

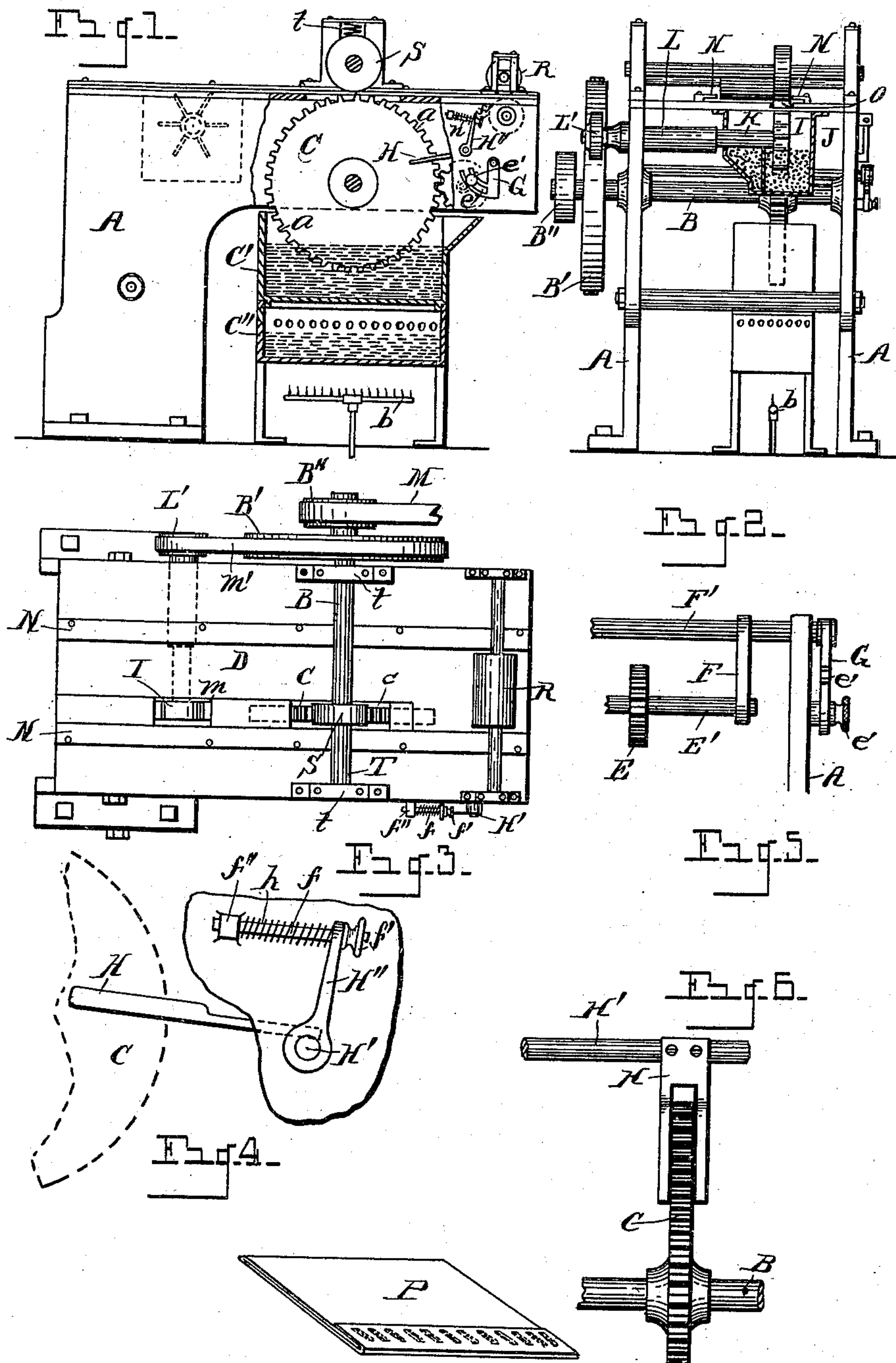
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Patented Oct. 17, 1899.

