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MACHINE FOR MAKING MATCH PACKAGES

Filed Dec. 7, 1928

2 Sheets-Sheet 1

Fig. 3.

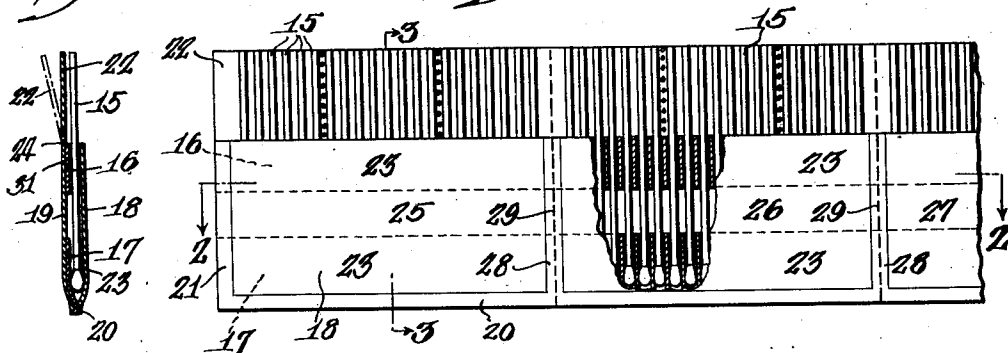


Fig. 2.

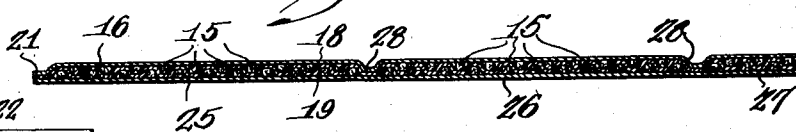


Fig. 4.

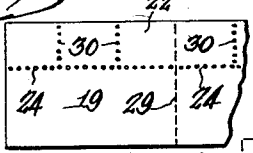


Fig. 5.

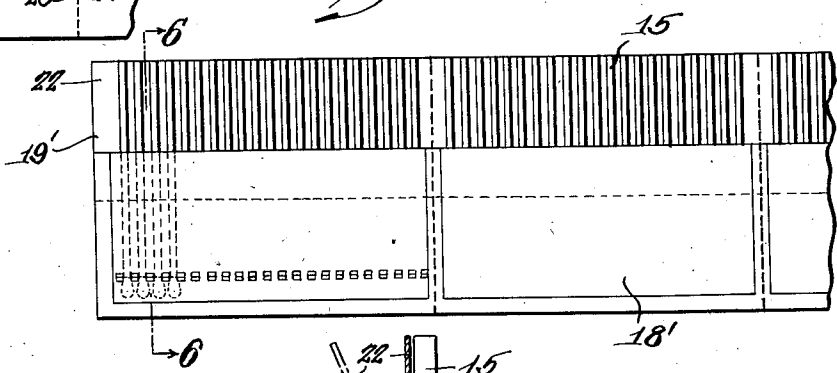
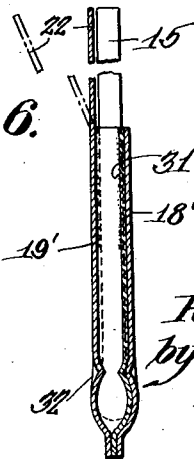


Fig. 6.



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MACHINE FOR MAKING MATCH PACKAGES

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My invention relates to the manufacture of match packages of corrugated paper type adapted for retardation of the match at the start of its withdrawal stroke and for quick withdrawal after movement of the match has begun. For this purpose I provide a jump space within the package.

I obtain this jump space either by using spaced strips of corrugated paper, having the corrugations alined, one strip being used to form retarding sockets at the match heads and the other strip being coated with ignition material and placed some distance from the first, or I may use a single strip of corrugated paper, coating its upper edge with ignition material upon both sides and die stamping the packet intermediate the match sticks close to the match heads in order to provide retardation against the heads. I may also use adhesive material to hold the match heads to their initial position until they are pulled loose by a force sufficient to insure involuntarily a proper speed for ignition.

A further purpose is to increase the ease with which ignition material may be coated upon a corrugated strip casing for the matches of a match packet by making the portion of the strip that receives the ignition material separate and distinct from the strip that encases the head ends of the matches, thereby permitting the entire strip at the withdrawal end of the casing to be coated with ignition material upon both sides.

