May 5, 1936. J. R. NOLAN 2,039,491

MATCH PACKET AND METHOD OF MAKING THE SAME

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Fig. 1.

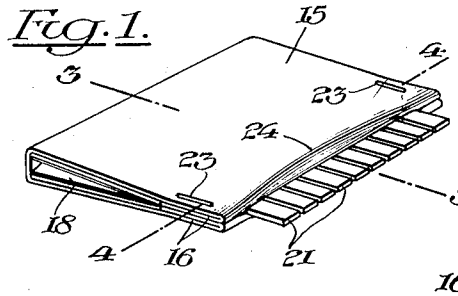


Fig. 3.

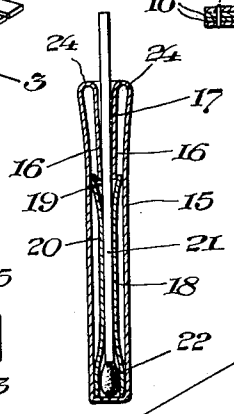


Fig. 4.

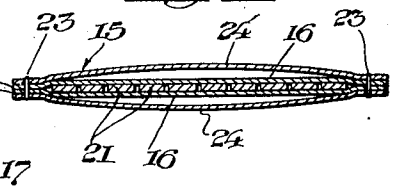


Fig. 2.

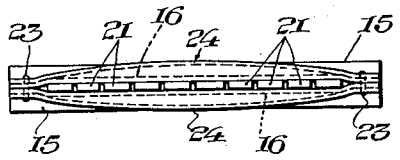


Fig. 5.

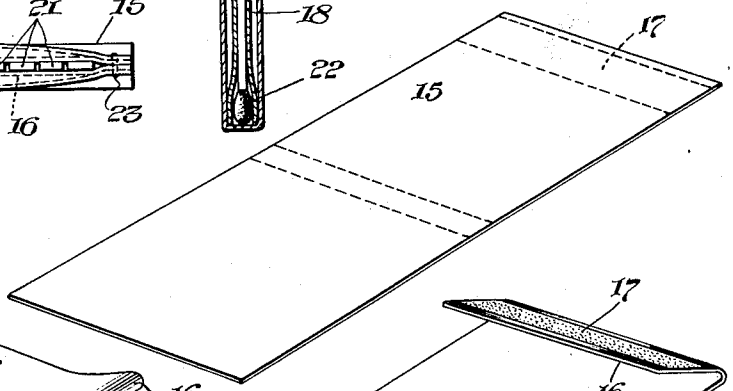
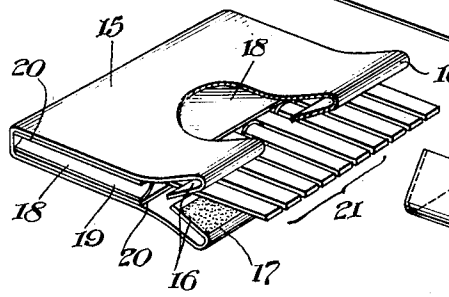


Fig. 9.



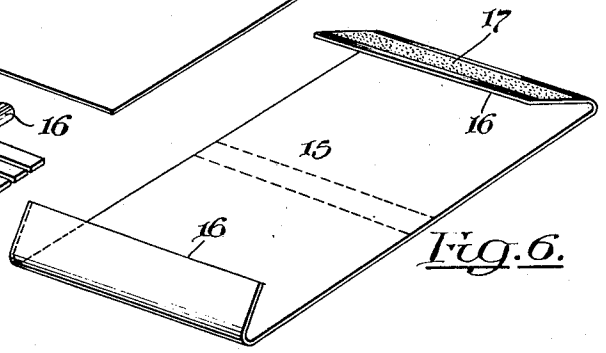
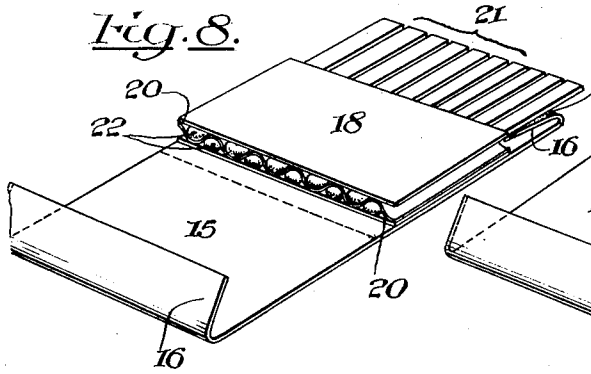


Fig. 6.

