Feb. 20, 1934. C. L. MOYER 1,947,791

ADHESIVE APPLYING APPARATUS

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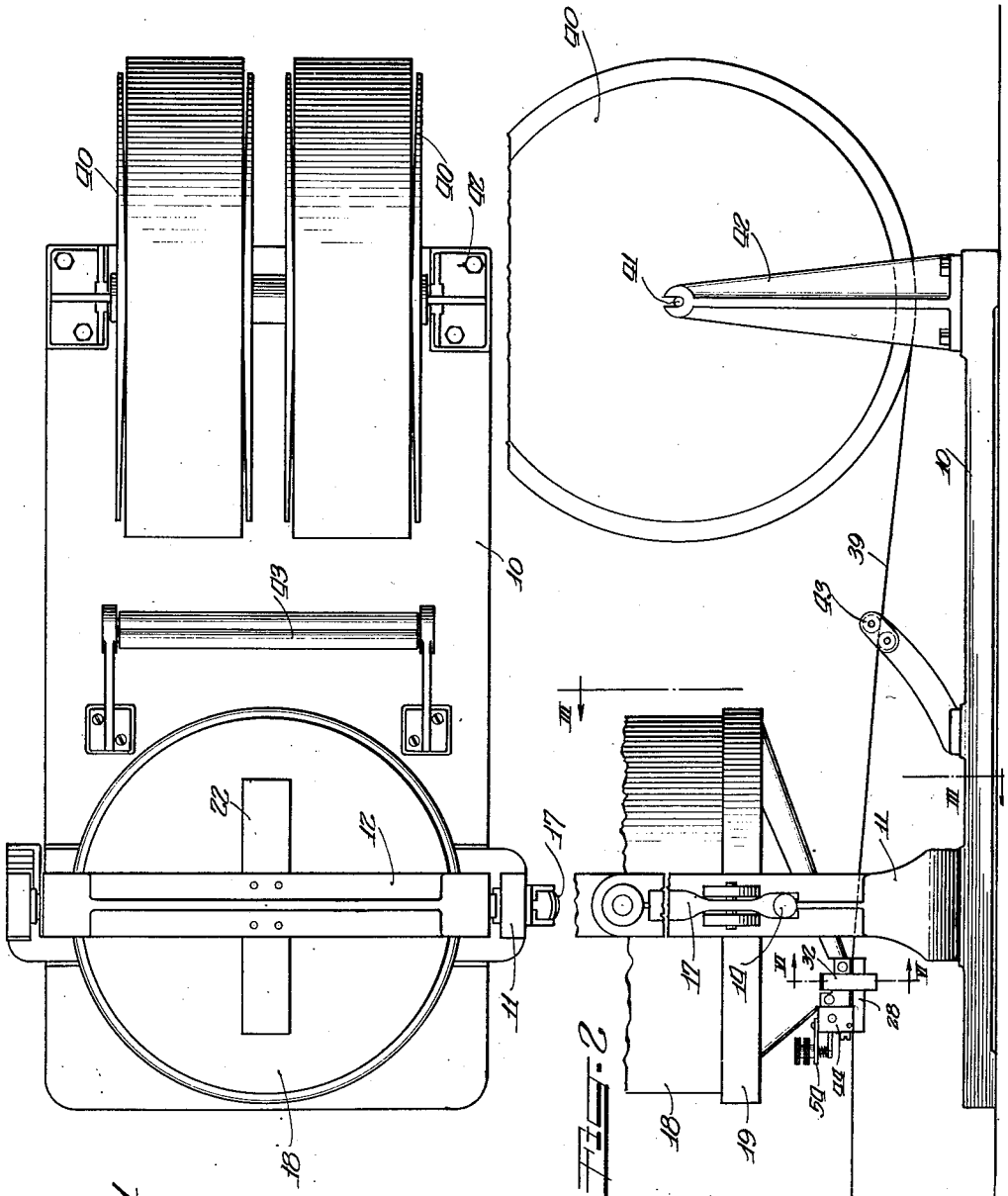


