

S. E. RAHE.
MATCH MAKING MACHINE.
APPLICATION FILED OCT. 16, 1908.

951,381.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

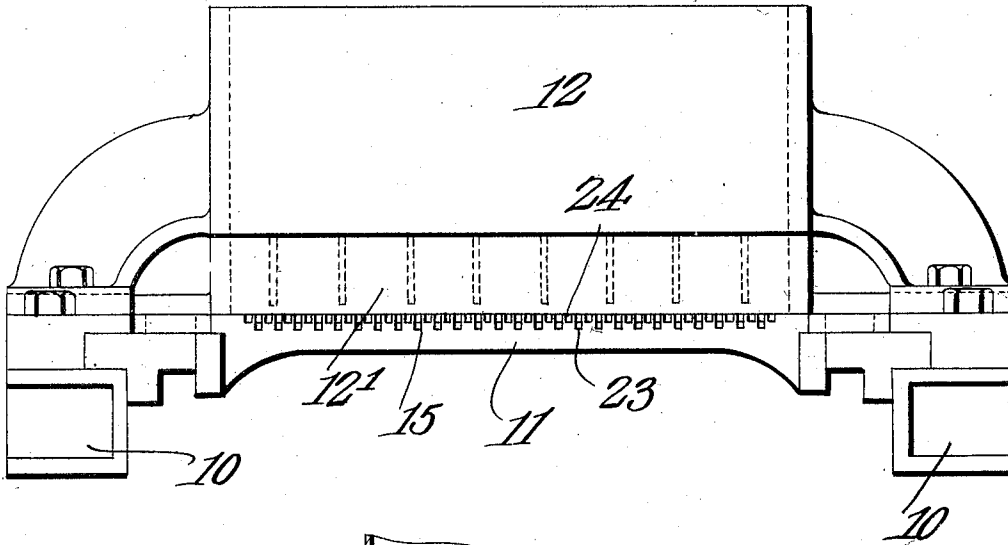
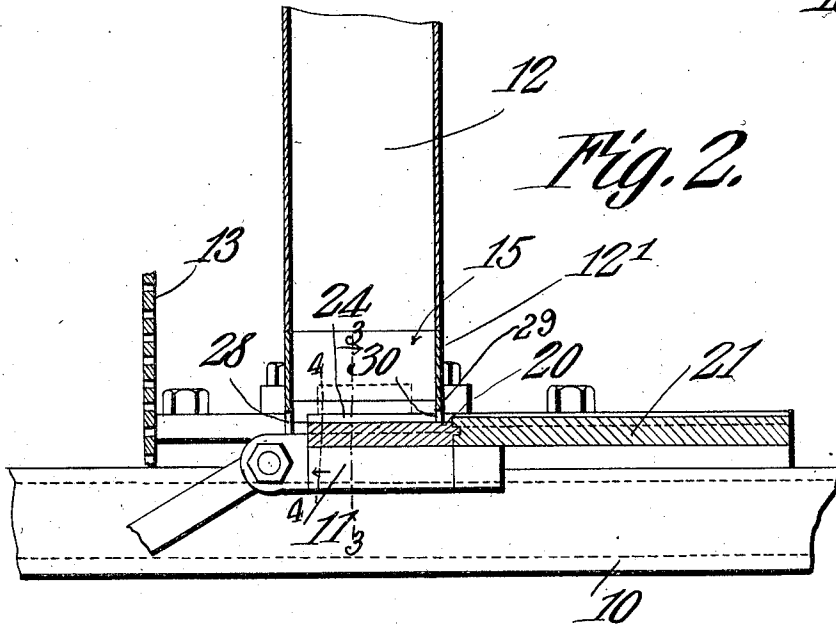


Fig. 2.



