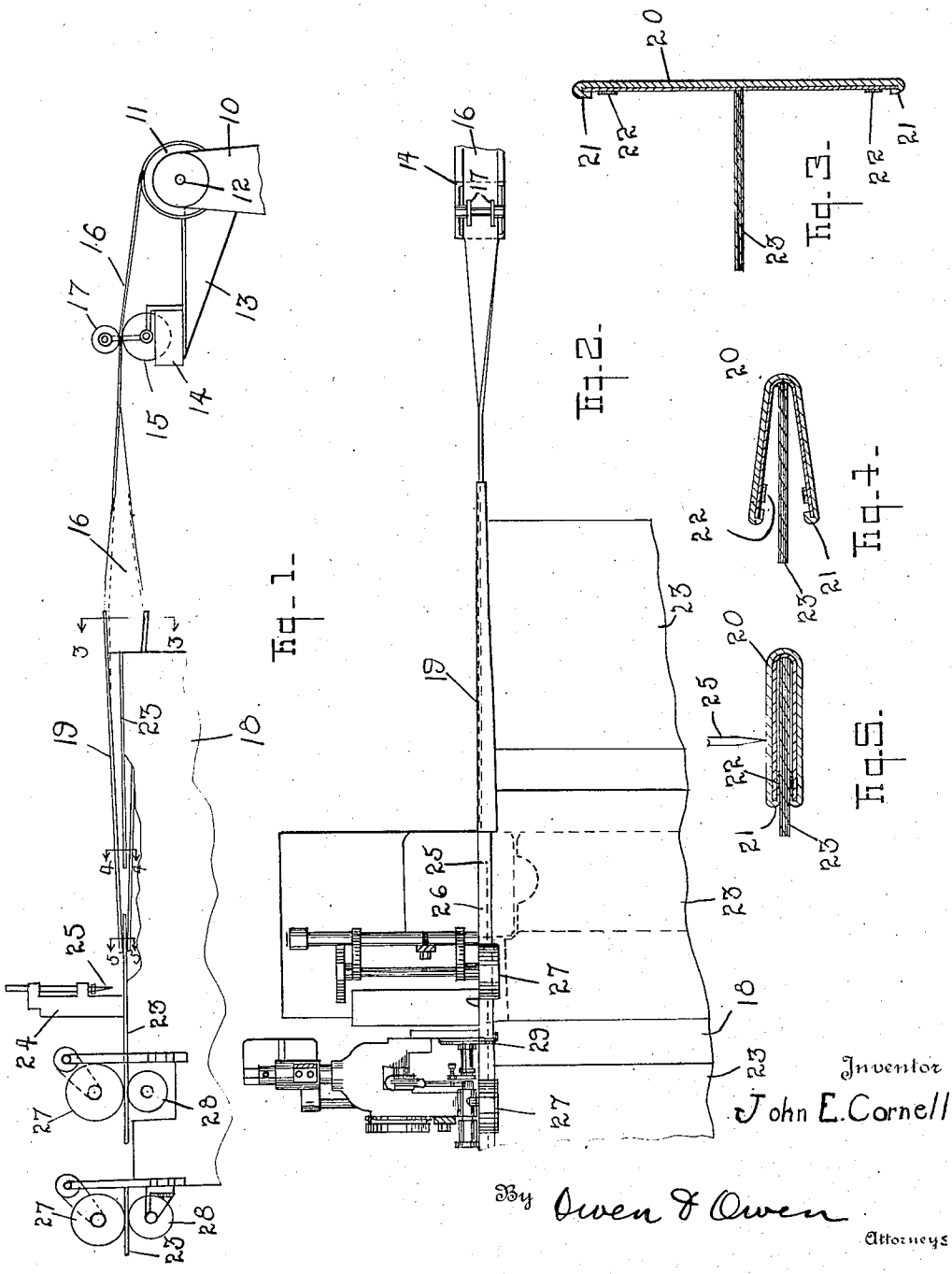
Nov. 5, 1929. J. E. CORNELL 1,734,287

BAG BINDING METHOD AND APPARATUS

Original Filed June 1, 1926



Patented Nov. 5, 1929 1,734,287

UNITED STATES PATENT OFFICE

JOHN E. CORNELL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ST. REGIS PAPER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

BAG-BINDING METHOD AND APPARATUS

Application filed June 1, 1926, Serial No. 112,825. Renewed August 2, 1928.

