April 23, 1929. W. E. WILLIAMS 1,710,393

PACKAGE OF BOXES OF MATCHES

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Fig. 1.

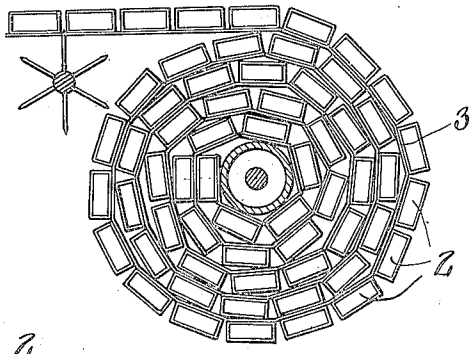


Fig. 2.

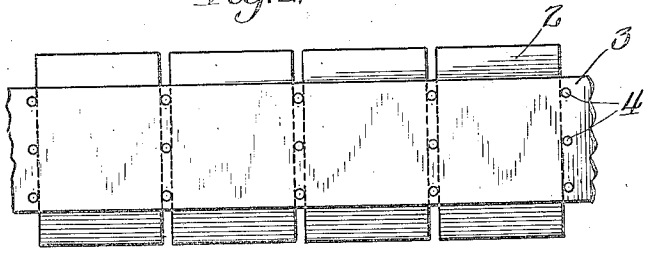


Fig. 3

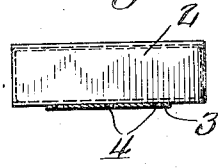


Fig. 4

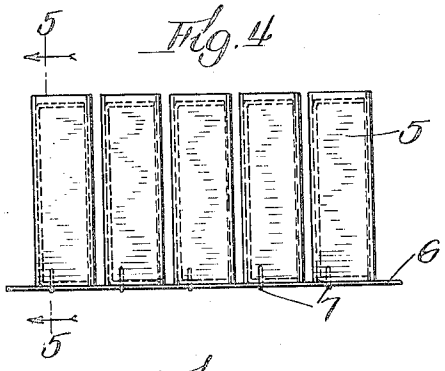


Fig. 5.

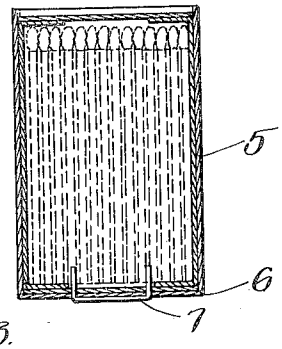


Fig. 6.

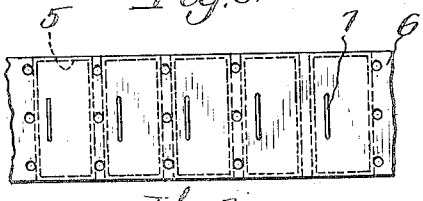


Fig. 8.

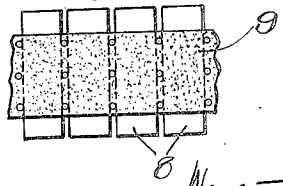
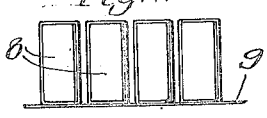


Fig. 7.



Inventor

William Erastus Williams

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Fig. 9.

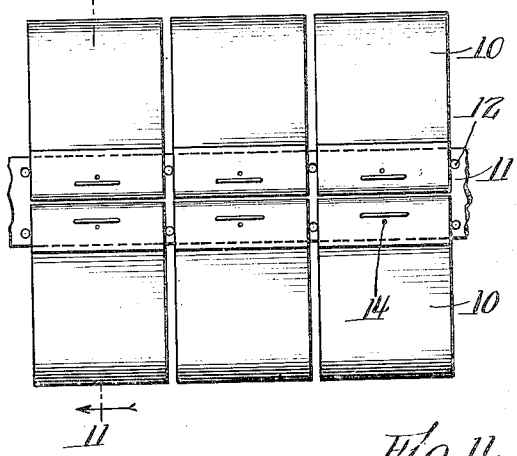


Fig. 10.