Witnesses

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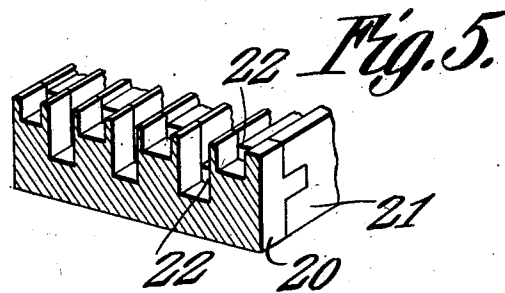
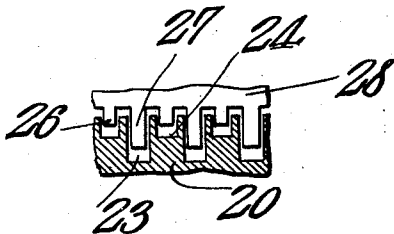
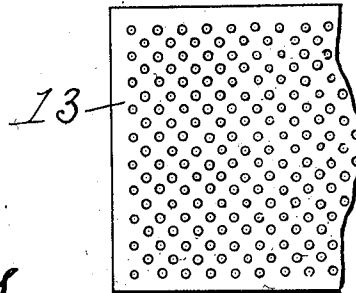
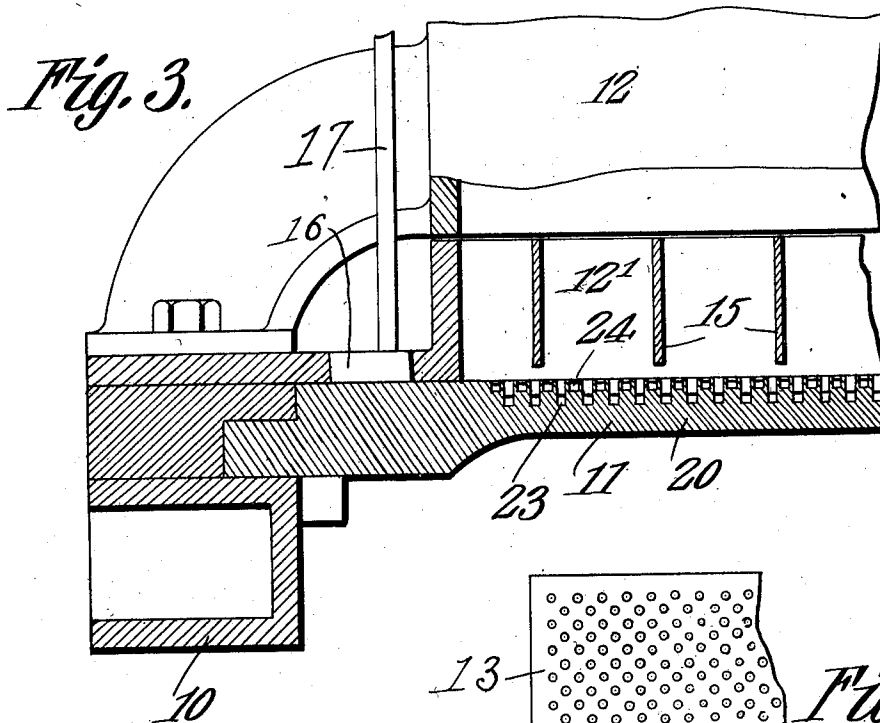
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL E. RAHE, OF BROOKLYN, NEW YORK.

MATCH-MAKING MACHINE.

951,381.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed October 16, 1908. Serial No. 458,122.

To all whom it may concern:

Be it known that I, SAMUEL E. RAHE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Match-Making Machine, of which the following is a specification.

This invention relates to match making machines and particularly to the mechanism employed for inserting the match sticks or splints in the perforated dipping plates.

In commercial machines of this general type where the match sticks are delivered from a containing hopper and forced into the perforations of the dipping plates, it is usual to deliver only a single row of sticks or splints at each operation, and the capacity of the machine is limited by the width of the dipping plates. The sticks or splints cannot be placed closely together for the reason that they would stick together when dipped in the heading composition.

The principal object of the present invention is to materially increase the capacity of the machine by providing means for the delivery of a plurality of rows of match sticks or splints to the dipping plate at each operation, so that the dipping plates which are usually carried by endless belts will be more rapidly fed and the machine may operate at greater speed than is possible with machines of the ordinary construction.