Fig. 8.



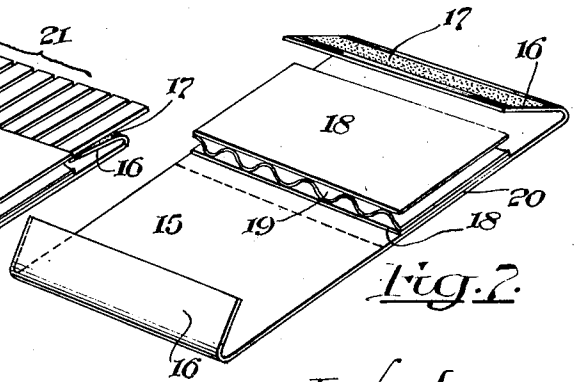


Fig. 7.

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MATCH PACKET AND METHOD OF MAKING THE SAME

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Fig. 10.

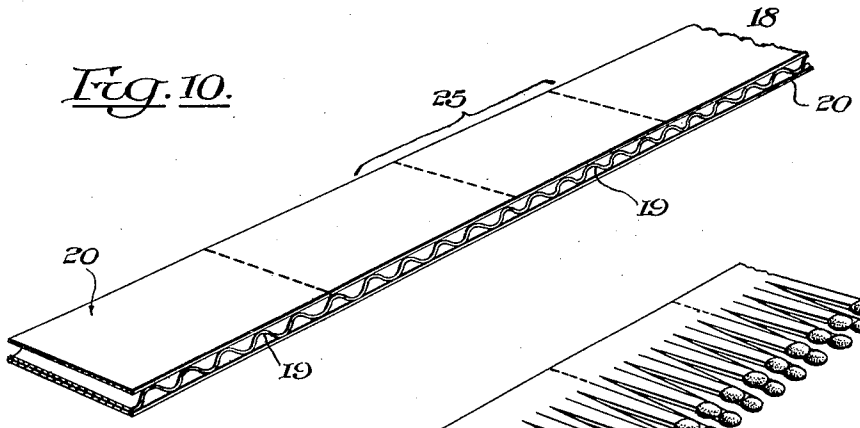


Fig. 11.

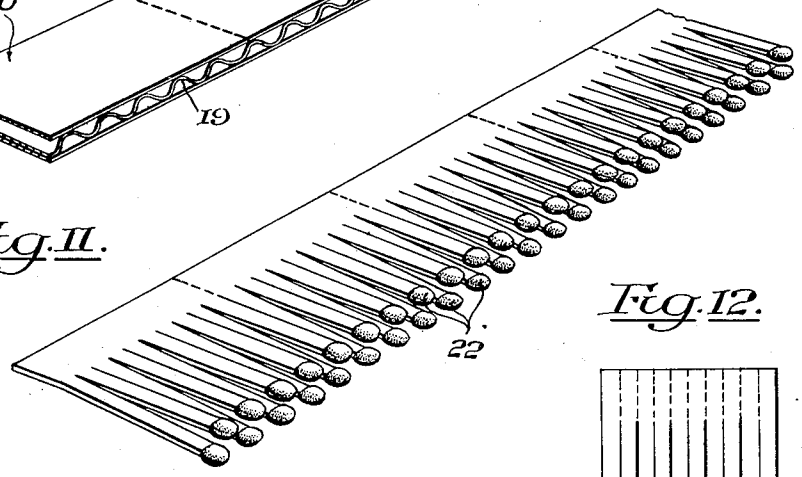


Fig. 12.

