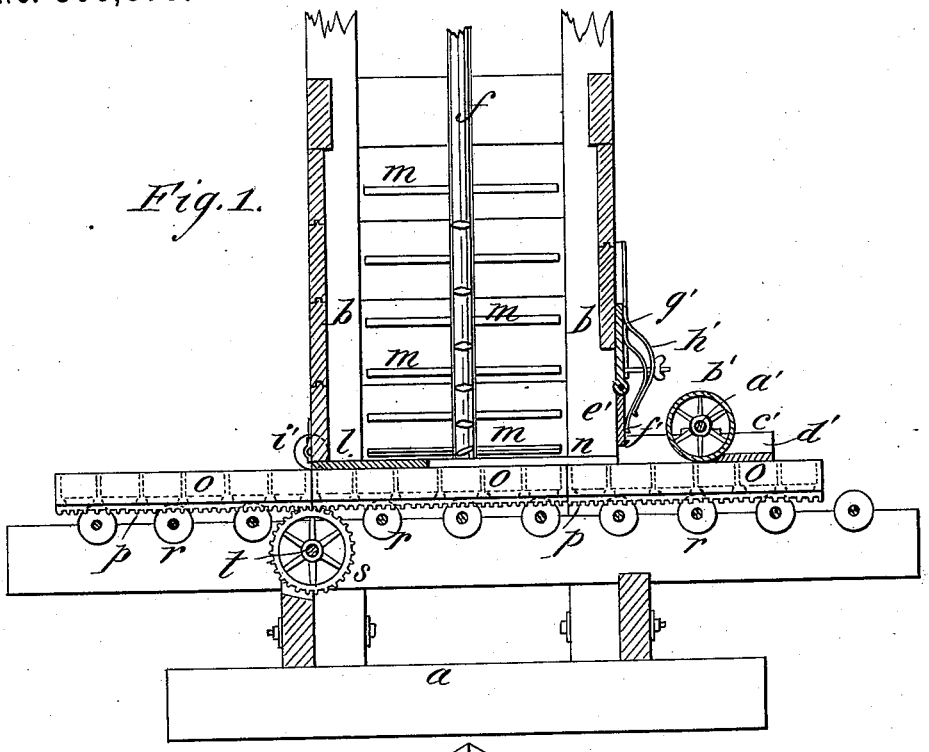
(No Model.)

R. UNDERWOOD.

BRICK MACHINE.

No. 306,879. Patented Oct. 21, 1884.

Fig. 1.



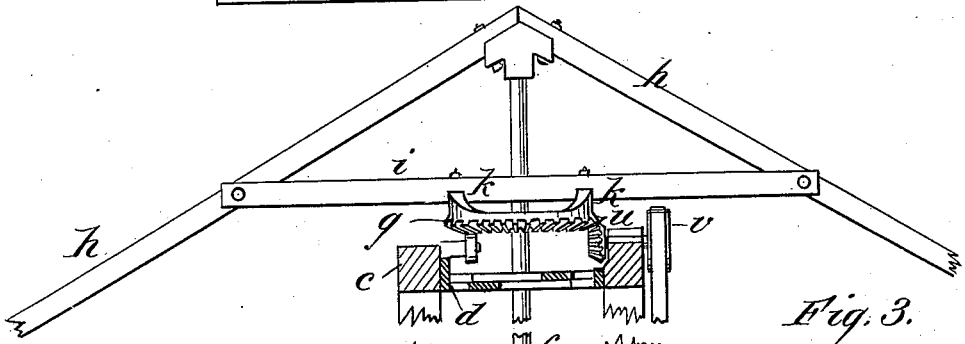


Fig. 2.

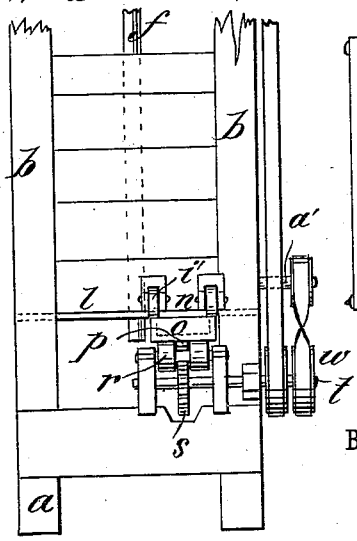
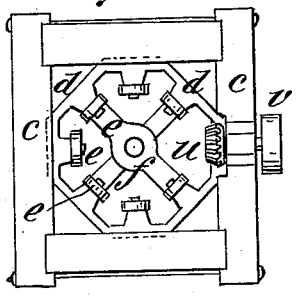


Fig. 3.