F. A. MARSHALL.  
MATCH BOX MACHINE.

(No Model.)

(Application filed Dec. 30, 1897.)



WITNESSES

*O. B. Parvizov*  
*Yaller Baidov*

INVENTOR

*Fig. 7* *Fredrick A. Marshall*  
By *R. R. Wheeler & Co.*

Attorneys.



# UNITED STATES PATENT OFFICE.

FREDERICK A. MARSHALL, OF DETROIT, MICHIGAN.

## MATCH-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 635,142, dated October 17, 1899.

Application filed December 30, 1897. Serial No. 664,717. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK A. MARSHALL, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Gluing and Sanding Machines for Match-Boxes; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a gluing and sanding device for match-boxes; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide simple and efficient means for applying sand to the shuck of the match-box in a series of short individual strips or spaces, effecting a saving in the use of sand and producing a surface upon which the match may be readily ignited, which object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine, parts of the frame being broken away to more clearly show the construction and arrangement of parts. Fig. 2 is an end elevation of the same, the sand-box being partly in section. Fig. 3 is a plan view of Fig. 1. Fig. 4 is an enlarged detail of the scraper and actuating means which serve to scrape the glue from the sides of the gluing-wheel. Fig. 5 is an enlarged detail showing means of mounting the idle pinion, which runs in mesh with the toothed glue-depositing wheel and serves to force the glue from the interstices between the teeth thereof. Fig. 6 is an enlarged plan in detail of the gluing-wheel and scraper. Fig. 7 is an isometrical view of the shuck of the box, showing the manner of depositing the sand thereon.

Referring to the letters of reference, A designates the frame of the machine, which may be of any suitable construction and in which the operative mechanism is located.

Crossing the machine transversely and jour-

naled at its ends therein is the main shaft B, one end of which extends beyond the frame and carries the pulleys B' and B''. Mounted on said shaft between the sides of the frame is the glue-depositing wheel C, which has preferably a solid web and the periphery of which is provided with a series of projections or teeth *a*. The lower arc of said wheel dips into the glue-tank C', which is provided with a burner *b* below a water-chamber C'' therein, to heat the glue and maintain it at the proper temperature. The upper arc of said glue-depositing wheel C is exposed through an opening *c* in the table D of the machine, so that an object passing over the table above said wheel would come into contact with the teeth thereof.

E designates an idle pinion which is mounted on a counter-shaft E', the ends of which are journaled in the opposed arms F, which are fixed upon and extend from a rock-shaft F', journaled in the sides of the frame. The end of said shaft F' extends through the side of the frame and carries a depending bracket G, having a curved way *e* therein which stands concentric with the axis of said shaft F' and through which extends a fixed threaded pin projecting from the frame that receives upon its outer end a thumb-nut *e'*, by which arrangement a loosening of the nut *e'* permits the shaft F' to be rocked through the swinging of the bracket G, whereby the pinion E may be carried into or out of mesh with the teeth of the glue-wheel C and the depth of mesh between said wheel and pinion regulated, the tightening of the thumb-nut *e'* serving to lock said parts when properly adjusted.

The purpose of the idle pinion E running in mesh with the glue-wheel C is to squash or force the glue from the spaces between the teeth thereof, so that the glue is left only upon the extreme points of said teeth, by which arrangement when the shuck of the box is passed over the glue-wheel the glue is deposited thereon in a series of spots or patches instead of in a continuous strip, as in the common practice, forming when the sand shall have been applied thereto a series of short sand ribs or ridges, with interposed spaces extending across the shuck, thereby producing



an efficient roughened surface on which to ignite the match and at the same time effecting a great saving in the use of glue and sand, as only about one-half the amount of sand is required where the glue is deposited on the shuck in this manner.

