

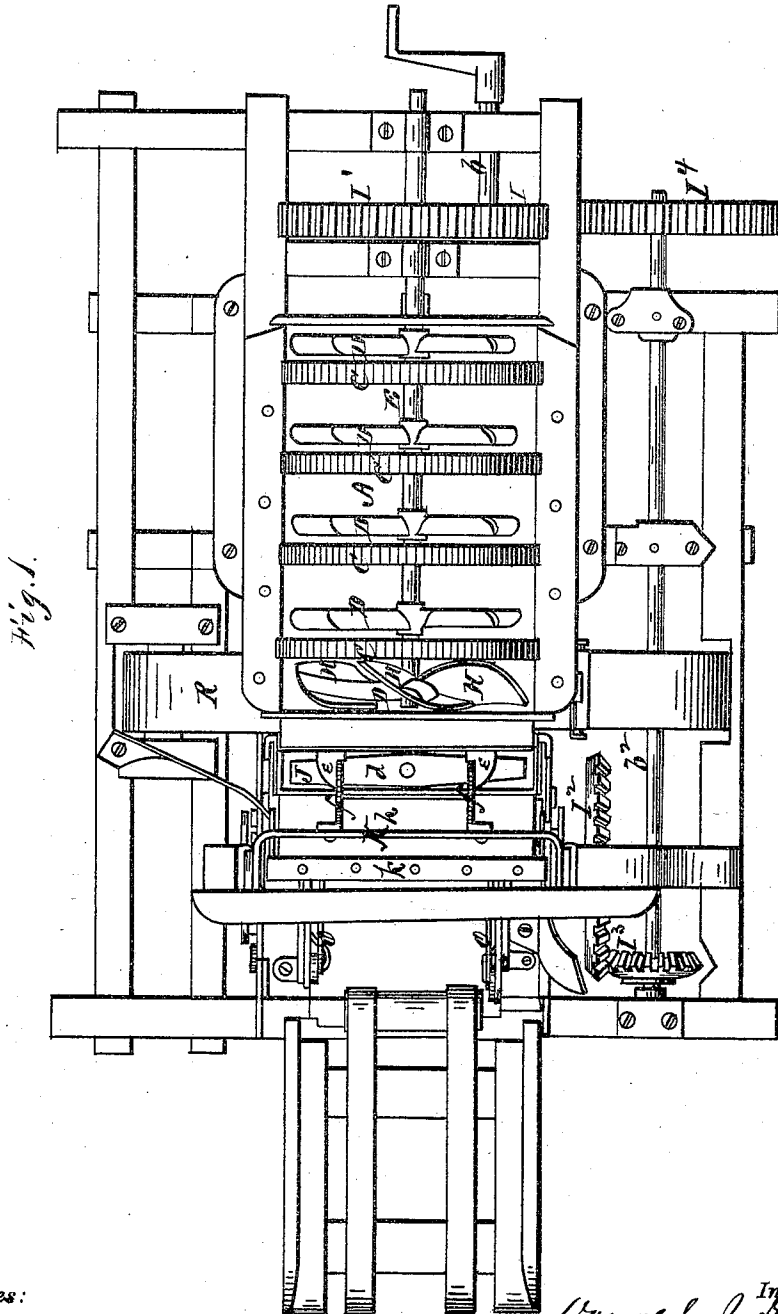
2 Sheets--Sheet 1.

D. J. IRWIN & H. S. LANGDON.

Brick-Machines.

No. 141,560.

Patented August 5, 1873.



