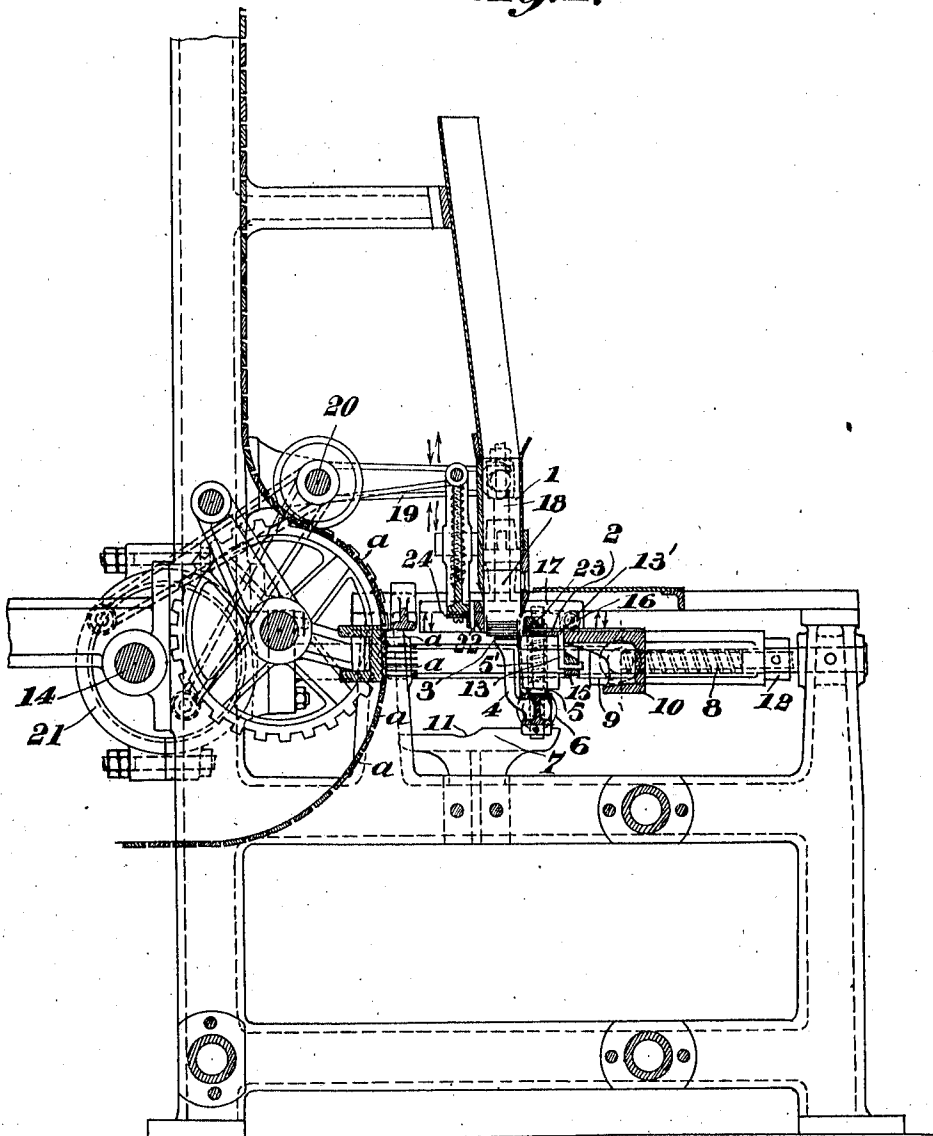


H. A. GSELL.  
MATCH MAKING MACHINE.  
APPLICATION FILED JULY 15, 1911.

1,020,644.

Patented Mar. 19, 1912.  
4 SHEETS—SHEET 1.

