No. 687,937. Patented Dec. 3, 1901.

H. C. LA FLAMBOY.

PLATE FILLING APPARATUS FOR MATCH MACHINES.

(Application filed May 23, 1901.)

(No Model.)

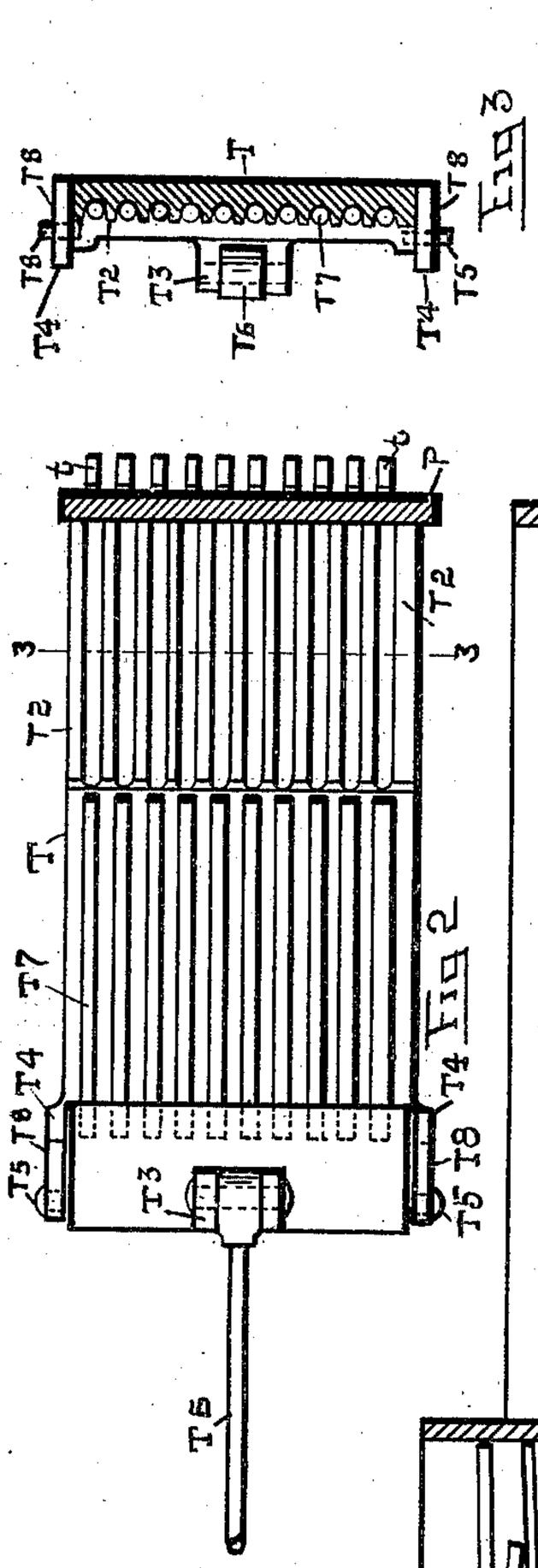

FIG 3

FIG 2

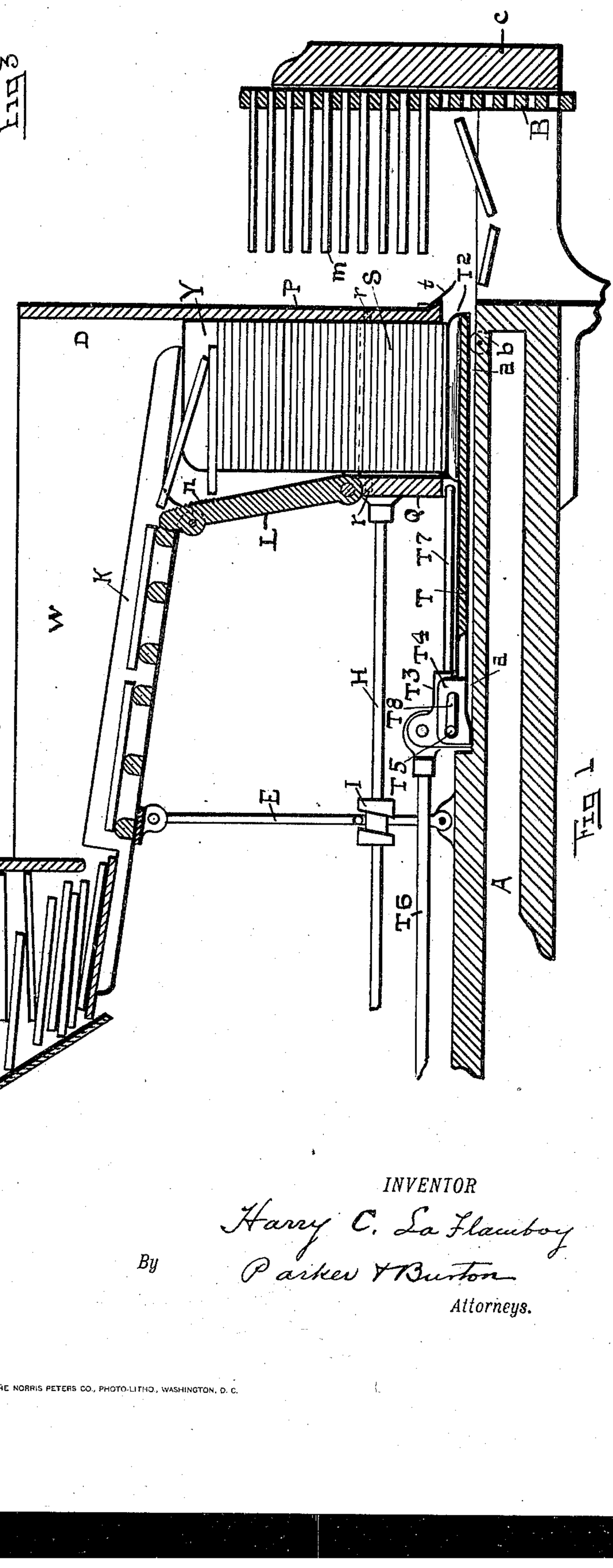

FIG 1

WITNESSES

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HARRY C. LA FLAMBOY, OF DETROIT, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO ROBERT THUNER AND BETHUNE DUFFIELD, OF DETROIT, MICHIGAN.

PLATE-FILLING APPARATUS FOR MATCH-MACHINES.

SPECIFICATION forming part of Letters Patent No. 687,937, dated December 3, 1901.

Application filed May 23, 1901. Serial No. 61,589. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. LA FLAMBOY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Plate-Filling Apparatus for Match-Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to plate-filling apparatus for match-machines; and it consists in the improvements hereinafter described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a cross-section of so much of a match-making machine as is necessary to illustrate my invention. Fig. 2 is a plan view of the feeding-plate and mechanism directly attached thereto. Fig. 3 is a cross-section on line 3 3, Fig. 2.

Similar letters refer to similar parts.

A is the base of the machine. The base A is cut out at its upper surface toward the delivery end of the mechanism, as indicated at *a a*, Fig. 1. Into said cut-out portion of the base A is placed the delivery-plate T.

b is a roller supporting the forward end of the delivery-plate T. Upon the upper surface of the forward end of the plate T are formed flanges T^2, leaving grooves between them, each of which is adapted to receive a single match-stick.

