

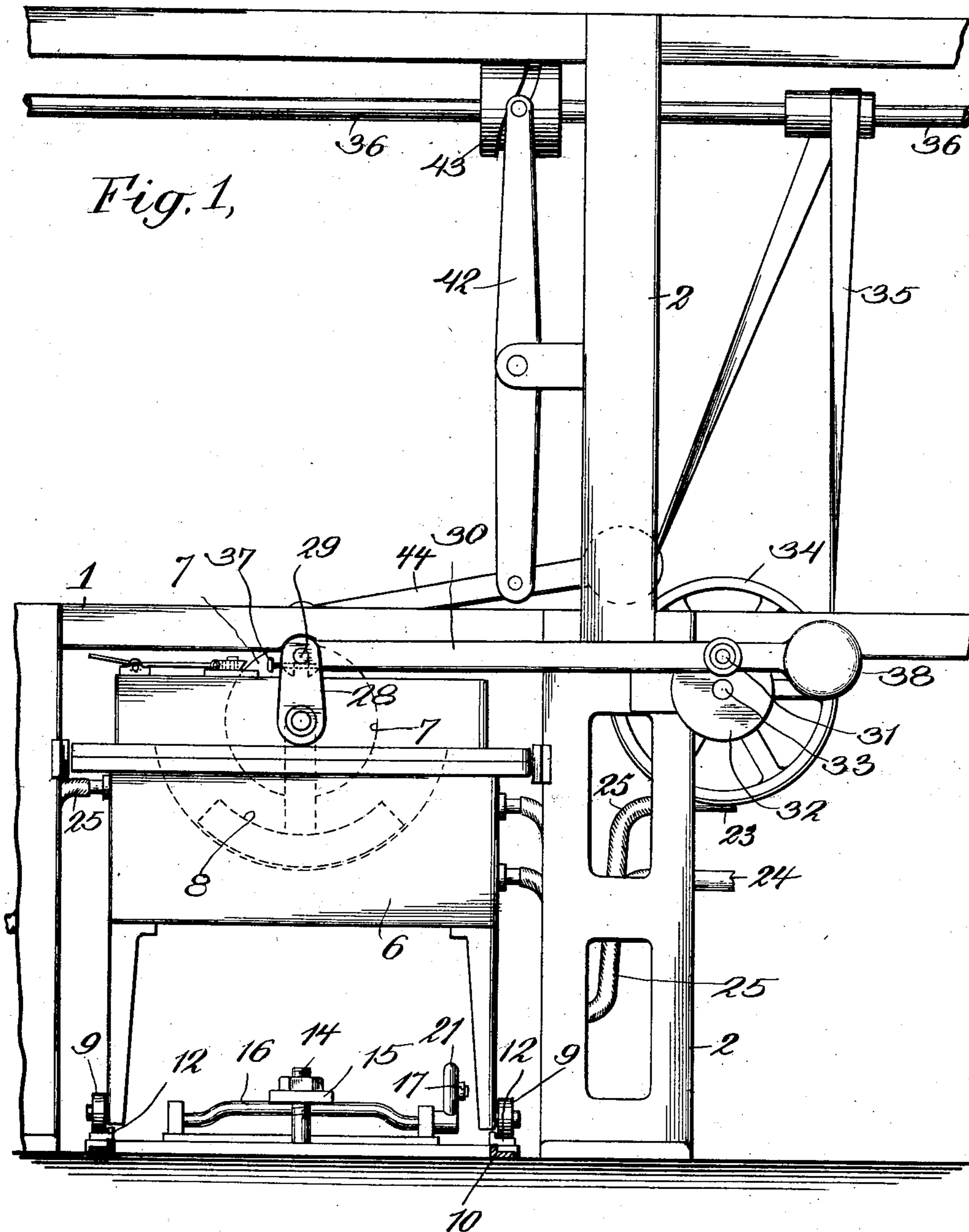
No. 758,618.

PATENTED MAY 3, 1904.

A. B. CALKINS.
MATCH MAKING MACHINERY.
APPLICATION FILED JUNE 8, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
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A. J. Moller.

