July 15, 1941. L. BISCHOFF ET AL 2,249,451

PATCH APPLYING FOR SATCHEL BOTTOM BAGS

Filed March 15, 1938

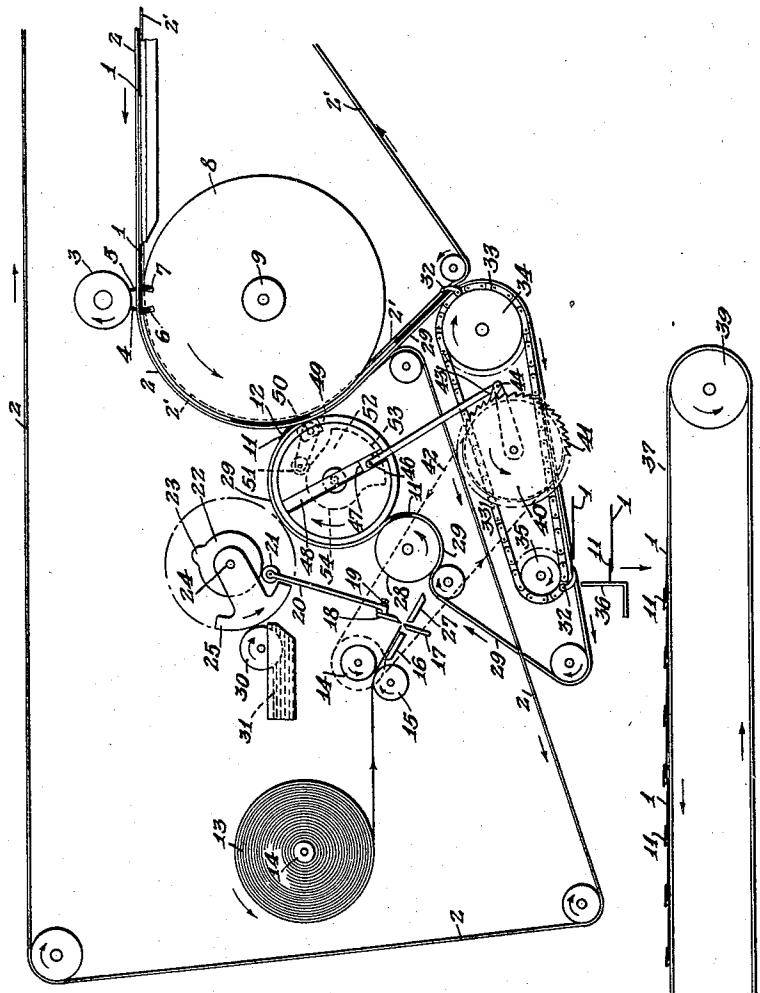


Fig. 1

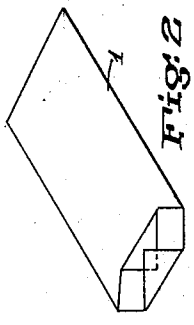


Fig. 2

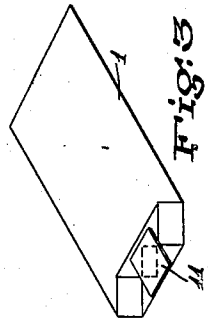


Fig. 3

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Patented July 15, 1941 2,249,451

UNITED STATES PATENT OFFICE

2,249,451

PATCH APPLYING FOR SATCHEL BOTTOM BAGS

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Application March 15, 1938, Serial No. 195,968

6 Claims. (Cl. 93—8)

Our invention relates to a patch applying mechanism for applying patches to satchel bottom bags and more specifically it relates to a mechanism in which the patch is applied to the satchel bottom bag while the bag is still on the bag gripper cylinder that folds the bag bottom.

Hitherto it has been customary in this art to take the bag off the bag gripper cylinder and run it by means of a forwarding roll on to a large drum. A patch cut from a roll of patch material, such as paper or Cellophane, is treated with paste and then applied to the bag on this large drum. This apparatus leads to certain difficulties. For example, in transferring the bag with the folded bottom from the bag gripper cylinder through the forwarding roll to the large drum, it often happens that the bag shifts in position or that the folds become slightly undone or creased along undesirable lines so that when the patch is applied to the misplaced or malformed bag bottom, rejects result. Since these operations must be carried out at high speeds and any interruptions to the process results in serious stoppage, it has long been desired to alleviate these possibilities of trouble in the patch applying apparatus.

We have devised a novel apparatus by means of which the patch may be applied directly to the bag bottom while the bag is still on the bag gripper cylinder. Our apparatus provides a simplified path for the bag, and further provides little or no opportunity for malformation of the bag or misplacement thereof during the patch applying operation. This is because of the fact that the bag is retained throughout the operation on the original cylinder on which the bottom is formed.