Fig. 1

Fig. 2

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Fig. 3

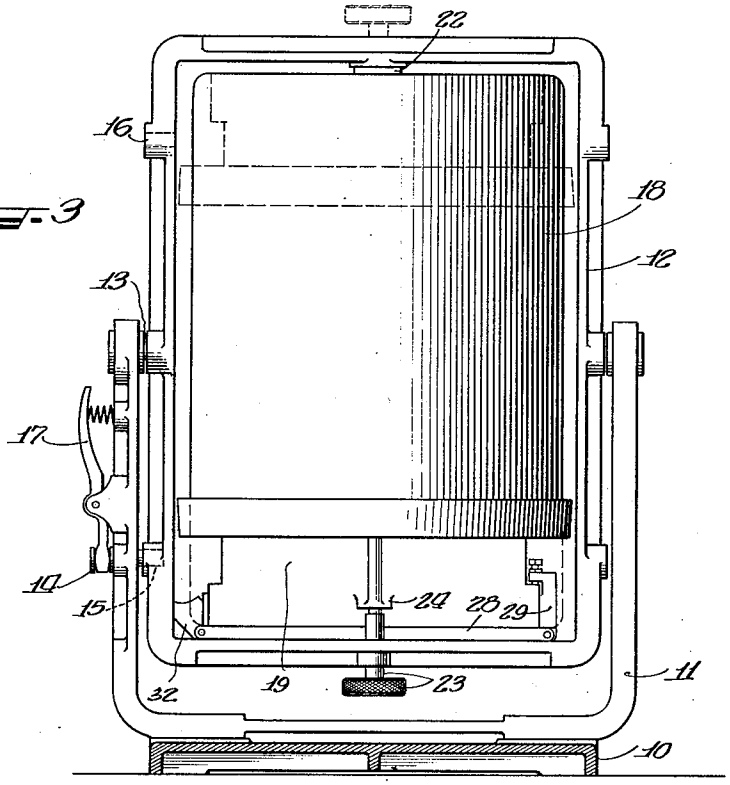
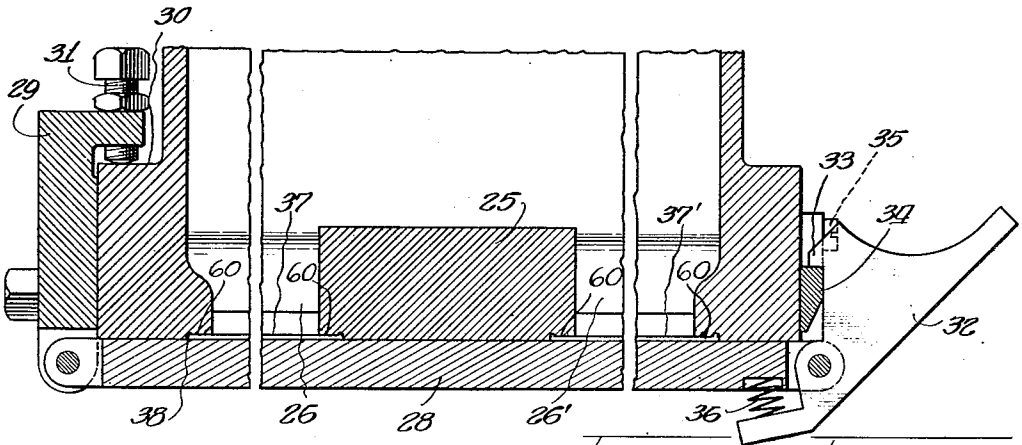