H designates a glue-scraper, which consists of a bifurcated plate that embraces the sides of the glue-wheel and serves to scrape the glue therefrom as said wheel rotates. This scraper is mounted upon a shaft H', extending transversely of the frame and journaled therein. The outer end of said shaft is provided with an arm H'', the upper end of which is perforated and freely receives the rod f, which passes therethrough and receives on its free end a thumb-nut f', the opposite end of said rod being secured in a lug f'' on the side of the frame. Embracing said rod between said lug f'' and the arm H'' is a coiled spring h, which tends to hold said arm outward against said thumb-nut, but which will yield to permit said arm to move inward upon said rod when actuated by the turning of said thumb-nut, thereby rocking the shaft H' and adjusting said scraper with respect to the glue-wheel C.

Located in the rear of the glue-wheel and in line therewith is a sand-wheel I, which extends into the sand-box J from a shaft K, entering the side of said box, said wheel standing immediately below an opening m in the scraper D of the machine, which communicates with the sand-box.

The shaft K, upon which the sand-wheel is mounted, is journaled in a horizontal sleeve L, which projects inwardly from the side of the frame, the outer end of said shaft passing through the frame receiving a pulley L'. By means of this arrangement one opening only through the sand-box for the passage of the shaft is required, and the sand is in a great measure excluded from the journal of said shaft.

The machine is driven through the belt M, passing over the pulley B'', whereby the shaft B is rotated, and leading from the pulley B' on said shaft is a belt M', which passes over the pulley L' on the shaft of the sand-wheel and drives said shaft at a high rate of speed.

Mounted on the face of the table of the machine are two guides N, which form a way through which the shucks P of the match-boxes are adapted to pass, being fed there-through in consecutive order by means of the feed-rolls R at the end of the machine. The shucks are so fed into the guideway that as they are carried along their edges will pass over the openings c m through the table, whereby the glue and sand are imparted thereto as they pass through the machine, the glue being deposited by the teeth or points of the glue-wheel and the sand being thrown against

the glued surface by the rapid rotation of the sand-wheel and caused to adhere thereto.

It will be seen on referring to Fig. 2 that there is a depression or channel o in the face of the table in line with the glue and sand wheels, which prevents the glue and sand from being spread or wiped from the shuck before being discharged from the machine.

Mounted directly over the glue-wheel C is a compression-roller S, which is mounted on a transverse shaft T, journaled in spring-retained boxes, as shown at t in Fig. 1, which permits said roller to bear with yielding force upon the shucks at a point just above the glue-wheel, so as to force them into contact therewith and insure the depositing of the glue thereon.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for the purpose set forth, the combination of the feeding mechanism, the movable glue-depositing agent having raised glue-bearing faces, intermediate spaces between said faces, an idler meshing with the faces in said glue-depositing agent to force the glue therefrom, and the rotary sand-wheel in line with said glue-depositing agent.

2. In a machine for the purpose set forth, the combination with the shuck-feeding mechanism, of the rotary glue-wheel having a series of teeth on its periphery, the idle roller meshing with said glue-wheel to exclude the glue from the spaces between its teeth, and the sand-applying mechanism.

3. In a machine for the purpose set forth, the combination with the sanding mechanism, of the rotary glue-wheel having peripheral teeth, the idler meshing therewith, and the adjustable scraper embracing the sides of said glue-wheel.

4. In a machine for the purpose set forth, the combination with the sanding mechanism, of the rotary glue-wheel having peripheral teeth, the idler adapted to mesh with the teeth of said glue-wheel, and the means for adjusting said idler, substantially as set forth.

5. In a machine for the purpose set forth, the combination of the glue-wheel having peripheral projections, the idler meshing therewith, the swing-shaft on which said idler is mounted journaled in arms which connect said shaft with a parallel rock-shaft, the bracket on the end of said rock-shaft through the movement of which said idler may be adjusted, and means for locking said bracket.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK A. MARSHALL.

Witnesses:

E. S. WHEELER,  
M. A. MARTIN.