*Fig. 1.*



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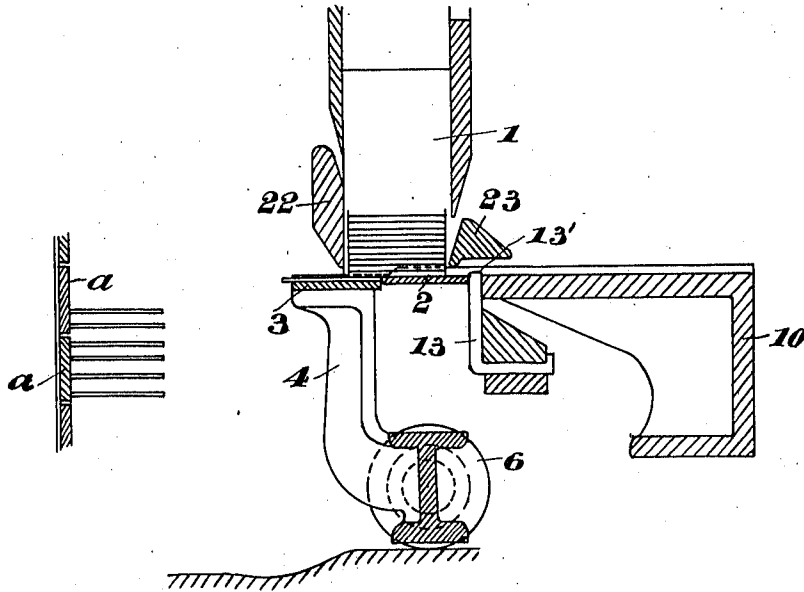
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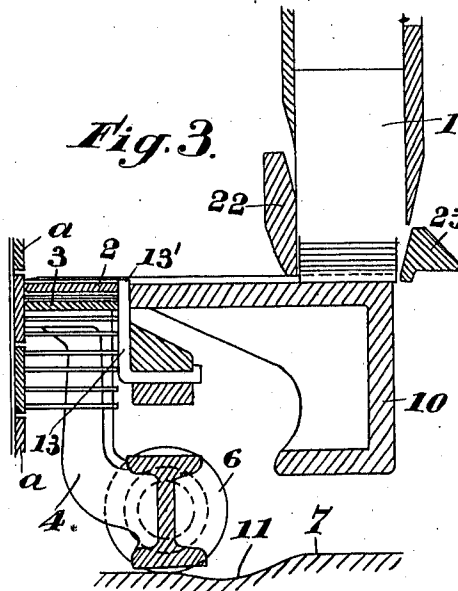
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4 SHEETS—SHEET 2.

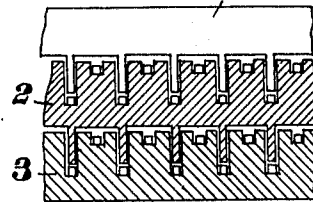
*Fig. 2.*



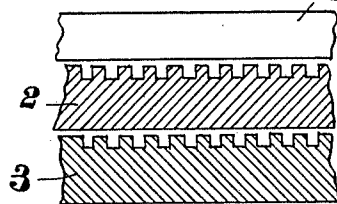
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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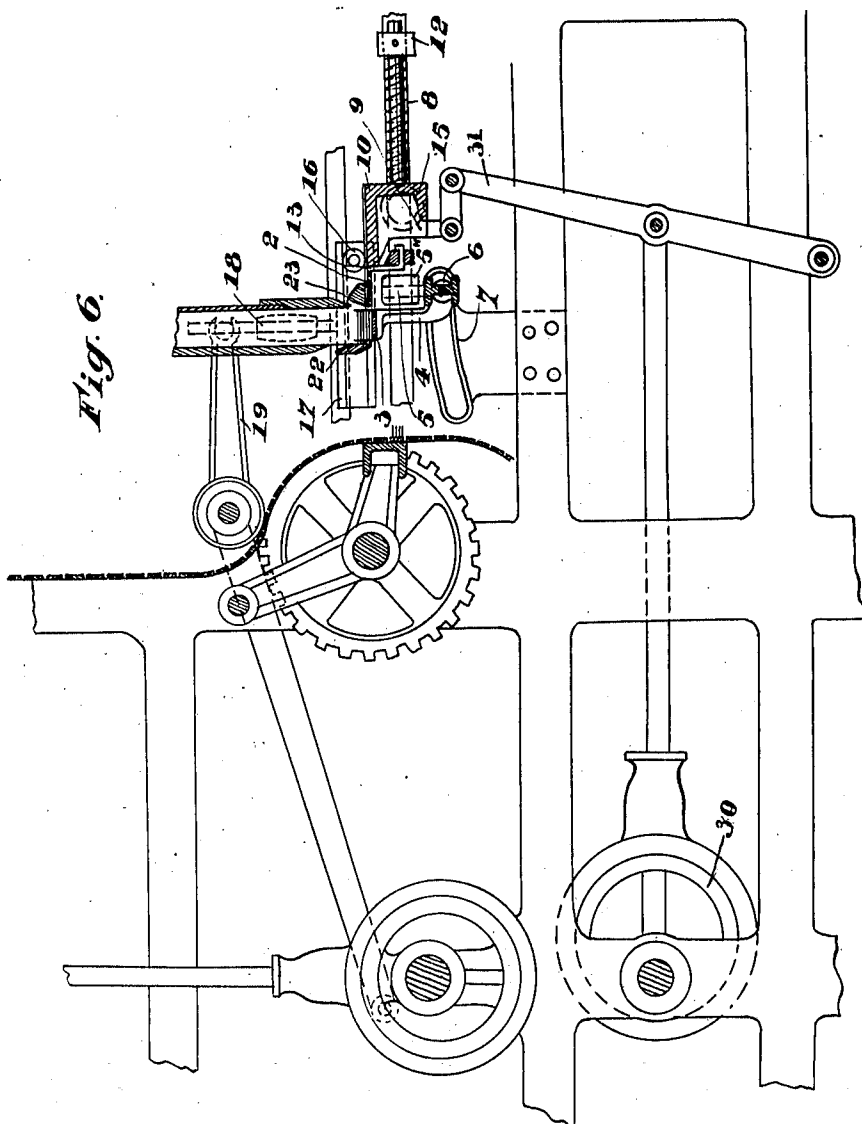
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4 SHEETS—SHEET 3.

