

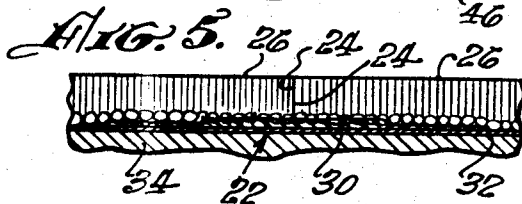
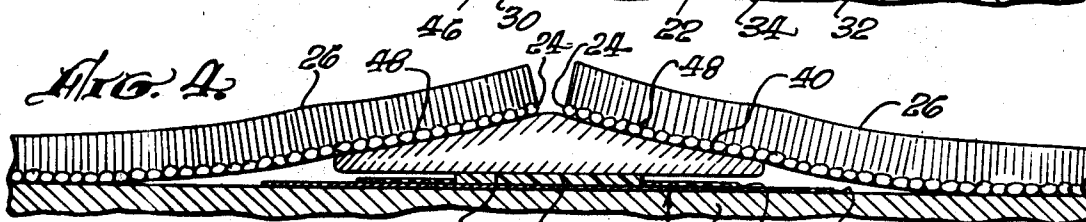
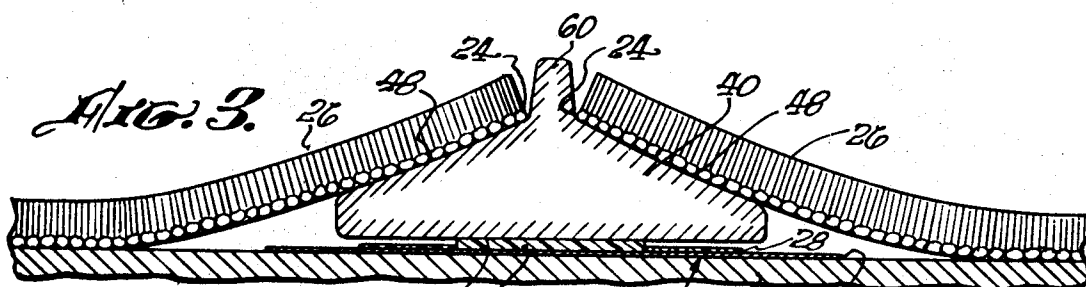
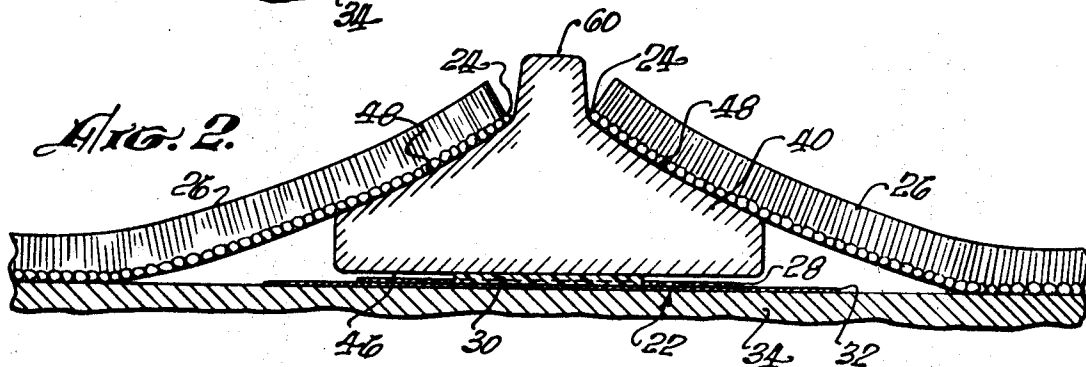
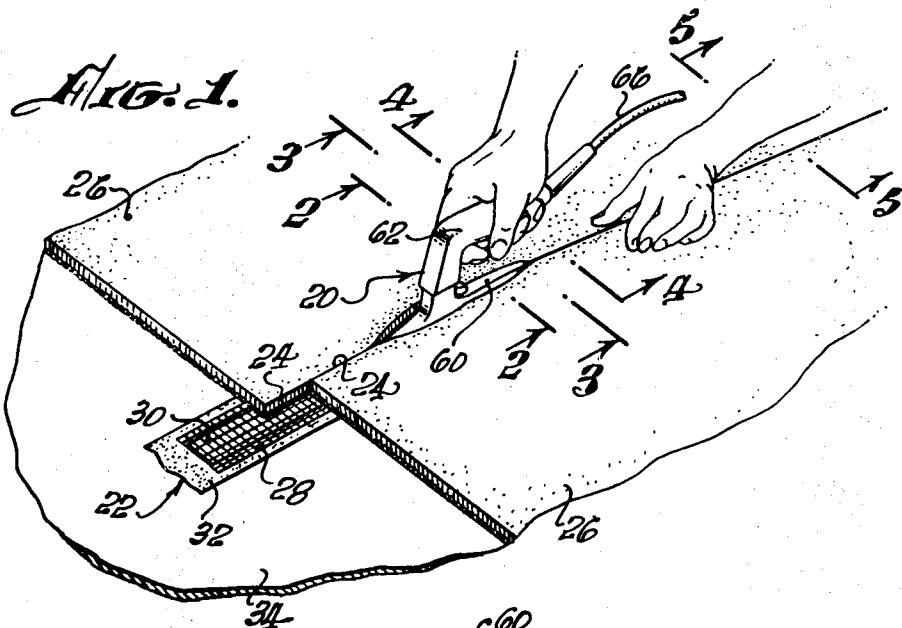
Aug. 4, 1970