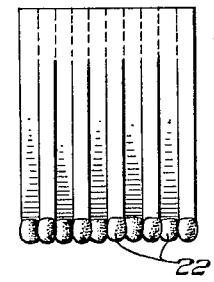


Fig. 14.

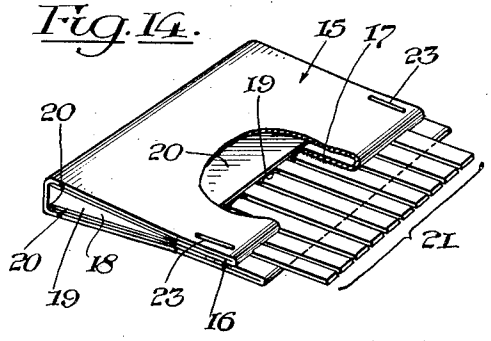


Fig. 13.

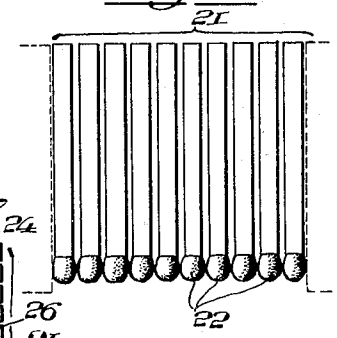


Fig. 15.

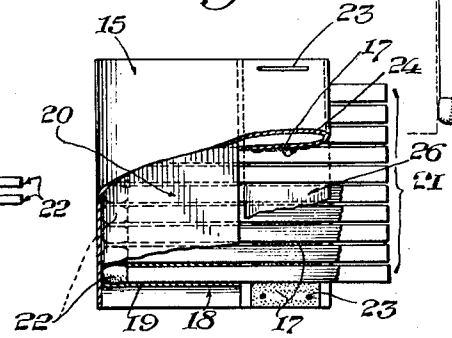
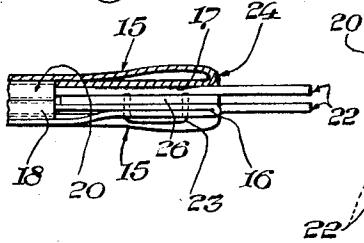


Fig. 16.



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UNITED STATES PATENT OFFICE

2,039,491

MATCH PACKET AND METHOD OF MAKING THE SAME

John R. Nolan, Larchmont, N. Y., assignor to The Diamond Match Company, Wilmington, Del., a corporation of Delaware

Application January 24, 1935, Serial No. 3,277

19 Claims. (Cl. 93—2)

This invention relates to match packets and methods of making the same, having reference particularly to packets of matches of the light-on-withdrawal type, wherein each packet comprises a wrapper or cover of flexible paperboard, or the like, having an internal ignition surface or surfaces, and a holder enclosed by said wrapper or cover and detachably supporting a row of matches with their heads spaced from the ignition surface or surfaces, in order that during the lengthwise withdrawal of each individual match from the holder the head of the match is efficiently ignited by its rubbing contact with such surface or surfaces.

In a match packet of the type referred to it is important that the ignition surface exert sufficient igniting pressure on the head of a match as it is being withdrawn stem foremost from the packet, irrespective of the number of matches, if any, remaining in the packet, and therefore various auxiliary means to that end have heretofore been devised and described, such, for example, as the application to the packet of binding and reinforcing bands, or of transverse metallic clamping or fastening devices. Obviously, the use of such auxiliary means adds materially to the cost of manufacture, and therefore a practical packet devoid thereof is a desideratum, particularly as this type of packet is extensively used for advertising purposes.

An object of my invention is to provide a packet of light-on-withdrawal matches wherein the wrapper or cover is provided with an in-folded end portion which is braced and supported throughout the width of the series of matches in a simple and inexpensive manner effective to insure the requisite contact between the acting surface of such portion and the head of any match that is being extracted, irrespective of the number of matches, if any, which have been removed previously from the packet. Such surface, or an opposing complementary surface, is coated with ignition material which is arranged to effect the ignition of a match head during the withdrawal of the match from the packet.