Witnesses:
H. L. Curand
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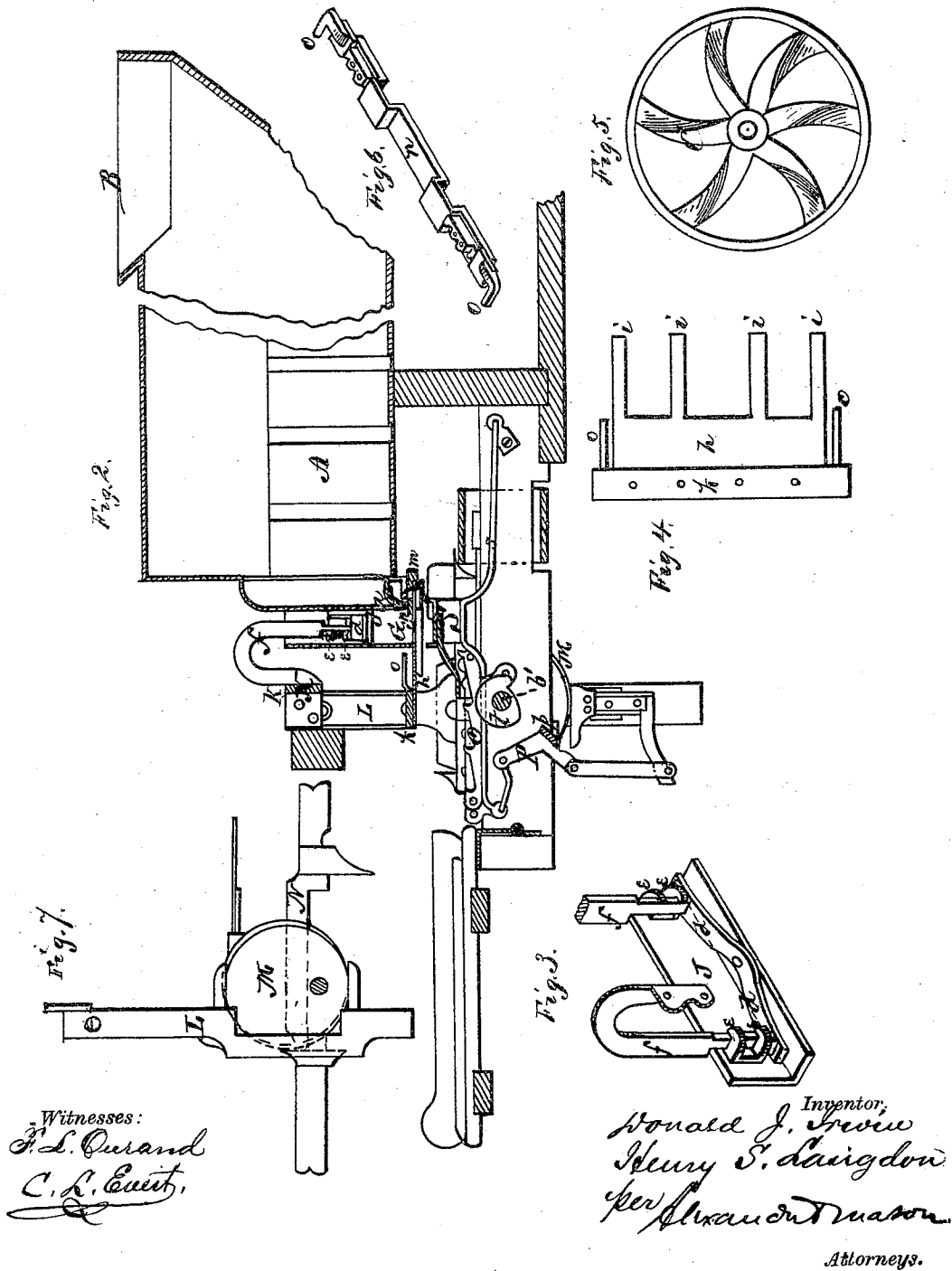
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UNITED STATES PATENT OFFICE.

DONALD J. IRWIN AND HENRY S. LANGDON, OF NOBLE, ILLINOIS.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. 141,560, dated August 5, 1873; application filed June 14, 1873.

To all whom it may concern:

Be it known that we, DONALD J. IRWIN and HENRY S. LANGDON, of Noble, in the county of Richland and in the State of Illinois, have invented certain new and useful Improvements in Brick-Machine; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon making a part of this specification.

The nature of our invention consists in the construction and arrangement of a brick-machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe a machine in which our invention is embodied, referring to the annexed drawings, in which—

Figure 1 is a plan view, and Fig. 2 a longitudinal section, of our machine. Figs. 3, 4, 5, 6 are detached views of certain parts of the same.

A represents a longitudinal drum with hopper B at the front end, which drum, with interior devices, forms the mill or mixing apparatus. The drum A incloses two series of beaters or mixers, one stationary and the other revolving. The stationary set or series consists of wheels C C having curved spiral-shaped arms, as shown in Fig. 5, and the rotating set consists of similar wheels D D, except that they have no rim. All the rotating mixers are attached to a shaft, E, which passes centrally through the drum A and through the centers or hubs of the stationary mixers C C, which latter are placed in and held by grooves in the lower half of the drum A. The last of the rotary mixers D is provided with wings H H, as shown in Fig. 1. The office of the mill thus constructed is to grind, temper, and supply material to the molding apparatus, said material being driven, when received at the hopper B, by means of the above-described curved spiral-shaped arms along and through a slot, *a*, in the rear end of the drum, into the chamber G of the molding apparatus. The mill is driven by cog-gearing I I from a shaft, *b*, said shaft with the gear I revolving from right to left, thereby reversing the motion of the mill,