H. J. HILL
ELECTRIC IRON FOR HEAT SENSITIVE ADHESIVE TAPE
FOR SEAMING CARPETS

3,523,176

Filed Dec. 18, 1967

3 Sheets-Sheet 1



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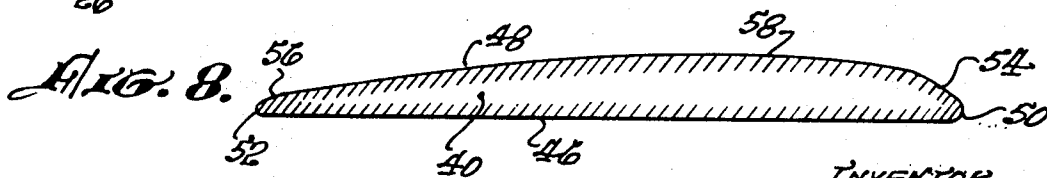
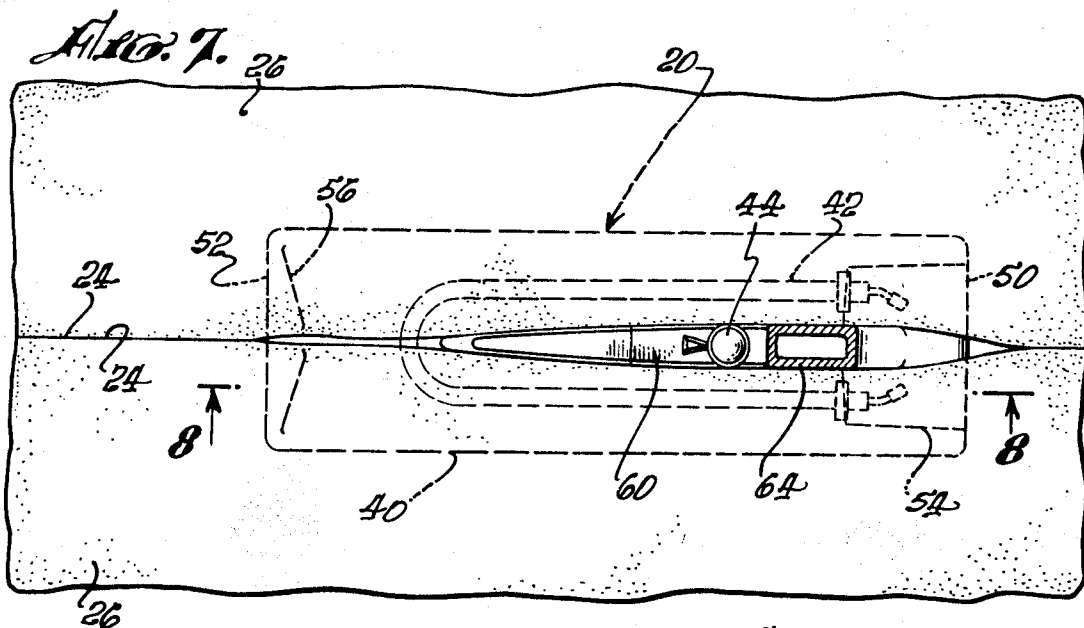
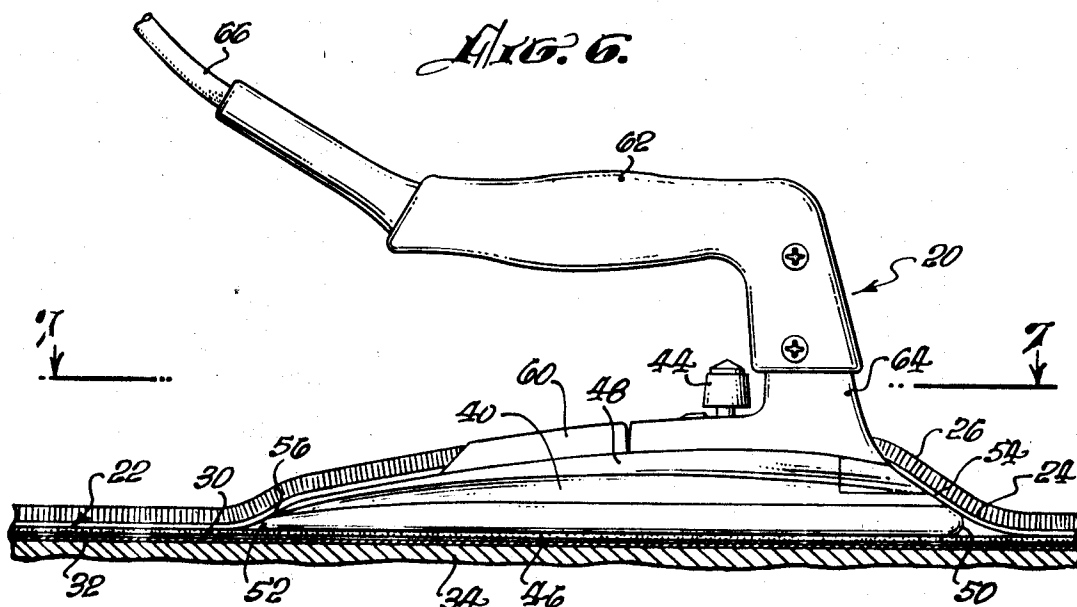
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Fig. 9.

