March 7, 1961 H. W. BALLARD 2,973,801

METHOD AND APPARATUS FOR PROVIDING A SEPARABLE PROTECTIVE EDGE FOR CARPETING

Filed June 13, 1958

FIG. 1.

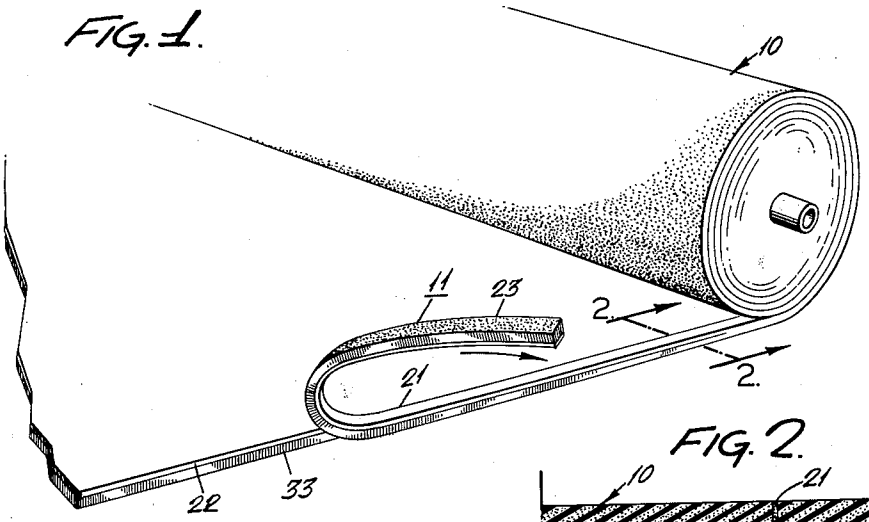


FIG. 2.

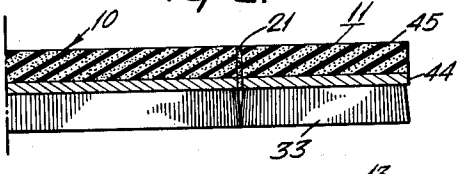
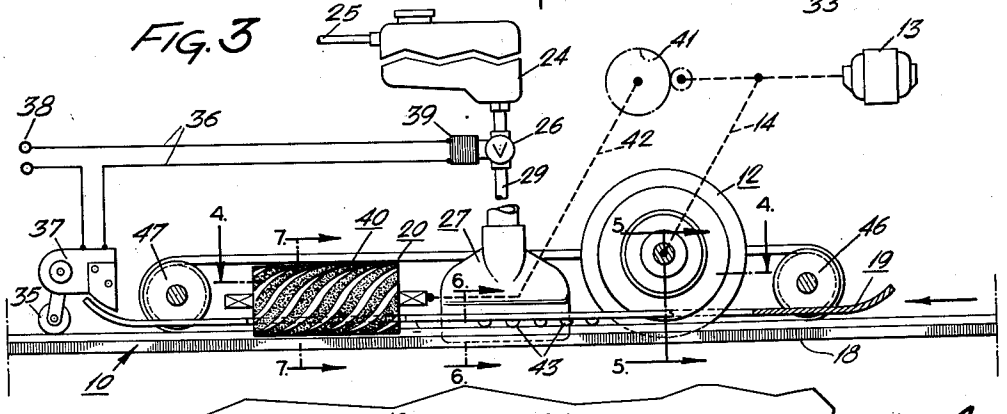


FIG. 3



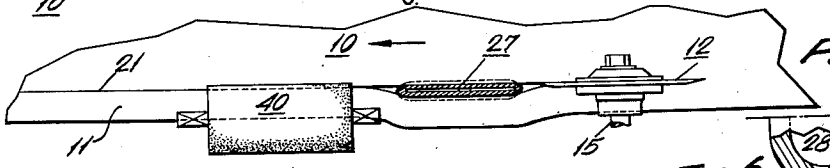


FIG. 4.

FIG. 5.

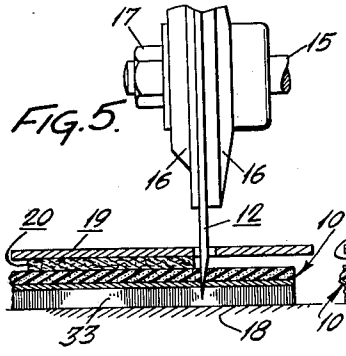


FIG. 7.