A further purpose is to apply a match packet flap that extends across the stick ends of the matches of the packet with lines of serrations adapting successive portions of the flap to be readily successively torn away after the matches under the respective portions have been used in order to make the unused matches more readily accessible.

A further purpose is to close the individual match sockets formed by the corrugations upon both sides of a corrugated strip of paper having matches in the corrugations and paper covers over the matches by squeezing the paper covers together upon the intermediate strip at the outer end of the sockets beyond the match heads, preferably with quick-

setting glue or the like in the ends of the individual sockets preparatory to the squeezing closure.

A further purpose is to provide a match packet made up of sections adapted to be separated from one another by the user and comprising matches encased in corrugations upon both sides of a corrugated strip of paper and sheets upon both sides of the strip covering the corrugations, with an end finish by compressing the opposing cover sheet edges upon the intermediate strip edge, preferably with quick-setting glue or the like between the edges of the strip and the edges of the cover to prevent separation of the edges of the cover from the edges of the strip after the compression has been removed.

A further purpose is to form a match packet by gluing paper cover sheets upon both sides of a strip of corrugated paper, and inserting the matches, stick end first, into the sockets thus formed.

A further purpose is to provide mechanism for manufacturing a match packet of the character indicated.

Further purposes will appear in the specification and in the claims.

I have elected to show one main form with one minor modification only of my match packet and one form only of mechanism for manufacturing a packet, selecting a form of packet and a form of mechanism that is practical and efficient in operation and which well illustrates the principles involved.

Figure 1 is a front view of a match packet that illustrates one form of my invention, the paper cover in front of the matches being partially broken away to illustrate the interior structure.

Figure 2 is a section taken upon the line 2-2 of Figure 1.

Figure 3 is a section taken upon the line 3-3 of Figure 1.

Figure 4 is a reduced scale rear elevation of the packet shown in Figure 1, illustrating lines of perforations upon the back flap for easy removal of portions of the flap when the matches in the corresponding portions of the packet have been used up.

Figure 5 is a front view corresponding

the portions 28 intermediate the adjacent sections.

In each case I preferably form the packet by fastening the front and back covers on to the corrugated strip or strips before the matches are inserted and then insert the matches stick end foremost into their formed sockets and subsequently finish the packet by pressing the ends of the individual sections and the edge adjacent the match heads firmly down after these portions have been provided with suitable adhesive means.

I illustrate diagrammatically in Figures 7 to 10 mechanism for manufacturing the form of my packet shown in Figures 1 to 4.

The raw material from which the packets are manufactured by the illustrated mechanism includes rolls of strip paper 33 and 34 that form the corrugated strips 16 and 17, rolls of cover sheet paper 35 and 36 that form the front cover 18 and the back cover 19 respectively; glue, ignition material, and matches.

The paper strips 33 and 34, spaced the same as the strips 16 and 17 of the finished packet pass upwardly between correspondingly spaced similar pairs of suitable corrugating rolls 37 and 38, one pair only of which is illustrated.

The strips 33 and 34 after being corrugated pass over suitable guide rolls 39 and thence between the front and back cover sheets 35 and 36, the outer strip 33 which subsequently forms the corrugated strip 16 of the packet passing between rolls 40 and 41 that are intermediate the guide roll 39 and the corrugating rolls 37 and 38, and which apply ignition material to both sides of the strip 33.

The back cover sheet 36 is delivered from a suitable reel 42 to pass between a roll 43 and a glue-applying roll 44 thence over a guide roll 45 to a conveyer 46.

In the same way, the front cover sheet 35 is fed from any suitable reel 47 to pass between a roll 48 and a glue-applying roll 49, thence to a guide roll 50 above the corrugated strip 16.

The cover sheets 35 and 36 and the corrugated strips 33 and 34 between the cover sheets all pass to the intermittently moving chain conveyer 46, being supported by the conveyer upon the series of upwardly presented blocks or platens 51.

These blocks are individually of the lengths of the individual packet sections, travel end to end along a suitable horizontal guideway 84 and so that the conveyer, where it supports the packeting strips, presents a substantially uniform and continuous flat surface.

The packeting cover sheets and strips are registered in any suitable way with the blocks 51 so that each packet section has its length co-incidental with the length of one of the blocks.

