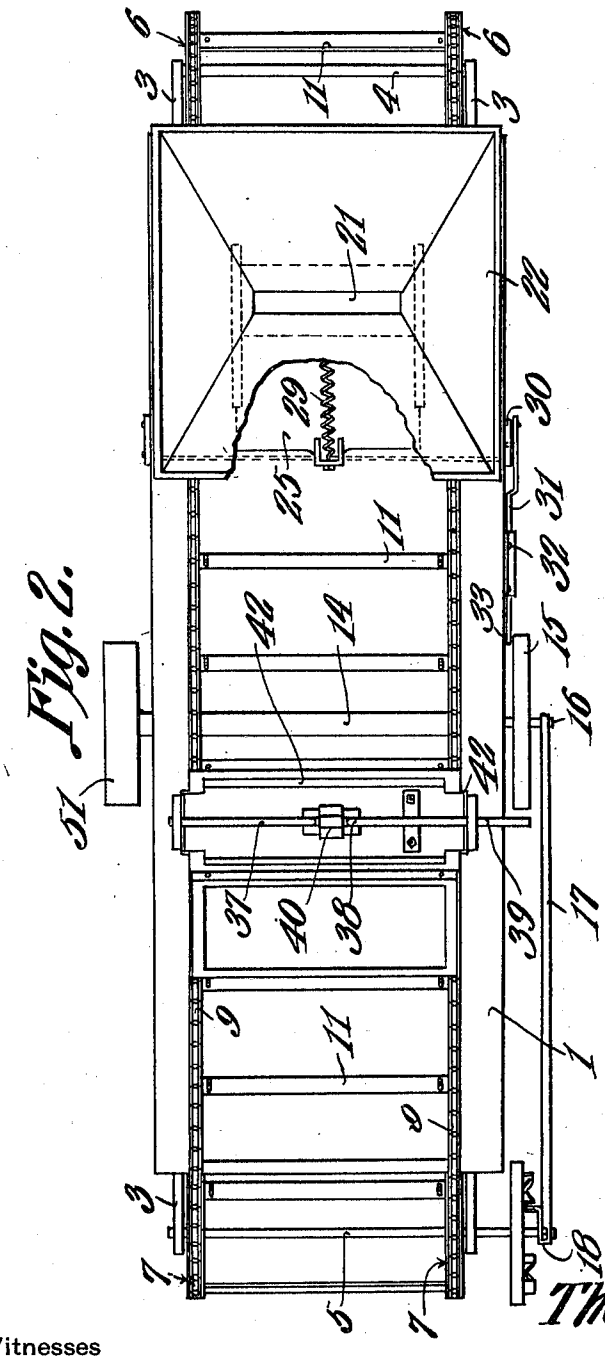

Fig. 2.

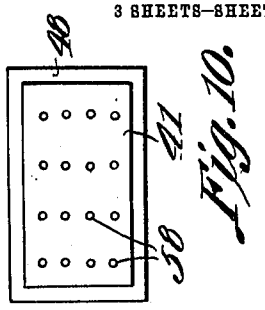

Fig. 10.

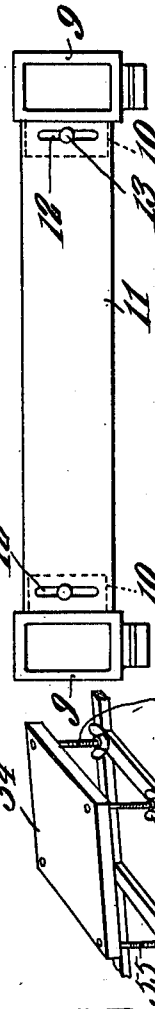

Fig. 6.

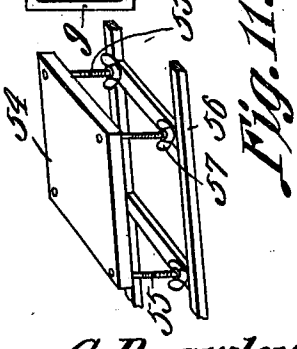

Fig. 11.

Witnesses

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MACHINE FOR MAKING CONCRETE SHINGLES AND THE LIKE.