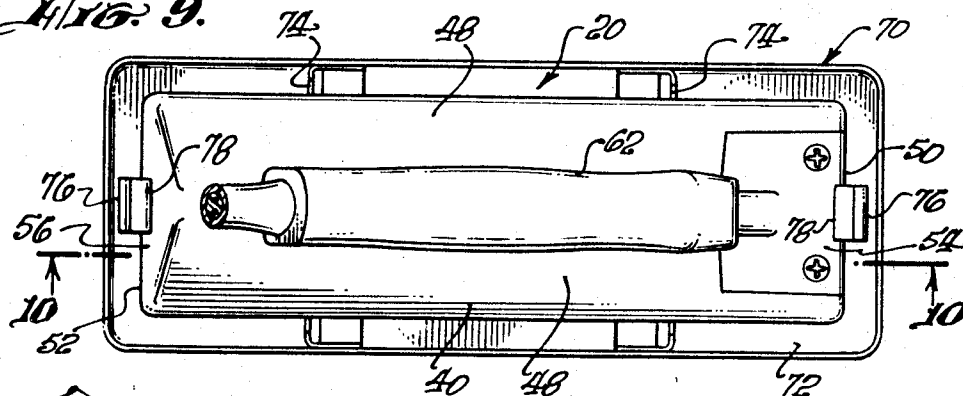


Fig. 10.

