May 22, 1951 F. M. HARRISON 2,554,026

BASKET STAPLING AND PUNCHING MACHINE

Filed June 7, 1949 2 Sheets-Sheet 1

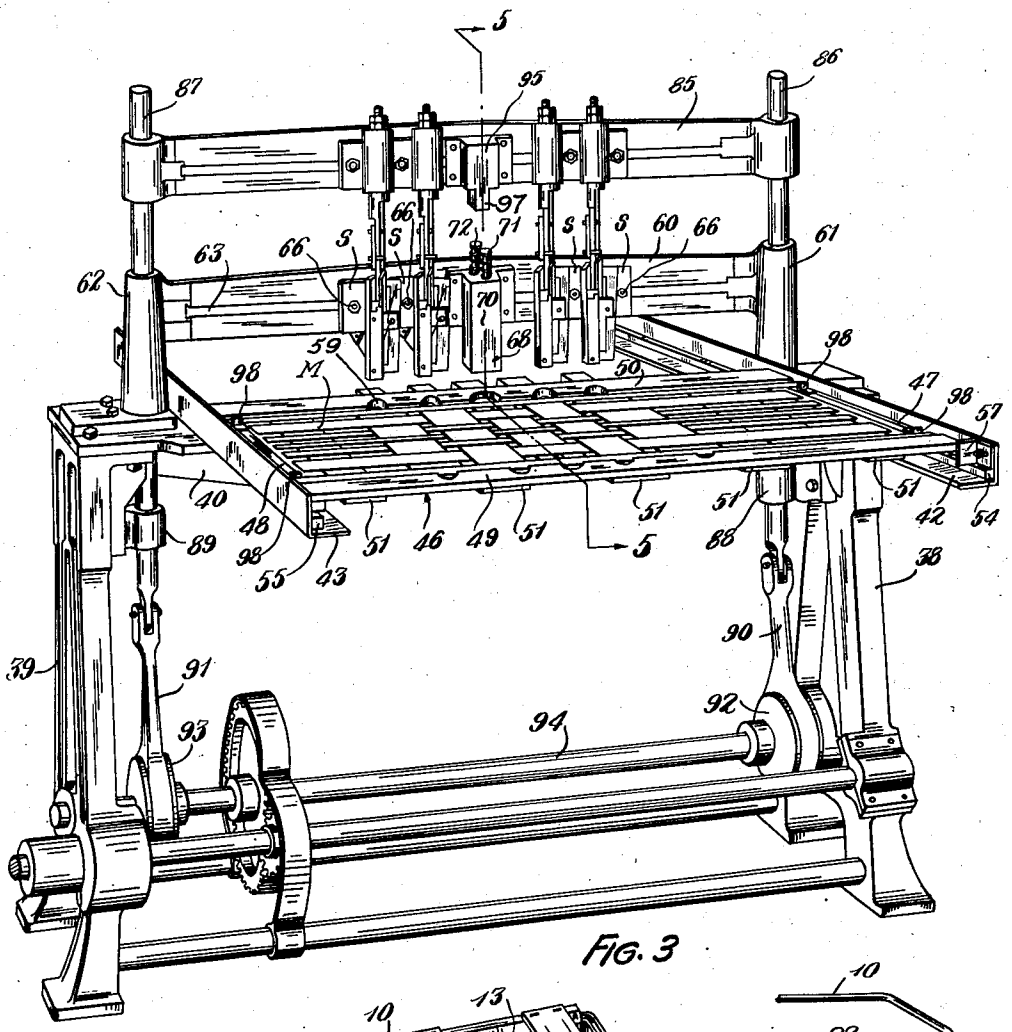


FIG. 3

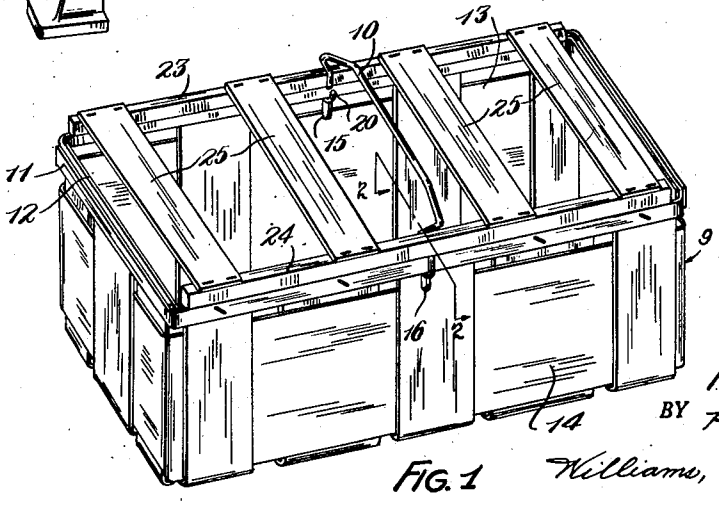


FIG. 1

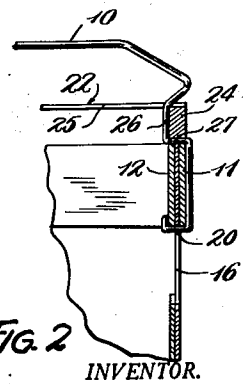


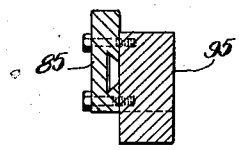
FIG. 2

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May 22, 1951 F. M. HARRISON 2,554,026

BASKET STAPLING AND PUNCHING MACHINE

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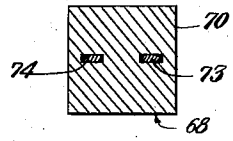