Fig. 6.



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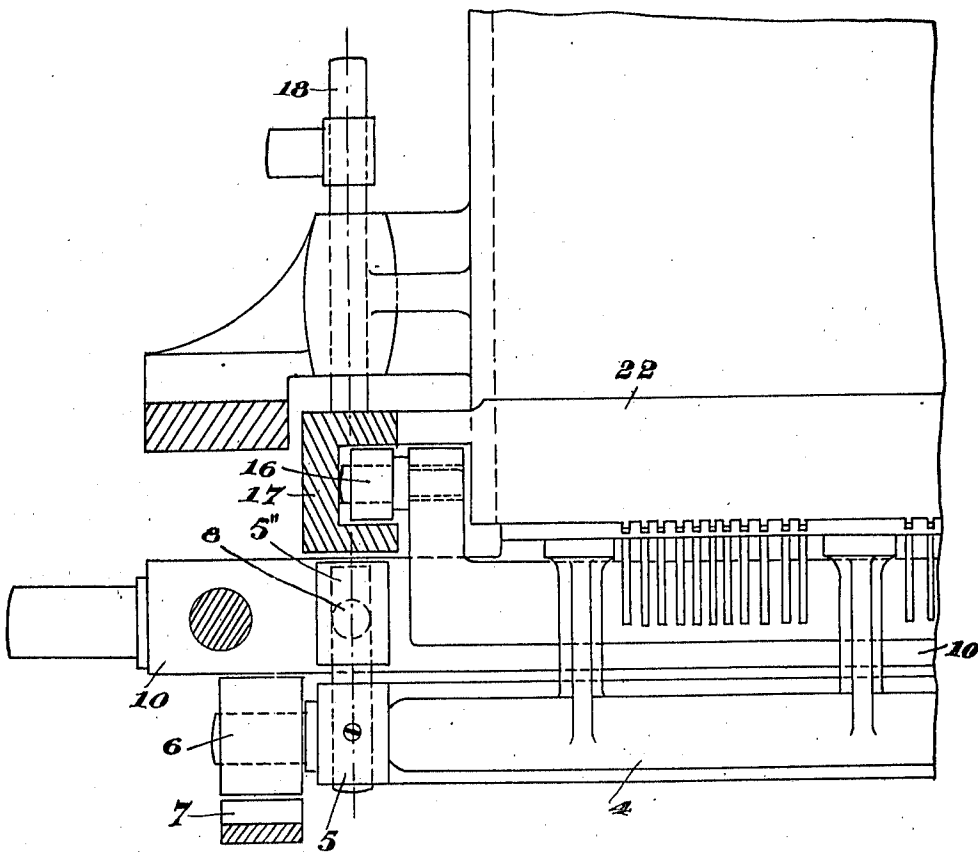
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1,020,644.