This invention relates to apparatus for adhering and sewing tape to the ends of bags. The construction and details of the apparatus will appear as the description proceeds.

In the accompanying drawings forming a part of this specification, Figure 1 is a side view of apparatus embodying the invention; Fig. 2 is a plan view of the apparatus shown in Fig. 1, with parts broken away, and parts removed; Figs. 3, 4 and 5 are cross-sections of the tape guide along lines 3—3, 4—4 and 5—5 on Fig. 1.

The apparatus shown comprises a device for applying adhesive to a binding strip or tape, and apparatus for receiving the coated tape and applying it to the ends of bags or similar articles.

The adhesive-applying device comprises a pedestal 10. A roll 11 of tape is mounted upon an axis 12 at the upper end of the pedestal. A bracket 13 extends from one side of the pedestal and carries an adhesive receptacle 14. Adhesive-applying discs 15 are suitably mounted so that their under sides run in adhesive in receptacle 14. Tape 16 from the roll 11 is fed over the adhesive applying discs. Rollers 17 may be provided for holding the tape in contact with the discs.

In the direction from the pedestal in which bracket 13 extends there is a table 18. A guide 19 is provided at one edge of the table in position to receive the coated tape from the coating device.

The guide comprises a plate 20 having edge-flanges 21 forming grooves in its sides suitable for receiving the edges of the tape. Preferably discs 15 are spaced such a distance apart that the lines 22 of paste or other adhesive come between flanges 21 and are not contacted thereby. Plate 20 is straight at its receiving end, as indicated in Fig. 3, and is gradually bent to bring its flanges towards each other, as shown in Figs. 4 and 5.

Articles 23, such as paper bags, are placed upon the table in properly spaced relation, one edge or end of each article being fed along past guide 19 and between the approaching sides of the tape within the guide until the tape is applied thereto, as shown in Fig. 5.

After the tape is applied to the end of the bag, the tape with the interposed bag-end is fed through a sewing machine 24, the needle 25 of which sews a seam 26 continuously lengthwise of the tape and through the intervening articles. Preferably the seam is sewed through the tape between the lines 22 of adhesive and the ends of the bags.

After passing through the sewing machine, the tape is preferably passed beneath pressing rollers 27, which press the tape against the intervening walls of the bag or other article. In order to avoid friction, it is advisable to provide cooperating rollers 28 beneath rollers 27, and the rollers may be provided at each end of the bag and driven in any suitable manner, if desired, so as to take the bags automatically from the sewing machine and deliver them.

A cutter 29 is diagrammatically indicated in Fig. 2 in position to sever the tape between bags to which it has been sewed. The construction of the cutter, and whether it is automatic or hand operated, is immaterial for the purpose of the present invention.

The operation of the device has been indicated in connection with the description thereof, but may be summarized briefly. A suitable roll of tape is mounted on the pedestal and threaded over discs 15 and through guide 19. Then bags or other articles are fed to the device at suitably spaced intervals, as the tape is moved along, so that the tape is lightly applied to the articles. Strips 22 of adhesive are spaced slightly from the edges of the tape, and guide 19, where it contacts the back and edges of the tape, does not come in contact with the adhesive.

It is preferable to sew through the tape between the adhesive strips and the middle of the tape. In this way the needle does not pass through the adhesive and become gummed up thereby, and the edges of the tape adhere to the bag where such adherence is most needed.