Other objects of the invention will hereinafter appear.

In carrying out my invention in the preferred way the outer ends or margins of a suitable wrapper or cover of flexible material, such as paperboard, are bent to afford opposing inner pressure folds when the wrapper is applied to a match filled holder, at least one of which folds is provided on its acting surface with ignition material disposed in the paths of the respective match heads during their withdrawal. Such folds bear laterally against the stems of the interposed matches, and the inner edges of the folds bear hard against or engage the opposing holder material. The outer ends of the two folds are secured together and to the front and back of the wrapper or cover by staples or other means, thus outwardly bowing the front and back of the cover at the bends of the respective folds, while the inner edges of such folds are caused to retain their substantially parallel relation on account of their binding contact with the holder. The outwardly bowed portions of the cover contribute to the relative rigidity of the inner folds in that the former tend to brace the upper edges or "chords" of the folds throughout their length while permitting the passage of a match head between the folds with the requisite friction to effect the ignition of the head.

The match holding element is preferably composed of a conventional form of corrugated or channeled pasteboard. The matches arranged in spaced parallel relation are pushed lengthwise, stems foremost, into and through the respective channels so that the match heads are confined therein at one end of the holder, and their stems project beyond the other end of the holder. The sides or walls of the holder above the match heads are pressed against the match stems in order to exert retarding friction on the heads as the matches are being lengthwise pulled through the holder, and the holder is held within the cover by simply fastening the ends of the lateral folds, as previously mentioned. Consequently in the act of extracting a match lengthwise from the packet the match head exerts on the holder an upward pull which tends to draw the upper edge of the holder into increased binding contact with the opposing edges of the respective folds, all of which, together with other features of novelty, will be hereinafter more fully described, and the scope of the invention then expressed in the appended claims.

In the drawings—

Figure 1 is a perspective view of a match packet embodying the principle of my invention.

Fig. 2 is a view of the delivery end of the packet.

Fig. 3 is a transverse vertical section through the packet, as on the line 3—3 of Fig. 1.

Fig. 4 is a longitudinal vertical section through the delivery end of the packet, as on the line 4—4 of Fig. 1.

Fig. 5 is a perspective view of a rectangular flexible wrapper or cover blank for use in the production of the packet.

Fig. 6 is a similar view showing the ends of the

blank bent to provide pressure folds whereof one is coated with match ignition material.

Fig. 7 is a similar view showing a match holder of conventional corrugated paperboard imposed on the body of the blank.

Fig. 8 is a similar view showing the matches inserted in the holder.

Fig. 9 is a similar view, partly in section, showing the blank folded about the holder and the contained matches to provide a cover therefor preparatory to the completion of the packet by partially compressing the holder and by fastening together the sides of the cover and its end folds, as shown in Fig. 1.

Fig. 10 is a view of an elongated strip of corrugated material from which the holders are severed.

Fig. 11 is a view of a strip or "comb" of matches from which rows of matches for insertion in the cover are produced.

Fig. 12 represents a card of matches as severed from the strip.

Fig. 13 represents the card with its base portion severed in parallel lines to extend and separate the individual match stems, and such stems being shifted laterally to spaced parallel relation preparatory to their insertion in the holder.

Fig. 14 is a perspective view, partly in section, of a modified form of match packet whereof one folded end of the cover is extended to provide a protective back for the protruding match stems.

Fig. 15 is a plan, with parts broken away, of a modification having two rows of matches.

Fig. 16 is an end view, partly in section, of a portion of packet shown in Fig. 15.

The form of match packet illustrated in Figs. 1, 2, 3 and 4 of the drawings to exemplify my invention, comprises a wrapper or cover, 15, consisting of a rectangular blank of paperboard or the like having its ends bent laterally and inwardly to provide transverse flaps or folds 16, and having its body folded midway of the flaps or folds to position them in opposed facial relation with their free edges substantially parallel. The inner face of one of the folds is coated with match ignition material, 17, but the opposing faces of the two folds may be coated with the material, if desired.