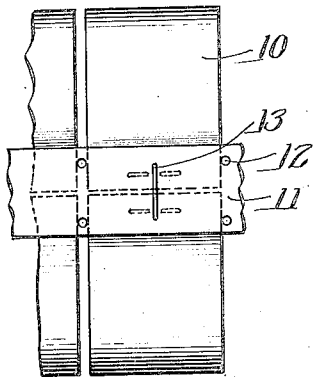


Fig. 11.

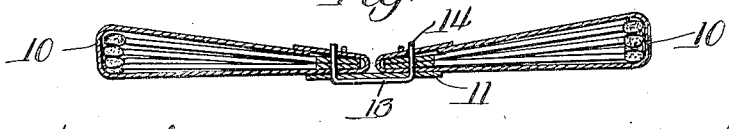


Fig. 12.

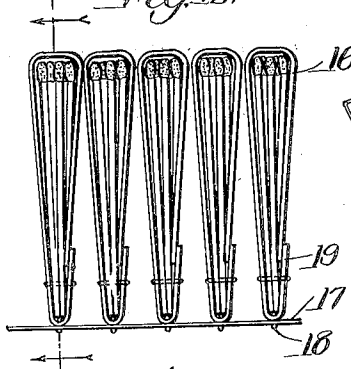


Fig. 13.

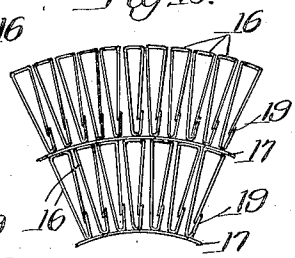


Fig. 14.

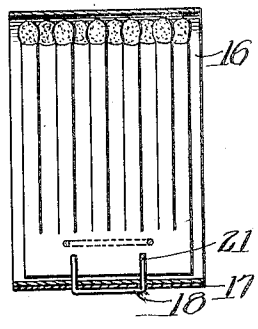


Fig. 15.

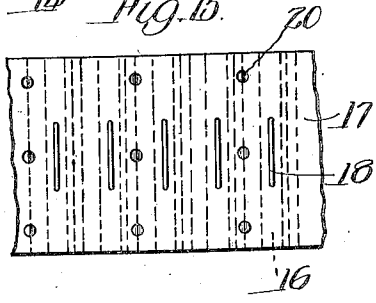
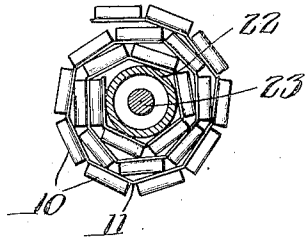


Fig. 16.



Inventor:

William Ernest Williams

Patented Apr. 23, 1929. 1,710,393

UNITED STATES PATENT OFFICE.

WILLIAM ERASTUS WILLIAMS, OF WILMETTE, ILLINOIS.

PACKAGE OF BOXES OF MATCHES.

Application filed February 18, 1926. Serial No. 89,194.

My invention relates to box and book of matches that are packed more particularly for use with vending machines although my packages may be used in the absence of a vending machine. The object of my invention is to provide packages of boxes of matches and books of matches that will hold a great number of them in compact space in form to be automatically delivered out of a vending machine more conveniently than has heretofore been accomplished with matches as heretofore packed.

Vending machines heretofore used for matches have been more or less cumbersome and the quantity of matches that any one machine would hold at a single loading has been relatively small. In places where the trade is more or less active that the old machines require frequent filling of the matches and the labor of filling them has been slow and somewhat tedious taking considerable time of a clerk. Match vending machines are usually located where cigars are sold and the labor in loading the old machines is so great that it seriously lessens the profit of using the vending machine.

I make bundles or packages of matches in such shape that the package or bundle may be loaded in the machine as an entire bundle or package filling the machine at one act of the clerk or operator and so utilizing the space at the same time that a relatively larger quantity may be contained in the machine using less counter frontage than has heretofore been the case with the old-style machine.

The basic of my invention is that I attach the matches carried in boxes, trays, covers, containers, enclosures, and books onto a tape of paper, cloth, or any suitable material and then coil this tape with matches carried thereon into a coil wound upon itself and then unwind and remove the matches by severing the tape into the units desired for any given sale.