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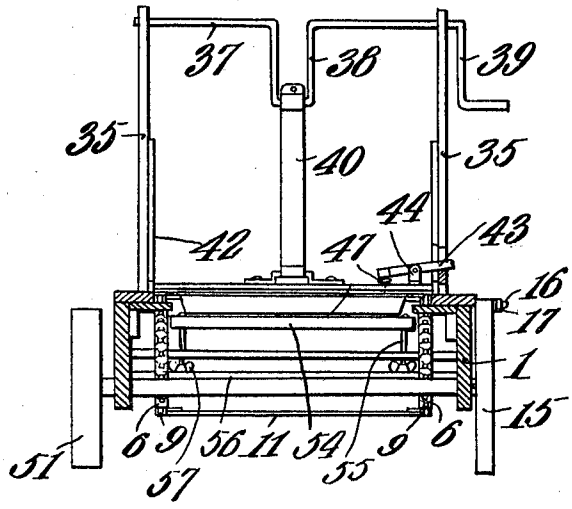
3 SHEETS—SHEET 3.

Fig. 3.



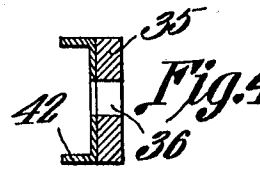


Fig. 4.

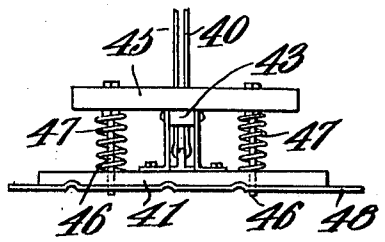


Fig. 5.

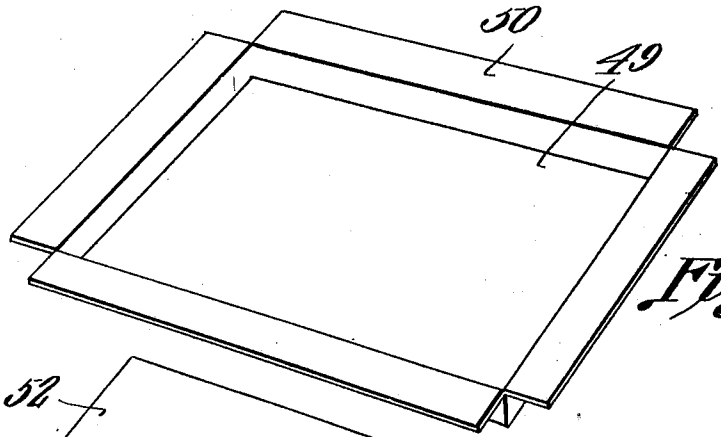


Fig. 7.

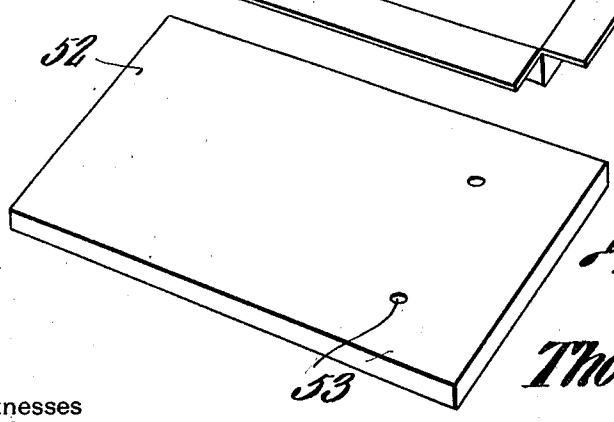


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING CONCRETE SHINGLES AND THE LIKE.

1,004,553. Specification of Letters Patent. Patented Oct. 3, 1911.

Application filed March 20, 1911. Serial No. 615,747.

To all whom it may concern:

Be it known that I, THOMAS G. BRAWLEY, a citizen of the United States, residing at Arcanum, in the county of Darke and State of Ohio, have invented a new and useful Machine for Making Concrete Shingles and the Like, of which the following is a specification.

This invention relates to machines for producing shingles and the like of concrete, one of its objects being to provide an endless conveyer for supporting molds designed to be fed automatically one at a time to a feeding device, means being employed whereby concrete is supplied to the molds in sufficient quantities to fill them as they are brought successively into position.

Another object is to provide means whereby the contents of the molds can be tamped, said tamping means including perforating devices for producing nail receiving openings within the molded shingles.

With the foregoing and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a side elevation of a machine constituting the present invention. Fig. 2 is a plan view thereof, a portion of the feed hopper being broken away. Fig. 3 is a section on line A—B Fig. 1. Fig. 4 is an enlarged transverse section through one of the standards and the guide plate thereon. Fig. 5 is a side elevation of the tamping head and the parts carried thereby. Fig. 6 is a detail view of a portion of the endless conveyer. Fig. 7 is a perspective view of one of the molds. Fig. 8 is a perspective view of a shingle such as produced by the machine. Fig. 9 is a detail view of the cut-off plate and adjacent parts. Fig. 10 is a plan view of the tamping head. Fig. 11 is a detail view of the adjustable mold support used in connection with the tamping mechanism.