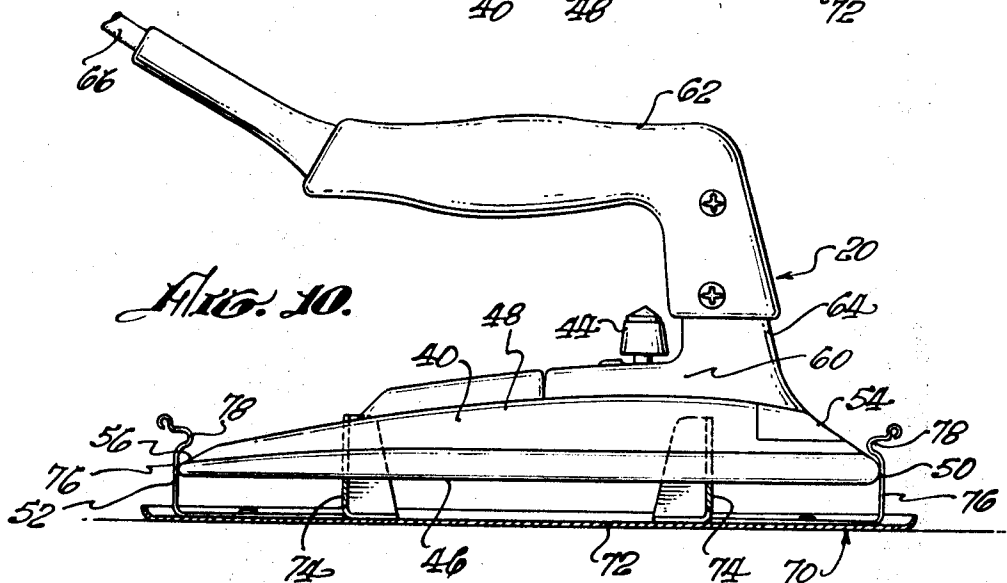
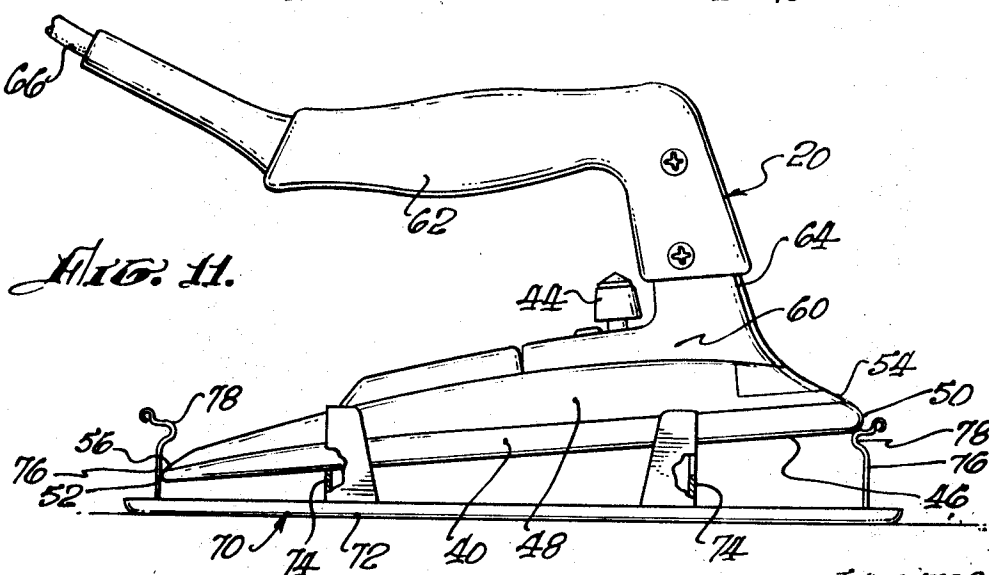


Fig. 11.



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ELECTRIC IRON FOR HEAT SENSITIVE ADHESIVE TAPE FOR SEAMING CARPETS

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Filed Dec. 18, 1967, Ser. No. 691,317

Int. Cl. D06f 75/08

U.S. Cl. 219—245

1 Claim

ABSTRACT OF THE DISCLOSURE

An electric iron for simultaneously heating the upper surface of a heat sensitive adhesive tape and the lower surfaces of carpet edges to be joined in abutting relation by the tape. The sole plate of the iron is so shaped that, as it is moved along the tape, the carpet edges flow over the upper surface of the sole plate in heat-exchanging contact therewith over substantially the entire area of each carpet edge. A stand for supporting the hot iron is provided which automatically clips onto the iron when it is desired to move the stand from one location to another.

