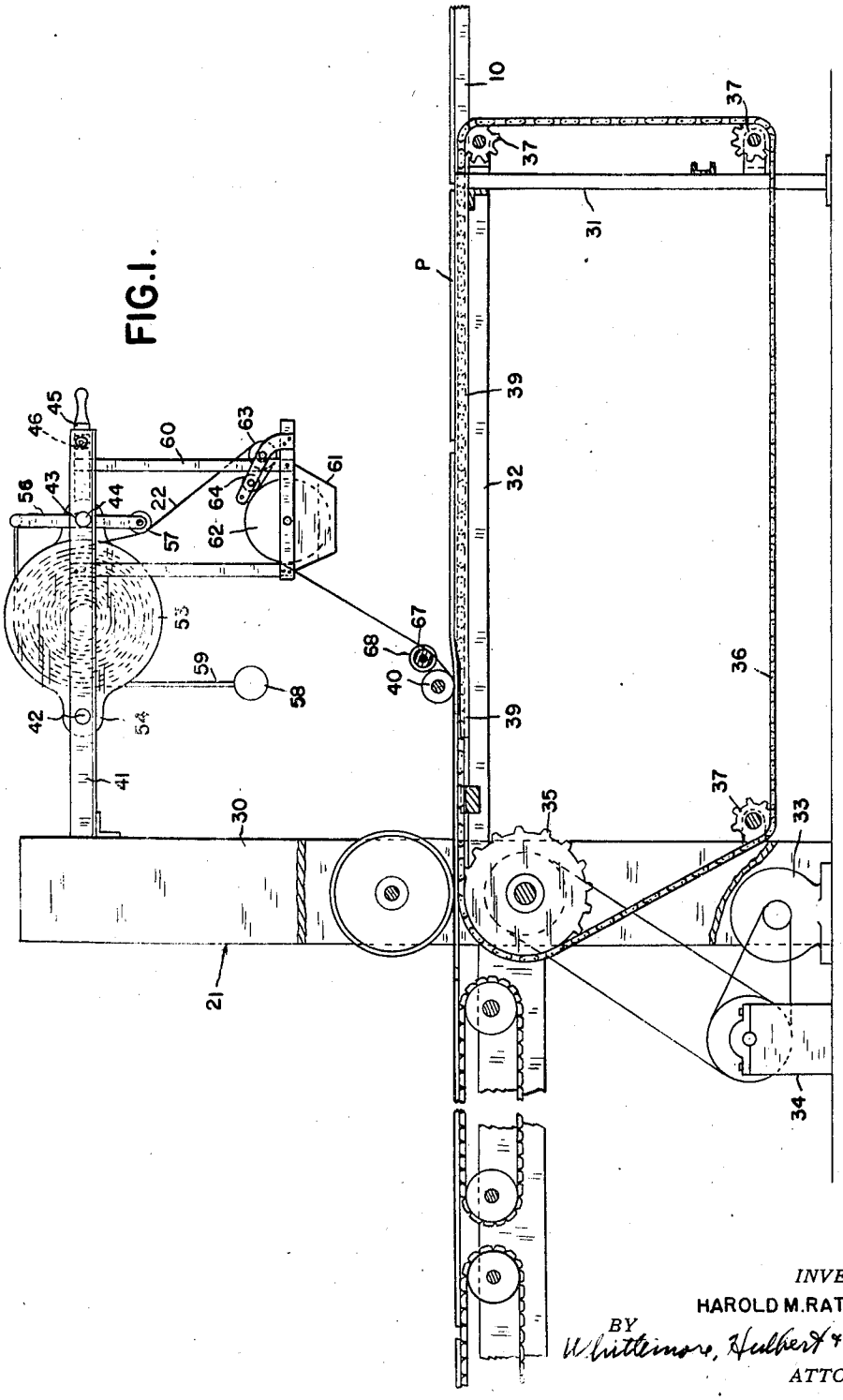
May 5, 1942. H. M. RATLEY 2,282,245

STRIP APPLICATOR

Filed Jan. 16, 1939 2 Sheets-Sheet 1

FIG. 1.



