

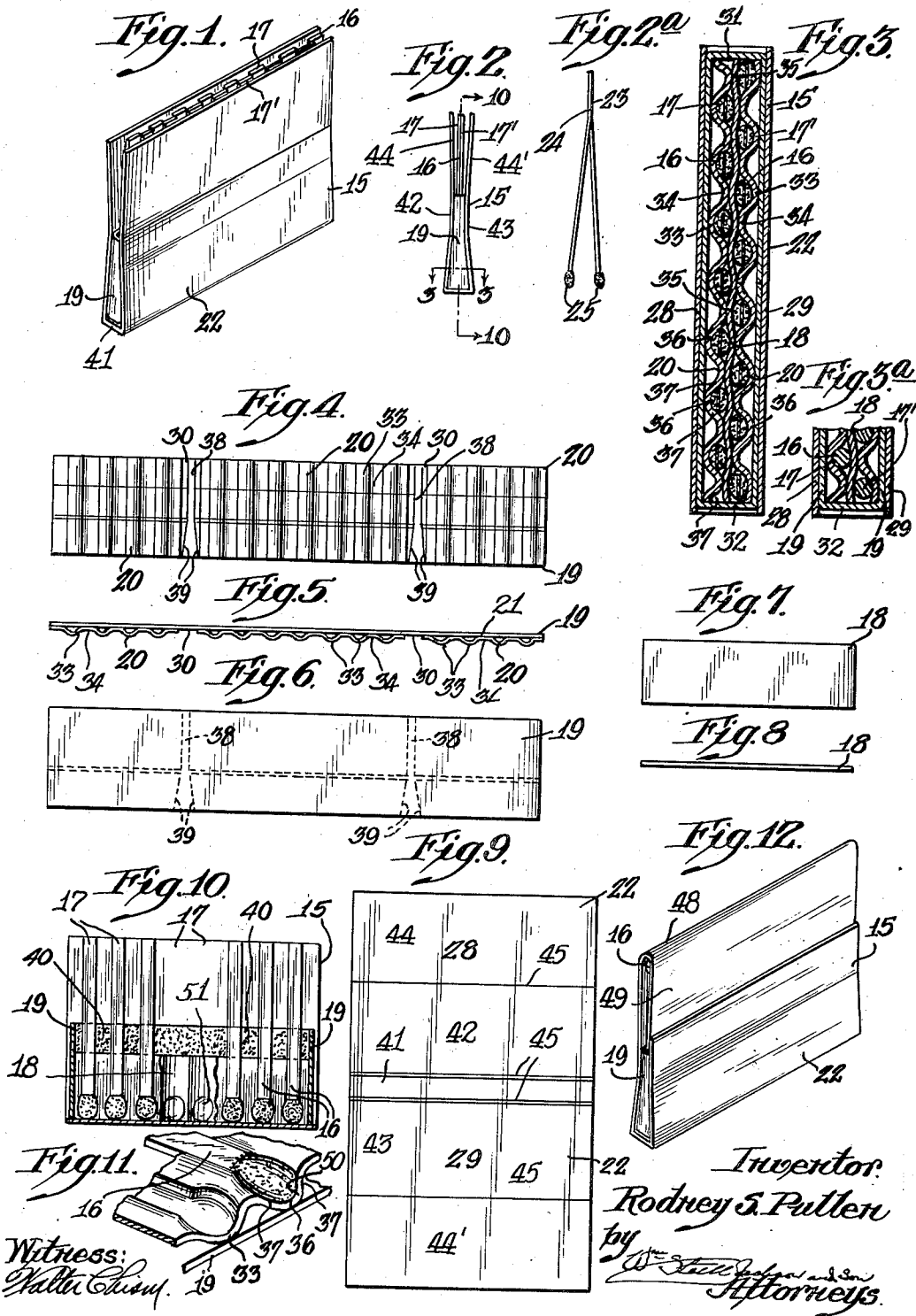
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MATCH PACKET

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MATCH PACKET

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The invention relates to packets of matches of the type which ignite on withdrawal.