BACKGROUND OF INVENTION

The invention relates in general to an electric iron for heating a heat sensitive adhesive tape used in seaming carpets, i.e., in joining carpet edges in abutting relation. More particularly, the invention relates to an electric iron for face seaming of carpets, wherein the iron is inserted between the tape and the abutting carpet edges to be joined thereby. In conventional face seaming of carpets with a heat sensitive adhesive tape, the sole plate of the iron is inserted between the tape and the carpet edges with the sole in engagement with the tape. The iron is then moved along the tape at such a speed that the adhesive behind the trailing end of the sole plate is in condition to receive and adhesively join the lower surfaces of the carpet edges, with the carpet edges in abutting relation. Preferably, the sole plate of the iron is relatively thin so that it can be inserted between the tape and the carpet edges without elevating the carpet edges excessively.

SUMMARY AND OBJECTS OF INVENTION

The primary object of the present invention in connection with the face seaming of carpets is to apply heat not only to the heat sensitive adhesive tape, but to substantially the entire areas of the carpet edges to be brought into engagement with the tape. The resultant pre-heating of the carpet edges prevents reducing excessively the temperature of the adhesive in the tape upon bringing the carpet edges into contact with the tape behind the trailing end of the sole plate of the iron. Consequently, superior bonds between the carpet edges and the tape are obtained, thereby producing a superior seam for joining the carpet edges, which is an important feature of the invention.

Another and important object of the invention is to preheat the carpet edges by so forming the upper side of the sole plate of the iron that the lower surfaces of the desired carpet edge portions contact the upper side of the sole plate throughout substantially the entire length of the sole plate. In other words, the configuration or conformation of the upper side of the sole plate is such that the carpet edges intimately engage the upper side of the sole plate, as the iron is moved longitudinally of the tape, to preheat the carpet edges thoroughly and uniformly.

More particularly, a basic object of the invention is to provide the sole plate on its upper side with laterally spaced, substantially parallel shoulders extending longi-

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tudinally thereof and respectively intimately engageable with the lower surfaces of the carpet edges to preheat the carpet edges uniformly and thoroughly. Important objects in this connection are to achieve intimate engagement between the respective shoulders and carpet edges by making the shoulders concave in planes extending transversely of the sole plate, and by making the shoulders convex in planes extending longitudinally of the sole plate. The shoulders are convex in planes extending longitudinally of the sole plate from a point adjacent the leading end of the sole plate to a point adjacent the trailing end thereof, with the high point in each longitudinal plane being located adjacent the leading end of the sole plate.

Still another important object of the invention is to provide a dorsal fin on the upper side of the sole plate which is located between the two shoulders and which is engageable by the carpet edges to guide the sole plate longitudinally of the tape and the carpet edges, the iron including a handle connected to the dorsal fin.

Still another object is to provide a dorsal fin which extends from a point adjacent the leading end of the sole plate to a point adjacent the trailing end thereof, and which is tapered rearwardly throughout a major portion of its length.

A further object is to connect the handle to the dorsal fin adjacent the forward end of such fin.

With the foregoing construction, as the iron of the invention is moved along the heat sensitive adhesive tape under the carpet edges to be joined thereby, the carpet edges flow smoothly over the upper side of the sole plate with the lower surfaces of the carpet edges in intimate and substantially uniform contact with the heated shoulders. At the same time, the intervening dorsal fin engages the carpet edges to serve as a guide for the iron.

Another object of the invention is to provide a stand on which the iron can be placed, and which can be latched to the iron when it is desired to move the stand from one location to another.

The foregoing objects of the invention, together with various other objects which will be evident to those skilled in the carpet seaming art, may be achieved with the exemplary embodiments of the invention illustrated in the accompanying drawings and described in detail hereinafter.