INVENTOR
HAROLD M. RATLEY

BY
Whittemore, Hulbert & Belknap

ATTORNEYS

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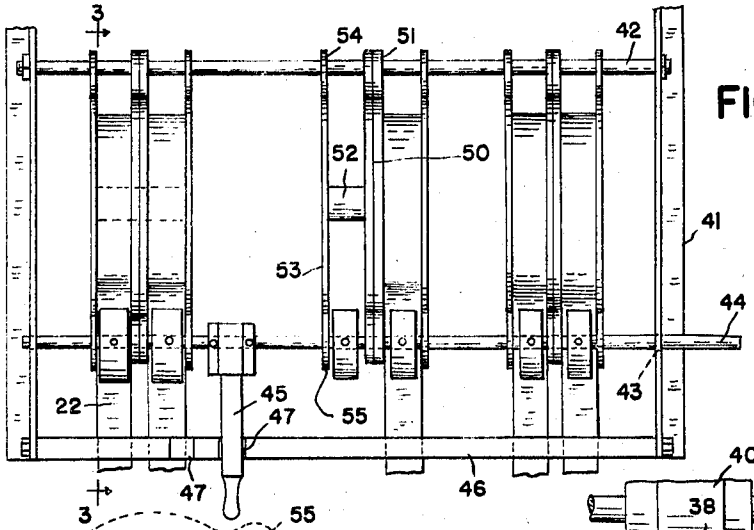


FIG.2.

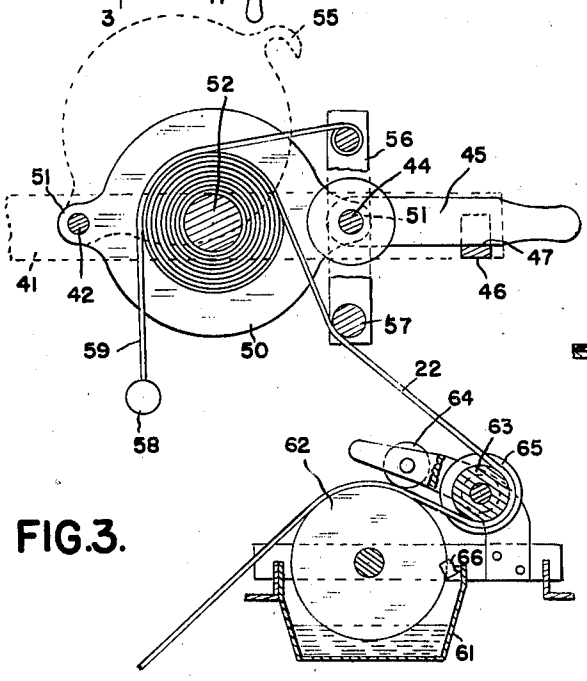


FIG.3.

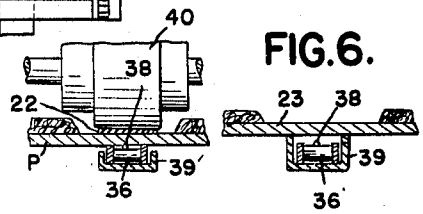


FIG.6.

FIG.5.

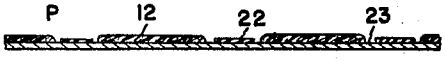


FIG.8.