Referring to the figures by characters of reference 1 designates a frame mounted on suitable supports 2 and brackets 3 extend from the ends of the frame and have shafts 4 and 5 journaled within them. Shaft 4 is provided with sprockets 6 and shaft 5 is also provided with sprockets 7, there being a ratchet wheel 8 secured to one end portion of the shaft 5 and provided with preferably four teeth arranged 90 degrees apart, these teeth projecting from the outer face of the wheel 8.

Endless chains 9 are mounted on the sprockets 6 and 7 and certain of the links of each chain have flanges 10 extending inwardly from one side thereof. These flanges support connecting strips 11 having slots 12 in the end portions thereof and extending transversely, these slots receiving set screws 13 or the like whereby the strips are securely fastened to the links, but, at the same time, can be adjusted in the direction of the length of the chains so as to bring the strips any desired distances apart.

A drive shaft 14 is journaled within the frame 1 at a point between the ends thereof and has a wheel 15 at one end and provided with a wrist pin 16. This wrist pin is connected, by a pitman 17, to an arm 18 mounted to swing upon the shaft 5 and carrying a pawl 19 adapted to engage the teeth on the ratchet wheel 8 and impart an intermittent rotation to said wheel and to the parts connected thereto.

Standards 20 extend from the sides of frame 1 and are connected to the outlet spout 21 of a feed hopper 22, this outlet spout having its lower or discharge end close to the upper run of the conveyer formed by chains 9 and strips 11. A guide plate 23 is extended in opposite directions from the bottom of the spout 21 and has side plates 24 in which a cut-off plate 25 is slidably mounted. This cut-off plate has an opening 26 and guide cleats 27 are arranged along the sides thereof and are engaged by a slide 28. This slide can be adjusted on the cut-off plate 25 so as to vary the size of the exposed portion of opening 26. Said slide will, under normal conditions, however, move with the cut-off plate. A spring 29 is connected to the spout 21 and to one end of the cut-off plate 25, this spring serving to hold said cut-off plate normally in position to close the outlet in the spout 21.

Any suitable means may be utilized for opening the spout at predetermined periods, one of the means having been illustrated in

Fig. 1. Said opening means includes a lever 30 connected at one end to the plate 25 and at its other end to a slide 31 mounted within a guide 32, the said slide being provided with a cam head 33 normally located in the path of a tappet 34 extending from the wheel 15.

Extending from the sides of frame 1 are standards 35 each of which is provided, adjacent its lower end, with a longitudinal slot 36. A shaft 37 is journaled within the standards and has a crank 38 adjacent its center and another actuating crank 39 at one end. Crank 38 is connected, as by means of a pitman 40, to a tamping head 41 the ends of which are designed to work within channeled guide plates 42 secured to the inner faces of the standards 35. A lever 43 is fulcrumed on a bracket 44 upstanding from one end portion of the tamping head 41 and one end of this lever projects into the slot 36 while the other end thereof is provided with a head 45 having pins 46 extending therefrom and into openings formed within the head 41. Springs 47 extend around these pins and bear at their ends upon the head 41 and the head 45 respectively, these springs thus serving to hold the free ends of the pins normally elevated above the working face of the tamping head 41. As shown particularly in Fig. 5, the tamping head may be provided with a face plate 48 of metal or the like.

The strips 11 are designed to support molds of suitable form, one of the molds being illustrated in Fig. 7. Each mold is in the form of a shallow tray 49 having flanges 50 extending from the walls thereof, two of these flanges being adapted to rest upon adjacent cross strips 11 while the other flanges are designed to bear upon the chains 9.

