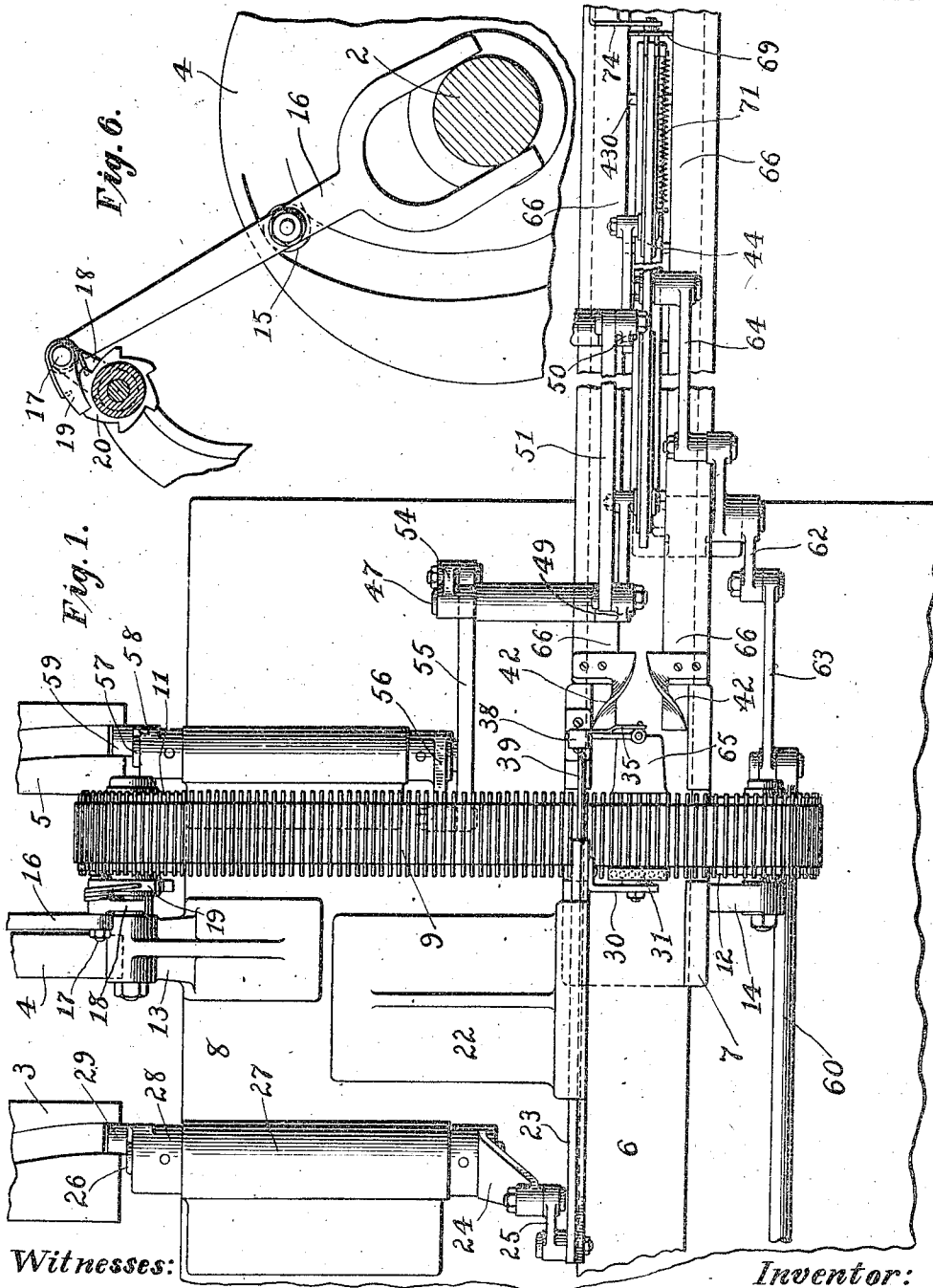


E. VAN HOOFSSTADT.
FEEDING MECHANISM.
APPLICATION FILED JULY 16, 1912.

1,050,875.

Patented Jan. 21, 1913.

2 SHEETS-SHEET 1.



Witnesses:

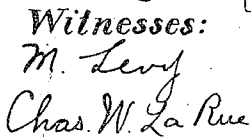
M. Levy
Chas. W. La Rue

Inventor:

Edward Van Hoofstadt
by Wilbur M. Stone
Attorney.