FIG. 7

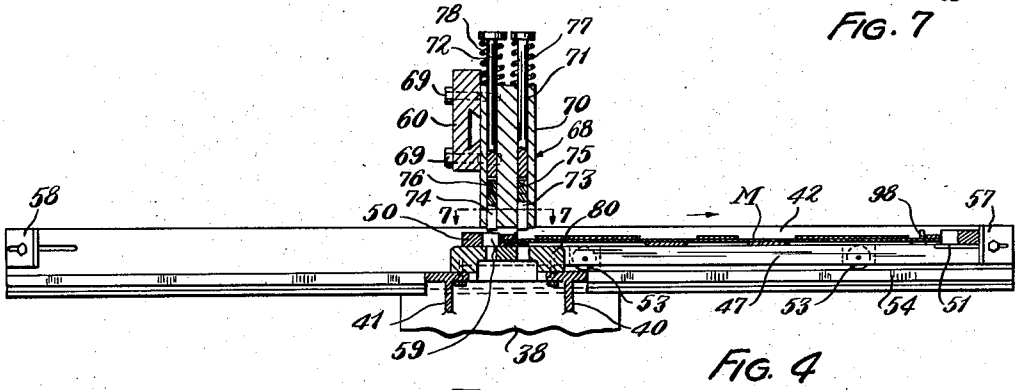


FIG. 4

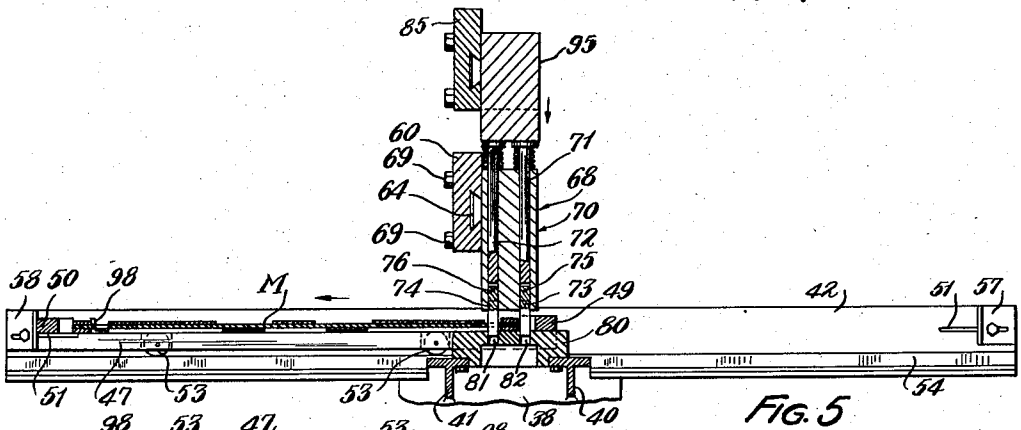


FIG. 5

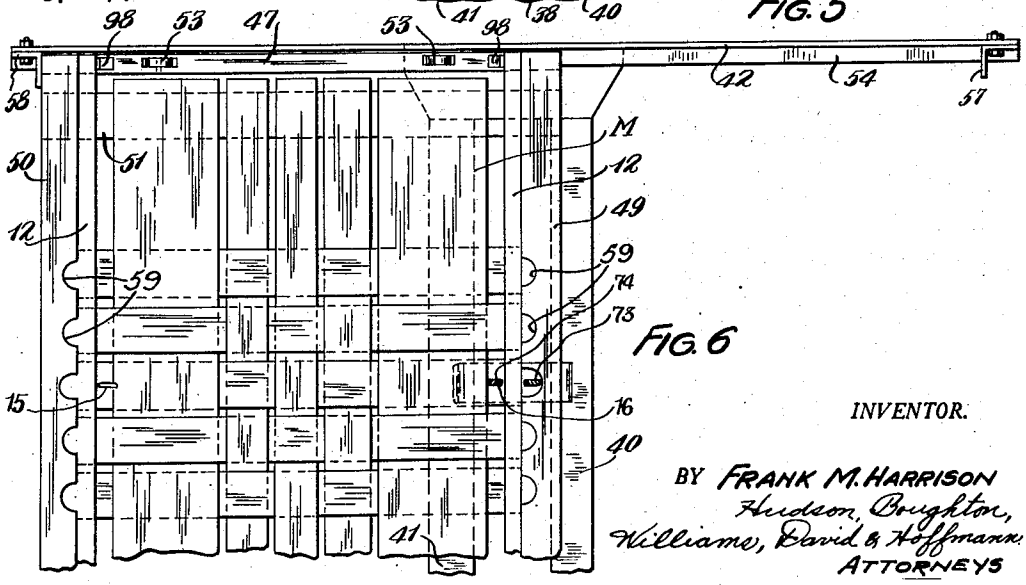


FIG. 6

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BASKET STAPLING AND PUNCHING MACHINE

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2 Claims. (Cl. 1—8.1)

1

The present invention relates to apparatus for the manufacture of baskets, and more particularly, to rectangular market baskets formed of splint or wood veneer mats and having detachable bail-type handles.

One of the principal objects of the invention is the provision of a novel and improved apparatus for making market baskets of splints or wood veneer strips, which baskets have reinforcing bands stapled about the upper edges and holes in the sides thereof for the reception of bail-type handles wherein the holes for receiving the handles are formed simultaneously with the stapling of the reinforcing bands to the veneer strips and while the veneer is in mat form.

Another object of the invention is the provision of a new and improved basket fabricating machine comprising a frame having means for supporting a veneer strip or splint mat, and stapling devices and punches simultaneously operable to staple reinforcing bands to opposite edges of the mat and pierce the mat adjacent to the bands without removing the mat from the supporting means and which punches pierce the mat so that the dimensions between the outer edges of the mat and the adjacent edges of the pierced openings are never in excess of that desired for proper attachment of a preformed handle to the finished basket.