The cover sheets and the intermediate corrugated strips come to rest at a packet-forming and gluing position which is somewhat beyond the guide roll 45, that it, at a position at which the upwardly presented block 79 has come to rest horizontal and is in a position of rest in registry with a horizontally movable socket forming die 52 and a vertically movable press member 53.

The prongs 54 of the forming member 52 move horizontally across the top of the block when the block comes to rest, entering between the upper and lower cover sheets into the corrugations on both sides of the strips 33 and 34.

The prongs properly shape the sockets for the matches and while the prongs are in place and stationary and the block is still in its position of rest, the press 53 moves down and resiliently compresses the upwardly presented top cover upon the strips of corrugated paper which are being supported by the forming prongs, the lower cover and the top of the platen.

The press member 53 remains in position compressing the coversheets and corrugated strips upon the forming prongs 54 until near the end of the period of rest of the conveyer, then moves up leaving the upper and lower cover sheets glued to the adjacent portions of the corrugated strips.

Desirably the fork member 52 is provided with a prong 55. This prong 55 is beyond the forward edge of the press member 53 and somewhat raised with respect to a position that would aline with the bottom alinement of the press member when the latter member is in its depressed position, holding the cover sheets for gluing.

This additional prong 55 at the forward side of the fork member serves to provide the top cover sheet with a little slack intermediate the successive sections of the packet in order to permit the top cover sheet to be pressed down without rupture by a finishing member 56 that engages the packet between the successive sections, and which will be described later.

Near the end of the period of rest of the conveyer 45, the press member 53 moves up and the fork member 52 moves back after which the conveyer makes its next forward movement which brings the formed packet without matches into a suitable drying oven 57.

The drying oven 57 is of any suitable length and temperature requisite for properly hardening the glue by the time the packet passes through the oven and therefore the length and temperature of the oven should normally be dependent upon the character of glue used. Where one of the so-called quick setting glues is used the oven may be omitted.

The packet progresses through the dry-

ing oven by intermittent movements of the conveyer to a position for match charging.

When the link of the conveyer carrying the packet under consideration comes to rest at the charging position, a guiding fork member 58 moves horizontally inward so that its long guiding prongs 59 enter the corrugations that are to receive the matches.

The long prongs 59 of the fork member 58 push clear through the packet so that when the prongs come to rest their forward ends 60 are extending out of the sockets of the packet into the ends of guide grooves 61 in the top of a vertically movable guide member 62.

A horizontally moving match-charging member 63 now moves inwardly so that the forward ends of suitable push rods 64 carried by the member 63 engage the heads of the matches 15 which are lying in guiding grooves at the bottom of a match supply hopper 65 not shown in detail but desirably of the type illustrated in the copending application Serial No. 292,210 of Pullen et al. entitled "Match packaging machine."

The rods 64 push the matches out of the bottom of the hopper 65 into and along the grooves 61 until the stick ends of the matches come substantially into contact with the ends 60 of the fork prongs 59.

The fork member 58 now retracts rearwardly before the advancing matches which enter the sockets as the fork prongs 59 are being withdrawn.

The rods 64 of the match charging member thus push the matches inward so that the stick ends enter first into the guide grooves 61 of the member 62 and then into the corrugation sockets presented by the match packet.

The grooves 61 of the vertically movable member 62 have a width adapting them to make a fairly close fit with the match sticks and therefore a width that is too narrow to permit the passage of the match heads and for this reason the member 62 is provided with suitable mechanism that causes it to disappear downwardly just before the heads reach the grooves but not until the forward ends of the sticks are well within the corrugation sockets of the packet.

The rod members 64 continue their inward travel pushing the matches inward until the match heads are some distance inside the sockets presented by the corrugations and the cooperating cover sheets of the packet.

Before the rest period of the conveyer is over the fork members 59 and 64 have both retracted out of the way.

After the matches have been charged the conveyer moves forward and brings the packet to its next position at which a small amount of quick-setting glue is applied into the open ends of the corrugation sockets that have just received the matches, and also to the in-

terior of the unclosed sheets intermediate the packet sections.

A glue-charging member 66 moves horizontally inwardly until relatively long vertically spaced hollow charging prongs 67 and 68 enter the packet between the cover sheets at the line 28 (Figure 1) respectively on opposite sides of the strips 16 and 17, and short horizontally spaced hollow charging prongs 69 enter the open ends of the sockets back of the match heads, (at 20, Figure 1).