After sewing, when pressure is applied to the tape, strips 22 of adhesive may spread both ways. It is generally desirable for the adhesive to spread towards the middle of the tape, or the end of the bag, as far as the seam, and greater spreading of the adhesive in this

direction does no harm. It would be desirable to have the adhesive spread in the other direction just to the edges of the tape, but spreading beyond the edge of the tape is undesirable, as it makes possible the adherence of bags to each other when they are stacked. If a thick adhesive is used which is likely to spread unduly, rollers 27 or rollers 28 or both may have their faces beveled so as to squeeze the tape more at its edges than towards the end of the bag, whereby spread of the adhesive beyond the edges of the tape is prevented while spread towards the end of the bag is unrestricted. The preferred method is to supply the adhesive in such amounts and such locations that it does not interfere with the guide at the edges of the tape or with the sewing of the seam, and yet, after pressing, extends substantially from the edges of the tape to the seam.

By the above described method and apparatus, a binding tape may be applied to the end of a paper bag in such a way that it very efficiently strengthens the seam, the adhesive being applied where it does the most good, without interfering with the operation of positioning the tape on the bag and sewing it thereto.

The quarter turn of the tape between the coating device and the sewing machine is a very desirable feature, as it allows the coating to be applied to the under side of the tape, which is most convenient for the application of the adhesive, and still allows the sewing to be done by a vertical needle, which is most convenient for the sewing operation.

While the benefits of the invention are most fully realized in the complete combination shown and described, it will be understood that numerous changes can be made while retaining some of the beneficial features. For example, adhesive may be applied to the middle as well as, or instead of, the edges of the tape; the tape may be sewed to articles other than bags; a flat tape may be sewed to one side or to each side of an article instead of being bent over the end or edge; and one or both sides of the tape may be adhered to the articles, as desired. Other obvious changes may be made within the scope of the appended claims.

What I claim is:

1. The method of binding a bag end comprising placing a binding tape over the bag end, adhering the edges of the tape to the bag walls while leaving the edges of the bag walls and middle of the tape free from adhesive, and sewing through the tape and walls along a line between the adhesive and the end of the bag.

2. The method of binding a bag end comprising placing a binding tape over the bag end, adhering the edges of the tape to the bag walls while leaving the edges of the bag walls and the middle of the tape free from adhesive, sewing through the tape and walls along a line between the adhesive and the end of the bag and closely adjacent to the adhesive, and after the sewing and while the adhesive is still unset, pressing the adhered portion of the tape against the bag walls.

3. The method of forming a closure for a bag comprising adhering a reinforcing tape to a bag wall by adhesive between the bag end and a portion only of the width of the tape and sewing through the bag walls and the applied tape along a line free from adhesive.

4. The method of forming a closure for a bag comprising progressively alhering a reinforcing tape to a bag wall by adhesive between the bag end and a portion only of the width of the tape and, before the adhesive has set, sewing through the bag walls and the applied tape along a line free from adhesive.

5. The method of forming a closure for a bag comprising progressively adhering a reinforcing tape to a bag wall by adhesive between the wall and a portion only of the width of the tape, sewing through the bag walls and the applied tape along a line free from adhesive and after the sewing and before the adhesive has set progressively pressing the adhered portion of the tape against the bag wall.

6. The method which consists in applying adhesive to a portion of one side of a tape, guiding the tape into proper relation with an article to which it is to be applied, sewing the tape to the article along uncoated portions of the tape and thereafter pressing the coated portions of the tape against the article.

7. The method which consists in applying adhesive to a tape along a line spaced from the edge thereof, guiding the tape, by contact with its uncoated edge, into position with its coated side against an article to which it is to be applied, and thereafter pressing the coated portion of the tape against the article and thereby spreading the coating towards the edge of the tape.

8. The method which consists in applying a comparatively thick coating of adhesive to a portion of one side of a tape, applying the coated side of the tape to an article, sewing the tape to the article along an uncoated portion of the tape, and thereafter pressing the coated portion of the tape against the article and thereby spreading the adhesive towards the sewed seam.

9. The process which consists in applying adhesive to a portion of one side of a tape, guiding the tape into proper relation with an article to which it is to be applied by contacting the uncoated side of the tape and uncoated portions of the coated side of the tape, and thereafter pressing the coated portions of the tape against the article.