One purpose of the invention is to simplify a packet of the type indicated as compared with existing packets.

A further purpose is to reduce the thickness of a match packet of the type indicated.

A further purpose is to facilitate the manufacture of match packets.

A further purpose is to reduce the weight and quantity of material used in making a match packet.

A further purpose is to use impregnated sheet material as a retardant located between alternating matches of two rows and preferably to press the matches and sticks laterally into the paper so as to make a modified corrugated paper of this, all for the purpose of developing resistance to the withdrawal of the matches.

A further purpose is to reduce the amount of corrugated paper used in a packet by applying it from the outside only.

A further purpose is to use an outside corrugated paper as a guide for the match sticks and heads in withdrawal and to apply the ignition material to this corrugated paper.

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

I have preferred to illustrate my invention by one main form only, selecting a form which is practical, effective, inexpensive and thoroughly satisfactory but which has been selected primarily because of its excellence in illustration of the invention.

Figure 1 is a perspective view of a completed packet.

Figure 2 is an end elevation of the structure of Figure 1.

Figure 2a is an end elevation of a portion of a comb carrying the match elements of Figure 2.

Figure 3 is an enlarged sectional plan view of Figure 2 taken upon line 3—3.

Figure 3a is a fragmentary enlarged section corresponding generally with Figure 3 but through the match sticks and showing wooden match sticks.

Figures 4 and 6 are developed plan views of opposite faces of a bale used in the construction of the figures.

Figure 5 is an end elevation of the structure seen in Figure 4.

Figures 7 and 8 are plan views and end elevation, respectively, of a retardant strip used in the packet.

Figure 9 is a plan view of a wrap used in the construction shown in Figure 1.

Figure 10 is a longitudinal section, partly in elevation of Figure 2 taken upon line 10—10.

Figure 11 is an enlarged fragmentary perspective of a portion of the bale after the parts have been pressed to embed the match heads in the bale. One match is shown in position.

Figure 12 is a perspective view corresponding generally with Figure 1, but showing a different wrap.

In the drawing similar numerals indicate like parts.

The packet 15 includes parallel rows of matches 16 staggered, the matches 17 of one row with respect to the matches 17' of the other. The matches can be wood stick matches as in Figure 3a though paper matches are cheaper and make a smaller package and hence are preferred.

A retarding intermediate strip 18 of clinging sheet material is located between the rows at the head ends of the matches. For convenience it is called a retardant. The best form known to me is in the form of a sheet of impregnated paper. It performs two functions, one retardant and the other protective.

The bale 19 interiorly is made up of facing corrugated paper 20 and a backing 21 holding the corrugations in spaced relation. The bale is surrounded by a wrap 22.

The entire assemblage of the packet, whether of wooden stick matches or of paper matches may be effected by hand.

When paper matches are used they will ordinarily be initially sections of a comb 23, the matches of the comb being alternated in rows merely by pressing alternate match sticks and heads in one direction and the intervening sticks and heads in the opposite direction, which also can be done by hand. However, comb strip matches are usually handled by means of a joining strip 24 which is ultimately cut off to release the matches from this common tie and leave them in their final form of separate and distinct matches. Whether the matches be wooden stick or paper type they are assumed to be properly dipped to produce heads 25.

The baled matches are surrounded by a packet cover or casing 22 of conventional form, open at the end as in Figure 1 or enclosed at the end as in Figure 12.

The retarding strip or sheet 18 is of clinging material which will tend to hold back the matches as they are pulled to withdraw them, developing a sufficient strain upon the individual matches

so that when they start to move they will move quickly and reliably will ignite against the ignition material 27 within the gutters of the corrugations inside the bale.

For the clinging material I have had excellent success using an impregnated paper sheet. Its clinging effect in offering resistance to withdrawal of the matches is reinforced and accentuated by laterally squeezing the cover sides 28 and 29 together so as to cause the match heads at least to become embedded in the bottoms and sides of the gutters of the corrugated material carried by the bale and to a less extent, to become impressed in the retarding strip between them.