Our apparatus comprises a bag gripper cylinder on which the bag bottom is formed and, in direct contact with this bag gripper cylinder, patch gripping cylinder which applies a cut and pasted patch onto the bag bottom as it travels on the bag gripper cylinder. The patch is provided from a roll of patch material which travels between two draw rolls and is cut to proper patch size by cutting mechanism which is actuated by a rotating segment which applies paste from a paste pot to the patch on the patch gripper cylinder.

After the patch is applied to the bag bottom on the bag gripper cylinder, it is carried down and pressed between two tapes until it comes to a conveying mechanism which consists an endless chain rotating about two sprockets. Along this endless chain are certain grippers which grip the end of the bag and carry it down and away from the bag gripper cylinder. From this gripper chain, the bags fall in succession upon a belt which carries them off to be packed.

It is the object of our invention to provide a novel and simplified mechanism for applying patches to satchel bottom bags.

It is further an object of our invention to provide a means for applying patches onto satchel bottom bags while the bags are still upon the cylinder on which the bag bottom is formed.

It is a further object of our invention to provide a novel apparatus comprising a bag gripper cylinder, a patch gripper cylinder and means for providing patches to the patch gripper cylinder and applying adhesive to the patch upon said patch gripper cylinder.

Figure 1 represents a diagrammatic cross-sectional view of the apparatus of my invention.

Figure 2 is a perspective of a bag with its bottom folded, which operation is performed on the bag gripper cylinder.

Figure 3 is a perspective of a bag with the folded bottom and a patch applied on said folded bottom.

Referring now more specifically to the drawing, in Figure 1, a bag 1 is conveyed by the tapes 2 and 2' under a rotating shaft 3 holding creaser blades 4 and 5 which creaser blades act to form the paper of the bag bottom down into slots 6 and 7 of the bag gripper cylinder 8 which revolves about the shaft 9. Suitable rods fold these creased sections down to form the folded bag bottom shown in Figure 2. The bag with the folded bottom travels down as the bag gripper cylinder 8 revolves, and at that point where the bag gripper cylinder 8 is contacted by a patch gripper cylinder 10, a patch 11 with an adhesive coating 12 thereon is applied to the folded bag bottom and firmly pressed thereon. The patch 11 comes from a continuous roll of patch material 13 mounted on a shaft 14.

The patch material 13 travels between the two draw rolls 14 and 15. As the material leaves the draw rolls, it passes over the tables 16 and is cut by the blades 17 and 18. The blade 17 is stationary and the blade 18 fixed at 19 is actuated in reciprocal motion by means of the arm 20 and the roller 21 on the end of this arm. The cam 22 with the high point 23 revolves for contact with this roller 21. As the high point 23 strikes roller 21, the blade 18 is forced downward against the blade 17 shearing off the desired patch section. The cam 22 is mounted for rotation and is driven by the shaft 24. The

cam 22 works at fixed relation with the paste applying segment 25 which will be described in detail hereinafter. The severed patch 11 now travels over the table 27 and down between the drum 28 and the tape 29. It is thus carried up and over the patch gripper cylinder 10 where it is engaged by the patch gripper 49 which will be described specifically hereinafter. On this patch gripper cylinder 10, the patch is contacted with the paste applying segment 25 which rotates about the shaft 24 in fixed relation with the cam 22. The paste applying segment 25 contacts the roll 30 which dips in the bath of paste 31. The movement of this paste applying segment 25 is so timed that it contacts the patch applying cylinder 10 when the patch 11 is at the proper point between the paste applying segment 25 and the patch gripper cylinder 10. After the paste is applied to the patch 11, it is carried along on the cylinder 10 and pressed against the bag bottom on the bag gripper cylinder 8. The pasted patch is thus applied to the bag bottom and the bag with the patch thereon is carried down and engaged by the gripper 32 mounted on the chain 33 which revolves about the sprockets 34 and 35. The gripper 32 engages the bottom of the bag and carries it down and against the baffle blade 36 whereupon the bag drops on the delivery belt 37. The delivery belt 37 runs about the wheels 38 and 39.

Reverting now to the draw rolls 14 and 15 it is to be noted that they are mounted to coact with the patch gripper cylinder 10 by means of intermediary ratchet wheel 40 with teeth 41. The draw roll 14 is intermittently moved by the chain 42 which is trained around the ratchet wheel 40. The teeth 41 on the ratchet wheel 40 are engaged by the pawl 43, the pawl 43 being mounted on the pin 44 at the end of the arm 45. The arm 45 is pivoted at 46 on to the patch gripper cylinder 10. This pivot 46 is mounted in the block 47 which can be adjusted along the groove 48 so that the length of the patch may be predetermined.