1,050,875.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

EDWARD VAN HOOFSSTADT, OF NEW YORK, N. Y., ASSIGNOR TO ANITA SAFETY MATCH COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

FEEDING MECHANISM.

1,030,875.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed July 15, 1912. Serial No. 709,439.

To all whom it may concern:

Be it known that I, EDWARD VAN HOOFSSTADT, a subject of the King of Belgium, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Feeding Mechanism, of which the following is a specification.

This invention relates to feeding mechanism and particularly to that class of such mechanism as is adapted for feeding small articles such as matches.

The object of my improvements is to provide mechanism of the class specified, simple in construction and accurate in operation.

I have illustrated my improvements in connection with a match packaging machine of the general character of the machine illustrated in the copending applications of Charles F. Smith for improvements in packaging machines, Serial Number 633590, filed June 16, 1911, and Serial Number 640729, filed July 27, 1911.

Figure 1 is a plan view of my improvements and so much of a match packaging machine as is necessary to show the relation of those improvements thereto. Fig. 2 is a front elevation corresponding with Fig. 1. Fig. 3 is an end elevation and Fig. 4 a plan of details thereof. Fig. 5 is a perspective view of other details. Fig. 6 is a detail elevation of the conveyer actuating mechanism. Fig. 7 is a plan view of a portion of the receptacle strip.

Main shaft 2 may be suitably supported in bearing not shown and on said shaft are cams 3, 4, 5, for actuating several parts of the mechanism. For supporting the receptacle strip table 6 is provided. Said table is mounted on bracket 7 upstanding from bed 8 of the machine.

Conveyer 9 comprises an endless belt or chain having a series of upstanding blades or partitions 10 transversely thereof for retaining a plurality of matches in parallelism therebetween. Said chain is mounted on sprockets 11, 12 pivotally supported on brackets 13, 14, respectively, upstanding from bed 8 and outstanding from bracket 7, respectively. Said conveyer may be intermittently actuated from cam 4 by the usual roll 15 on bifurcated actuator 16 pivoted at 17 to oscillating arm 18 and having the usual pawl 19 for engagement with ratchet 20

fixed coaxially with sprocket 11. The lower run of conveyer 9 passes through aperture 21 in bracket 7.

To the left hand, Figs. 1 and 2, of conveyer 9 is bracket 22 having slide 23 slidably mounted in its upper end for movement transverse said conveyer. Said slide is actuated from cam 3 by arm 24, the upper end of which arm is connected to said slide by link 25 and the lower end of which is fixed to shaft 26 rotatively mounted in bearing on bed 8. Also fixed to said shaft 26 is downwardly reaching arm 28 carrying roll 29 for engagement with said cam 3. Arm 30 fixed to one face of slide 23 carries brush 31 positioned to reciprocate back and forth over conveyer 9 and between the upstanding blades 10 thereof. Said brush is efficient to push outwardly from said conveyer such matches as have previously been placed therein.

On that side of conveyer 9, Fig. 1, opposite the position of brush 31 as shown in that figure I employ hood 65 for movement into and out of receiving position over the intermittently advancing receptacle strip. Said hood is of boxlike formation comprising a body, two sides, and an end wall on that end remote from conveyer 9. Said hood is fixed to vertically reciprocating plunger 32, and by means presently to be described is lowered from the position of Figs. 2 and 3 into and out of engagement with the receptacle strip. The object of said hood is to act as receiving means for the matches as they are rapidly brushed out of conveyer 9 by brush 31 and to prevent said matches from becoming deranged relatively to each other and to the receptacle strip. Plunger 32 is mounted for vertical movement in bracket 33 upstanding from bracket 7. Pivoted midway its length at 34 on said bracket 33 is lever 35. One end of said lever is bifurcated for engagement with pin 36 in plunger 32 and the other end of said lever is connected by spring 37 with the foot of said bracket 33. Said spring is efficient for holding slide 32 and hood 65 in their upper positions. For moving said arm to deliver hood 65 into its lower and operative position I employ cam rod 39 fixed to and projecting outwardly to the right from slide 23, Figs. 1 and 2. As said slide 23 moves to the right, Fig. 2, cam rod 39 will pass under