T^3 is a cross-head upon the upper surface of the rear end of the plate T and provided with laterally-projecting pins T^5, which project into short slots T^8 in the upturned ears T^4, which ears rise from the sides of the feed-plate T at its rear end.

T^7 represents rods projecting from the cross-head T^3 and adapted to pass between the flanges T^2.

T^6 is a connecting-rod pivoted to the cross-head T^3 and adapted by suitable mechanism (not shown) to reciprocate said cross-head.

At a distance from the delivery end of the base A somewhat greater than the length of a match-stick is located the guide-plate C, along the inner surface of which the carrier-plates B pass, one of said plates being shown in position in Fig. 1 partly filled with match-sticks *m*. A space is left between the base A and the plate B, so that unsupported sticks will fall therethrough. The plates B are perforated perpendicular to their surfaces with a large number of holes adapted to receive and retain the match-sticks.

Above the flanged and grooved portion of the feed-plate T is located a magazine S, having movable cross-partitions therein and bounded on the inner side by the plate Q and on the outer side by the plate P, which latter extends vertically above the top of said magazine, as indicated in Fig. 1. The movable cross-partitions are pivoted at *r r* to the plates P Q.

J is a hopper located at the inner end of a trough W. The sides D of the trough W extend by and close to the sides of the plate P and form upward extensions of the ends of the magazine S. The trough W has an inclined bottom or runway for the matches located some distance above the top of the magazine S.