Referring now specifically to the patch gripper cylinder 10, a patch gripper 49 pivoted at 50 terminates in a roller 51 which rides upon the stationary cam 52. Cam 52 has a high point 53 and a low area 54. As the roller 51 rides on the high area 53, the patch gripper 49 is opened. When the roller 51 falls off the high area 53 on to the low area 54, the gripper 49 engages the patch and carries it around into contact with the bag bottom.

The operation of our present invention is as follows: A bag the bottom of which has been given a preliminary folding to diamond shape moves between the creaser blades and the bag gripper cylinder. The creaser blades form the proper creases in the bag bottom and the creases are tucked into the bag gripper cylinder after which the two diamond ends are folded down to form the bag bottom. At this point the bag moves down with the bag gripper cylinder 8 and a patch is applied to the bottom of the bag without any change of position of the bag relative to the bag gripper cylinder 8. Because of the fact that there is no change of position by the bag after its bottom is folded preliminary to its receiving the patch thereon, there is little or no chance of malformation of the bag bottom or poor placement of the patch. The patch is fed and formed from a continuous roll of strip material which is drawn between the draw rolls in timed relation with the movement of the patch gripper cylinder. As the strip material moves intermittently forward it is severed by a pair of knives. The patch thus formed is shortly introduced upon the patch gripper cylinder where it is engaged by the patch gripper and carried around first to a point where paste is applied to its outer surface and then to a point where it directly meets the bag bottom. The paste applying means works in timed relation to the knives that cut the patch. The bag with the patch applied thereto is then led down between the double tape 2 that is trained over the bag gripper cylinder and the single tape 2' that is trained about the bag gripper cylinder. The tape 29 crosses the paths of the tapes 2 and the bag is led down between the tapes 2' and 29 into contact with a gripper mechanism traveling about a chain, from which gripper mechanism the bag is deposited onto the delivery belt.

The feature of our apparatus resides in the simplicity of operation set forth and especially in the means by which the patch may be applied to the bottom of the bag without removing the bag from the bottom forming cylinder.

We claim:

1. In the method of applying patches to satchel bottom bags, the steps comprising folding the bag bottom on the bag gripper cylinder; carrying the bag with the folded bottom along the bag gripper cylinder; cutting a patch from a roll of patch material; applying paste to the patch; applying the patch to the folded bag bottom while the bag is still on the bag gripper cylinder; and pressing the patch firmly onto the bag bottom.

2. An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means for holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll of patch material to provide patches comprising a reciprocating knife operated by a cam; means comprising a drum and travelling tape for conveying said patch to a patch gripper cylinder, said patch gripper cylinder carrying a patch gripper pivoted thereon, said patch gripper terminating in a roller adapted to ride freely upon a cam, said patch gripper being positioned to carry a patch from said drum to said bag gripper cylinder, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder.

3. An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means for holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll of patch material to provide patches comprising a reciprocating knife operated by a cam; means comprising a drum and travelling tape for conveying said patch to a patch gripper cylinder, said patch gripper cylinder carrying a patch gripper pivoted thereon, said patch gripper terminating in a roller adapted to ride freely upon a stationary cam, said patch gripper being positioned to carry a patch from said drum to said bag gripper cylinder, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder; and means for pressing the patch on to the bag and for delivering the bag to a conveyor.

4. An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll

of patch material to provide patches comprising a reciprocating knife operated by a cam; paste applying means comprising an arcuate section rotating about an axis common to the cam that operates the knife; and a patch gripper cylinder carrying a patch gripper, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder.

5. An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means for holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll of patch material to provide patches comprising a reciprocating knife operated by a cam; means for conveying said patch to a patch gripper cylinder; paste applying means comprising an arcuate section rotating about an axis common to the cam that operates the knife; and a patch gripper cylinder carrying a patch gripper, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder.

6. An apparatus for applying patches to bag bottoms comprising, in combination, a bag gripper cylinder; means for holding a roll of patch material; means for drawing patch material from said roll of patch material; means for severing said roll of patch material to provide patches comprising a reciprocating knife operated by a cam; means comprising a drum and travelling tape for conveying said patch to a patch gripper cylinder; paste applying means comprising an arcuate section rotating about an axis common to the cam that operates the knife; and a patch gripper cylinder carrying a patch gripper pivoted thereon, said patch gripper terminating in a roller adapted to ride freely upon a cam, said patch gripper being positioned to carry a patch from said drum to said bag gripper cylinder, said patch gripper cylinder being positioned adjacent said bag gripper cylinder whereby said patch gripper cylinder applies a patch to the bag on the bag gripper cylinder; and means for pressing the patch on to the bag and for delivering the bag to a conveyor.

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