- ear 38 of arm 35 thereby lifting the outboard end of said arm and depressing the other end thereof in engagement with plunger 32.
- 5 For folding side flaps 40 of receptacle strip 41 I employ hemmers 42, of well-known character, the leading ends respectively of which are over the body portion of strip 41 and the leading ends of flaps 40
- 10 pass over said leading ends as that strip advances under said hemmers. Said side flaps are thereby folded upwardly and then downwardly from the left hand position of Fig. 7 to the right hand position thereof.
- 15 Said folded side flaps are now in position to be engaged by push bars as 43 of slide 44. Said slide 44 is located in parallelism with the advancing receptacle strip and is provided with lengthwise slots 45, 46 therein.
- 20 Pivoted at 47, 48 in brackets upstanding from table 6 are bell crank levers 49, 50, respectively. The upstanding arms of said levers are connected by link 51 and the horizontal arms of said bell crank levers carry
- 25 blocks 52, 53 for engagement with slots 45, 46, respectively, of slide 44. Fixed to shaft 47 to which bell crank 49 is also fixed is downwardly reaching arm 54 connected by link 55 with arm 56 fixed to pivotal shaft
- 30 57. Said shaft has also fixed thereto downwardly reaching arm 58 carrying roll 59 for engagement with cam 5. Said bell crank levers and their operating mechanism are efficient for raising and lowering slide 44 to
- 35 deliver push bars as 43 into and out of operative relations with successive folded side flaps 40. For reciprocating slide 44 to cause said push bars as 43 to engage and advance the receptacle strip by means of its side
- 40 flaps, I employ reciprocating rod 60 which may be actuated by hand or automatically by means of cam mechanism similar to the several cam mechanisms already described. Said reciprocating rod is slidably mounted
- 45 in ear 61 outstanding from bracket 7 and its right hand end, Fig. 2, is connected to the lower end of rock arm 62 by link 63. The upper end of said rock arm is connected to slide 44 by link 64.
- 50 For arranging the matches lengthwise under folded flaps 40, 40 I employ the following means: Mounted in grooves as 67 in opposite sides of slide 44 for lengthwise movement therein are plates as 68. Said
- 55 plates are connected at their forward end, Fig. 5, to positioning blade 69, the lower edge of which lies between rails 66. That plate 68 nearer the point of vision, Fig. 5, has its rearward end turned outwardly to
- 60 form ear 70 to which one end of spring 71 is attached. The other end of said spring is attached to bracket 72 outstanding from the forward end of slide 44. Said spring is efficient to urge plates 68, 68 and blade 69 forwardly until ear 70 engages stop pin 73.
- Outstanding from rail 66 is bracket 74 for engagement with pusher 69 in its forward movement.
- The operation of my improved feeding mechanism is as follows: Power being supplied to main shaft 2 to revolve it in the direction of the arrow thereon and matches being supplied between the upstanding blades 10 of conveyer 9 in that portion of said conveyer remote from brush 31, the upper run of said conveyer is moved toward the position of brush 31, in increments of six partitions by means of cam 4 and the ratchet and pawl mechanism driven therefrom. When the match bearing portion of said conveyer has reached the position opposite brush 31 said brush in its reciprocatory movement across said conveyer will push outwardly to the right, Fig. 2, such matches as lie between the partitions 10 in front of said brush. The forward stroke of slide 23 on which said brush is mounted will cause cam rod 39 to actuate lever 35 to move downwardly into receiving position hood 65 so that as said matches are pushed outwardly from conveyer 9 onto the receptacle strip thereunder said hood will be in position to retain said matches in correct position on said strip. During the return stroke of slide 23, feeding slide 44, by means of its push bars 43 in engagement with the folded up side flaps 40, 40 of the receptacle strip, feeds that strip forwardly to the right, Fig. 2, causing the unfolded side flaps 40, 40 on either side of the just delivered matches to pass over the leading ends of hemmers 42 and thence inwardly and downwardly onto the matches as the side flaps pass under said hemmers. Said side flaps then pass between rails 66, 66 which tend to keep the side flaps in their folded positions, Fig. 5. Said receptacle strip is thereafter fed forwardly one package length at a time until that portion containing the first batch of matches is engaged by forward push bar 430. During the incremental movement of the batches of matches the individual matches tend to become more or less disarranged endwise owing to the speed of operation of the machine. Before delivering the partly folded package to mechanism, not shown, for completing the package it is desirable to rearrange the matches lengthwise so that the end flaps of the package can be folded up thereover. This rearranging is accomplished by means of pusher 69 in engagement with its stop 74. Said pusher 69 is normally a slight distance in advance of the matches in any given package and after said pusher encounters stop 74 leading push bar 430 advances the package of matches against said pusher whereby any matches protruding unduly from between folded flaps 40, 40 are pushed backwardly into line with the underanged matches, Fig. 5. Slide 44 is then lifted, re-

tracted and lowered with the forward push bar 430 behind the upturned side flaps of the next succeeding package and the operation just described repeated.