L is a plate pivoted at its lower edge to the upper edge of the inner side of the magazine S and at its upper edge pivoted to the end of the slideway or inclined bottom K of the trough W. The inner surface of the plate L is provided with corrugations *n*. The inner end of the trough W is pivoted to a rock-arm E, which arm may be oscillated by a grooved cam I upon a shaft H.

t represents pawls extending downward and outward from the lower edge of the plate P.

Y represents vertical partitions in the downwardly-extending portion of the trough W, above the partitions R.

The operation of the above-described device is as follows: When the cross-head T^3 first begins to move forward, the pins T^5 pass along in the slots T^8 until they come in contact with the portion of the ear T^4 at the forward end of said slot. In its further movement the feed-plate T is carried forward with the cross-head T^3. The first movement of the cross-head T^3 projects the rods T^7 into the slots at the forward end of said feed-plate, pushing the splints that have fallen therein

forward, so that their forward ends protrude beyond the forward end of said feed-plate. The feed-plate is then moved forward until the ends of the splints register with the apertures in the plate B, and in its further movement the feed-plates press said splints into said apertures. On the return motion of the feed-plate T the splints are retained by the apertures in the plate B and are held from being drawn back with the feed-plate by the pawl-plates *t*. The perfect sticks are supported by the plate T until thrust into the aperture of the plate B, and if a match is broken or bent so that it does not register properly with the holes in the plate B the pawl-plates prevent it from returning with the feed-plate and it is permitted to drop through the opening between the base of the machine and the plate B, as indicated in Fig. 1. The match-splints are thrown into the hopper J, from which they slide on the inclined way K toward the forward end of the trough W, and when their forward ends pass from said inclined way into the downwardly-extending passage at the front of the trough W they pass between plates Y and are gradually forced into position in a step-by-step motion by the oscillation of the plate L, the corrugated inner surface of said plate engaging against the inner ends of said match-sticks. From the trough W the match-sticks fall into the magazine S and from said magazine are delivered into the corrugations upon the forward end of the feed-plate T.

The oscillation of the trough W and hopper J and the method of causing the match-sticks to feed accurately one by one to each of the grooves corresponding to those in the forward part of the feed-plate T, except as herein described, are described in the application for Letters Patent for improvements in match-making machinery filed by me April 26, 1901, and having the Serial No. 57,564.

What I claim is—

1. The combination of a stationary magazine for receiving match-sticks, a runway located above said magazine and adapted to deliver a match-stick to said magazine with its length in a certain direction, a plate pivoted to the upper edge of one side of said magazine and to said runway, the wall of the stationary magazine that is opposite said pivoted plate extending approximately to the level of said runway, and means for reciprocating said runway in the direction of the length of the match-stick.

2. The combination of a stationary magazine for receiving match-sticks, a runway located above said magazine and adapted to deliver a match-stick to said magazine with its end in a certain direction, a plate pivoted to the upper edge of one side of said magazine, and to said runway, and having its inner surface corrugated, the wall of the stationary magazine that is opposite said pivoted plate extending approximately to the level of said runway, and means for reciprocating said runway in the direction of the length of the match-stick.

3. The combination of a stationary magazine for receiving match-sticks, a runway located above said magazine and adapted to deliver a match-stick to said magazine with its length in a certain direction, a plate pivoted to the upper edge of one side of said magazine inclining to the vertical away from said magazine and pivoted to said runway, the wall of the stationary magazine that is opposite said pivoted plate extending approximately to the level of said runway, and means for reciprocating said runway in the direction of the length of the match-stick, the amplitude of said reciprocation being less than would be necessary to bring said plate to a vertical position.

4. The combination of a stationary magazine for receiving match-sticks, a runway located above said magazine and adapted to deliver a match-stick to said magazine with its length in a certain direction, a plate having a corrugated inner surface pivoted to the upper edge of one side of said magazine, inclined to the vertical away from said magazine and pivoted to said runway, the wall of the stationary magazine that is opposite said pivoted plate extending approximately to the level of said runway, and means for reciprocating said runway in the direction of the length of a match, the amplitude of said reciprocation being less than would be necessary to bring said plate to a vertical position.

In testimony whereof I sign this specification in the presence of two witnesses.

HARRY C. LA FLAMBOY.

Witnesses:

MAY E. KOTT,

ELLIOTT J. STODDARD.