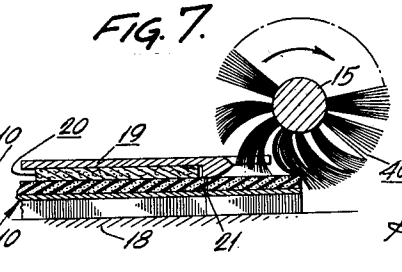
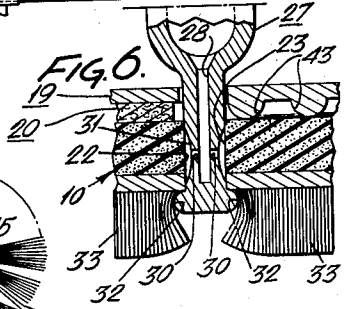


FIG. 6.



Hyde W. Ballard

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METHOD AND APPARATUS FOR PROVIDING A SEPARABLE PROTECTIVE EDGE FOR CARPETING

Hyde W. Ballard, West Chester, Pa., assignor to James Lees and Sons Company, Bridgeport, Pa., a corporation of Pennsylvania

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8 Claims. (Cl. 154—42)

This invention relates to a slitting device useful in providing a quickly separable edge for lengths of carpet.

Unlike the device shown and described in Brennan Patent No. 2,806,283, the present device is primarily useful in providing a quickly separable protective edge for carpeting as opposed to a mere trimming operation in which a portion of the tufts and untufted backing fabric is required to be removed. When it becomes necessary to carefully match the patterns or the face pile appearance of two strips or rolls of carpeting preparatory to seaming, it is extremely important that the edges of the carpeting are straight, clear, and undamaged. For this reason it is desirable to partially cut or perforate the edge along the carpet at the point where it can be matched precisely with the adjoining strip. Furthermore, in shipment and handling it sometimes happens that a raw edge of carpet will become damaged or frayed to an extent that a clean imperceptable joint cannot be made.

It is a primary object of the present invention, therefore, to provide an apparatus for severing the edge of a pile fabric and then simultaneously tacking the severed edge to the carpet to act as a protective element.

A further object of the invention is to provide a combined cutting and sealing apparatus which cuts completely through the edge of the pile fabric in one zone and then positions the cut faces of the severed fabrics against each other so that adhesive may be applied to temporarily tack the severed edges together.

A further object of the invention is to provide a power driven carpet cutting element which may be positioned in close spaced relation to a liquid adhesive applicator.

A further object of the invention is to provide a power driven cutting element for pile fabrics, a lateral pressure applying element, and an adhesive applicator all in close spaced relation.

A further object is to provide a method for simultaneously severing and lightly re-adhering the severed portions of a pile fabric.

Further objects will be apparent from the drawings and specification in which:

Fig. 1 is a perspective showing a roll of carpet having a severed edge or border which has been lightly adhered to the carpet to facilitate subsequent quick and accurate separation,

Fig. 2 is an enlarged sectional detail as seen at 2—2 of Fig. 1,

Fig. 3 is a schematic elevation of a carpet severing and liquid adhesive applicator constructed in accordance with the present invention,

Fig. 4 is a schematic plan of the apparatus as seen at 4—4 of Fig. 3,

Fig. 5 is an enlarged fragmentary section seen at 5—5 of Fig. 3,

Fig. 6 is an enlarged fragmentary section seen at 6—6 of Fig. 3, and

Fig. 7 is an enlarged fragmentary section seen at 7—7 of Fig. 3.

The invention comprises essentially a method and apparatus which completely severs or cuts a pile fabric in a first zone and then subsequently applies a liquid adhesive to the severed raw fabric edges to lightly tack them together so that they may be manually separated without difficulty. The adhesive is applied to a controlled area along the severed raw edge and lateral pressure is supplied by a suitable means such as a driven brush.

Referring now more particularly to the drawings, a roll of carpet **10** is provided with a removable edge **11** in order to prevent damage to the roll during shipping or at any other time before actual installation. In order that the carpet layer may install the carpet to obtain a perfect pattern match, it is important to have a true untreated raw edge available on the location where the carpet is to be installed. Hand tools available on location do not always cut a true edge and shipment of the carpet from the store, warehouse, or other location where an accurate cutter might be installed often results in fraying or damaging the edge, thus defeating the entire purpose. Therefore, before shipment, it is proposed to completely sever along a perfectly straight line the narrow edge **11** of the carpet by means of a power driven cutter or disc **12** which is connected to a motor **13** by suitable driving connections **14**. The cutter **12** is mounted upon an arbor **15** secured thereto by means of suitable plates **16** and nut **17** (Fig. 5). The arbor **15** is desirably journaled in a framework, not shown, so that it may be held in spaced relation to the top of a supporting surface **18** along which the carpet **10** is moved. Alternatively, the slitting and tacking apparatus may be movable itself and may have a skid or plate **19** through which both the cutter **12** and an endless guiding belt **20** extend.