The packet also includes a match holding element, 18, consisting of a rectangular section of conventional paperboard composed of a corrugated sheet of thin paper, 19, interposed between and cemented to backing sheets 20, of relatively stiff material. Through the parallel channels of the holder are lengthwise inserted matches, 21, having their heads 22 preferably confined in the lower ends of the respective channels and having the free ends of their stems projecting some distance beyond the opposite ends of the channels, which projecting stems thus can be separately grasped in order to facilitate the withdrawal of each individual match lengthwise from the packet.

The length of the match holder, 18, is substantially co-extensive with the width of the wrapper, and the width of the holder is such that when it is supplied with matches and positioned on the cover with the head ends of the stems at or about the midsection of the wrapper, as in Fig. 8, the converging free edges of the end folds of the wrapper as it is being folded about the respective sides of the holder, bear against the opposite faces of the projecting portions of the row of match stems, as in Fig. 9, and as the folding of the wrapper nears completion the converging folds 16 are pressed to a position flatwise against the match stems, thereby forcing such free edges into tight or engaging contact with the opposing edge of the inner corrugated paper 19 of the holder, as in Fig. 3. The contiguous ends of the folds 16 and the front and back walls of the wrapper or cover, are then firmly bound together by means of staples, 23, or other suitable fasteners. By securing the ends of the folds 16 as just described, the folds are drawn against the match stems, thus effecting a positive frictional contact between the ignition surfaces of the folds and the match heads when the matches are being withdrawn.

By their locking engagement with the portion of the holder between the backing sheets, the lower edges of the folds 16 are held in parallelism against the match stems, and consequently the pinching of the front and back walls of the wrapper at the ends of the folds by the application of the fasteners, outwardly bows the respective walls along the upper fold lines thereof, as at 24, which localized bow formations of the wrapper material act to stiffen the edges of the respective infolds and thereby, in conjunction with the fixed lower edges of the folds, effectually maintain such folds in close parallel relation, thus contributing to and ensuring the effective contact of the opposing ignition surface with each individual match as it is being lengthwise withdrawn from the holder.

Preferably the side walls of the holder are pressed toward each other above the match heads, as seen in Fig. 3, thereby yieldably clamping the interposed match stems sc that they exert slight pressure on the head of each individual match as and when it is being lengthwise withdrawn through and from the holder. The pressure exerted on the backing sheets of the holder by the match head in its upward movement tends to draw the holder into increased binding relation to the opposing edges of the respective folds, as previously mentioned.

Holders, 18, of determined form and size for their intended purpose are cut from a long rectangular strip, 25, of corrugated stock, such as represented in Fig. 10.

I have illustrated the matches, 21, contained in the holder as having flat stems of paper or veneer. In using such matches I avail of match cards, such as are used in conventional book matches, which cards are cut from elongated match strips such as shown in Fig. 11. In each card a row of matches projects from a common uncut base portion, the alternate stems being slightly spread laterally and their heads being in overlapping staggered relation, as seen in Fig. 12.

The base portion of each card is severed longitudinally in lines extending from the parallel cuts which define the width of the match stems, as indicated by the dotted lines in Fig. 12. The adjacent matches thus separated are then shifted laterally to spaced parallel relation, as indicated in Fig. 13. This spacing is efficiently attained by applying slight pressure upon the upper series of match heads so as to move them down between and into the same horizontal plane as the contiguous lower series of match heads, and then moving the stems laterally into parallel relation while the adjacent heads are under pressure and in pivotal contact. The series of spaced matches are then simultaneously pushed lengthwise into and through the parallel channels of a corrugated paper holder which is superimposed on a cover bank conveniently supported adjacent the

handle ends of the series of stems. Before or after the insertion of the matches in the holder, the end portions of the cover blank are suitably bent to provide the resilient pressure flaps or folds **16**, either or both of such end portions having been pre-coated with ignition material. The body of the cover is then folded about the holder and toward the matches so as to bring the end folds **16** in contact with the projecting stems and in engagement with the upper edge of the holder. Finally, pressure is applied to the cover to compress the portion of the holder above the match heads, and the folds and the walls of the cover are pinched and fastened together at the ends of the folds.