Fig. 6



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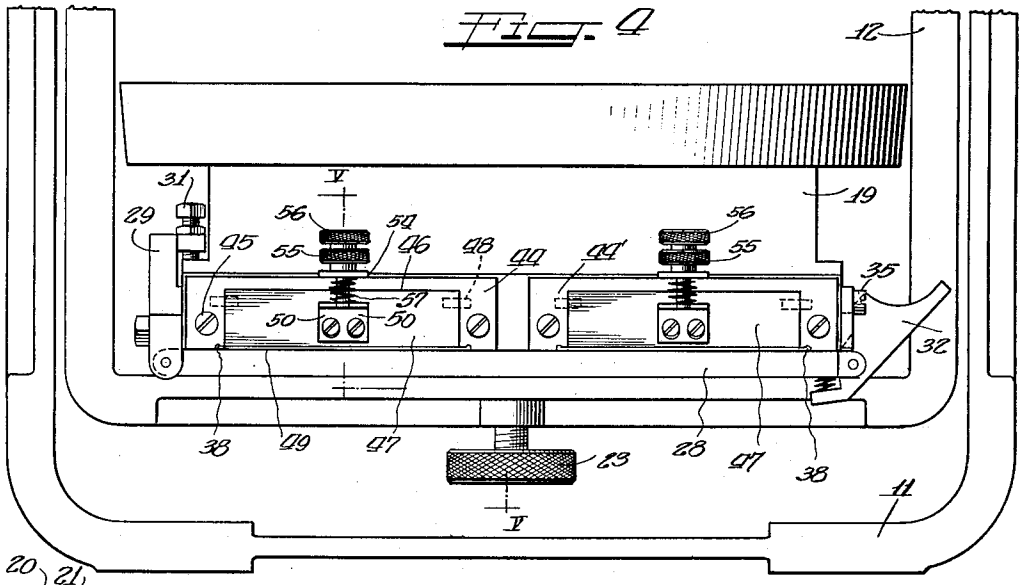
By: Attys.

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Filed April 30, 1931 3 Sheets-Sheet 3