causing it to revolve from left to right. The chamber G of the molding apparatus is attached to the rear end of the mill A, and communicates with the same by means of the slot or throat *a*. In the chamber G is fitted a plunger or tamp, J, for the purpose of driving the material, when received through the throat *a* communicating between the mill and chamber, downward into cases or molds. The plunger or tamp J is fitted with a spring, *d*, so as to prevent too great pressure, and accommodating itself to the excess or lack of material received in the chamber, said plunger in its descent filling the mold or case then in position under the chamber, and at the same time closing the slot or throat *a* through which the mud passes into the chamber, and in its ascent leaving said throat or slot open so as to admit a supply for the next mold or case. The plunger J is attached to a cross-bar, K, by perpendicular bars or arms *ff*, which arms are rigidly attached to the cross-bar, and flexibly attached to the plunger or held to the same by clutches *e e*, the ends of the spring *d* bearing against the lower ends of said arms. The cross-bar K, with its arms *ff*, is attached to perpendicular sliding bars L L, which are driven upward and downward by means of eccentrics M M, thus communicating a vertically-reciprocating motion to the plunger. The eccentrics M M are secured on a shaft, *b*¹, which, by bevel-gears I² I³, are connected with a shaft, *b*², and this shaft, by a gear, I⁴, receives its motion from the gear I on the power-shaft *b*. *h* represents the knife or trimmer, which is located at the bottom of the chamber G, and is arranged as follows: The back edge of the knife is attached to and supported by a cross-bar, *k*, and the front edge is provided or made with arms or bars *i i*, of sufficient length to reach beyond the chamber G when withdrawn, and are supported in slides or clutches *m m*. The object of the arms or bars *i i* is to form a support to the edge of the knife or trimmer, and at the same time serve as a protection to the ends and partitions of the cases by forming a projection over the same so as to prevent the removal of the sand by the descending mud. When the knife is withdrawn the front edge forms a projection over the rear edge of the case so as to prevent disturbing the sand. The

forward side of the chamber G is provided with a cut-off bar, *n*, which is slotted or grooved, as shown in Fig. 6, so as to be fitted neatly to and rest on the above-mentioned knife bars or arms *i i*, and when the knife is withdrawn forms a projection over that edge of the case. When the knife is thrown forward said cut-off bar *n* is driven from over the edge of the case by adjustable knockers or bumpers *o o* attached to the cross-bar *k* and cut-off bar *n*. These bumpers or knockers are so arranged as to allow the edge of the knife and cut-off just to touch without receiving the force of the stroke on the knife-edge. The knife or trimmer *h* when thrown forward trims the case, after which the case is lowered and removed and an empty case taking its place under the chamber, the knife remaining in such a position as to form for the moment a temporary bottom to the chamber—that is, during the removal of the loaded and the adjustment of a new case, and the raising of the plunger or tamp J. These last-described motions being completed the knife is withdrawn. The cross-bar or knife-support *k* is attached to horizontal slide-bars N N, which are moved at the proper times by the above-mentioned eccentrics M M. The case-feeder or apparatus for adjusting the cases consists of two horizontal bars, O O, with projections on their upper edges, and operated by elbow-levers P and rock-shaft *p*, the levers being suitably connected with the lower ends of the vertically-reciprocating slides L L. The elbow-levers P are used so as to obtain a rise and fall of the horizontal bars O O—the rise in the forward motion and the fall in the recoil. The upward motion is for the purpose of allowing the projections on the bars O O to catch the case, and the fall in the backward movement to avoid interfering with the cases thrown forward in

that movement. The case-table consists of two parallel rods, *s s*, and platform S fitting the bottom of the case, and hinged or pivoted at one end, and the other resting on the cams *t*, which are fastened on the shaft *b*¹. The office of this case-table is to adjust the empty case to the bottom of the chamber G, and it is raised and lowered by the above-mentioned cams *t*. The filled cases are carried out on one side of the machine by an endless apron, R.

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

1. In combination with the horizontal bar *k*, to which the plunger is connected, the vertical slides L and eccentrics M, substantially as and for the purposes herein set forth.

2. The knife or trimmer *h* provided with arms *i i*, substantially as and for the purposes herein set forth.

3. In combination with the arms *i i* on the knife *h*, the clutches *m m*, for the purposes herein set forth.

4. The cut-off bar *n* and knockers or bumpers *o o* operating in combination with the knife *h* and its arms *i i*, substantially as and for the purposes herein set forth.

5. The combination, with the knife *h* and its supporting-bar *k*, of the horizontal slide-bars N N and eccentrics M M, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 2d day of June, 1873.

D. J. IRWIN.
H. S. LANGDON.

Witnesses:

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