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ROBERT UNDERWOOD, OF BOWLING GREEN, KENTUCKY.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 306,879, dated October 21, 1884.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROBERT UNDERWOOD, of Bowling Green, in the county of Warren and State of Kentucky, have invented a new and Improved Machine for Making Bricks and Tiles, of which the following is a full, clear, and exact description.

My invention consists in an improved brick and tile machine wherein the plastic material is pressed into properly-shaped molds, after which the articles are dried and burned, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section of the machine, with the exception of the driving-gear. Fig. 2 is an end elevation, partially in section; and Fig. 3 is a plan view with the sweeps and gear removed.

The frame of the mill consists of base-timbers *a*, corner-posts *b*, rising from the base, and a top frame, *c*, that supports the driving-gear, the whole being suitably braced. Within the top frame is a casting, *d*, that forms diagonal bracing, and is made with studs that carry friction-rollers *e*, of any required number, and the braces serve also to support the vertical shaft *f*. The friction-rollers support a beveled driving-wheel, *g*, that is keyed to shaft *f*, and upon the upper end of the shaft sweeps *h h* are attached, these being also connected to cross-bars *i*, that pass between lugs *k* in wheel *g*, so that the draft is applied to both wheel and shaft. The shaft *f* extends down through the mill and below the metal bottom plate, *l*, and has attached to it fingers *m*, of any suitable number. The lower fingers are set with a bevel inclining upward and forward in the direction of rotation, so that they shall act to force the material downward and into the molds below.

In the bottom plate, *l*, besides the hole for the shaft, is an opening, *n*, as wide as the compartments of the molds are long. The molds *o* are formed with compartments for the bricks or tiles, and also with racks *p* on their under sides, so that when placed in line the rack is continuous, and they move upon friction-rollers *r*, that are carried by cross-shafts on horizontal timbers, so that the molds may move freely in a continuous line beneath the mill, with the racks engaging the gear-wheel *s* of driving-shaft *t*. The friction-rollers *r* serve to retain the molds in line, both horizontally and vertically, whereby the molds are caused to pass closely beneath the bottom plate, *l*, and below the aperture *n*.

The shaft *t* is driven by connections from the wheel *g* at the top of the mill as follows: *u* is a beveled pinion engaging wheel *g*. *v* is a pulley on shaft of pinion *u*, connected by belt with a pulley on shaft *t*, and there is also on this shaft a pulley, *w*, connected by belt to a pulley on a cross-shaft, *a'*, that is fitted across the frame and above the molds at the delivery side. This shaft carries a roller, *b'*, which is set with its lower surface flush with the molds, and extends from one side board, *c'*, to the other, the boards serving to confine the material while the roller compresses it into the molds. There is a board or metal plate, *d'*, fitted back of roller *b'* and flush with the top of the molds, for giving a smooth surface to the top of the brick or tile. There is an opening, *e'*, cut in the side of the mill at the delivery side, of the same width as the aperture in bottom plate, *l*, and partially covering this opening is a door, *f'*, that is hinged to a sliding panel, *g'*, fitted in vertical slideways. Strong springs *h'*, attached to the panel, bear on the door, so as to resist the pressure of the plastic material, but allow the door to rise for the passage of a stone or other hard substance, and when this occurs the obstacle can be removed before passing beneath the pressure-roller. The panel *g'* is raised more or less to vary the opening beneath the door, and thus regulate the quantity of material pushed out by the molds. At the front of the mill and over the molds are friction-rollers *i'*, for retaining the racks in engagement with gear-wheel *s*, and there may be feed-rollers placed between the roller *b'* and mill, or within the mill, if desired.

In the operation of the machine, the material placed in the mill is ground and tempered by the action of the fingers on the revolving shaft, and settles down through the opening in the bottom plate into the molds, and is carried out by them, (and by the feed-rollers, if used,) and the molds are completely filled by the action of the pressure-roller. In case of a

stone getting into the mill the shaft is free to rise in order that the fingers may pass it. The filled molds are emptied, cleaned, and sanded, and then used as before.

The machine may be driven by horse or steam power.

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

1. In a brick-machine having racked molds, the frame *a b c*, provided with the casting *d*, in its top carrying friction-wheels, the shaft *f*, and sweeps *h h*, cross-bars *i*, and downward-projecting beveled gear *g*, secured to the cross-bars *i* and resting on the friction-rollers, gear and pinion *u v*, driven by the bevel-gear, and a pulley and pinion, *w s*, at the bottom of the frame, connected with the mold-rack and with the pulley *v*, substantially as set forth.

2. In a brick-machine, the horizontal apertured bottom plate, *l*, a sliding mold-frame beneath the same, opening *e'*, vertical sliding panel *g'*, and hinged door *f''* for said opening, and the springs *h'*, bearing on said hinged door, for the purposes set forth.

ROBERT UNDERWOOD.

Witnesses:

R. W. COVINGTON,

D. W. WRIGHT.