At a zone directly behind the cutter **12** a means is provided for applying an adhesive **21** to a controlled or limited area of the raw edges **22** and **23** of the carpet. Liquid adhesive is contained in a reservoir **24** which may be pressurized through a line or conduit **25**. The adhesive flows through an electrically controlled valve **26** into a hollow elongated shoe **27** shown in Fig. 6. The interior or bore of shoe **27** is provided with a vertically extending passage **28** which connects the reservoir **24** through a conduit **29** and the valve **26**. Passage **28** has two or more horizontally extending orifices **30, 30** which supply the adhesive to concave grooves **31, 31** running horizontally along the sides of shoe **27**. The shoe extends downwardly and is provided with a flare or foot **32, 32** on either side thereof which serves as a seal to prevent the adhesive from running downwardly and coming in contact with the pile **33** of the carpet. It will thus be understood that the adhesive is applied to a restricted zone of the raw edges **22** and **23** in order to provide a relatively light, quickly detachable bond between the edges and also to control the amount of adhesive applied to the edges.

In order to prevent the adhesive from flowing through passage **28** except when the apparatus is actually in operation, a suitable switch for the valve **26** may be provided for either manual or automatic control. A feeler **35** (Fig. 3) is positioned to contact the upper surface of the carpet **10**. When the feeler is in the raised position, valve **26** is opened through connections **36** between the switch **37**, electrical source **38**, and the valve actuating solenoid **39**. Manual control for the valve solenoid **39** may also be provided, if desired.

Pressure for urging the raw edges **22** and **23** together before the adhesive sets up is provided by means of a brush **40** which is drivingly connected to motor **13** through reduction element **41** and a driving connection **42**. The brush **40** is assisted in guiding the severed edges **22** and **23** together by means of a plurality of biased ridges **43** on the undersurface of plate **19** at and intermediately following the position of shoe **27**.

The method and apparatus described above is shown in conjunction with a pile rug or carpet having pile projections 33 and ground or backing material 44 to which a second layer of backing material 45 may be applied. This second backing layer 45 may be latex, a woven material adhered to the ground fabric 44, or a resilient pad or cushion such as rubber or felt. Particularly when a foam rubber backing material is applied to the fabric, it will be desirable, if not necessary, to provide means for guiding and propelling the carpet with respect to the slitting mechanism. Belt 20 assists in guiding the fabric passed the cutter 12 in a straight line and the belt in order to have a suitable span is shown mounted on pulleys 46 and 47 located in front of the cutter 12 and in back of the brush 40 respectively.

The present invention represents an improvement over prior art devices in that there is a complete severing of the fabric thus eliminating the need for precise and accurate adjustments. Furthermore, there is no possibility of damaging the raw edge since the type of adhesive and amount that is applied can be readily controlled to insure that the strip 11 is held in place only enough to prevent pre-mature removal before actual installation of the carpet. It will be understood that the brush 40 may be dispensed with entirely under certain conditions or it may be mounted in any desired relative position in regard to the plane of the carpet and the shoe 27.

Having thus described my invention, I claim:

1. The method of protecting the edge of a roll of pile carpet which comprises the steps of completely severing a pile and backing border strip from the carpet, simultaneously applying an adhesive to the raw severed edges, and pressing the edges together to provide a readily separable joint between the severed edges.

2. The methods of claim 1 including the steps of applying a liquid adhesive to a limited area of the raw edges.

3. The method of claim 2 including the step of maintaining the adhesive on the upper portion of the severed edge to prevent contact between the adhesive and the pile surface of the carpet.

4. The method of claim 3 in which the liquid adhesive is applied under pressure.

5. In a device for cutting length of a pile fabric, the combination which comprises a cutting element positioned to completely sever the pile fabric from top to bottom, means mounted in close spaced relation to the trailing edge of said cutting element for applying a liquid adhesive to the raw edges of the pile fabric, and means for pressing said raw edges together to temporarily adhere the edges to each other.

6. Apparatus in accordance with claim 5 having a reservoir from which the liquid adhesive is supplied under pressure, and an electrically controlled valve between the liquid applying element and the reservoir for shutting off the flow of liquid.

7. Apparatus in accordance with claim 5 having driving means for the cutting element.

8. Apparatus in accordance with claim 5 in which the pressing means is a brush.

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