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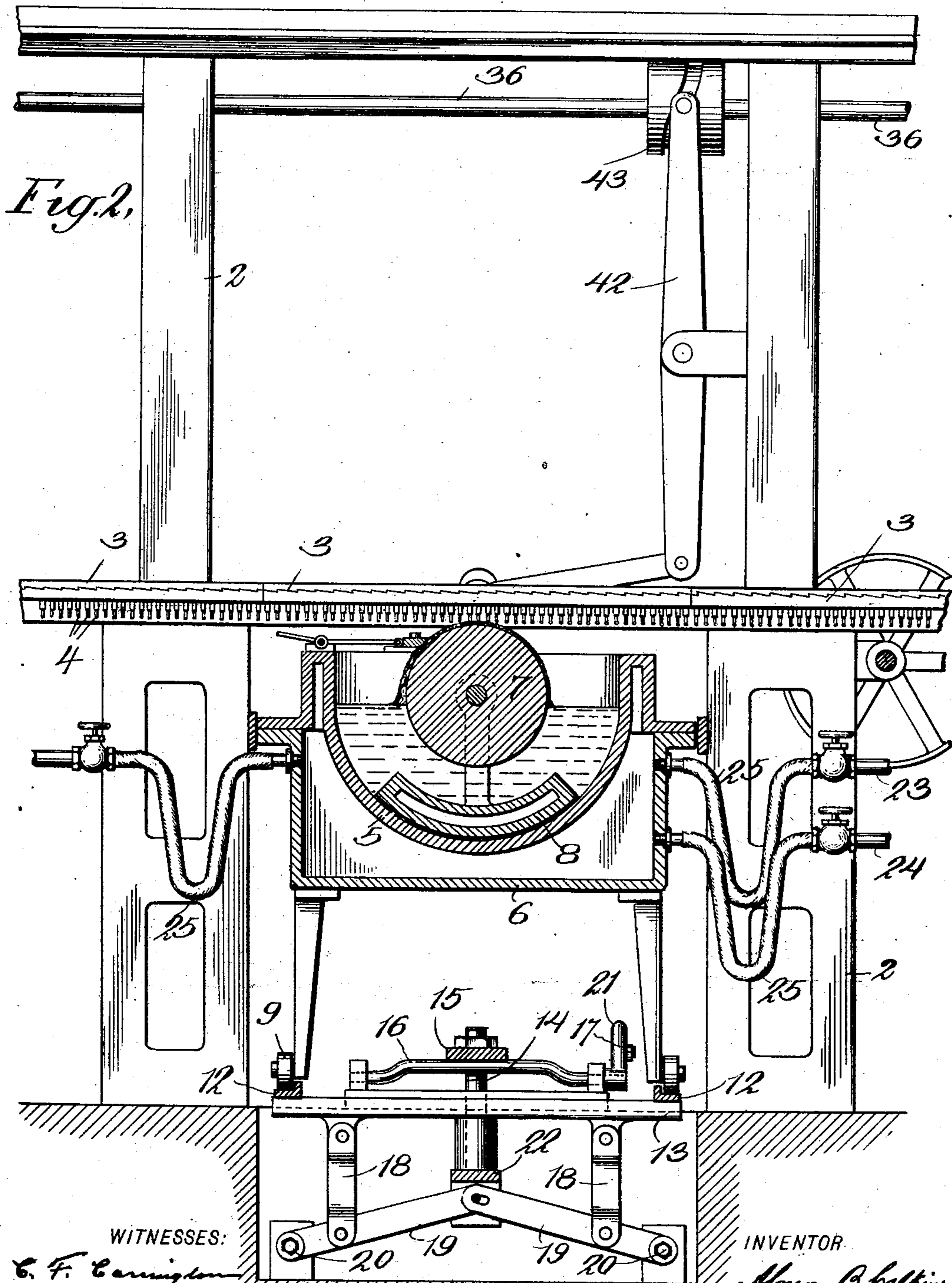
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3 SHEETS—SHEET 2.