10. The process which consists in applying adhesive to one side of a tape while leaving strips adjacent each edge of said side uncoated, bending the tape over the edge of an article to which it is to be applied by contacting the uncoated side of the tape and the uncoated edge portions of the coated side of the tape, and thereafter pressing the coated portions of the tape against the article and spreading some of the adhesive between the article and the previously uncoated edges of the tape.

11. The process which consists in applying adhesive to one side of a tape while leaving strips adjacent each edge of said side uncoated, bending the tape over an end of a bag by contacting the uncoated side of the tape and the uncoated edges of the coated side, sewing the tape to the article along uncoated portions of the tape, and thereafter pressing the coated portions of the tape against the bag and thereby spreading portions of the adhesive towards the line of the sewed seam.

12. The process which consists in applying to one side of a tape strips of adhesive spaced from the edges of the tape and from each other, bending the tape over the end of a bag by contact with the uncoated side of the tape and with the uncoated edges of the coated side of the tape, sewing the tape to the bag along a line between the strips of adhesive and the middle of the tape, and thereafter pressing the coated portions of the tape against the bag and spreading the adhesive towards the edge of the tape and towards the line of sewing.

13. The process which consists in moving a tape horizontally and with its cross-section horizontal, applying adhesive to the underside of the tape, giving the tape a quarter turn, so that its cross-section is vertical, while continuing to move the tape horizontally, positioning a collapsed bag tube in a horizontal plane and moving it in a direction parallel with the movement of the tape and with one end against the tape, bending the upper and lower edges of the tape against the walls of the bag tube, and sewing longitudinally of the tape through the tape and the intervening bag-walls.

14. In apparatus of the character described, means to convey a bag, means to progressively adhere a reinforcing tape to the moving bag by adhesive between the bag wall and a portion only of the width of the tape, a sewing head, and means to guide the bag to and through the sewing head on a line to sew through the bag walls and applied tape where the tape is free from adhesive and adjacent to the adhesive.

15. In apparatus of the character described, means to convey a bag, means to progressively adhere a reinforcing tape to the moving bag by adhesive between the bag wall and a portion only of the width of the tape, a sewing head, and means to guide the bag to and through the sewing head on a line to sew through the bag walls and applied tape where the tape is free from adhesive and adjacent to the adhesive and means to press the adhered portion of the tape against the bag wall after the seam has been sewed adjacent to the adhesive.

16. In apparatus of the character described, means for applying adhesive to a portion only of one side of a tape, a guide adapted to guide the tape by contact with its uncoated side and with the uncoated portions of its coated side into proper relation with an article to which it is to be applied, and means to thereafter press the tape against said article.

17. In apparatus of the character described, means for applying adhesive to a portion only of one side of a tape, a guide adapted to contact the uncoated side of the tape and uncoated portions of the coated side of the tape, a support upon which articles may be moved parallel with the guide, so that the tape and the articles are thereby brought into proper relation, and means to thereafter press the coated portions of the tape against the articles.

18. Apparatus of the character described, comprising means for applying two strips of adhesive to one side of a tape so that said strips will be parallel with and spaced from each other and the edges of the tape, a guide adapted to contact the uncoated side of the tape and to bend the tape from a flat position to a U-shaped position, the edges of said guide having flanges adapted to contact the uncoated edges of the coated side of the tape and to thereby hold the tape in position in the guide, a support upon which articles may be moved parallel with the guide and extending between the sides of the bent tape, and a sewing machine adapted to sew the tape to the articles along the line between said strips of adhesive and the middle of the tape.

19. In apparatus of the character described, a pair of parallel discs, an adhesive tank in position to apply adhesive to the lower sides of the discs, means to pass a tape over the tops of the discs, a guide in position to receive the tape after it passes the disc, said guide comprising a plate having side flanges forming grooves in which the edges of the tape may run, the edges of said flanges being farther apart than the outer edges of said discs, and a support upon which articles may be moved into contact with tape in the guide.

In testimony whereof I have hereunto signed my name to this specification.

JOHN E. CORNELL.