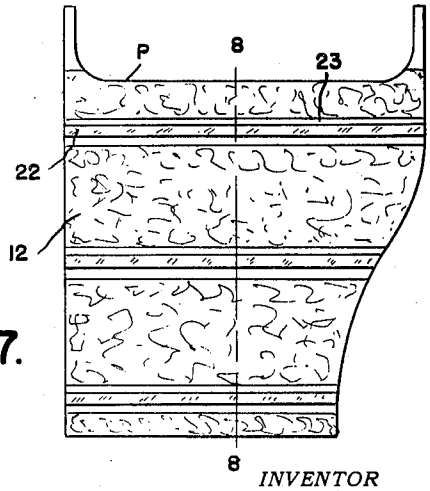
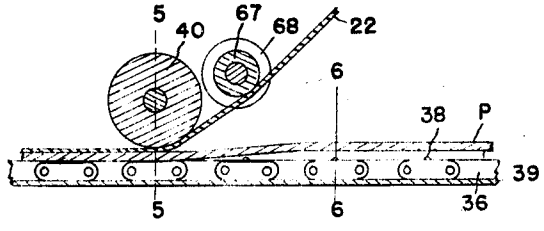


FIG.7.

FIG.4.



INVENTOR
HAROLD M. RATLEY
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Whittemore, Hulbert & Belknap
ATTORNEYS

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UNITED STATES PATENT OFFICE

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STRIP APPLICATOR

Harold M. Ratley, Highland Park, Mich., assignor to National Automotive Fibres, Inc., Detroit, Mich., a corporation of Delaware

Application January 16, 1939, Serial No. 251,276

6 Claims. (Cl. 242—55.3)

The present invention relates to apparatus for continuously applying strip material to a series of articles, such as a strip of rubber to trim panels.

It is an object of the invention to provide apparatus for applying strip material to a series of continuously advancing articles.

It is a further object of the present invention to provide means for applying strip material to designated areas of a plurality of continuously advancing articles in which the means is designed to provide for renewal of the supply of strip material without interruption of the operation.

Other objects of the invention will be apparent as the description proceeds and when taken in conjunction with the accompanying drawings, and wherein

Fig. 1 is a vertical section through the mechanism for applying strip material;

Fig. 2 is a detail plan view of the strip supporting assembly;

Fig. 3 is a section on the line 3—3, Fig. 2;

Fig. 4 is a detail vertical section showing the engagement between the strip material and the article;

Fig. 5 is a section on the line 5—5, Fig. 4;

Fig. 6 is a section on the line 6—6, Fig. 4;

Fig. 7 is a plan view of a panel in the process of assembly; and

Fig. 8 is a section on the line 8—8, Fig. 7.

Briefly described, the apparatus is employed as follows: Padding material such for example as cotton is deposited on a moving conveyor by suitable mechanism such for example as a Garnett machine. The padding material is deposited in a continuous layer of a thickness which may be predetermined by the rate of travel of the conveyor and/or the capacity of the Garnett machine. A plurality of panel boards are coated with adhesive and are placed adhesive side down on the padding material. The padding material and panels then advance past a trimming mechanism which removes padding material from around the edges of the panel boards. The panel boards are then inverted on the conveyor and by appropriate mechanism padding material is removed from designated areas of the panel boards. The panel boards continue to advance and pass adjacent supplies of strip material which may be in the form of rolls of uncured rubberous material. The parts are arranged so that the strips of material are deposited upon the areas of the panel board from which padding material has been removed. As the panel boards continue to advance the strips are severed intermediate adjacent panels.

Referring now specifically to Figs. 1 to 6, the mechanism for applying the strip material 22 is illustrated. Panels P are advanced along conveyor 10 and just prior to reaching the strip applying assembly 21 they are advanced by hand so as to insure proper minimum spacing to avoid waste of strip material. The device 21 comprises standards 30 and 31 which support a table 32. A motor 33 through suitable speed changing mechanism indicated at 34 is adapted to rotate a driving sprocket 35 which in turn continuously advances a driving chain 36. The chain 36 is supported from a plurality of idle sprockets 37 carried by the table assembly.

As best seen in Figs. 4, 5 and 6, the chain 36 is provided with a plurality of pins 38 which are adapted to engage the panel boards and to insure positive advance thereof.