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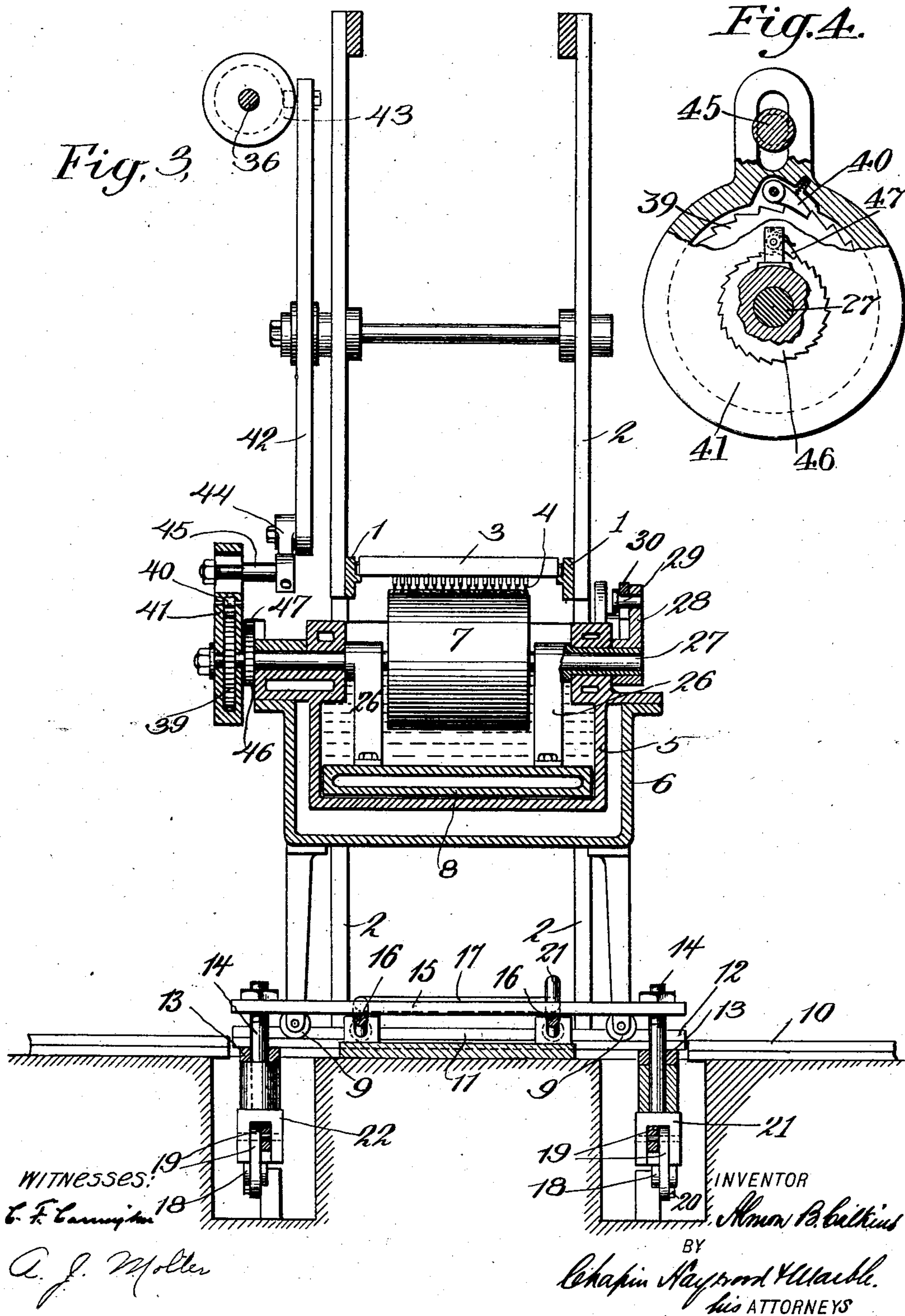
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

ALMON B. CALKINS, OF NUTLEY, NEW JERSEY, ASSIGNOR TO AMERICAN MATCH MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MATCH-MAKING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 758,618, dated May 3, 1904.

Application filed June 8, 1903. Serial No. 160,520. (No model.)

To all whom it may concern:

Be it known that I, ALMON B. CALKINS, a citizen of the United States of America, residing at Nutley, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Match-Making Machinery, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to match-making machinery, and particularly to improvements in splint-heading mechanism such as is employed for applying match composition to splints in the manufacture of matches.

My invention comprises means permitting removal of the splint-heading mechanism from beneath the splint-carrier runway; and the object of my invention is to permit the tank carrying the match composition to be easily and quickly removed in case the composition should become ignited.

To this end my invention consists in certain novel construction and combination of parts, as will hereinafter be more fully set forth.

I will now proceed to describe mechanism embodying my invention and will then point out the novel features in claims.

In the drawings, Figure 1 is a view in side elevation of mechanism embodying my invention. Fig. 2 is a view in central vertical longitudinal section of same. Fig. 3 is a view in a substantially central transverse section of the same. Fig. 4 is a detail view, transverse of the composition-roller-carrying shaft, showing the means for imparting a step-by-step movement of rotation to the composition-roller.

