

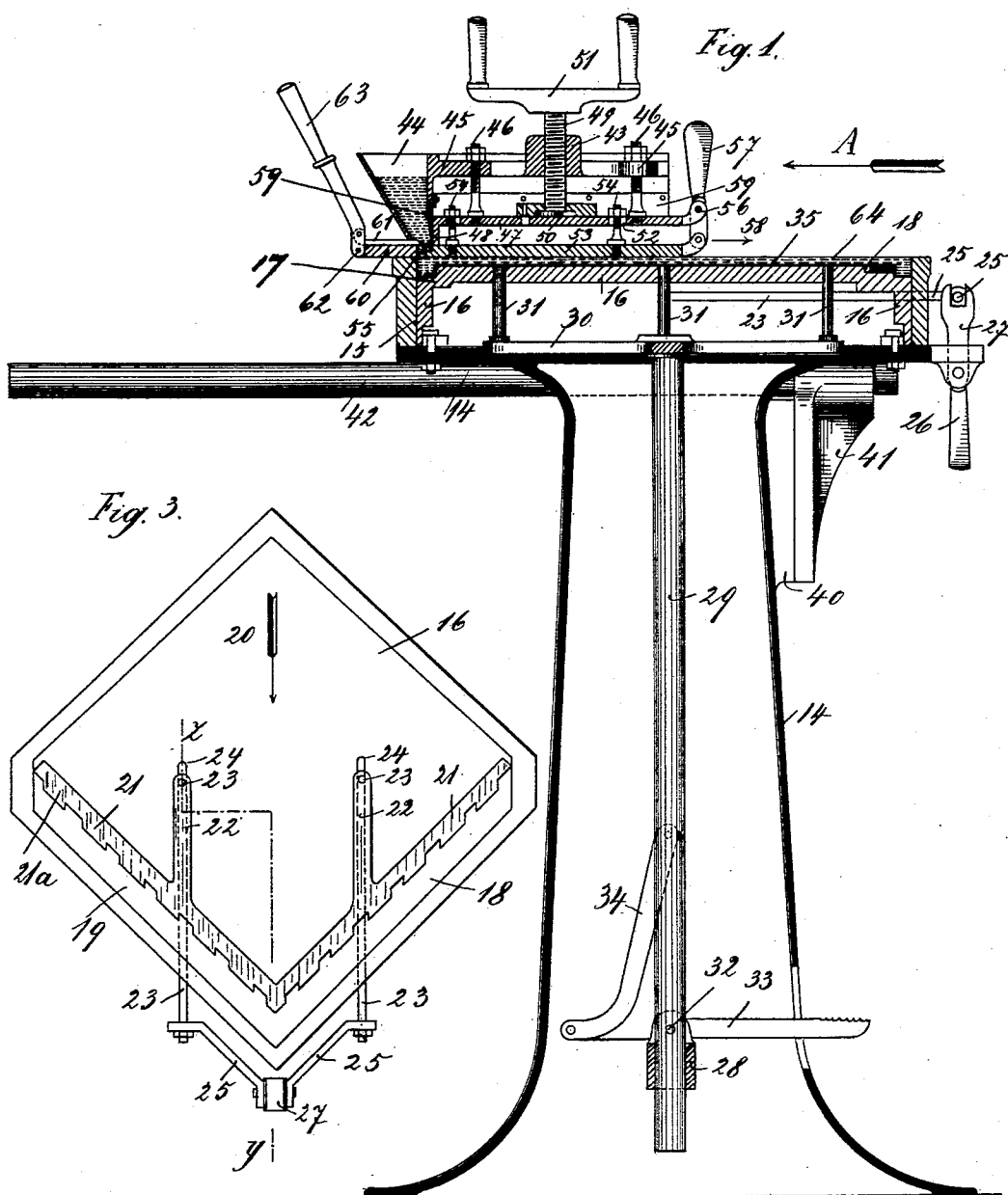
(No Model.)

3 Sheets—Sheet 1.

G. KREBS & A. WEIL.
ROOFING TILE MACHINE.

No. 573,604.

Patented Dec. 22, 1896.



Witnesses:
Walter E. Allen.
Edward R. Knight.