Considerable pull must be given the match sticks toward their stick ends before the matches can be pulled loose from the packet. The heads must be wedged out of the rests which the squeezing has formed for them, chiefly in the corrugations and partly in the retarding strips and the friction of the clinging surface must be overcome. The pull thus developed causes the matches when released to move rapidly enough to ignite against the ignition material.

The retardant strip used must be thin enough and flexible enough to be made to conform to the head of the match, and permissibly also to the stick of the match. It must have a surface retardant to the withdrawal of the match head and adjacent stick. I have had excellent success in the use of a plain paper impregnated with rosin formed from the residuum left in the making of turpentine. This rosin is known as colophony and is made from the sap of pine, fir or larch trees dissolved in commercial acetone to produce the impregnating solution. Other solvents are ketone, and, though not so good, alcohol.

Though the surface above is the best known to me the function will be performed by other impregnations such as gum copal for example and by other surfaces not impregnated which have a clinging brake effect.

In the bale used the corrugated strip is interrupted (omitted) at intervals as at 30 in Figures 4 and 5, in order to permit convenient bending of the bale about the otherwise open ends 31 and 32 of the packet. The corrugated strip, as is the case with all corrugated strips, provides crests 33 and gutters 34. The crests are adapted to engage at 35 with the strip of frictional material and the depressions or gutters have bottoms 36 and sides 37 to engage with the match heads.

Where the corrugations are omitted, the backing material is scored for bending, the scoring being along parallel or nearly parallel lines throughout the portions 38 which fit about the match sticks and flared at 39 opposite the match heads.

The striking material is shown at 40.

The wrap or cover is shown differently in Figures 1 and 12 and is intended to be any one of common types. In Figure 1 it comprises a central section 41 adjoining front and back sections 42 and 43 and stick-protecting terminals 44 and 44' adapted to be flared to give access to the match sticks for withdrawal. These different sections are separated by scorings 45.

As the cover is applied, its central section 41 preferably engages at the head ends the outer edge 46 of the retardant sheets and also the outer edge 47 of the corrugated wrap, so as to close off the end in front of each match head and to form what may be considered as individual compartments, protecting against flash of an

ignited match from the compartment in which this match is located into any other adjacent compartment.

The fact that the striking material 40 is spaced from the normal position of the heads of the matches reduces the extent of the flash at the head end from any ignited match head and guides any such flash lengthwise of the match as distinguished from across the compartment at the end, so as again to reduce chance of ignition of adjacent matches because of the flash from any match which is ignited.

Locating the striking material toward the stick ends of the matches from the retardant strip allows both sides of the match heads to engage with the striking material at the same time, a desirable but not an essential feature.

The sides of the cover are glued to the bale, stiffening and strengthening the bale and making it possible to reduce the thickness and strength of the bale otherwise.

The wrap or cover in Figure 12 is a common form also of wrap or cover differing from the wrap of Figure 1 chiefly in that the rear section 43 only is extended to cover the match sticks. It is turned about the ends of the match sticks at 48 and reversely turned at 49 to protect the fronts of the sticks. The front and back sections here also are glued to the bale and stiffen the bale.

After the packet has been completed it is laterally pressed, embedding the heads of the matches in the surrounding corrugations with the result that the heads are held physically within the depressions 34 within which the pressure has created seats or rests 50. The retardant sheet is also altered by the pressure, forming depressions in it at 51. The combined effect is to delay and retard withdrawal of the matches for customers' use until the pull on the match sticks has become sufficiently intense to overcome the resistance offered by the walls of the cupped recesses and by the walls of the more slightly cupped separating retarding material 18.

In operation the match is withdrawn lengthwise, stick end first, as usual in these matches. The pull on the match must overcome first the retardation because of seating of the head and must also overcome the retardation due to the brake action of the retardant strip. This brake action is present within the depression and also after the match has begun to move. In this way a strength of pull is built up which causes the match to be withdrawn at high speed.