The charging prongs deposit a small amount of quick-setting glue into the interior of the packet at 20 and 28, and while the glue may be inserted in any suitable way, I show it as delivered from a hollow container 66 into the hollow glue-applying members 67, 68 and 69 that enter the packet, and are suitably perforated at their glue-applying ends.

As will be best understood from Figures 7 and 10 the glue-applying members 67, 68 and 69 make tubular connection with a movable supply reservoir member 66 and during the entry of these members into the packet the glue is forced out through suitable openings 70 so that when the member is withdrawn the packet interior at the different points is coated with glue.

It will be seen that the portion of the packet between the sections requires the application of glue upon opposite sides of the corrugated strips and therefore that the rearwardmost prong member is made double so as to apply the glue upon both sides of the corrugated strip as well as upon the inside surfaces of both the front and the back cover sheets.

The glue-applying member 66 moves back before the rest period of the conveyer is complete and the conveyer then makes its next forward movement which leaves the packet in position beneath a finishing die member 71. This die member moves downward so that its transverse surface 56 and its longitudinal surface 72 respectively engage the packet along the lines 28 and 20 (Figure 1), and resiliently compress the packet along these surfaces, that is between the packet sections along a transverse strip 20 and along a longitudinal strip 28 at the edge of the packet beyond the match heads.

The die member 71 moves up shortly before the rest period of the conveyer is over and the packet moves forward completely formed, and is cut in any suitable way into lengths of any desired number of sections 25, 26 and 27 (Figure 1).

The mechanism for operating the conveyer and the different reciprocating members is shown in diagrammatic plan view in Figure 9 and includes a motor 73 that makes worm connection at 74 with a main drive shaft 75.

The shaft 75 is provided with suitable bearings 76 and has a bevelled gear connection

at 77 with a transverse shaft 78 which has bearing support at 79 and has Geneva intermittent drive connection at 80 with a shaft 81 which operates the conveyer 46.

The shaft 81 supported in bearings 82 carries a sprocket gear wheel 83 which operates the conveyer intermittently according to any suitable formation of the Geneva mechanism.

The conveyer 46 includes a sprocket chain which passes over the driving sprocket 83, over suitable idlers, not shown, and its links upwardly present the blocks or platens 51 each of which is shown as having a length equal to a single section of the match packet.

The conveyer is maintained horizontal by suitable guiding and supporting members 84 and the reciprocating members 52, 53, 58, 63, 62, 66 and 71, already briefly described, are placed along the conveyer registering with rest positions of the successive blocks 51.

All of the reciprocating members are operated by suitable cams on the main drive shaft 75, and these cams may desirably include surface cams 85 and cooperating horizontally pivoted rocker members 86 for giving the movements to the vertically reciprocating members 53, 62 and 71, one only of these cams with its cooperating rocker being shown, and other face cams 87 and cooperating vertically pivoted rockers 88 for providing the horizontal reciprocations for the members 52, 58, 63 and 66.

The rocker members 86 and 88 are spring-pressed to their respective cams and have any suitable connection with the operating members and as these connections do not in themselves form part of the invention I have preferred not to illustrate them.

The feeding movements of the cover sheets 35 and 36 of the corrugated strips 33 and 34, of the glue applying rolls, of the ignition material applying rolls and of the corrugating rolls all take place during the forward movement of the conveyer and therefore are operatively connected to the shaft 81 which operates the conveyer and is driven intermittently by the geneva 80 to provide the desired step by step forward movement to the conveyer.

Suitable connections are provided from the shaft 81 to operate the feed of the front and back cover sheets, the feed of the corrugated strips, the glue-applying rolls and the rolls for applying igniting material to one of the corrugated strips, and of the guide rolls 39.

As a conventional illustration for any suitable connections I show the intermittently movable shaft 81 carrying sprocket wheels 89 which are geared by suitable sprocket chains 90 to sprockets 91 upon the different shafts effecting the movements of the different feeds and rolls.

I may apply the glue to the cover sheets in any suitable way and as illustrated pass the

sheet between rolls 43 and 44. The roller 44 is mounted in a suitable stationary bearing, is supplied with glue by a roll 92 that dips into a glue pot 93 and resiliently presses against the applying roll.