Inventors
Gustav Krebs.
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By *Knight Bros*
Attorneys

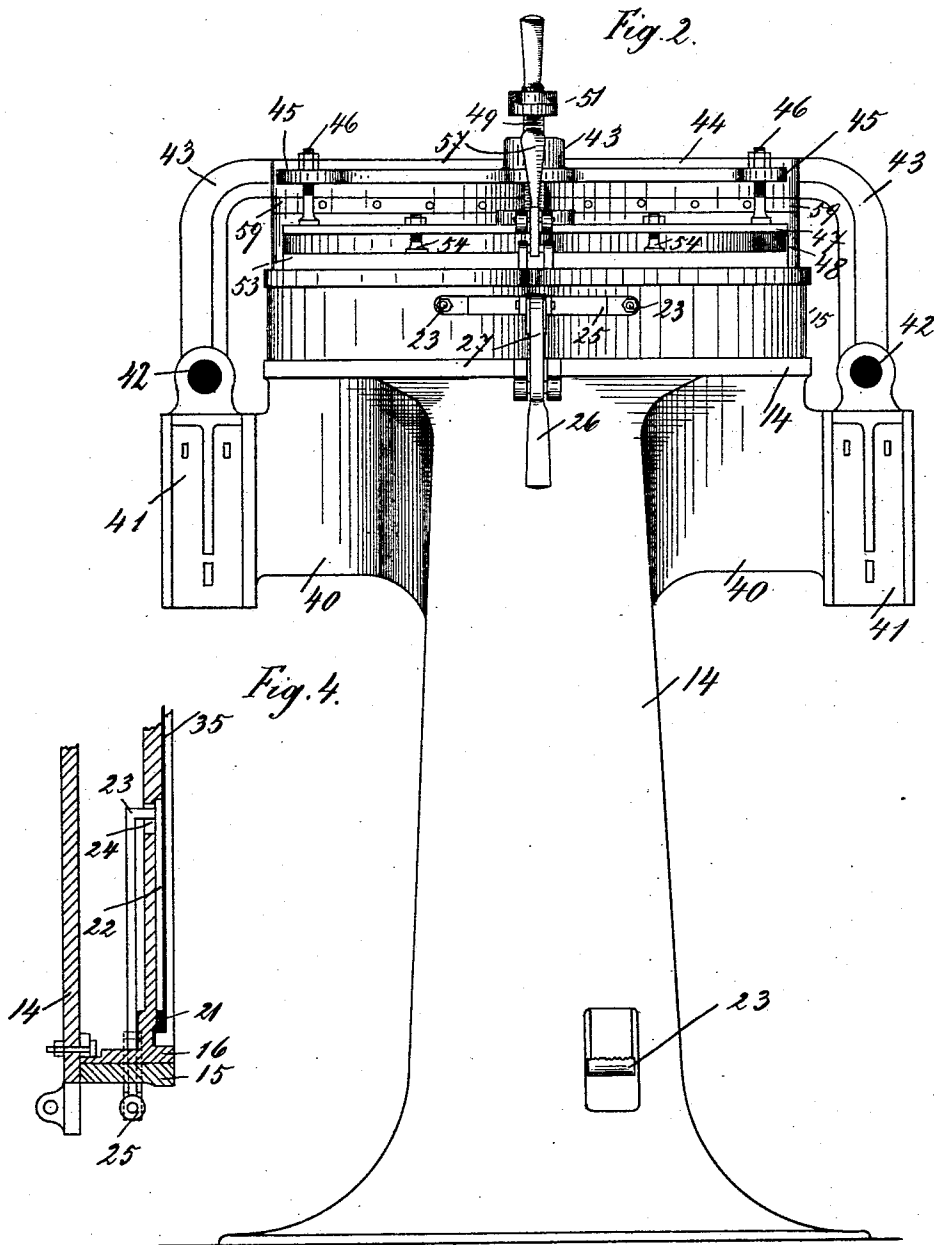
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Fig. 5.