Patented Mar. 19, 1912.  
4 SHEETS—SHEET 4.

*Fig. 7.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

HENRY ALFRED GSELL, OF PARIS, FRANCE.

## MATCH-MAKING MACHINE.

1,020,644.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed July 15, 1911. Serial No. 638,765.

*To all whom it may concern:*

Be it known that I, HENRY ALFRED GSELL, a citizen of the Swiss Confederation, residing at Paris, France, have invented new and useful Improvements in Match-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

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

The invention has for its object to provide an improved mechanism of this kind which shall be superior in point of speed and positiveness of operation, quantity and quality of output and general efficiency.

In machines heretofore known it is usual to use slides provided with grooves of equal depth, whereby only a single row of sticks or splints are delivered at each operation, or slides provided with grooves of different depth, whereby superposed rows of splints may be simultaneously delivered. However the grooves of different depth are very objectionable in practical use, as broken, crooked or thick splints or sticks easily obstruct the deep grooves and make them inoperative.

The principal object of this invention is to increase the capacity of the machine by providing means for the delivery of a plurality of rows of splints by means of slides having grooves of equal or different depth.

Broadly stated the invention consists of the use of two or more reciprocating slides, having one row of grooves of equal depth or two superposed rows of grooves of different depth and normally arranged in line behind each other, and means for causing said slides to be moved one above the other during the forward stroke for simultaneously inserting a plurality of rows of splints in the usual splint-bars.

My invention will be readily understood from the following description taken in connection with the accompanying drawing, wherein:—

Figure 1.— is a side elevation of the complete mechanism with parts shown in section. Figs. 2 and 3.— are diagrammatical views of the slides in two different oper-

ative positions. Fig. 4.— shows a cross-section through superposed slides provided with grooves of different depth. Fig. 5.— shows a cross-section through superposed slides provided with grooves of equal depth. Fig. 6 is a side elevation partly in section showing the operation of certain parts. Fig. 7 is a fragmental transverse cross-section partly in elevation, of a detail.

Arranged below the usual hopper 1 which contains the splints to be forced into the perforations of the dipping bars *a* (carried by an endless belt) are two slides 2, 3 which are normally in line one behind the other (Fig. 1 shows the end position to the right hand side). In this position the slide 3 is located below the hopper 1 for the reception of splints in its grooves. This slide 3 is carried by arms 4 adapted to be raised and lowered on vertical guide-rods 5 and moved downwardly by coiled springs 5' surrounding said rods. The lower ends of the arms 4 are provided with rollers 6 adapted to roll on rails 7. The guide-rods 5 are secured to the end of a horizontal bar 8, adapted to be reciprocated and extending loosely through an eyelet 9 in the cross-bar 10 of the rear slide 2. The slide 3 is secured to the arms 4 movably arranged in the movable bearings 5'' by means of the rods 5. The bar 4 and slide 3 are raised and lowered by the roller 6 rolling on the rail 7. The bearing 5'' is provided with a rod 8 guided in an oblong hole of the cross-bar 10. A spring arranged on said rod 8 provides for a yielding connection between the slides 2 and 3. At the forward stroke the slide 3 is pushed by the slide 2 and at the backward stroke, the slide 3 is pulled by the slide 2 as the bar 10 has tendency to compress the spring of the rod 8. The slide 2 is actuated by means of the eccentric 30 and lever 31, as clearly shown in Fig. 6. Each rail 7 has an upper horizontal portion at the right and a lower horizontal portion at the left, these two horizontal portions being connected by an incline 11.

The grooves of both slides 2, 3 are open at both ends, the ends of splints contained in the grooves of the slide 3 abutting against the front side of the slide 2 when the slides are moved forwardly. The ends of the splints contained in the grooves of the slide

2 abut against a cross-plate 13 adapted to be raised and lowered at each revolution of the shaft 14, owing to the arrangement which will be described presently. Said plate 13 is secured to carriers 15 the upper ends of which are provided with rollers 16 adapted to roll in horizontal guide-ways of inverted T-shaped parts 17, guided in vertical directions and secured to rods 18 (Figs. 6 and 7) suitably connected to the ends of arms 19 adapted to swing on a shaft 20 and actuated by an eccentric disk 21 on the shaft 14. The parts are arranged and connected so that the cross-plate 13 will be raised as soon as the slide 2, moved forwardly, is brought completely below the hopper 1. In its raised position, the upper edge of the plate 13 is flush with the upper surface of the slide 2. Said plate 13 remains in its raised position until the splints are forced into the perforations of the bars *a*.