Fig. 4



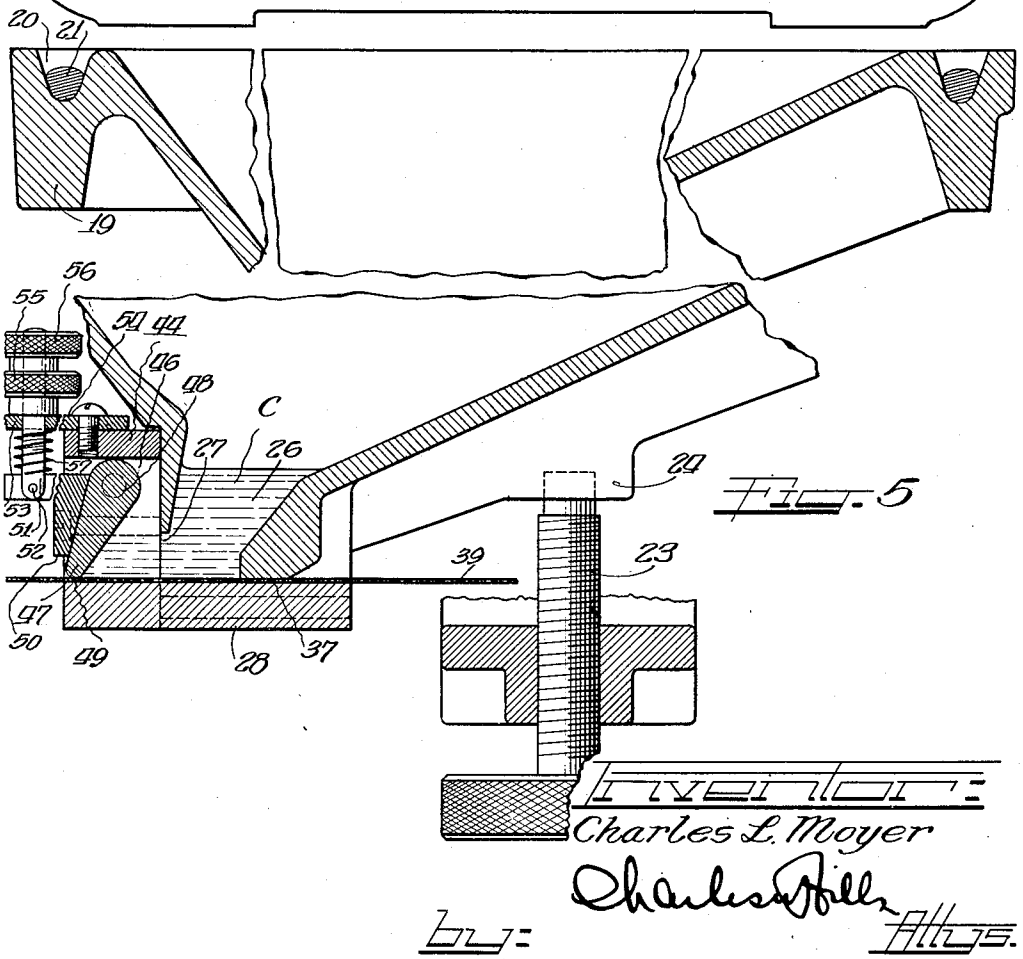


Fig. 5

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UNITED STATES PATENT OFFICE

1,947,791

ADHESIVE APPLYING APPARATUS

Charles L. Moyer, Chicago, Ill., assignor, by mesne assignments, to Boston Blacking & Chemical Co., Boston, Mass., a corporation of Massachusetts

Application April 30, 1931. Serial No. 534,046

2 Claims (Cl. 91—43)

My invention relates to adhesive applying apparatus which is particularly useful for applying cement or other adhesive to material such as canvas and the apparatus is of particular utility for applying liquid cement to canvas strips from which lengths are then cut to be applied to shoes to form inner soles therefor.

In the manufacture of reinforced insoles for shoes, it has been common to use canvas which has been impregnated with some adhesive material and which must be heated to soften the adhesive material in order to secure the canvas pieces to the shoes to form the sole element. Such procedure is costly and laborious.

Other apparatus has been devised through which strips of canvas or other material are drawn below a column of liquid cement but such prior machines or apparatus have been inefficient and impractical for the reason that the ravelings of the canvas or other material would interfere with the proper coating of the strips with the cement resulting in clogging of the apparatus which became inoperative until the ravelings were removed.

An important object of my invention is to provide an improved apparatus for the application of coating material to strips of canvas uniformly and with a minimum of interruptions to the operator because of clogging.

In accordance with features of the invention, the illustrated apparatus is provided with exit slits adjacent to which are yielding wipers or spreaders for distributing the cement over the strips uniformly. The exit slits are enlarged so that ravelings at the sides of the band or ribbon will not be intercepted and retained but may readily travel with the ribbons out of the exit slits thus leaving the ribbon passageway through the apparatus entirely clear at all times of accumulations of ravelings.

The above enumerated features and other features of my invention are incorporated in the structure disclosed on the drawings, in which drawings

Figure 1 is a plan view of the cement-applying apparatus and supply rolls of canvas strips or ribbon to which the cement is to be applied;

Figure 2 is a side elevation of the apparatus shown in Figure 1;

Figure 3 is a section on plane III—III of Figure 2;

Figure 4 is an enlarged front elevation of the lower end of the cement-applying apparatus;

Figure 5 is an enlarged section on plane V—V of Figure 4; and

Figure 6 is an enlarged section on plane VI—VI of Figure 2.

The apparatus is all mounted on a base 10, the cement-applying structure being supported by a U-shaped frame 11. Within this U-frame is a rectangular frame 12 having trunnion pins 13 extending from its sides for bearing in the upper ends of the U-frame 11 so that the frame 12 may be rotated. At one side, the frame 11 has a locking pin 14 extending therethrough for engagement in either of the holes 15 and 16 in the adjacent side of the frame 12, a spring-actuated lever 17 tending to hold the pin in its inner position to lock the frame 12 in vertical position.