While the various steps hereinbefore mentioned may be performed by hand, it is to be understood that the commercial production of the packet can be accomplished by means of an organized machine.

In Fig. 14 of the drawings I have shown a modified form of packet embodying my invention wherein one side of the cover and its end fold are extended above the opposite side and fold, so as to provide a protective back for the adjacent protruding portions of the match stems; and in Fig. 15 I have shown another modification wherein two holders with their quota of matches are placed face to face and enclosed in a cover having the characteristic end folds. In this latter construction the two end folds are coated with ignition material **17**, and a partition strip **26**, which affords a backer for the protruding rows of match stems, is inserted between and transversely of the rows, and upon the tops of the holders. The ends of the strip, together with the cover folds and the sides of the cover, are bound together by means of suitable fasteners **23**.

It is to be understood that the exemplifying construction or constructions herein disclosed, and the hereinbefore described mode of procedure in the production thereof, may be modified and varied within the fair spirit of the invention and the scope of the appended claims.

I claim:—

1. In a method of making a packet of light-on-withdrawal matches embodying a cover, a match holder and a row of matches having their stems supported by and protruding from said holder, the steps which consist in bending at least one end portion of the cover to provide an inner transverse fold, and in applying the cover to the holder to position the face of the fold in proximity to the protruding match stems and its inner edge in binding contact with the opposing edge of the holder.

2. In a method of making a packet of light-on-withdrawal matches embodying a cover, a match holder and a row of matches having their stems supported by and protruding from said holder, the steps which consist in bending the end portions of the cover to provide inner transverse folds, and in applying the cover to the holder to position the faces of the folds in opposed relation and with their inner edges bearing laterally against the protruding match stems and in binding contact with the opposing edge of the holder.

3. In a method of making a packet of light-on-withdrawal matches embodying a cover, a match holder and a row of matches having their stems supported in and protruding from said holder, the steps which consist in bending the end portions of the cover to provide inner transverse folds, in applying the cover to the holder to position the faces of the folds in opposed relation and with their inner edges bearing laterally against the protruding match stems and in binding contact with the opposing edge of the holder, and in fastening the ends of the opposing folds together and to the side walls of the cover.

4. A method of making a packet of light-on-withdrawal matches embodying a cover, a match holder composed of a sheet of corrugated paper interposed between and cemented to backing sheets, and a row of matches having their stems supported in and protruding from said holder, the steps which consist in bending the end portions of the cover to provide inner transverse folds, in applying the cover to the holder to position the faces of the folds in opposed relation and with their inner edges bearing laterally against the protruding match stems and in binding contact with the opposing edge of the holder between the backing sheets of the holder, in pressing the corrugated sheet against the match stems, and in fastening the ends of the opposing folds together and to the side walls of the cover.

5. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom, the steps which consist in severing the base longitudinally of and between the edges of adjacent matches, and in shifting the separated stems laterally to spaced substantially-parallel relation.

6. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom with their heads in overlapping staggered relation, the steps which consist in separating the match stems at the base, in pressing the match heads to a common plane, and in moving the stems laterally to spaced substantially-parallel relation while the adjacent heads are under pressure and in pivotal contact.

7. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom, the steps which consist in separating the match stems at the base, in shifting the separated matches laterally to spaced substantially-parallel relation, and in simultaneously pushing the spaced matches lengthwise into and through a suitable container positioned in the path of the stems.

8. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom, consisting in separating the match stems at the base, in shifting the separated matches to spaced substantially-parallel relation, in simultaneously pushing the spaced matches lengthwise into and through a suitable holder positioned in the path of the stems, in applying to the holder a cover having infolded end portions, at least one of which is provided with ignition material, in pressing the end folds against the protruding match stems and in binding contact with the upper edge of the holder, and, finally, in fastening together the end folds and the walls of the cover.

9. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom, the steps which consist in severing the base portion of the card in lines extending longitudinally of and between the edges of adjacent match stems, and in shifting the severed

matches laterally to spaced substantially-parallel relation while the heads of adjacent matches are in contact with each other.

10. In a method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom with their heads in overlapping staggered relation, the steps which consist in severing the base in lines longitudinally of the match stems, in pressing the match heads to a common plane, and then moving the stems laterally to spaced substantially-parallel relation while the adjacent heads are under pressure and in pivotal contact.

11. In a method of making a packet of light-on-withdrawal paper matches wherein is utilized a card of matches having a base and matches extending therefrom, the steps which consist in severing the base of the card in lines extending longitudinally from the cuts which define the width of the match stems, in shifting the separated matches laterally to spaced substantially-parallel relation, and in simultaneously pushing the spaced matches lengthwise into and through a suitable container positioned in the path of the stems.

12. A method of making a packet of light-on-withdrawal matches wherein is utilized a card of matches having a base and matches extending therefrom, consisting in severing the base of the card in lines extending longitudinally of the match stems, in shifting the separated matches laterally to spaced substantially-parallel relation, in simultaneously pushing the spaced matches lengthwise into and through a suitable holder positioned in the path of the stems, in applying to the holder a cover having infolded end portions, at least one of which is provided with ignition material, in pressing the end folds against the protruding match stems and in binding contact with the upper edge of the holder, and, finally, in fastening together the end folds and the walls of the cover.

13. A match packet comprising a plurality of matches, a holder therefor through which protrude the stem ends of the matches, and a cover of flexible material for said holder having at least one folded end portion bearing laterally against the protruding match stems and the inner edge of the fold in binding contact with the opposing edge of the holder, said folded end portion having an ignition surface, and means securing the ends of said folded portion to the cover.

14. A match packet comprising a plurality of matches, a holder therefor through which protrude the stem ends of the matches, and a cover of flexible material for said holder having infolded end portions bearing against the opposite sides of the protruding stems and edgewise engaging the holder, at least one of said infolded portions having an ignition surface, and means securing said folds together and to the walls of the cover.

15. A match packet comprising a plurality of matches, a holder therefor through which protrude the stem ends of the matches, and a cover of flexible material for said holder having infolded end portions bearing against the opposite sides of the protruding stems and edgewise engaging the holder, at least one of said infolded portions having an ignition surface and means securing said infolded portions together and to the walls of the cover while permitting slight upward drag of the holder during the withdrawal of a match from the packet.

16. A match packet comprising a plurality of matches, a holder composed of a sheet of corrugated paper interposed between and cemented to backing sheets, and affording guide channels through which the matches extend, the heads of such matches being confined in the channels at one edge of the holder and the stem ends protruding beyond the opposite edge of the holder, a cover of flexible material encasing said holder and having infolded end portions bearing against the opposite sides of the protruding stems and edgewise engaging the corrugated sheet of the holder, at least one of said infolded portions of the cover having an ignition surface, and means securing said folds together and to the side walls of the cover above the holder.

17. A match packet comprising a plurality of matches, a holder therefor through which protrude the stem ends of the matches, and a cover of flexible material for said holder having infolded end portions bearing against the opposite sides of the protruding stems and edgewise engaging the holder, one side of said cover and its infold extending beyond the other side of the cover and its infold, and at least one of said infolded portions having an ignition surface and means securing said folds together and to the walls of the cover.

18. A match packet comprising two rows of matches, a holder through which protrude the stem ends of the matches of the respective rows, a partition strip between the protruding stems of the two rows, a cover of flexible material for said holder having infolded end portions bearing against the opposing sides of the protruding stems of the respective rows and edgewise engaging the adjacent holders, said infolded end portions having ignition surfaces, and means securing said folds and the partition strip together and to the walls of the cover.

19. A match packet comprising a plurality of matches, a holder therefor through which protrude the stem ends of the matches, and a cover of flexible material for said holder having at least one folded end portion bearing laterally against the protruding match stems, said folded end portion having an ignition surface, and means securing the ends of said folded portion to the cover to draw the folded end portion against the protruding match stems.

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