Another object of the invention is the provision of a new and improved basket fabricating machine comprising a frame having means for supporting a mat to be stapled and punched, a plurality of aligned stapling devices supported on the frame and operative to staple parts of the mat together, a pair of punches on the frame and lying in a plane extending transversely of the alignment of the stapling devices, and means for operating the stapling devices and the punches simultaneously, the mat and stapling devices and punches having relative movement whereby opposite edges of the mat may be individually stapled and punched without removal of the mat from its supporting means, one punch being operative to pierce one side of the mat and the other punch being operative to pierce the opposite side of the mat.

The invention resides in certain constructions and combinations and arrangements of parts and further objects and advantages will be apparent to those skilled in the art to which it relates from the following description of the preferred embodiment described with reference to the accompanying drawings forming a part of this specification, in which

2

Fig. 1 is a perspective view of a basket manufactured in accordance with the present invention;

Fig. 2 is a fragmentary, sectional view taken substantially along line 2—2 of Fig. 1, and on a larger scale;

Fig. 3 is a perspective view of a splint mat stapling and punching machine;

Fig. 4 is a fragmentary, sectional view taken substantially along line 5—5 of Fig. 3 and having certain parts of the machine omitted;

Fig. 5 is a view similar to Fig. 4 but showing certain parts of the machine in different positions;

Fig. 6 is a fragmentary plan view of the stapling and punching machine showing a splint mat in the machine, parts of the mat and machine being broken away or omitted; and

Fig. 7 is a sectional view taken on line 7—7 of Fig. 4.