In the present embodiment of my invention I have illustrated only such portions of match-making machinery as are necessary for the full comprehension of my invention, it being understood that the splint-runway may lead on one side from the splint-forming machinery and the paraffin-applying mechanism and on the other side may lead to the drier and boxing devices.

The splint-carrier runway comprises two

tracks 1 1, supported from a suitable framework 2.

3 designates the splint-carriers, here shown as supporting splints 4 to be headed.

The heading mechanism comprises a composition-tank 5, jacketed at 6, a composition-applying roller or feeding device 7, and a stirrer 8. The roller 7 and the stirrer 8 are suitably journaled in bearings carried by the composition-tank 5.

The splint-heading mechanism is supported upon rollers 9, adapted to run upon a track 10, arranged in a direction divergent with respect to the direction of the splint-carrier runway. Herein the track 10 is arranged in a direction at right angles to the runway 1 and passes beneath same. The track 10 is arranged with that portion immediately beneath the runway 1 as a vertical adjustable section 11. This section 11 comprises two short rails 12 12, mounted upon ties 13, the rail portions 12 and ties 13 forming a substantially rectangular frame. This frame is carried suspended by two suspension-rods 14 from a cross-head 15, the cross-head 15 being in turn supported upon two eccentric-rods 16, connected together by a link 17 and forming a tripping mechanism. The movable track-section is further steadied by link connections 18 with levers 19, pivotally supported at their outer ends at 20 and arranged with a slot-and-pin connection at their inner ends, with yokes 22 carried by the suspension-rods 14. The tripping mechanism 16 and 17 is provided with an operating-toe 21.

The parts are shown in their normal operating position in the drawings, with the heading mechanism arranged immediately beneath the runway 1 and the adjustable track-section shown in its uppermost position. If for any reason it becomes necessary to remove the heading mechanism from beneath the runway, a slight movement to the right or left of the toe 21, such as may be effected by touching the same with the foot, will immediately cause the composition-tank roller, &c., to drop and to bring the movable section of the track 10

in a line with the main portion, so that the mechanism may be transversely moved away from beneath the runway. Certain connections, however, are necessary for the normal operation of the splint-heading mechanism, such as steam and water connections for the jacketed tank and operating connections for the rotatable roller 7 and the movable stirrer 8. In order, therefore, to permit ready and quick removal of the splint-heading mechanism when necessary, I have provided the ordinary steam and water circulating pipes 23 and 24 with flexible connections 25 to the said jacketed tank, such as will permit the desired range of movement of the heading mechanism without disconnecting same from such circulating-pipes, and I have provided means for the ready disconnection of the operating means for the feeding-roller and stirrer, as I will now proceed to describe.

The stirrer 8 is suspended by two arms 26, sleeved upon a shaft 27, carrying the roller 7, and one of the sleeved portions of the said arms 26 is extended through the wall of the tank 5 and is provided with a lever 28, carrying a wrist-pin 29. The wrist-pin 29 is engaged by a connecting-rod or pitman 30, journaled at its opposite end upon the crank-pin 31, secured to a rotatable crank-disk 32. The crank-disk 32 is mounted upon a transverse shaft 33, carrying a belt-pulley 34, deriving its movement from a belt connection 35 with the main shaft 36. Rotation of the shaft 33 and of the crank-pin 31 produces reciprocating movement of the lever 28 and correspondingly of the stirrer 8, to which it is connected. A pin 37 or other suitable device, such as may be quickly removed or thrown out of operative connection when desired, retains connection between the pitman 30 and the wrist-pin 29 of the operating-lever 28, and thus it will be merely necessary when it is desired to disconnect the operating mechanism to remove the pin 37 and to throw the pitman 30 up out of engagement with the wrist-pin 29. I have shown the connecting-rod 30 counterbalanced at 38, so that once thrown up it will remain up out of the way of the composition-tank and parts carried thereby until it is again connected for further operation.

The shaft 27 of the roller 7 is provided with a ratchet-wheel 39, operated by a pawl 40, carried by an operating-lever 41, vibrated by connection with a lever 42, controlled in its movements by a cam 43 upon the main shaft 36. Connection between the levers 41 and 42 is by means of a connecting-rod or pitman 44, pivoted to the lower end of the lever 42 and having a connection with a wrist-pin 45, carried by the operating-lever 41, similar to the connection just described between the pitman 30 and the operating-lever 28, and intermittent step-by-step movement is thereby imparted to rotate the roller intermittently, it

being understood that the splint-carriers 3 are usually designed to be carried forward intermittently and that the surface movement of the roller 7 should be synchronous with the surface movement of the splints conveyed by the splint-carriers. A second ratchet-wheel 46 and a stop-pawl 47 may be employed for preventing backward movement of the roller 7.