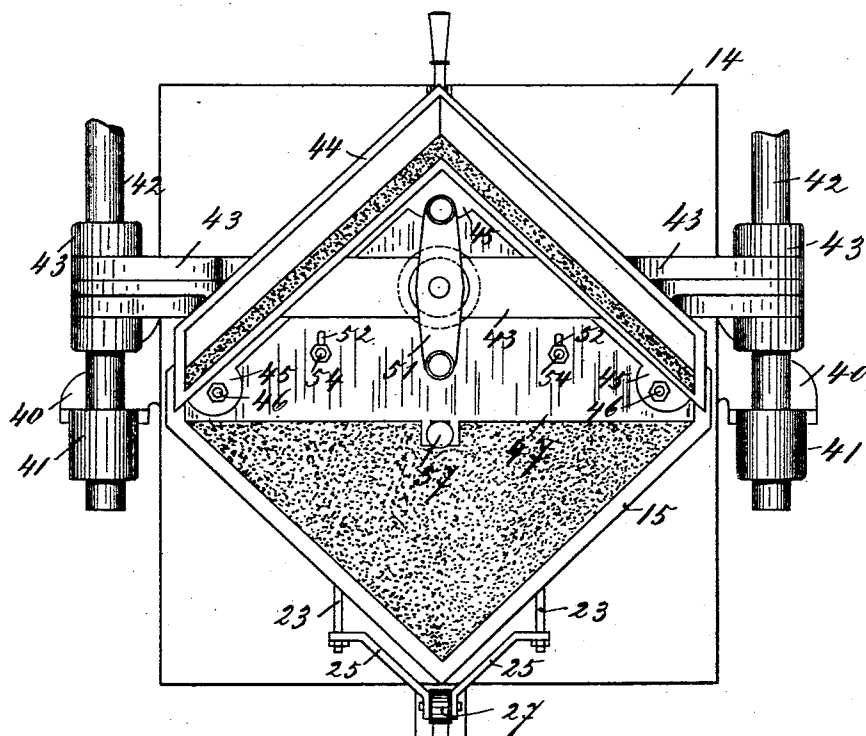
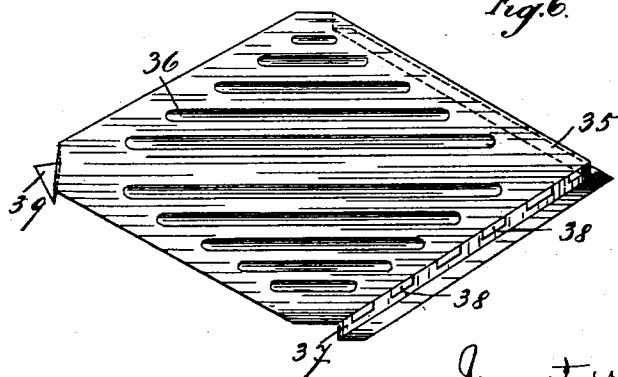


Fig. 6.



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UNITED STATES PATENT OFFICE.

GUSTAV KREBS, OF HALLE-ON-THE-SAALE, AND ABRAHAM WEIL, OF
STEINHEIM, GERMANY.

ROOFING-TILE MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,604, dated December 22, 1896.

Application filed March 22, 1895. Serial No. 542,850. (No model.) Patented in Switzerland November 30, 1894, No. 9,643.

To all whom it may concern:

Be it known that we, GUSTAV KREBS, fabricant, of Halle-on-the-Saale, and ABRAHAM WEIL, merchant, of Steinheim, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Machines for Manufacturing Roofing-Tiles, (for which Letters Patent were granted us in Switzerland, No. 9,643, dated November 30, 1894,) of which the following is a specification.

This invention relates to a press for the manufacture of a roofing-tile of any desired shape, having upper and lower overlapping ledges, which are furnished, respectively, with depressions or a groove and with elevations or projections, so that a mutual tenon-and-mortise joint is formed between adjacent tiles when placed upon the roof.

To enable this invention to be fully understood, we will describe how it can be carried into practice by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a machine or press constructed according to this invention for manufacturing our improved tile. Fig. 2 is a side elevation of Fig. 1, looking in the direction of the arrow A. Fig. 3 is a plan view showing the arrangement by means of which the depressions or grooves in the lower overlapping ledges are made; and Fig. 4 is a longitudinal section of Fig. 3, taken on the line *y z*. Fig. 5 shows the press in plan, and Fig. 6 the molding-plate in perspective plan view.