Arranged at the discharge side of the hopper 1 is a cross-bar 22 secured to the guide-ways 17 having tongues extending downwardly and serving to prevent the feeding of more than one splint from each groove when the guide way 17 is raised by the rod 18 and arm 19, the cross-bar 22 as well as the plate 13, will be raised. Arranged at the rear side of the hopper 1 is another cross-bar 23 provided with tongues extending downwardly to the bottom of the grooves of the slide 2, in order to prevent the withdrawal of splints from the hopper in the reverse direction as the slides are moved backwardly from the splint-bars *a*.

The slide 2 is reciprocated by any desired mechanism. When this slide is moved forwardly to the left (from the position shown in Fig. 1), it pushes the slide 3 forwardly, which rolls on the rails 7 until the parts are in the position shown in Fig. 2, when the rollers are about to roll down the inclines 11 upon the lower horizontal portions of the rails. In this way the front slide 3 will be lowered so that the slide 2 will now be moved above the slide 3 which is now out of engagement with the front side of the slide 2. The latter is moved above the slide 3 until the cross-plate 13 engages the rear side of the slide 3, when both slides are moved forwardly in superposed positions in order to force the splints contained in their grooves into the perforations of the splint-bars *a*. The splints being inserted in the bars *a*, the slide 2 will be moved backwardly and as soon as the cross-bar 10 of said slide engages the spring on the rod 8 which presses against the ring 12 adjustably secured on the bar 8, the slide 3 will be moved backwardly together with the slide 2.

Each slide 2, 3 may be provided with a single row of grooves of equal depth (Fig. 5), so that at each operation two rows of splints are delivered. Or each slide may be

provided with two rows of grooves of different depth disposed in staggered relation (Fig. 4), so that four rows of splints are delivered at each operation. A larger number of splint-rows may be delivered at each operation by arranging a plurality of slides one behind the other and providing means whereby said slides are moved one above the other for forcing the splints into the dipping bars *a*. During the backward movement of the slides, the grooves thereof are cleaned by means of downwardly extending tongues of a cross-bar reciprocated vertically in any desired way, such arrangement being well known to those skilled in the art.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a match-making machine, the combination of two grooved delivery slides, normally arranged in substantially the same horizontal plane, one behind the other, and means for bringing one slide above the other during the forward stroke of same, substantially as set forth.

2. In a match-making machine, the combination of two grooved delivery slides, normally arranged in substantially the same horizontal plane one behind the other, guide-ways for the front slide, inclines on said guide-ways whereby said slide is lowered after it is moved forwardly to a certain distance so that the second slide will be moved above said front slide, substantially as set forth.

3. In a match-making machine, the combination of two grooved delivery slides, normally arranged in the same plane one behind the other, guide-ways for guiding the front slide and provided with an incline, whereby the front slide is lowered after it has moved forwardly to a certain distance, and means for moving the second-slide above the front slide after the front slide has been lowered.

4. In a match making machine, the combination of two delivery-slides normally arranged in substantially the same horizontal plane, one behind the other, and provided with grooves, the rear slide forming an abutment for the splints in the front slide, a vertically movable plate at the rear of the rear slide, means for raising and lowering said plate at suitable intervals, means for moving the slides forwardly at certain intervals, and means for lowering the front slide after the slides have moved a certain distance so that the rear slide may pass over the front slide.

5. In a match-making machine, the combination of two grooved slides, normally arranged in substantially the same horizontal plane, one behind the other, means for reciprocating the rear slide, connections between the slides whereby the front slide is

pushed forwardly and backwardly by the rear slide, means for lowering the front slide after it has moved forwardly a certain distance, whereby the rear slide may pass over and above the front slide, said last means serving to again raise the front-slide on the backward movement.

In testimony whereof, I have signed my

name to this specification in the presence of the subscribing witnesses.

HENRY ALFRED GSELL.

Witnesses:

DEAN B. MASON,  
OSCAR LIEBENBARR,  
WILH. REHMER.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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