The frame 12 serves to support a cement container 18 and a cover structure 19 therefor, this cover structure as will be fully explained supporting the various elements controlling the application of cement. The container 18 may be a special container or may be the ordinary container or can in which cement is marketed. If it is the latter, its cover is removed and the cover structure 19 is substituted, the base of this special cover structure being provided with a groove 20 for fitting and receiving the wall at the open end of the can, and a gasket 21 is inserted so that an accurate and tight fit will result.

One end of the frame 12 has the abutment 22 for the can. The other end wall of the frame 12 has a set screw 23 threaded therethrough for engaging the abutment lug 24 at the outer end of the cover structure 19 so that the pressure of the screw will securely clamp the cover structure to the container and hold the container securely against its abutment 22. When the container and cover are to be secured in the frame 12, the frame is swung to bring the open end of the can or container up and the engagement of the latch pin 14 in the hole 16 will hold the frame in this position. In this position of the container, the cover structure can be readily applied or can be removed for the application of a fresh container or refilling of the empty container. The container and cover are then again brought into closing engagement and are clamped in the frame 12 and the frame 12 is then swung around 180 degrees and locked by engagement of the latch pin 14 in the hole 15, the structure being then in position for the application of cement to the canvas strips.

The upper section of the cover structure 19, as seen in Fig. 5, is of hopper shape and has at its lower end a partition 25 forming two outlet throats 26 (Fig. 6) and 26' in front of which the

front wall of the hopper part is cut away to leave outlets one of which is shown at 27. A detachable plate 28 forms the bottom wall for the throats and the outlets. The plate 28 is hinged at one end to the lower end of a supporting bracket 29 (Fig. 6) which overhangs the ledge 30 of the cover structure and on which it is supported by means of a set screw 31. A latch member 32 is hinged to the other end of the plate 28 and has the latch hooks 33 for engaging the bar 34 secured to the adjacent side of the cover structure by the screw 35. A spring 36 is interposed between the tail of the latch member and the plate 28 and tends to swing the latch member towards latching engagement with the plate 34. When the latch is swung down, and released from the plate 34 the plate 28 may be readily removed. At the throats 26 and 26' the cover frame 19 is cut away to leave the shallow passageway or guide slits 37—37' of which the plate 28 forms the bottom wall, these slits extending laterally a distance into the side walls of the cover frame 19 and the partition 25 thereof to form side slits 60. The ends of these side slits 60 are slightly enlarged as indicated at 38 in Figure 6.

Through the slits 37 and 37' pass the strips or ribbons 39 of fabric, such as canvas, to which a cement coating is to be applied. As shown in Figures 1 and 2, these fabric ribbons are unwound from reels 40 whose supporting spindle 41 is journaled on pedestals 42 rising from the base 10. The ribbons pass between guide and tension rolls 43 supported by the base 10 and extend through the slits 37 and 37' for passage along the top of the guide plate 28 and below the cement material C in the frame 19.

In front of the openings 27 through the front wall of the hopper frame 19 are the frames 44 and 44' which are secured as by screws 45 to the frame 19 and rest at their ends on the plate 28. Each frame has the rectangular passageway 46 for a wiper door or blade 47. Each wiper is supported on hinge or trunnion pins 48 at its upper end and projects to within a short distance of the plate 28 to leave the outlet slit 49 which is of slightly greater height than the slits 37—37' in order to allow for a layer of cement on the fabric ribbons 39 which pass over the plate 28 and through the slits 49, the wiper blades serving to spread and uniformly distribute the cement so that when the fabric strips leave the apparatus they are coated on their top surface with a uniform layer of cement.

The wiper blades have each a bracket 50 secured thereto to which a rod 51 is pivoted at its lower end by means of a pin 52. The rod extends through a hole 53 in a plate 54 secured to and extending forwardly from the frame 44 and the upper end of the rod is threaded for the reception of an adjusting nut 55 and a lock nut 56. Between the bracket 50 and the plate 54 a spring 57 surrounds each rod 51. This spring tends to swing each wiper blade downwardly with its rounded lower edge against the fabric strips passing thereunder but the adjusting nut 55 limits such downward swing depending upon the amount of cement material desired on the fabric strips.