The press is constructed as follows: On the working-table 14, consisting of a hollow casting, is a frame 15, which corresponds to the outside dimensions of the roofing-tile, and in this is fixed the box-shaped mold 16. The upper side of this mold has at one corner 17 a depression in which the nose of the roofing-tile is formed, and on the two opposite longitudinal sides are furrow-like depressions 18 19, in which is adjustably placed, so as to move in the diagonal direction 20, a frame 21 with teeth 21^a. This frame consists of two plates 22, which are guided in corresponding grooves in the mold, so that the frame 21 is compelled to run in a particular direction. The plates 22 are connected below the mold with rods 23, which are guided by longitudi-

nal slits 24 in the mold 16 and which traverse the lateral walls of the same, as well as those of the frame 15, and they are connected at their ends by a stirrup 25. In the table 14 is mounted a forked lever 27, provided with a handle 26, which lever encircles the stirrup 25. (See Figs. 1, 3, and 4.)

In the table 14 there is further an ejecting mechanism, which consists of a thrusting-rod 29, guided in the table-top and in the cross-piece 28, and of a cross 30, which is rigidly connected to the thrusting-rod. The cross 30 is provided with rods 31, which are guided in the mold 16. The motion of this ejecting mechanism is brought about by the treadle-lever 33, which is arranged to turn on the pivot 32, and by the lever 34, which is jointed on the one hand to the treadle-lever and on the other to the thrusting-rod 29.

On the mold 16 is placed a metal templet 35, (see Fig. 6,) which exactly corresponds to the lower surface of the tile. This templet is furnished with oblong depressions 36, which correspond with the ribs on the roofing-tile, and there are furthermore formed in the vertical walls 37 of the angle-piece the recesses 38, through which pass the teeth 21^a of the frame 21 to form depressions in the overlapping ledges of the tile, in which fit the teeth formed in the overlapping ledges of the adjacent tile when placed upon the roof. The corner 39, which serves for the formation of the nose of the tile, is correspondingly angled, as shown.

On the sides of the table 14 are brackets 40, upon which are fixed bearers 41. They carry guiding-rods 42, upon which a bridge 43 is mounted and travels. This bridge carries a funnel 44, substantially in the form shown in Fig. 5, for containing the cement or other material out of which the tile is formed and the mechanism required for the formation of the teeth on the upper overlapping ledges of the tile.

The mechanism for forming the teeth consists, essentially, of the following parts: The funnel 44 is provided with lugs 45, in which are adjustably mounted the screws 46. The latter carry a triangular plate 47, which is furnished with a lug 48 on the two sides on which it comes into contact with the funnel

44. To the plate 47 there is secured by its head 50 a screw 49, which is arranged to screw up and down in the bridge 43. The end of this screw is connected to a double crank 51. There are, furthermore, oblong slots 52 in the plate 47, in which slots the screws 54, connected with a second triangular plate 53, are mounted and travel. The plate 53, which comes to lie against the edge 48 of the plate 47, is furnished with recesses 55 on the sides on which it applies itself to the funnel 44, and these correspond to the teeth which are formed on the upper overlapping ledges of the tile. The plate 53 is, moreover, connected by a joint with the plate 47 by means of a lever 57, which serves as a handle, and pivots at 56 on the plate 47, so that when the lever 57 is moved in the direction of the arrow A the plate 53 is shifted in the direction of the arrow 58, that is to say, the plates 53 and 47 shift with relation to each other, and that to such an extent that the outer front surfaces of the plate 53, which lie against the funnel, are intercepted by the outer front surfaces of the edge 48 in such a way that it is not possible for the plate 53 to be released by the edge 48. The plates 47 and 53, with their screws and levers, are capable of being moved up and down within certain limits by means of the screw 49.

The inner sides of the funnel 44 are formed by a flat bar of wrought iron or steel, which is screwed on and is sharpened below and comes into contact with the edge 48 and forms a cut-off with the latter on the lower side when the plates 47 and 53 have reached their lowest position.