A further object of the invention is to provide a novel form of match stick delivering slide in which the slide is provided with grooves of different depths, so that superposed rows of sticks or splints may be simultaneously discharged from the hopper.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a front elevation of a stick feeding mechanism of a match machine constructed in accordance with the invention. Fig. 2 is

a transverse sectional view of the same drawn to a somewhat larger scale. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2. Fig. 4 is a transverse section on the line 4—4 of Fig. 3. Fig. 5 is a detail perspective view of a portion of the delivery slide. Fig. 6 is a detail view of one of the dipping plates.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The frame 10 of the machine is provided with suitable guide ways for the reception of the opposite ends of a delivery or setting slide 11 which moves under a suitable hopper 12, and is arranged to take the sticks or splints from the bottom of the hopper and force the ends of the same into the perforations in the dipping plate 13. The hopper 12 is formed in two sections, the upper section being rigidly secured to the frame, and the lower section 12' being movable in a direction transversely of the delivery slide for the purpose of slightly agitating the sticks or splints and insuring the filling of the several grooves of the slide. This lower section 12' is preferably provided with a number of partitions 15 which will serve to maintain the match sticks in parallelism and at the same time to agitate the entire mass of sticks so as to prevent their sticking or clinging to the hopper. The section 12' of the hopper may be reciprocated by any suitable mechanism, and in the present instance this portion of the hopper is actuated by a cam 16 that is held by a suitable shaft 17 receiving movement from any portion of the machine. The slide 11 is formed of two metallic plates 20 and 21 which are rigidly secured together, and each of these plates is provided with alining grooves, the grooves in the plate 20 being of greater depth than the grooves in the plate 21, so as to form a series of shoulders 22 against which the ends of the match sticks or splints abut, and by which such sticks or splints are fed outward from the bottom of the hopper. The filling grooves 23 and 24 are of different depths, respectively, the grooves 23 being of approximately twice the depth of the grooves 24, and said grooves are arranged in alternate order throughout the entire width of the slide, so that the match sticks or splints will

be fed in two superposed rows, and two rows of perforations of the plate 13 will be filled at each operation of the slide.

In order to prevent the feeding of more than one match splint from each groove, a series of tongues 26, 27 are formed on the lower face of a transversely extending bar 28 at the discharge side of the hopper. The tongues 26 fit down in the shallower grooves 24, while the tongues 27 extend down into the deeper grooves 23 leaving just sufficient space in each of the grooves for the discharge of a single match stick. To prevent the withdrawal of match sticks from the hopper in the reverse direction as the slide is returning from the dipping plate, a series of tongues 29 are formed on the lower side of a transversely extending bar 30, these tongues extending down and completely filling the grooves in the plate 21 of the slide, so that the match sticks cannot be drawn from the rear side of the hopper.

The delivery slide is reciprocated by mechanism of any desired type, such mechanism being well known to those skilled in the art, and the extent of the movement is such that the shoulders 22 of the slide will always be brought back a slight distance to the rear edge of the hopper, so as to permit the falling of the match sticks into the grooves.

The principal advantage of the present invention is in the increase in capacity of the machine. In machines feeding a single row of match sticks at one operation, the delivery slide may be reciprocated at a speed depending on the filling of the match splints into the grooves, and the grooves must be spaced from each other a considerable distance in order to permit the formation of separate heads on the ends of the sticks at the dipping operation. In the present instance the grooves may be placed very closely together, so that the entire width of the slide is utilized and separate superposed rows of sticks are fed at each reciprocatory movement of the slide, and the latter being moved

at a speed equal at least to the speed at which the ordinary single row machine is operated.

It will be observed on reference to Fig. 6 that the receiving openings of the dipping plate are disposed in staggered relation, as distinguished from the ordinary dipping plate where all of the openings are arranged in horizontal and vertical rows. It is, of course, necessary that the openings be spaced from each other a distance sufficient to permit the formation of perfect heads of the knife splints, and where the openings are disposed in horizontal and vertical rows a number of such openings must be considerably less than where the openings are disposed in staggered relation, so that by the employment of the delivery mechanism and the dipping plate described, the capacity of the machine is doubled so far as feeding is concerned, and the capacity of the dipping plates is increased about 50%. Aside from this the arrangement of the openings in staggered relation will permit the boxing of the matches in a manner more correct and more speedy than can be practiced where the openings are in the same vertical lines.

What is claimed is:—

1. In a match making machine, a delivery slide having grooves of different depths provided with fixed end abutting shoulders and arranged to deliver sticks simultaneously in different parallel planes.

2. In a match making machine, a delivery slide having grooves of different depths, and tongues extending into the grooves and spaced at their ends from the bottom of the grooves.

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

SAMUEL E. RAHE.

Witnesses:

CHARLIE TERULLIGER,
FREDERICK C. LEHMANN.