The present invention is directed to the manufacture of baskets formed of mats or wood veneer strips or splints and having reinforcing bands stapled about the upper edges thereof and having openings in the sides for the reception of hooked ends of bail-type handles. In accordance with the invention, a rectangular mat of wood veneer strips or other suitable material has reinforcing bands attached along opposite edges thereof, as by stapling, and openings are pierced in the mat adjacent to the bands after which the mat is folded in a suitable manner to form the basket proper with the handle-receiving openings disposed opposite one another and immediately below the bands.

The reinforcing bands are attached to the edges of the mat by a novel and improved stapling machine having a pair of punches which are adapted to pierce the mat at the time the bands are stapled to the mat for forming handle-receiving openings. The punches are arranged so that one punch pierces one side of the mat when the reinforcing bands are stapled to one side of the mat and the other punch pierces the other side of the mat when the reinforcing bands are stapled to the said other side of the mat.

Although different forms or sizes of baskets may be fabricated in practicing the invention, for purposes of illustrating the invention, I have shown a splint type market basket 9 in Fig. 1 which is made in accordance with the invention and which is disclosed and claimed in my copending application Ser. No. 93,305, filed May 14, 1949. The basket 9 is rectangular and has a detachable bail-type handle 10 which may be removed for

shipping the basket with a number of other like baskets in nested relation from the point of manufacture to various growing areas for use in shipping vegetables and the like to markets. The basket proper is formed of wood veneer or splint matting having reinforcnig bands 11, 12 attached to opposite sides of the edges which form the top of the basket. The sides 13, 14 of the basket have vertically extending slots 15, 16 adjacent to the top edges just below the reinforcing bands, respectively, for the reception of hooked end portions 20 of the generally U-shaped handle 10, which is formed of a suitable resilient material, such as wire. A cover 22 is provided for the basket which comprises two side members 23, 24 interconnected by slats 25 and the members 23, 24 are adapted to be received and held in notch formations 26 formed in the handle 10. Referring to Fig. 2 which clearly shows one of the notch formations 26 in the handle, it is seen that a section 27, which forms one side of the notch, rests against the top edge of the basket so that, in cooperation with the hooked portion 20, the handle embraces the portions of the basket between the top edges and the adjacent edges of the slots 15, 16 and assists in retaining the handle to the basket. The handle structure and the manner in which it is attached to the basket is fully described in the aforementioned application.

In accordance with the present invention, the basket is fabricated by first forming a wood veneer or splint mat M, which is shown in part in Fig. 6, which mat is rectangular and comprises suitable wood veneer strips or splints interwoven in the usual manner, as shown. The ends of the laterally extending strips, as seen in Fig. 6, are interposed between two reinforcing bands 11, 12 and the two outer laterally extending strips toward each end of the mat are secured to the bands, preferably by staples. At the time the bands are stapled to the strips, the handle-receiving slots 15, 16 are pierced in the central strip adjacent to the reinforcing bands. The mat is then folded along longitudinal lines adjacent to the inner edges of the two outermost longitudinally extending strips, with these strips turned upwardly to form the sides of the basket. The loose ends of the side-forming strips are turned inwardly to form the end walls of the basket and the loose ends of the longitudinal strips intermediate the side strips are turned upwardly and are interwoven with the inturned portions of the side strips and attached intermediate the reinforcing bands 11, 12 by staples or nails. When the basket is formed in this manner, the slots 15, 16 for the reception of the hooked ends of the handle 10 are immediately adjacent to the reinforcing bands of the basket and opposite one another.

A machine for stapling the reinforcing bands 11, 12 to the veneer strips at the sides of the mat and forming the handle-receiving openings 15, 16, is shown in Figs. 3, 4 and 5. The machine includes a frame having two uprights 38, 39 which are interconnected by two bed members 40, 41. Two spaced, parallel angle bars 42, 43 are supported on the bed members 40, 41 and extend transversely of the members for supporting a mat receiving carriage 46.

The mat carriage 46 comprises a rectangular frame having two side bars 47, 48, interconnected by end members 49, 50, and slats 51 which interconnect the end members intermediate the side bars to form a support for a mat placed within the carriage frame members. The members forming the carriage may be of any suitable material, such as wood or metal. The side bars 47, 48 are slotted adjacent to the ends thereof, and wheels 53 are journalled in the slots, which wheels ride on bars 54, 55 attached to the angle bars 42, 43 so that the carriage may be easily moved along the angle bars. The end members 49, 50, have recesses 59 formed therein to accommodate the staple and punch devices which are adapted to engage the adjacent edges of a mat in the carriage.