At the top of the table chain 36 advances within a channel shaped guide 39, which as shown in Fig. 6 extends above the pins 38 for a substantial distance and then is of reduced height as indicated at 39' in Fig. 5. The panels P are therefore brought into engagement with the advancing pins 38 only just prior to engagement with a roller 40 subsequently to be described in detail.

The mechanism just described insures that the panels will be firmly positioned relative to the advancing chain 36 and will therefore pass in accurately predetermined relation relative to the supports for the strip material 22.

Brackets 41 are provided which extend from uprights 30 and carry a transverse rod 42 which is of circular cross section and is bolted or otherwise secured thereto. Brackets 41 in addition are provided with registering apertures 43 through which a second rod 44 extends. The rod 44 has a shifting lever 45 firmly secured thereto for shifting said rod axially.

The ends of the brackets 41 are united by a cross member 46 which is provided with a pair of notches 47 for reception of the shifting lever 45 previously referred to. In Fig. 2 I have illustrated the lever 45 as engaged in one recess 47. It will be appreciated that movement of the lever 45 from one to the other of the recesses 47 results in a corresponding shifting movement of the rod 44.

Supporting plates 50 are carried by the rods 42 and 44, the plates 50 being substantially circular and provided with diametrically oppositely disposed centrally apertured ears 51. Plates 50 are slidably secured on the rod 42 and are rigidly

secured to and movable with the shiftable rod 44.

Projecting from opposite sides of the plates 50 are spindles 52 for the reception of rolls of strip material 22. Retaining plates 53 are provided with a centrally apertured ear 54 for supporting the plates for pivotal movement about rod 42 and are provided at a diametrically opposite portion with a slotted ear 55 for releasable engagement with the shiftable rod 44. Retaining plates 53 may thus be swung upward to and beyond the dotted position shown in Fig. 3 so as to permit replacement of an expended roll of strip material.

The foregoing arrangement provides means for replacing expended rolls of strip material without stopping the operation of the continuous process described herein. It should be appreciated that it is a prime importance that the position of the rolls 22 relative to the advancing series of panel plates be accurately maintained. As strip material is withdrawn from one set of rolls, for example the left-hand roll of each set shown in Fig. 2, a new roll of strip material 22 may be positioned upon the right-hand spindles 52, as seen in this figure. As the left-hand rolls of material, as seen in Fig. 2, are exhausted the newly replaced right-hand rolls may be brought into accurately predetermined position by shifting the rod 44 from the position shown to the left-hand notch 47. This shifting of the lever 45 results in a corresponding shifting of the rod 44 and of the plates 50, the plates 50 sliding upon the rods 42 for this purpose. The new supplies of strip material are then in accurately predetermined position and may be joined on to the end of the expended rolls.

A bracket 56 is carried by the frame and provides a guide member 57 against which the strip material 22 bears as it is withdrawn from the roll. In addition, bracket 56 carries a weight 58 connected to a flexible strip 59 which bears against the roll of strip material 22 and which prevents too free rotation of the roll.

Depending from the bracket 41 and carried by arms 60 is a receptacle 61 for adhesive material. A roller 62 is journalled in the open end of the receptacle 61 and strip material 22 is guided over the roller 62 by means of guide rollers 63 and 64. Preferably the roller 63 is provided with flanges 65 to accurately position strip material 22 relative to the advancing series of panel plates. If desired a doctor blade 66 may be provided which bears lightly against the roller 62 and removes excess adhesive therefrom.

Suitably jouralled in brackets (not shown) carried by the table 32 are a pair of rollers 40 and 67. Roller 67 is provided with guiding flanges 68 for accurately predetermining the position of the strip material 22 relative to the advancing series of panel plates P. The roller 40 bears against the panel assemblies and forces them downwardly into engagement with the pins 38. In addition the roller 40 also serves to press the strip material 22 firmly against the panel plates P to insure proper adhesion thereto.

In Figs. 7 and 8 I have illustrated a panel P as it appears after application of rubber 22 thereto. At this time padding material 12 has been removed from areas 23 and a strip of deformable material has been applied.