DESCRIPTION OF DRAWINGS

In the drawings:

FIG. 1 is a fragmentary perspective view showing an electric iron of the invention in use to face seam two abutting carpet edges with a heat sensitive adhesive tape, sometimes known in the art as a hot melt adhesive tape;

FIGS. 2, 3, 4, and 5 are transverse sectional views respectively taken along their arrowed lines 2—2, 3—3, 4—4 and 5—5 of FIG. 1 and showing successive positions of the carpet edges as the iron of the invention moves along the tape, FIGS. 2, 3 and 4 being semidiagrammatic views in the sense that they do not depict accurately the internal structure of the iron;

FIG. 6 is a view partly in vertical section and partly in side elevation showing the iron of the invention in use in the manner hereinbefore described in connection with FIG. 1;

FIG. 7 is a view partially in plan and partially in horizontal section taken along the arrowed line 7—7 of FIG. 6;

FIG. 8 is a longitudinal sectional view of the iron of the invention which is taken as indicated by arrowed line 8—8 of FIG. 7 and which is semidiagrammatic in the same sense as FIGS. 2, 3 and 4;

FIG. 9 is a plan view of the iron of the invention seated on a stand therefore;

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FIG. 10 is a longitudinal sectional view of the stand which is taken as indicated by the arrowed line 10—10 of FIG. 9, the iron being shown in elevation as latched to the stand at both ends; and

FIG. 11 is a side elevational view, partially in longitudinal section, showing the iron merely resting on the stand and not latched thereto.

DESCRIPTION OF EXEMPLARY EMBODIMENTS OF INVENTION

Referring initially to FIGS. 1 to 8 of the drawings, the electric iron of the invention is designated generally therein by the numeral 20 and is shown therein in use to heat simultaneously a heat sensitive adhesive tape 22 and edges 24 of two carpets or sections of carpeting 26 to be joined in abutting relation by the tape.

The heat sensitive adhesive tape 22 is conventional and may comprise a fabric strip 28 impregnated with a longitudinal band 30 of heat sensitive adhesive. This adhesive may, for example, require heating to of the order of 200° F. to soften it sufficiently to permit embedding the lower surfaces of the carpets 26 adjacent the edges 24 to the degree necessary to produce a seam of sufficient strength. The tape 22 preferably also includes a paper backing strip 32 to prevent adhesion of the tape to the underlying surface 34. Ordinarily, this underlying surface will be formed by carpet padding.

Considering now the electric iron 20 of the invention, the body portion thereof consists essentially of an elongated sole plate 40 which is substantially rectangular in plan. The sole plate 40 is relatively thin so that it can be inserted between and move longitudinally along the tape 22 and the edge portions of the carpets 26 without elevating the carpet edges excessively. The sole plate 40 is equipped with an electrical heating means which heats the entire sole plate, i.e., which heats both the upper and lower sides thereof. This electrical heating means is shown in FIG. 7 as comprising an electrical resistance heating element 42 within the sole plate. A control knob 44 serves to turn the iron on and off and to adjust the temperature setting of the iron, which setting may, for example, be of the order of 400° F. The desired temperature is preferably thermostatically maintained in a conventional manner, not shown.

The sole plate 40 is provided on its lower side with a flat sole 46 engageable with the upper surface of the tape 22 to heat same. On its upper side, the sole plate 40 is provided with two laterally spaced, substantially parallel shoulders 48 which extend longitudinally thereof and which respectively engage the lower surfaces of the carpets 26 adjacent the edges 24 thereof. The shoulders 48 extend substantially from the leading end 50 of the sole plate 40 to the trailing end 52 thereof. As best shown in FIGS. 6 and 8, the upper side of the sole plate 40 is beveled adjacent the leading and trailing ends 50 and 52, as indicated at 54 and 56, respectively.

The two shoulders 48 are concave transversely of the sole plate 40 all the way from leading bevel 54 to the trailing bevel 56, as best shown in FIGS. 2, 3 and 4 of the drawings. Additionally, the two shoulders 48 are convex longitudinally of the sole plate 40 all the way from the leading bevel 54 to the trailing bevel 56, as perhaps best shown in FIG. 8 of the drawings. The high point of each shoulder 48 in any longitudinal plane therethrough is located adjacent the leading end 50 of the sole plate, i.e., is located closer to the leading end 50 than to the trailing end 52, such high point being designated by the numeral 58 in FIG. 8. Thus, the shoulders 48 slope downwardly toward the trailing end 52 of the sole plate 40 from a point adjacent the leading end 50 thereof, the shoulders sloping upwardly from the leading end to such point.