The frames 46 are undercut a distance at their lower ends to form a continuation of the slits 37 and 37' with their enlarged ends 38, as indicated at 38' in Figure 4.

Describing now the operation, the fabric strips 39 are passed through the slits 37 and 37' and along the top of the plate 28 and through the slits or spaces 49 below the wiper blades 47, the edges of the fabric strips engaging in the enlarged ends 38—38' of the passageways, so that the strips will be held flat against the plate 28. The tops of the strips are then subjected to the column of cement C which cement flows through the openings 27 into the frame passageways 46 to be held back by the wiper blades 47. When it is desired to use a length of fabric strip, a strip is pulled out and during such movement of the strip, the cement is spread thereon and wiped thereon by the wiper blade so that the strip emerges with a layer of cement thereon and by means of a shears or other cutting implement, the desired length of strip is cut off and applied where desired. For example, in the shoe industry, suitable lengths of cemented strips are cut off and applied to insoles for shoes.

The canvas or other fabric strips may ravel at their edges or pieces of raveling or lint may cling thereto. The enlarged sides of the fabric passageway slits as indicated at 38—38' will permit ravelings to proceed with the fabric strips and will not be retained in the apparatus to accumulate and interfere with the proper operation of the apparatus. Likewise, any pieces of raveling or lint on the fabric strips or any knots or other irregularities in the fabric, will readily pass from the apparatus below the yielding wiper plates and will not accumulate inside of the apparatus to clog the cement flow or interfere with the proper operation of the apparatus. Should it happen that raveling, lint or other matter has accumulated or interrupted the proper operation of the apparatus cleaning can be readily accomplished by removing the plate 28. Unless the apparatus is empty of cement, such removal of the plate 28 is accomplished after the frame 12 has been rotated to invert the apparatus. As a matter of precaution, the plate 28 may be removed for inspection and cleaning of the slits during each operation of refilling the container 18 or applying a fresh container.

Although I have shown two material strip paths through the cement coating apparatus, it is evident that any number of such passageways may be provided. When the apparatus is not in service, the wiper blades will serve as gates to prevent escape or leakage of cement.

I have shown a practical and efficient embodiment of the various features of my invention, but I do not desire to be limited to the details shown as changes may be made in the construction and arrangement and operation without departing from the scope of the invention as defined by the appended claims.

I claim as follows:

1. In adhesive applying apparatus, the combination of a container for liquid adhesive having an outlet passageway, a guide plate forming the lower wall for said passageway, the rear wall of said container having an entrance slit above said plate for receiving a fabric strip and the side wall of said container adjacent said outlet passageway having slits for receiving the edges of a fabric strip, said slit guiding a fabric strip along the top surface of said plate with its upper side exposed to the adhesive material in said container, and a wiper blade in front of said passageway for spreading a film of adhesive material on said strip as it is drawn along said plate, said side slits being enlarged at their outer ends for the ready passage therethrough of the edge sections of the strip to prevent the retention and accumulation of ravelings in said slits.

2. In adhesive applying apparatus, the combination of a container having a plurality of outlet passageways, a plate forming a bottom wall for said outlet passageways, said container having entrance slits for said passageways for the entrance of fabric strips and passage thereof along the top of said guide plate with their upper surfaces exposed to the adhesive material in said container, and a yieldable wiper plate in front of each of said passageways serving as a closure therefor and to wipe a layer of adhesive material on said strips when drawn over said guide plate, there being side slits along each passageway in alignment with the entrance slit therefor for receiving the edge sections of a strip to guide the strip along the guide plate, said side slits at their outer ends being enlarged for the ready passage with a strip of any raveling formed thereon.

CHARLES L. MOYER.