Reference will be had to the accompanying drawing of which Fig. 1 is an end elevation of a match bundle package of what is generally called safety matches of the type most generally used, being the pocket size of safety match boxes.

Fig. 2 is a plan of the tape showing the boxes attached thereto.

Fig. 3 is a transverse section through the tape showing the match boxes attached thereto.

In Figs. 1, 2, 3, the tape is pasted on to the flat side of the match box.

Fig. 4 is an elevation of a tape having the match boxes secured onto the tape at the ends of the boxes.

Fig. 5 is a sectional view on line 5—5 of Fig. 4.

Fig. 6 is a plan view of the tape shown in Fig. 4 looking at the bottom of the tape and bottom of Fig. 4.

Fig. 7 is a similar view to that of Fig. 4 but with the boxes secured to the tape on the edges of the boxes instead of at the ends as shown in Fig. 4 or on their flat sides as shown in Fig. 2.

Fig. 8 is a plan of the tape as shown in Fig. 7 looking from the bottom of Fig. 7.

Fig. 9 is a plan view of books of matches secured to a tape the books being secured on each side of the tape thus, as it were, making a double row for books on a single tape.

Fig. 10 is a bottom plan view of what is shown in Fig. 9.

Fig. 11 is a transverse section on line 11—11 of Fig. 9.

Fig. 12 is an elevation showing the edges of match books secured onto the tape at the narrow ends of the books in elevation.

Fig. 13 showing how the bundle is made up of the tape of books shown in Fig. 12.

Fig. 14 is a section on line 14—14 of Fig. 12 showing the arrangement of the stapling of the books to the tape.

Fig. 15 is a bottom plan of what is shown in Fig. 12 being a plan of the tape.

Fig. 16 shows a part of a bundle or package made up of the match books assembled in accordance with the views of Figs. 9, 10, and 11.

In Figs. 1–3 inclusive the boxes of matches are indicated by 2 being the ordinary sized box of safety matches commonly used in a vending machine.

3 indicates the paper tape or tape of any suitable material pasted onto the bottoms of the boxes. The tape as here shown is perforated or scared or marked as indicated by 4 adapted to be engaged by the sprocket teeth or other mechanisms in a vending machine.

The boxes as shown in these figures are spaced apart slightly along the body of the tape as a matter of convenience in some types of machine used in vending the matches so packed. However, it is not

necessary in some machines to have any spacing between the boxes 2 as they are pasted onto the tape 3 but the boxes may be close up to each other on the tape. This feature is determined by the type of machine used in the vending of matches.

With certain types of vending machines it is desirable to have a match box secured to the tape at their ends as shown in Figs. 4, 5, and 6 instead of at the sides of the boxes as shown in Figs. 1, 2, 3, the boxes being the same in either case. In case of the boxes being secured to the tape at their ends the fastening must then be made on what is called the tray or drawer of the match box instead of what is called the shuck tube or outside cover. As the trays or drawers are relatively fragile, I secure them on the tape by pasting them thereto and staple them also to the tape. The boxes thus arranged are indicated by 5 and are pasted to tape 6 and stapled thereto by the staple 7, the staples being located near what is the bottom of the tray or drawer in order to have the bottom of the tray or drawer to help resist the trust in the forcing in the staples and also to bring the protruding points of the staples on the inside of the tray down near the bottom of the tray so as avoid obstruction in taking the matches out of the boxes as might be the case were the staple up near the top of the tray.

In another type of vending machine it is desirable to secure the boxes at their edges as indicated by Figs. 7 and 8 wherein 8 indicates boxes of matches and 9 the tape. In this way of mounting, the tape covers over a part of what is the ignition or scratching surface of the box and as this tape is securely pasted onto the box a portion of it remains on the box as the tape is severed and the single boxes are removed and to accommodate for the loss of the igntion surface that is covered up or might be covered up by the tape I coat the outside surface of the tape with the igniting material so that it serves the purpose the same way as any other coated surface for that purpose.