As best shown in FIGS. 2, 3 and 4 of the drawings, with the foregoing configuration or conformation for the shoulders 48 of the sole plate 40, the lower surfaces of

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the carpets 26 adjacent the edges 24 thereof lie against and intimately contact the shoulders so that the shoulders thoroughly preheat all portions of the lower surfaces of the carpets which subsequently come in contact with the adhesive band 30 heated by the sole 46. In other words, with shoulders 48 shaped as illustrated in the drawings and as hereinbefore described, the lower surfaces of the carpets 26 adjacent the edges 24 thereof are heated to substantially the same degree as the adhesive band 30. Consequently, the adhesive band is not chilled when the lower surfaces of the edge portions of the carpets are pressed downwardly into the heated adhesive band 30 aft of the trailing end 52 of the sole plate 40, which may be accomplished by one of the operator's hands, as illustrated in FIG. 1 of the drawings.

On the upper side of the sole plate 40 between the carpet-heating shoulders 48 is a longitudinally-extending dorsal fin 60 the respective sides of which are engageable by the carpet edges 24 to guide the iron 20 longitudinally along the tape 22 and the carpet edges 24. As best shown in FIG. 7 of the drawings, the dorsal fin 60 extends from a point adjacent the leading end 50 of the sole plate 40 to a point adjacent the trailing end 52 thereof, and is tapered rearwardly throughout the major portion of its length. As best shown in FIGS. 6 and 7, the leading bevel 54 of the sole plate 40 continues upwardly and rearwardly to form the leading end of the dorsal fin 60.

The iron 20 includes a handle 62 connected to an upstanding post 64 mounted on the dorsal fin 60 adjacent the forward end thereof, as by being formed integrally therewith. The handle 62 extends longitudinally rearwardly from the post 64. The control knob 44 is also mounted on the dorsal fin 60 rearwardly of the post 64. An electric cord 66 is connected to the rear end of the handle and contains the wiring necessary to supply electric current to the heating element 42.

Considering the operation of the iron 20, after it has had time to heat up to its desired operating temperature, the sole plate 40 is inserted between the tape 22 and the edge portions of the carpets 26 at one end of the desired seam. As the iron heats the adhesive band 30 and the edge portions of the carpets 26 to the desired temperatures, it is slowly moved forwardly along the tape 22 and the operator presses the edge portions of the carpets downwardly into the softened adhesive band 30 behind the trailing end 52 of the sole plate. As will be apparent, this operation is continued until the end of the desired seam is reached.

As suggested in FIGS. 1 to 4, 6 and 7 of the drawings, the upper side of the sole plate 40 is streamlined so that the edge portions of the carpets 26 flow upwardly and then downwardly over the shoulders 48 in a smooth fashion. At the same time, the carpet edges 24 flow smoothly past the dorsal fin 60. All of this results in minimum deformation of the edge portions of the carpets 60, and insures that the lower surfaces of the edge portions of the carpets will engage the streamlined shoulders 48 of the sole plate 40 intimately to insure thorough preheating of the carpet edge portions. As previously explained, this precludes chilling of the softened adhesive band 30 when the lower surfaces of the carpet edge portions are pressed thereinto, thus insuring deeper penetration of adhesive into the carpet backing, and thus a superior bond and a seam of maximum strength.

The iron 20 of the invention may, if desired, be used for back seaming two carpets in a manner which is not shown, but which will be apparent with a brief explanation. In back seaming, the two carpets to be joined are placed on a floor, or the like, with their lower sides uppermost and with the edges to be joined in abutting relation. The heat sensitive adhesive tape is then placed over the joint face down, no backing strip akin to the backing strip 32 being necessary. The iron 20 of the invention is then run slowly along the tape to heat the adhesive band and to press it into the upwardly-facing lower surfaces of the

carpet edge portions. In this case, the contoured shoulders 48 do not come into play.