The foregoing detailed description has been given for clearness and understanding only, and no unnecessary limitation should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I claim as my invention is:

1. A device for applying strip material to a series of advancing articles which comprises a support having a fixed rod, and a spaced axially shiftable rod, shifting and indexing means comprising a handle on said shiftable rod and a rest having spaced notches for said handle; a plurality of plates secured to said shiftable rod at spaced points and slidable on said fixed rod; roll supporting pins projecting from opposite sides of said plates, said pins adapted to support rolls of strip material spaced by an amount substantially equal to the spacing of said notches; and independently releasable roll retainers cooperating with each of said pins, said retainers comprising plates pivoted to one of said rods and having hooked portions engaging said other rod, and adapted to prevent accidental removal of a roll from the corresponding pin.

2. A device for applying strip material to a series of advancing articles which comprises a support having a fixed rod, and a spaced axially shiftable rod; shifting and indexing means comprising a handle on said shiftable rod and a rest having spaced notches for said handle; a plate secured to said shiftable rod and slidable on said fixed rod; roll supporting pins extending from opposite sides of said plate and adapted to support rolls of strip material spaced by an amount substantially equal to the spacing of said notches; and independently releasable roll retainers coperating with each of said pins, said retainers comprising plates pivoted to one of said rods and having hooked portions engaging said other rod, and adapted to prevent accidental removal of a roll from the corresponding pin.

3. In apparatus for applying strip material to a series of continuously advancing articles, a supporting framework including a rod shiftable axially in a direction perpendicular to and across the path of advance of the articles to which strip material is to be applied, a flat plate structure having its plane normal to said rod and secured thereto for shifting movement therewith, a pair of axially aligned, roll supporting pins carried by said plate structure and having free ends extending therefrom in a direction parallel to said rod, and means for shifting said rod axially between two positions and for locking said rod in either shifted position.

4. In apparatus for applying strip material to a series of continuously advancing articles, a supporting framework including a rod shiftable axially in a direction perpendicular to and across the path of advance of the articles to which strip material is to be applied, a flat plate structure having its plane normal to said rod and secured thereto for shifting movement therewith, a pair of axially aligned, roll supporting pins carried by said plate structure and having free ends extending therefrom in a direction parallel to said rod, a roll retainer plate for cooperation with each of said pins independently pivoted to said framework for movement about an axis parallel to said rod from a position in which said plates retain rolls on said pins to a position in which said plates permit removal and replacement of rolls on said pins, and means for shifting said rod axially between two positions and for locking said rod in either shifted position.

5. In apparatus for applying strip material to a series of continuously advancing articles, a

supporting framework including a rod shiftable axially in a direction perpendicular to and cross the path of advance of the articles to which strip material is to be applied, a flat plate structure having its plane normal to said rod and secured thereto for shifting movement therewith, a pair of axially aligned, roll supporting pins carried by said plate structure and having free ends extending therefrom in a direction parallel to said rod, a support on said rod, weighted flexible friction members carried by said support and adapted to engage over the peripheries of rolls of strip material carried by said pins, and means for shifting said rod axially between two positions and for locking said rod in either shifted position.

6. In apparatus for applying strip material to a series of continuously advancing articles, a supporting framework including a horizontal rod shiftable axially in a direction perpendicular to and across the path of advance of the articles to which strip material is to be applied, a flat plate structure having its plane normal to said rod and secured thereto for shifting movement therewith, a pair of axially aligned, roll supporting pins carried by said plate structure and having free ends extending therefrom in a direction parallel to said rod, a vertically extending support on said rod, a guide adjacent the lower end of said support beneath said strip material is led, weighted flexible strips of friction material secured to the upper end of said support, and adapted to engage over the peripheries of rolls of strip material carried by said pins, and means for shifting said rod axially between two positions and for locking said rod in either shifted position.

HAROLD M. RATLEY.