The force engagement between the dip roll and the glue-applying roll is shown as adapted to adjustment by means of a weight 94 adjustably mounted upon the horizontal arm of a lever 95 mounting the dip roll. This lever is rigid with the arm and carries the bearings 96 of the dip roll at some distance away from the lever pivot 97.

The paper from the suitable supply roll 42 is pressed against the glue-applying roll by the roll 43 which is mounted upon the end of a lever 98 pivoted at 99 and adjustably spring-pressed to its duty at 100.

The shaft carrying the roll 44 has a chain and sprocket drive from the intermittently movable shaft 81 as already described.

The operation of the glue-applying mechanism is illustrated exactly the same for both the back and front cover sheets so that a description for one suffices for both.

The strips 33 and 34 are corrugated by passing the strips between suitably mutilated gears 37 and 38 which are connected to move synchronously with the shaft 81 operating the conveyer and operated by the geneva as already described.

It will be understood that the corrugated strips may obviously be corrugated uniformly throughout their length. Preferably, however I omit the corrugations between the successive packet sections that is along the portions marked 28 on Figure 1 and in this event, give the corrugating wheels 37 and 38 a contour that is adapted to supply at spaced intervals short spaces of strip without corrugations at intervals that are spaced from one another a distance equal to the length of the blocks 51.

It will be understood that the diagrammatic Figures 1 to 9 are of necessity much out of scale.

The length of the blocks 51 is also the length of each forward feed of the sheets 35 and 36 and of each forward feed of the strips 33 and 34 and therefore of each circumferential movement of the different guide rolls, glue-applying rolls, rolls for applying ignition material and of the corrugating rolls.

In the figure I have shown the guide roll 39 larger than the rolls 40, 41, 37, 38, 43 and 44. As a matter of fact, it will be apparent these rolls are preferably all of the same size and the number of teeth on the gear 39 will be preferably much in excess of the number indicated on the figure.

The figure also shows the corrugations exaggerated in size and the number of matches inserted in each packet considerably less than is ordinarily desirable.

The glue-applying rolls and the rolls applying ignition material are shown to reduced scale in order to permit their diagrammatic representation in Figure 2 but it will be understood that these rolls and the sprocket gears that operate them are all of such size as will adapt them to deliver the strip, whether cover or corrugated strip at the same length of movement, each forward movement of the shaft 81 moving the conveyor forward the same distance as it feeds forward the cover sheets 35 and 36 and the corrugated strips 33 and 34.

The ignition material applied to the strip 33 is applied to both sides of the strip in substantially the same way that the glue is applied to one side of either of the cover sheets.

The applying roll 41 mounted in suitable stationary bearings is kept coated to any desired extent with ignition material by a roll 101 that is in turn supplied with ignition material by a dip roll 102 that dips into a pot 103 containing ignition material.

These rolls are all shown as dot-and-dash circles but it will be understood that their contours are alike and that they are gears mutilated to accord with the contour of the corrugated strip.

The ignition material upon the other side of the strip is applied to the strip by a roll 40 which is mounted at the lower end of a lever 103' pivoted at 104 and adjustably spring-pressed to its duty at 105.

The corrugated strip thus passes between the two corrugated rolls one of which is mounted in stationary bearings and the other in bearings spring pressed adjustably toward the first.

The ignition material is supplied to the roll 40 from an applying roll 106 which in turn is supplied with ignition material by means of a dip roll 107 which dips into a supply pot 108.

Preferably the die members 53 and 71 are heated during the operation, the heat being most conveniently applied electrically.

The drying oven 57 is also desirably heated electrically.

It will be obvious that I have invented and disclosed a new and convenient form of match packet that is provided with novel means for insuring match ignition during match withdrawal and that has a very inexpensive and satisfactory form of finish, and that I have also provided novel mechanism for manufacturing my packet.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

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

1. In mechanism for manufacturing a packet of the character indicated of headed matches, an intermittent conveyer having carrying units adapted to successively receive the assembled upper and lower cover sheets and intermediate corrugated paper for successive packet sections members operating during the forward movements of the conveyer for forwardly feeding the lower cover sheet, upper cover sheet and the corrugated paper intermediate the cover sheets, for applying glue to the inside surface of the lower cover sheet, glue to the inside surface of the upper cover sheet and for applying ignition material to both sides of the corrugated paper along a portion thereof more distant from the match heads and other members operating at different carrying units during the rest periods of the conveyer, for gluing and forming the packet and for delivering matches stick end foremost into the packet sections.

2. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, parallel strips of paper spaced along and winding between the matches and cover sheets on opposite sides of the matches and paper, the same cover sheets and strips of paper continuing from section to section of the packet, a means for applying ignition material to both sides of one of the strips comprising a pair of mating mutilated gears for simultaneously engaging opposite sides of the said one strip as it passes between the gears, an auxiliary mutilated gear meshing with one gear of said pair, a second auxiliary mutilated gear meshing with the other gear of said pair and means for feeding ignition material to each of the auxiliary gears.

3. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted to successively receive the assembled upper and lower cover sheets and intermediate corrugated paper for successive packet sections, and members operating during the forward movements of the conveyer adapted to apply glue to the inside surfaces of the cover sheets, to simultaneously forwardly feed the cover sheets and the intermediate corrugated strip at the same rate as the forward movement of the conveyer, in combination with mechanism operative upon the packet while its carrying unit is at one of its rest positions and including a fork member having prongs directed toward and alined with the corrugations of the strip and adapted to move to rest longitudinally of the corrugations so that the prongs of the fork enter

and come to rest in the corrugations of the strip and a press member adapted to resiliently engage the upper cover sheet while the prongs are in the corrugations and thereby resiliently press the upper cover sheet down upon the intermediate strip, said prongs, lower cover and carrying unit during a portion of the period of rest of the conveyer, the press moving up and the fork member moving back out of the way before the next forward movement of the conveyer.

4. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted to successively receive the assembled upper and lower cover sheets and intermediate corrugated paper for successive packet sections, members operating during the forward movements of the conveyer adapted to apply glue to the inside surfaces of the cover sheets, to simultaneously forwardly feed the cover sheets and the intermediate corrugated strip at the same rate as the forward movement of the conveyer, and mechanism operative upon the packet while its carrying unit is at one of its rest positions and including a fork member having prongs directed toward and alined with corrugations of the strip and adapted to move so that the prongs of the fork enter and come to rest in the corrugations of the strip, and a press member adapted to resiliently engage the upper cover sheet while the prongs are in the corrugations and thereby resiliently press the upper cover sheet down upon the intermediate strip, said prongs, lower cover and carrying unit during a portion of the period of rest of the conveyer, the press moving up and the fork member moving back out of the way before the next forward movement of the conveyer, in combination with a finger upon the fork member parallel to and raised with respect to the prongs, in advance of the forwardmost prong and functioning to provide a little slack in the upper cover sheet intermediate the adjacent packet sections, to permit the upper cover sheet to be pressed downward along the division line between the sections without rupture when finishing the packet.

5. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted successively to receive the assembled upper and lower cover sheets and intermediate corrugated paper for the successive packet sections, mechanism for assembling the cover sheets and paper of successive sections upon the successive units while

the units successively occupy a position of rest and means for feeding the matches stick end foremost into the assembled packet section while the units are successively at a subsequent position of rest.

6. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted successively to receive the assembled upper and lower cover sheets and intermediate corrugated paper for the successive packet sections, mechanism for assembling the cover sheets and paper of successive sections upon the successive units while the units successively occupy a position of rest and means for feeding matches stick end foremost into the assembled packet section while the units are successively at a subsequent position of rest, said means including guiding prongs adapted to enter and run through the corrugations from the stick-end of the packet and also including push rods adapted to engage the match heads and to push the matches stick end foremost so that their sticks substantially engage the projecting ends of the prongs before they enter the packet, the prongs being adapted to move back ahead of the advancing matches while the push rods are placing the matches in the packet.

7. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted successively to receive the assembled upper and lower cover sheets and intermediate corrugated paper for the successive packet sections, mechanism for assembling the cover sheets and paper of successive sections upon the successive units while the units successively occupy a position of rest and push rod means for feeding matches stick end foremost into the assembled packet section while the units are successively at a subsequent position of rest, said means including a movable guide in front of the matches in charging position, between the matches and conveyer and having upwardly presented grooves normally alined with the push rods, with the prongs and with the corrugations of the packet when its carrying unit is in its match charging position, the grooves fitting the match sticks fairly closely and too narrow to pass the match heads, the push rods being adapted to push the matches stick end foremost into the guiding grooves so that the stick ends of the matches are in the corrugations before the match heads reach the rearward end of the grooves and the grooved guide member being adapted

to move laterally downward to permit the continued movement of the matches into the packet.

8. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted to register with successive sections of the cover sheets and intermediate strip, mechanism for forming the sections and mechanism for charging the matches stick end foremost into the corrugations so that the heads enter their corrugations beyond the packet edge, in combination with means operative at a rest position of the units while the conveyer is at rest for applying glue between the cover sheets in the open ends of the sockets beyond the match heads and upon opposite sides of the strip at the section ends along lines between adjacent sections, and a press operative at a subsequent position of rest of the units for compressing the charged packet together along the edge beyond the match heads and along lines intermediate the match sections.

9. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip an intermittent conveyer having carrying units adapted to register with successive sections of the cover sheets and intermediate strip, mechanism for forming the sections and mechanism for charging the matches stick end foremost into the corrugations so that the heads enter their corrugations beyond the packet edge, in combination with means operative at a rest position of the units while the conveyer is at rest for applying glue between the cover sheets beyond the match heads and upon opposite sides of the strip at the section ends along lines between adjacent sections, and a press operative at a subsequent position of rest of the units for compressing the charged packet together along the edge beyond the match heads and along lines intermediate the match sections, said glue applying means including a glue container and hollow prongs therefrom directed toward the corrugations of the packet in said rest position, the glue container moving inward so as to present the prongs into the socket ends of the packet, delivering glue out of the prongs and moving back while the packet is still at rest.

10. In mechanism for manufacturing a plural section match packet that includes in each section a row of matches, a corrugated strip winding between the matches and cover sheets on opposite sides of the matches and strip, an intermittent conveyer having carrying units adapted to register with successive

sections of the cover sheets and intermediate strip, mechanism for forming the sections and mechanism for charging the matches stick end foremost into the corrugations so that the heads enter their corrugations beyond the packet edge, in combination with means operative at a rest position of the units while the conveyer is at rest for applying glue between the cover sheets beyond the match heads and upon opposite sides of the strip at the section ends along lines between adjacent sections, and a press operative at a subsequent position of rest of the units for compressing the charged packet together along the edge beyond the match heads and along lines intermediate the match sections, said glue applying means including a glue container and a pair of vertically spaced hollow prongs therefrom directed respectively above and below the intermediate strip along a line intermediate the sections, the glue container moving inward and presenting the prongs between the cover sheets and respectively above and below the strip along said line intermediate the sections, delivering glue out of the prongs and moving back while the packet is still at rest.

11. Mechanism for delivering a transversely corrugated strip and cover strips on opposite sides thereof glued on the faces toward the corrugated strip, in combination with pressing means for forcing the cover strips against the corrugated strip, laterally insertable and removable means for holding the corrugated strip open in the corrugations between the cover strips, and slack forming mechanism engaging the one cover strip to give it slack for ultimate movement toward the other cover strip.

12. Mechanism for delivering a transversely corrugated strip and cover strips on opposite sides thereof glued on the faces toward the corrugated strip, in combination with pressing means for forcing the cover strips against the corrugated strip, laterally insertable and removable means for holding the corrugated strip open in the corrugations between the cover strips, slack forming mechanism engaging the one cover strip to give it slack for ultimate movement toward the other cover strip, and a press, the head of which is movable transversely to the plane of the corrugated strip, adapted to engage the cover strip in the slack position and press it against the opposite cover strip.

13. In a match packaging machine, corrugating rolls to form corrugated strip, means for applying striking material to the hollows of the corrugated strip, means for feeding strips on opposite sides of the corrugated strip in contact therewith, means for gluing the last strips and laterally movable match feeding mechanism, feeding the matches between the corrugations and the strips.

14. In a match packaging machine, a pair

of corrugated rolls, reservoirs for striking material, transfer rolls from said reservoirs terminating in mutilated rolls to engage the hollows of the corrugations, strip feeding rolls, means for gluing the strips, a conveyor beneath the strip movable with the strip, pressing mechanism for forcing the strips in contact with the corrugated strip, match holding and guiding mechanism mounted beside the strips to hold the matches perpendicular thereto and feeding mechanism for the matches moving them lengthwise into the openings in the strip.