In using the apparatus the shaft 14 is set in motion, the same being preferably operated by a belt not shown, and which is adapted to engage and rotate a pulley 51 connected to the shaft 14. Wheel 15 is caused to rotate with the shaft and each rotation of this wheel results in the pawl 19 being swung back and set relative to the wheel 8 and in said pawl being moved toward the wheel 15 so as to engage one of the teeth on the ratchet wheel and impart a one-quarter rotation to said ratchet wheel and thus correspondingly move the endless conveyer. Molds are placed upon the conveyer as the strips 11 rise above the sprockets 6 and these molds are successively carried under the feed spout 21. One movement of the ratchet wheel and conveyer will result in the positioning of a mold directly under the spout 21 and, as the lever 18 swings back to reset the pawl, the tappet 34 on wheel 15 moves against the cam head 33 and shifts slide 31 so as to swing lever 30 and cause the cut-off plate 25 to shift longitudinally against the stress of spring 29. A portion of the contents of the spout 21 will thus flow down by gravity into the mold and the parts are so timed and adjusted that as soon as a sufficient quantity has been thus discharged, the tappet 34 will pass the head 33 and the spring 29 will therefore return the various parts to their initial position, thus cutting off the supply to the mold. During the next movement of the pawl 19 toward the wheel 15, the filled mold will be moved from under the spout 21 and another empty mold will be brought to such position. The filled molds will be successively conveyed to points under the tamping head 41 and by turning the crank 39 this head can be caused to move downwardly and pack the material within the mold thereunder. As the head nears the lower limit of its movement, the outer end of the lever 43 moves against the lower end wall of the slot 36 and is thus tilted so as to force the pins 46 downwardly into the material within the mold, thus placing the springs 47 under stress. The tamping head, upon being raised, moves the lever out of engagement with the lower wall of the slot 36 and the springs 47 promptly withdraw pins 46 from the mold. As the mold moves toward the discharge end of the machine, its contents becomes set, and when the said end is reached, the mold can be removed and the molded article therein removed, or, if preferred said article may be kept in the mold until it has sufficiently hardened. The pins 46 form openings within the molded object, these openings being sufficiently large to receive the nails or the like used for fastening the object in place. In Fig. 8 a shingle 52 has been shown, said shingle having openings 53 for the reception of nails or the like, said openings being formed by the pins 46 in the manner herein-before set forth.

While the tamping mechanism has been described and illustrated as operated by hand, it is to be understood that suitable gearing may be employed for transmitting motion thereto from the drive shaft so that the tamping will be effected at the proper time during the movement of the mold upon the machine. By providing the slide 28, the size of the opening exposed within the cut-off plate 25 can be varied so as to control the amount of material discharged into the molds as they are brought into position under the spout 21.

As the strips 11 are adjustably connected to the chains, it will be seen that molds of different sizes can be properly held by them.

Although the machine has been particularly designed for making concrete shingles, it is to be understood that other devices may be readily produced thereby.

In order that the tray 49 may be firmly supported during the tamping operation, a platform, such as has been indicated at 54 may be provided, this platform being lo-

cated between the upper runs of the chains and having threaded stems 55 extending downwardly therefrom at the corners thereof and slidably mounted within a supporting frame 56, there being nuts 57 or the like mounted on the stems and bearing downwardly on the frame for the purpose of supporting the stems and platform. Obviously this platform can be adjusted so as to be contacted by bottoms of trays of different depths and by locating the platform directly under the path of the tamping head, it will be seen that trays will be firmly supported during the tamping operation. The tamping head is preferably provided with a number of openings, such as have been indicated at 58 in Fig. 10 so as to permit air to escape therethrough during the tamping operation. Moreover the tamping heads can be formed with suitably arranged grooves or the like so reinforcing ribs will be formed upon the shingle.

What is claimed is:—

1. A molding machine including chains made up of links each having inwardly extending flanges, cross strips adjustably connected to the flanges and constituting connections between the chains, molds having flanges detachably bearing on the chains and cross strips, said strips being adjustable toward each other to firmly hold the molds, a feed device above the conveyer, means for imparting an intermittent movement to the conveyer to successively bring the molds into position under the feed device, and means for opening and closing the feed device while a mold is in position thereunder.

2. A molding machine including a mold, guides, a tamping head mounted to reciprocate within the guides, means for actuating the head, a perforating device movably mounted within the head, a lever connected to said device and projecting beyond the head, one of the standards having a slot for the reception of the lever, said lever being movable against one end of the slot during the movement of the head toward the mold, and means for automatically returning the lever and perforating device to their initial positions during the movement of the head in the opposite direction.

3. A molding machine including an operating shaft, a tamping head, means operated by the shaft for reciprocating the head, a perforating device mounted on and extending through the head, a pivoted element upon the head and connected to said device, and fixed means adjacent the path of the head for tripping said element to project the perforating device beyond the working face of the head during the movement of the head against the material to be tamped.

4. In a molding machine, a tamping head, means for reciprocating the same, a yieldingly supported perforating device extending through the head, a pivoted element on the head and connected to said device, said element projecting beyond one side of the head, and fixed means in the path of said element for actuating it and the perforating device during the completion of the movement of the tamping head in one direction.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THOMAS G. BRAWLEY.

Witnesses:
T. H. SMITH,
O. W. GASELL.