Turning now to FIGS. 9 to 11 of the drawings, illustrated therein is a stand 70 on which the electric iron 20 may be placed, particularly when the sole plate 40 thereof is hot. The stand 70 comprises a base 72 which is shown as a rectangular sheet metal tray. Intermediate the ends of the base 72 are two U-shaped supports 74 on which the sole 46 of the iron 20 is adapted to be seated, as shown in FIG. 10, with the sole plate between the arms of the U-shaped supports. Preferably, the supports 74 are spaced apart a distance approximately equal to one-half the length of the sole plate 40.

Adjacent the ends of the base 72 are upstanding spring clips 76 having facing convex latch elements 78 spaced apart a distance less than the length of the sole plate 40. Consequently, the leading and trailing ends 50 and 52 of the sole plate 40 may engage either the upper or the lower sides of the latch elements 78, or, as shown in FIG. 11, one end may rest on the upper side of one of the latch elements 78 while the other end bears against the other spring clip 76 below the latch element 78 thereon, with the sole plate 40 in engagement with only one of the supports 74.

Considering the way in which the stand 70 is used, when the operator desires to place the electric iron 20 on the stand only temporarily, he places it thereon in a manner shown in FIG. 11. More particularly, one end of the sole plate 40 rests on one of the latch elements 78, while the other end thereof bears against the other spring clip 76 below the latch element 78 thereon, the sole plate engaging only one of the supports 74. Either end of the sole plate 40 may rest on the corresponding latch element 78, although it is more convenient to have the leading end 50 rest on its latch element 78, as shown in FIG. 11, because of the orientation of the handle 62. Thus, when the operator desires to put the iron 20 down temporarily, he merely places it on the stand 70 in the position shown in FIG. 11.

If the operator desires to move to a different working location, he presses downwardly on the handle 62 until both ends 50 and 52 of the sole plate 40 are latched to the stand 70 by means of the latch elements 78 on the spring clips 76, as shown in FIG. 10. Under such conditions, the sole plate 40 rests on both supports 74. The operator may then pick up both the iron and the stand 70, by means of the handle 62 on the iron, to move same to the desired new location.

When it is desired to release the iron 20 from the stand 70, with the iron latched to the stand as shown in FIG. 10, the operator merely rocks the iron 20 about one of the supports 74 to disengage the opposite end of the sole plate 40 from the corresponding latch element 78. For example, by pressing downwardly on the rearward end of the handle 62 with the iron 20 latched to the stand 70 as shown in FIG. 10, the operator can rock the iron about the rearward support 74 to unlatch the leading end 50 of the sole plate 40 from the corresponding spring clip 76, thereby arriving at the condition shown in FIG. 11. Alternatively, the iron may be rocked forwardly and downwardly to disengage the trailing end 52 of the sole plate 40 from its spring clip 76. Either mode of

operation can be achieved quite readily with supports 74 spaced apart a distance equal to about one-half the length of the sole plate 40, as hereinbefore stated.

Although exemplary embodiments of the invention have been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiments without departing from the spirit of the invention as defined by the claims appearing in the next section of this specification.

I claim as my invention:

1. In an electric iron for simultaneously heating a heat sensitive adhesive tape and carpet edges to be joined in abutting relation by the tape, the combination of:

- (a) an elongated, generally rectangular sole plate having leading and trailing ends and being insertable between and movable longitudinally of the tape and the carpet edges;
- (b) electrical heating means in said sole plate for heating the upper and lower sides of same;
- (c) said sole plate having on its lower side a flat sole engageable with the upper surface of the tape to heat same;
- (d) said sole plate having on its upper side laterally spaced, substantially parallel shoulders extending longitudinally thereof and substantially coextensive in length with the length of said sole plate and respectively engageable with the lower surfaces of the carpet edges to heat same;
- (e) said shoulders being concave transversely of said sole plate;
- (f) said shoulders being convex longitudinally of said sole plate from a point adjacent said leading end to a point adjacent said trailing end and sloping downwardly toward said trailing end;
- (g) a dorsal fin on the upper side of said sole plate between said shoulders and engageable by the carpet edges to guide said sole plate longitudinally of the tape and the carpet edges;
- (h) said dorsal fin extending a major portion of the length of said sole plate from a point adjacent said leading end to a point adjacent said trailing end and being tapered rearwardly throughout a major portion of its length; and
- (i) a handle connected to said dorsal fin adjacent the forward end thereof.

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U.S. Cl. X.R.

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