Immediately after the pull upon the match has become sufficiently acute to start the match upon its withdrawal from the packet the match head engages the ignition material which is fastened to the interior surface of the corrugated material at a short distance from the heads, the beginning of the ignition material preferably corresponding substantially with the outer edge of the retarding material; with the result that when a match has finally been pulled free from its position with the head seated in the corrugations and in the retardant material the pull of the customer will pass it out over the surface of the ignition material and cause immediate ignition and quick passage out of the 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. A match packet comprising parallel rows of staggered matches, a retardant strip between the matches at their head ends, a bale having a corrugated interior surface, the channels of the corrugations partly enclosing the matches, and the bale laterally surrounding the matches at the head ends and extending toward the stick ends of the matches, the corrugations being in part coated with ignition material farther from the match heads along the sticks than the retardant strip extends and a cover surrounding the head ends of the matches and the stick ends of the matches beyond the bale.

2. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, having the corrugations fitting over the match heads and the adjacent sticks and extending along the sticks of the matches beyond the extension of the retardant strip and ignition material upon the corrugated bale facing the match sticks in the portion by which it extends beyond the retardant strip.

3. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, having the corrugations fitting over the match heads and the adjacent sticks and extending along the sticks of the matches beyond the extension of the retardant strip, ignition material upon the corrugated bale facing the match sticks in the portion by which it extends beyond the retardant strip and a cover over the match retarding strip and bale, the cover being glued to the corrugated bale to hold the parts together and to stiffen the bale.

4. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends and extending along the sticks of the matches beyond the extension of the retardant strip, ignition material upon the corrugated bale facing the match sticks in the portion by which it extends beyond the retardant strip and a cover over the bale and retardant strip, the match heads being laterally seated in depressions in the adjacent corrugations.

5. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, the channels of the corrugations partly enclosing the matches, ignition material upon the corrugated bale facing the match sticks and located farther along the stick lengths than the retardant strip extends and a cover over the bale and retardant strip engaging the head edges of the bale and strip.

6. A match packet comprising parallel rows of staggered matches, a strip of retardant material

between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, the channels of the corrugations partly enclosing the matches, ignition material upon the corrugated bale facing the match sticks and located farther along the stick lengths than the retardant strip extends and a cover over the bale and retardant strip forming individual compartments with the bale and retardant strip.

7. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, the channels of the corrugations partly enclosing the matches, ignition material upon the corrugated bale facing the match sticks and located farther along the stick lengths than the retardant strip extends and a cover over the matches, retardant strip and bale, the heads being seated laterally in the corrugated material.

8. A match packet comprising parallel rows of staggered matches, a strip of retardant material between the rows of matches at the head ends, a corrugated bale surrounding the rows of matches at the head ends, the channels of the corrugations partly enclosing the matches, ignition material upon the corrugated bale facing the match sticks located farther from the heads along the stick lengths than the retardant strip extends and a cover for the matches, retardant strip and bale, the heads being seated laterally in the corrugated material and the cover seating against the retardant strip and bale.

9. A match packet comprising a plurality of rows of matches staggered, matches of one row with respect to the matches of the next row, sheet material impregnated with retardant material between the matches of the rows, providing a surface retardant against withdrawal of the matches, corrugated sheet material enclosing the rows of matches, extending transversely of the matches at the head ends of the matches, surrounding the outer matches, the channels of the corrugations partly enclosing the matches, ignition material carried by the corrugated sheet material located farther from the match heads along the match sticks than the retardant strip extends and a cover about the corrugated sheet material.

10. A match packet comprising a plurality of rows of matches staggered, matches of one row with respect to the matches of the next row, sheet material impregnated with retardant material between the matches of the rows, providing a surface retardant against withdrawal of the matches, corrugated bale of sheet material enclosing the rows of matches, extending transversely of the matches at the head ends of the matches, the channels of the corrugations partly enclosing the matches, ignition material carried by the corrugated sheet material located farther from the match heads along the match sticks than the retardant strip extends and a cover about the corrugated sheet material, the cover sealing against the edges of the bale and of the corrugated sheet material.

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