The carriage 46 may be rolled along the angle bars 42, 43 to position opposite edges of a mat supported therein beneath stapling and punching devices carried above the bed members of the frame. The carriage may be properly positioned by pairs of stop brackets 57, 58, which are adjustably attached to the angle bars 42, 43 by a slot and bolt connection. The stop brackets of each pair are located on opposite sides of the frame and the carriage engages one or the other of the pairs of brackets as it moves from one end of the angle bars to the other end.

The stapling and punching devices referred to hereinbefore are attached to a transverse bar 60 which is supported at its ends by posts 61, 62 on the uprights 38, 39. The bar 60 has a longitudinal dovetail groove 63 by which stapling heads S may be attached to the bar by tongue clamps 64, only one of which is shown, and which tongues are attached to the heads by bolts and nuts 65. In the present form of the invention, four stapling heads are employed, although any desired number could be used, depending on the particular basket structure involved. Stapling heads for stapling reinforcing bands to splint mats are well known in the art and they are not shown or described in detail. Suitable clinch blocks, not shown, are mounted on the bed members 40, 41 and cooperate in the usual way with the stapling heads S to clinch ends of the staples driven through the bands and mat members.

A punch device indicated generally at 68 is attached by bolts 69 or otherwise to the bar 60 intermediate the two central stapling heads, and the device comprises a block 70 having two vertical bores in which two plunges 71, 72 are adapted to reciprocate. The bores for the plungers terminate short of the lower end of the block 70 and rectangular shape openings having die punches 73, 74 therein from continuations of the bores. The lower ends of the plungers 71, 72 are slotted and receive the upper ends of the punches 73, 74 which are attached to the rods by pins 75, 76 which extend through openings in the pins and punches. The punches 73, 74 are spaced apart approximately the width of the reinforcing bands of the baskets to be fabricated and the punches lie in a plane which is normal to the alignment of the stapling heads S or the bar 60. The plungers 71, 72 are yieldingly urged upwardly to draw the punches into the block 70 by springs 77, 78 which are interposed between the tip of the block 70 and heads formed on the plungers. A die block 80 is attached to the bed members 40, 41 in registration with the punch device and has openings 81, 82 which receive the punches 73, 74, respectively, when the plungers 71, 72 are depressed, as seen in Fig. 5. The punches and die block openings are shaped to pierce the slot-like, handle-receiving openings 15, 16 in the splint mats and are operative to pierce the mats at the same time the bands are stapled to the mats. Normally, only one punch is effective to pierce the mat during each stapling operation. Preferably, the distance between the

punches 73, 74 is the same as the distance between the section 27 and the laterally extending portion of the hook 20 of the basket handle 10 which is substantially the width of the bands 11, 12 and the punch elements normally straddle the bands 11 during the punching operations.

The stapling heads and punches are actuated by a reciprocating bar 85 which is supported above the bar 60 on two rods 86, 87. The rods 86, 87 are supported for vertical reciprocation in bores through the posts 61, 62 and in bored guide blocks 88, 89 on the frame. The rods 86, 87 are reciprocated vertically by pitmen 90, 91 which are connected to eccentrics 92, 93 carried by a shaft 94 journalled on the frame. The shaft 94 may be driven by any suitable mechanism preferably controlled by a treadle, which mechanism and treadle are not shown as they are commonly found in the stapling machine art. The bar 85 is similar to that of the bar 60 and it has a dovetail groove by which parts of the stapling devices which cooperate with the stapling heads are attached to the bar. A punch operating member 95 is attached to the bar 85 and the member 95 includes a shank portion 97 which is adapted to engage the top of the plunger 71 and move the latter downwardly and cause the punch elements to pierce a mat in the carriage 46 when the bar 85 is operated to actuate the stapling heads.