The lower part of the funnel 44 is provided with a ledge 60, on which slides a cutter 61, conforming to the outline of the funnel, its edge extending to the sharpened knife-like bar 59 when in closed position. The shifting of this knife is effected by means of the lever 63, pivoted at 62. When the whole apparatus is screwed up to such a point (for the formation of the teeth of the tile) that the lower surface of the plate 63 lies in the same plane with the upper surface of the edge 60, the bridge 43, with the funnel 44, and the whole mechanism concerned in the formation of the teeth can be shifted in the direction of the arrow A to such an extent that the whole of the tile thus formed is exposed.

The motion of the press is as follows: The funnel, together with the whole of the parts concerned in the formation of the furrows, is shifted in the direction of the arrow A so far that the bed 16 is completely exposed and the toothed frame 21 is brought to the dead-point, that is to say, it is shifted in the direction of the arrow A. When this has been done, the mold-plate 35 is laid upon the mold, the usual powdered material sprinkled upon it, and the cement 64 spread as far as the upper overlapping ledges. The funnel 44, with the mechanism for forming the furrows, is then pushed back so far that the mouth of

the funnel covers the spot at which the furrow is to be formed. The plates 47 and 53 are moved downward by means of the screw 49 to the upper level of the cement 64 and the plate 53 pushed against the funnel by means of the lever 57 as far as is permitted by the slot 52 and screws 54. When this has been done, the funnel 44 is filled up with material and the latter rammed down, after which the knife 61 is thrust into the mouth of the funnel by means of the lever 63 and the excess of material separated from the formed overlapping ledges. During this process the tooth-like lugs on the overlapping ledges are formed at the same time as the upper overlapping ledges themselves. In order that the finished tile and the templet may be ejected, the plate 53 is shifted in the direction of the arrow 58 by means of the lever 57 and screwed up to its highest position, as far as the plate 47, by means of the screw 49, and the whole mechanism, together with the funnel, being shifted in the direction of the arrow A. The frame 21 is then brought to the dead-point by means of the lever 26 and the tile ejected by the ejecting mechanism. If another tile is to be made, another form-plate is introduced and the process repeated in the same way.

The inner wall of the funnel 44 must be sharpened like a knife, and since cast-iron of so small a cross-section has not sufficient resisting power the inner wall of the funnel is removed and replaced by a steel or cast-iron bar 59, which is sharpened like a knife.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. A press for the manufacture of roofing-tiles, comprising means for forming the depressions in the lower overlapping ledges, of the tile which consists of a bed sunk in a suitable frame conforming to the outline of the tile, a second frame fitting adjustably in recesses formed for it in the bed and means consisting of a thrusting-rod, stirrup and lever for moving the second frame, said frame being also provided with guide-plates and teeth, and of a mold-plate which covers the bed and is furnished with angles for the overlapping ledges and the nose of the tile together with recesses formed in the angles of the same, so that after the cement has been placed upon the mold-plate the teeth of the frame are pressed into the formed overlapping ledges of the tile and the depressions in the latter produced, substantially as shown and described.

2. In a press for the manufacture of tiles comprising suitable means for forming the upper and lower overlapping ledges of the tile, and suitable means for forming tooth-like lugs on the upper ledges, consisting of a funnel adapted to be shifted upon guide-rods, a plate adapted to be shifted vertically, and a second plate having a sliding connection with the first plate and adapted to be moved by a lever, said plate being provided on the sides adjacent to the funnel with recesses corre-

sponding to the tooth-like lugs, substantially as shown and described.

3. In a machine of substantially the character specified, the combination of a suitable
5 base carrying a frame, a movable mold-bottom in said frame, a mold-plate carried by said bottom, for forming the bottom of the tile and the lower overlapping ledges, suitable means in connection with the mold-bottom for forming depressions in the overlapping
10 ledges, and suitable means traveling

over the mold-frame for forming the upper overlapping ledges and the teeth therein, substantially as shown and described.

In witness whereof we have hereunto set
our hands in presence of two witnesses. 15

GUSTAV KREBS.
ABRAHAM WEIL.

Witnesses:

PAUL SOLMENS,
ADOLF FLEVROS.