In the case of book matches the custom has been to sell two books of matches for the same price as one of the boxes of matches such as is shown in Figs. 1–8 inclusive and thus a single penny's worth of book matches is two books and in order to make a compact bundle containing as many books as may be desired in a single coil I arrange the books on each side of the tape as shown in Figs. 9, 10, 11 and 16 in which 10 indicates the match books, 11 the tape, 12 the perforation in the tape and 13 a single staple which secures the two books onto the tape 11 by a single act of stapling. The ends 14 of the staples 13 protrude slightly through the body of the book but are not clinched over since this staple passes through two thickness of match board and two thicknesses of cardboard forming the cover, the friction of the staple itself is sufficient to hold the books in place. As the tape is severed by the vending machine between the books, 2 books come out at a time and the purchaser then disengages the books from the pieces of tape by withdrawing the pieces of tape from the books and pulling out the staple 13. By leaving the ends 14 of the staple straight they are more easily withdrawn from the books than if they were clinched over.

In some instances it is desirable to have a match vending machine for books as narrow as possible and in that event I secure a single line of books to a tape as indicated by Figs. 12, 13, 14, and 15 wherein 16 indicates the books and 17 the tape which is secured by staples 18 into the lower end or narrower end 19 of the match books. Thus in the vending of the match books secured to the tape as indicated by Fig. 12 the tape will be severed at intervals of two books and thus the perforations will be in the spaces at every other book as indicated by 20 Fig. 15. Thus the vending machine will sever the tape in pieces in which two books are attached together and the purchaser then tears them apart tearing the paper strip or tape 17 free from the staples 18 allowing the staples 18 to remain in the ends of the match book. Owing to the depth in which the ends 21 of the staples 18 penetrate into the material of the matches, a secure fastening is brought about by this means.

The books assembled as in Fig. 12 on the tape when wound up in a bundle or package, will appear as is shown in a fragmentary end view in Fig. 13. The coil or package thus formed is larger in the outside diameter and narrower in width for the same number of books than will be employed when the books are assembled as shown in Figs. 9 and 16.

The coils of matches assembled as described will be sent out from the match factory in unitary packages wound up and ready to be loaded into the vending machine as a single cartridge by being inserted onto the spindle 23 of a vending machine. A spool 22 will be shipped as a rule with the bundle or package from the factory or the tape may be wound on a spool and removed from it and then placed upon the spool 22 which may remain in the vending machine.

In the matter of the space in a store where vending machines are usually placed it is desirable to conserve frontage of the counter or showcase as much as possible and to keep it free to look through the showcase or have a clear counter for the service of the store. The old match vending machines as a rule have occupied relatively a greater space of the frontage than of the depth of the coun-

ter or showcase. A narrow machine which occupies a narrow frontage on the showcase and extends back a greater distance across the case is less objectionable than a machine which occupies a wider frontage and narrower depth across the case or counter. With my system of packing or bundling the matches as shown and described a narrow space is occupied on the frontage of the counter by the vending machine; yet I may pack more matches for same space than by other means heretofore used.

With the old system of packing matches as individual boxes or books into a vending machine there occurs frequent misplacements of the books and boxes which results in binding and clogging the machine but with my arrangement of the matches the tape insures an orderly arrangement and discharge with less danger of clogging the machine than with the old-style methods of packing.

There are several systems of packing the individual matches. Boxes and books are the most common but sometimes they are sent out in blocks retained together at their ends. Small envelopes have been used and other means of carrying them have been employed. I have herein used the terms boxes, trays, books, enclosures, covers, and containers, all of which sometimes carry individual matches in a form that I may use in my packages or bundles by means of the tape method for vending purposes.

I have disclosed novel features in this application which are also disclosed in my copending applications Ser. Nos. 153,981 and 155,605, and I expressly reserve the right to claim any novelty disclosed but not claimed herein in another co-opending application.

I claim:

1. A series of match books in a double line mounted upon a tape one line on each side of the tape in pairs opposite each other with a single staple securing a single pair of books to the tape.

2. A double row of match books mounted in a coil with their small ends abutting each other and secured to a tape and the whole wound into a coil with the books flatwise as relates to their width lying on the tape.

3. The combination with a tape, of a plurality of match books arranged on said tape in a double line with their closed ends stapled thereto.

Signed at Chicago, in the county of Cook and State of Illinois, this 15th day of February, 1926.

WILLIAM ERASTUS WILLIAMS.