A loosely assembled mat M, similar to that by which the basket shown in Fig. 1 is formed, may be placed in the carriage 46 with the reinforcing bands 11, 12 at opposite sides of the mat abutting the inner edges of the end members 49, 50. When the mat is flat, that is before it is formed into a basket, the bands 11, 12 extend beyond the ends thereof, and to hold the bands in proper position for stapling, angle brackets 98 are attached to the side bars 47, 48 of the carriage and are spaced from the end members to provide just sufficient clearance for the bands to be received between the end members and upstanding portions of the brackets. The mat is positioned in the carriage so that the approximate centers of the two outermost splints or veneer strips toward each end of the mat are aligned with the respective stapling heads and the approximate center of the central splint or veneer strip is aligned with the punches 73, 74. It will be understood that when a number of baskets of any one size are to be made, the positions of the splints or strips of veneer making up the mats are more or less uniformly positioned relative to one another and the stapling heads are set in proper spaced relation along bar 60 to staple the reinforcing bands to the splints desired.

The stops 57 are positioned so that when the carriage abuts these stops, the reinforcing bands 11, 12 of the mat M at the opposite end of the carriage will be directly beneath the stapling heads. The punches 73, 74 are so positioned that punch 73 will pierce the splint portion of the mat adjacent to one edge of the bands and punch 74 will just clear the opposite edge of the bands when the punch mechanism is operated. The punch 74 extends into one of the recesses 59 in the end member 50 of the carriage. The carriage stops 58 are so positioned that when the carriage is moved thereagainst, the reinforcing bands at the opposite side of the mat M are positioned beneath the stapling heads S and the punch 74 is aligned with the central splint adjacent to one edge of tne bands while punch 73 will just clear the opposite edge of the bands on the outer side of the mat and extend into one of the recesses 59 in end member 49 of the carriage when the punch mechanism is operated.

In the event that the operator should have the carriage near to but not against one or the other pairs of stops 57 or 58 when the machine is actuated, the punches 73, 74 pierce the mat and a portion of the reinforcing band. Although the resulting handle opening through the mat may be spaced further below the edge of the reinforcing bands than normally, the basket handle may nevertheless, be attached to the finished basket without difficulty. As explained hereinbefore, the punches are spaced apart the same distance as the portions of the handle which enter the openings and engage the top edges of the basket, respectively, and both punches pierce the basket, in this case, and provide properly spaced openings for the reception of the handle parts mentioned.

It will be seen that both sides of the mat can be stapled and the handle openings punched without removing the mat from the carriage whereby these operations in the formation of the basket can be carried out quickly and accurately. By stapling and punching each side of the mat in one operation of the machine, handling of the mat is minimized and the mats may be economically prepared for assembly into finished baskets having handle receiving openings in the sides thereof. In the openings were made after the basket was formed or otherwise by a separate operation, additional handling would be necessary and consequently the cost would be increased.

While the preferred form of the invention has been described in considerable detail, it will be apparent that the invention is not limited to the constructions shown. As one alternative, for example, the construction of the basket may be of slabs of wood or other suitable material rather than woven veneer strips or splints. As another alternative, the support for the mat during the stapling and punching operations could include an endless belt-type conveyor for receiving the mats and movable either manually or by power mechanism to properly position the mats for stapling and punching. While only a few alternative constructions have been mentioned, it is my intention to cover hereby all adaptations, modifications and changes therein which come within the practice of those skilled in the art to which the invention relates and the scope of the appended claims.

Having thus described my invention, I claim:

1. A basket fabricating machine comprising, a frame, a plurality of substantially aligned stapling devices carried by the frame and operative to staple portions of a mat in registration therewith, a pair of spaced punches on said frame operative to pierce a mat in registration therewith, said punches lying in a plane extending transversely of the alignment of said stapling devices, and means on said frame to support a mat for movement relative to said stapling devices and punches and from one predetermined position to another to alternately register one edge portion of the mat with the stapling devices and only one of said punches and then the opposite edge portion of the mat with the stapling device and the other only of said punches, and means for operating said stapling devices and punches.

2. A mat stapling machine comprising, a frame, a mat carriage having movement trans-

versely of the frame, a bar on said frame extending transversely of the path of movement of said carriage, a plurality of stapling devices on said bar operative to staple a mat disposed on said carriage, pair of punches on said bar, said punches being spaced and lying in a plane extending transversely of said bar and operative to pierce a mat disposed on said carriage, means to limit movement of said carriage in opposite direction to cause one edge portion of a mat on said carriage to be registered with said stapling devices and only one of said punches when said carriage is at one limit of its movement and to register the opposite edge portion of the mat with said stapling devices and the other only of said punches when said carriage is at the other

limit of its movement, and means to operate said stapling devices and punches.

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