5 I claim:

1. In feeding mechanism the combination of a slide for advancing an article or articles, means for reciprocating said slide, means carried by said slide for pushing the article
10 or articles backwardly into predetermined position relatively to said slide including an article positioning blade slidably mounted on said slide, and means for sliding said blade relatively to said slide.

15 2. Feeding mechanism including in combination, a conveyer, means for advancing a receptacle strip, having side flaps cut therein, transversely said conveyer in step by step movements, a hood above the receiving
20 position of said receptacle strip, means for lowering said hood into receiving position on said strip and for raising it therefrom, means for delivering matches onto said receptacle strip and under said hood, and
25 means for folding the side flaps of the package portion of said strip.

3. Feeding mechanism including in combination, a guide for a receptacle strip having side flaps cut therein, a hood above the
30 receiving position of said receptacle strip, means for lowering said hood into receiving position on said strip and for raising it therefrom, means for delivering matches onto said receptacle strip and under said
35 hood, means for folding the side flaps of the package portion of said strip, means for advancing the receptacle strip having the side flaps folded therein, comprising a slide, a push bar on said slide for successive engagement
40 with the folded side flaps, means for reciprocating the slide in parallelism with said strip, and means for moving said slide toward and from said strip.

4. Feeding mechanism including in combination, a guide for a receptacle strip having side flaps cut therein, a hood above the receiving position of said receptacle strip, means for lowering said hood into receiving position on said strip and for raising it
50 therefrom, means for delivering articles onto said receptacle strip and under said hood, means for folding the side flaps of the package portion of said strip, means for advancing the receptacle strip having the side flaps
55 folded therein, comprising a slide, a push bar on said slide for successive engagement with the folded side flaps, means for reciprocating the slide in parallelism with said strip, means for moving said slide toward
60 and from said strip, and means carried by the strip advancing means for pushing the articles backwardly relatively to said strip into uniform position lengthwise said strip.

5. Feeding mechanism including in combination, a guide for a receptacle strip having side flaps folded therein, means for advancing said strip comprising a slide, a push bar on said slide for successive engagement with the folded side flaps, means for reciprocating the slide in parallelism with
70 said strip, means for moving said slide toward and from said strip, means carried by the strip advancing means for pushing the articles backwardly relatively to said strip into uniform position lengthwise said strip
75 including an article positioning blade slidably mounted on the strip advancing slide and means for sliding said blade relatively to said slide.

6. Feeding mechanism including in combination, a conveyer, means thereon for retaining a plurality of articles in parallelism transverse said conveyer, means for intermittently moving said conveyer in the direction of its length, means for advancing
80 transversely said conveyer a receptacle strip having the side flaps folded therein, comprising a slide, a push bar on said slide for successive engagement with the folded side flaps, means for reciprocating the slide in
90 parallelism with said strip, means for moving said slide toward and from said strip, and means carried by the strip advancing means for pushing the articles backwardly relatively to said strip into uniform position
95 lengthwise said strip.

7. Feeding mechanism including in combination, a conveyer, means thereon for retaining a plurality of articles in parallelism transverse said conveyer, means for intermittently moving said conveyer in the direction of its length, means movable transversely said conveyer for discharging articles therefrom, means for advancing transversely said conveyer a receptacle strip having the side flaps folded therein, comprising
100 a slide, a push bar on said slide for successive engagement with the folded side flaps, means for reciprocating the slide in parallelism with said strip, means for moving
110 said slide toward and from said strip, means carried by the strip advancing means for pushing the articles backwardly relatively to said strip into uniform position lengthwise said strip including an article positioning
115 blade slidably mounted on the strip advancing slide and means for sliding said blade relatively to said slide.

Signed at New York, N. Y., this 13th day of July, 1912, before two subscribing witnesses.

EDWARD VAN HOOFFSTADT.

Witnesses:

F. G. RAYMO,
CHAS. W. LARUE.