15. In mechanism for making match packages of corrugated material, corrugating rolls, mutilated gear means for applying striking material within the grooves of the corrugated strip and rolls for gluing and feeding glued paper on opposite sides of the corrugated material.

16. In mechanism for making match packages, corrugating rolls, reservoirs for striking material, feed means therefor terminating in mutilated gear applying rolls, means for applying glued paper on opposite sides of the corrugated paper and match inserting means for placing the matches in packages.

17. In mechanism for applying striking material within the hollows of corrugated strip, a pair of mutilated gears on opposite sides of the strip having their high spots corresponding during rotation with the hollows of the strip, reservoirs for striking material and feed rolls connecting the reservoirs with said mutilated gears to deposit striking material on the high spots of the gears.

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Nov. 15, 1932.

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1,887,945

PACKAGE HOLDER

Filed Nov. 10, 1930

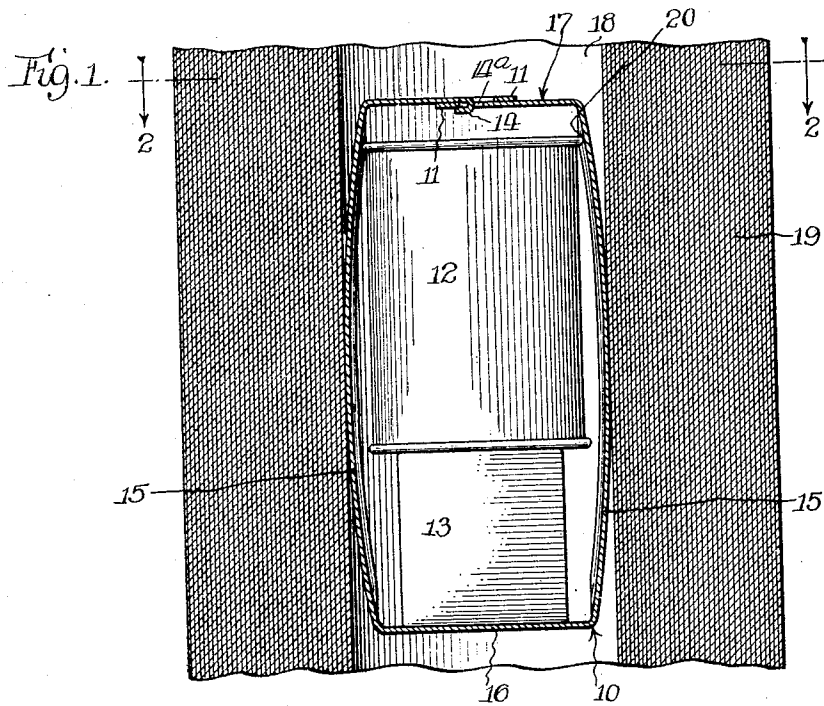
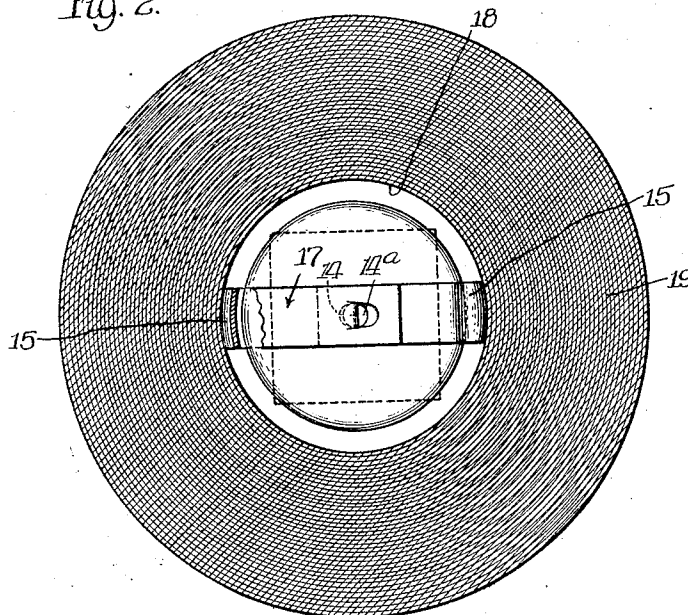


Fig. 2.



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