From the foregoing it will be apparent that should the composition in the tank 5 become ignited, and such ignition is not of infrequent occurrence, the connecting-rods 30 and 44 may be quickly disconnected from the mechanism they are arranged to operate, the tripping mechanism 16 and 17 operated at the same time by a kick from the foot, and the entire splint-heading mechanism promptly moved away from beneath the runway. This will permit the fire in the composition-tank to be put out at leisure. The splints and their carriers will not be harmed by heat from the conflagration. Danger from injury from fire is thus reduced to a minimum, as there is nothing of such a delicate nature as would be easily injured by fire in connection with the heading mechanism itself, while the carriers are quite delicate and easily injured by heat and are quite costly to repair or replace.

It will be obvious that the foregoing is but one embodiment of my invention and that the same is capable of many and varied modifications within the spirit and scope of my invention, and, further, that certain parts may be employed in connection with other parts of different construction. Hence I do not desire to be limited only to the precise details of construction and combination of parts herein.

What I claim is—

1. In match-making machinery the combination with a splint-carrier runway and means for conveying splints to be headed along same, of splint-heading means arranged normally beneath the said runway and in a position to apply heading composition to the splints conveyed thereover, means for moving said splint-heading means in a path substantially parallel to the plane of movement of the splints, and separate means for first lowering said heading means away from the plane of travel of the splints.

2. In match-making machinery the combination with a splint-carrier runway and means for conveying splints to be headed along same, of splint-heading means arranged normally beneath the said runway and in a position to apply heading composition to the splints conveyed thereover, means for moving said splint-heading means laterally of said runway, and separate means for first lowering said heading means away from the plane of travel of said splints.

3. In match-making machinery the combination with a splint-carrier runway and means

for conveying splints to be headed along same, of splint-heading means arranged normally beneath the said runway and in a position to apply heading composition to the splints conveyed thereover, means for moving said splint-heading means laterally of said runway, separate means for first lowering said heading means away from the plane of travel of said splints, and tripping mechanism for operating said last-named means.

4. In match-making machinery the combination with splint-heading means including a composition-tank, and a runway therefor, of means for conveying splints over said splint-heading means in a direction divergent to the direction of said runway, and means for moving said splint-heading means toward and away from the splints conveyed thereover, without necessary longitudinal movement thereof along said runway.

5. In match-making machinery the combination with a splint-carrier runway and means for conveying splints to be headed along same, of a track having a vertically-movable portion and arranged divergently beneath the runway, splint-heading means including a composition-tank mounted to travel upon the said track, means for raising the movable portion of said track to bring the splint-heading means thereon to a position, with respect to the splints conveyed thereover, to apply the heading composition, and for lowering same out of such operative position back to the normal level of said track.

6. In match-making machinery the combination with splint-heading means including a composition-tank, and a runway therefor having a vertically-movable portion, of means for conveying splints over said splint-heading means in a direction divergent to the direction

of said runway, to receive heading composition, cam or eccentric mechanism for raising the movable portion of said runway to bring the splint-heading means thereon to a position, with respect to the splints conveyed thereover, to apply the heading composition, and an operating-toe for said cam or eccentric mechanism.

7. In match-making machinery the combination with splint-heading means including a composition-tank, and a runway 10 therefor having a vertically-movable portion 12, of means for conveying splints over said heading mechanism in a direction divergent to the direction of said runway, to receive heading composition, a cross-head 15 connected to said movable portion 12 of the runway, cam or eccentric mechanism 16 engaging said cross-head, and an operating-toe 21 for said cam or eccentric mechanism.

8. In match-making machinery the combination with splint-heading means including a composition-tank, and a runway 10 therefor having a vertically-movable portion comprising track-sections 12 and cross-ties 13, of means for conveying splints over said heading mechanism in a direction divergent to the direction of said runway, to receive heading composition, and means for raising and lowering the movable portion of the runway comprising a cross-head 15, suspension-rods 14, levers 19, connecting-links 18, cam or eccentric mechanism 16 engaging said cross-head, and an operating-toe 21 for said cam or eccentric mechanism.

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