

April 21, 1953

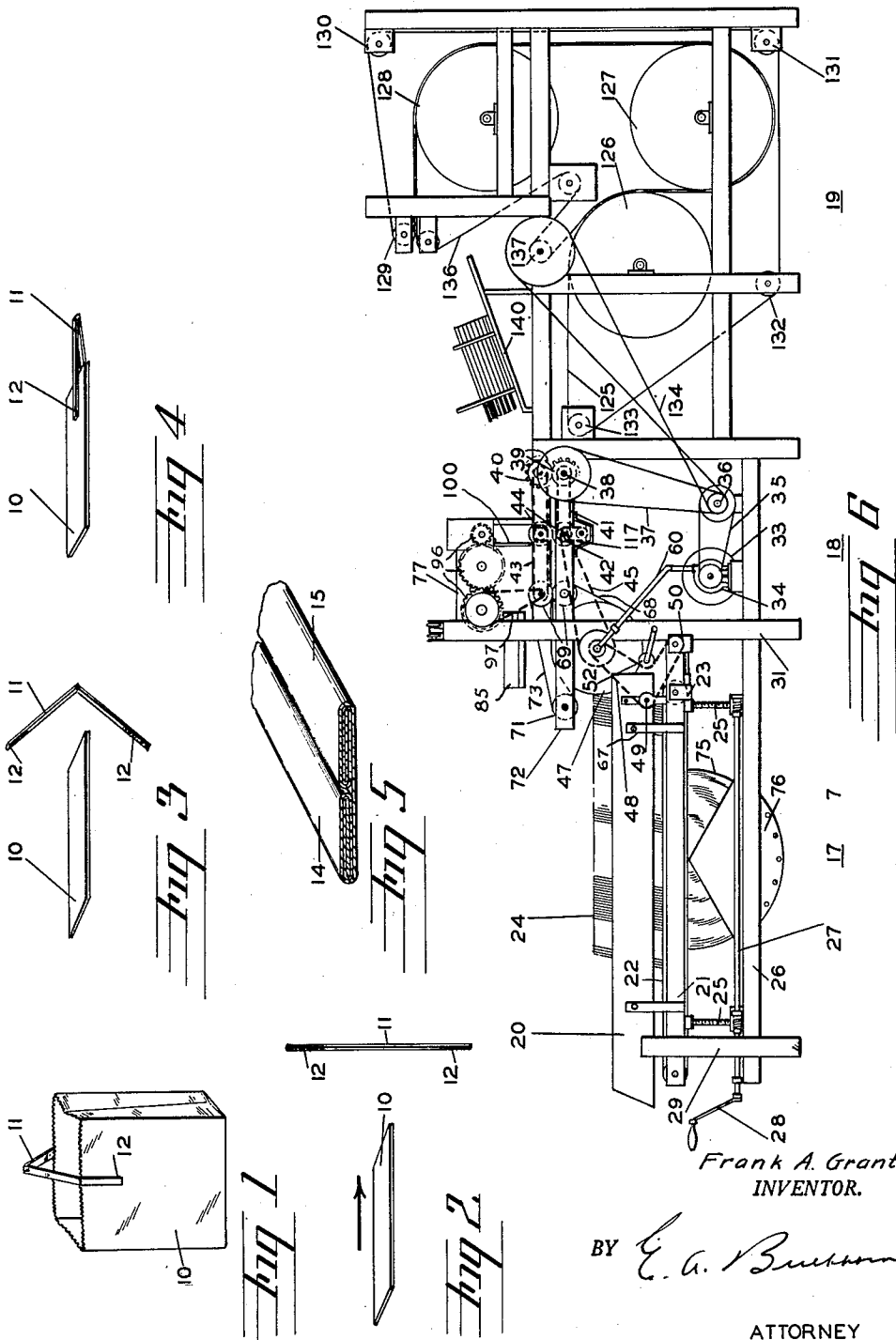
F. A. GRANT

2,635,510

APPARATUS AND METHOD FOR ATTACHING HANDLES TO BAGS

Filed July 19, 1947

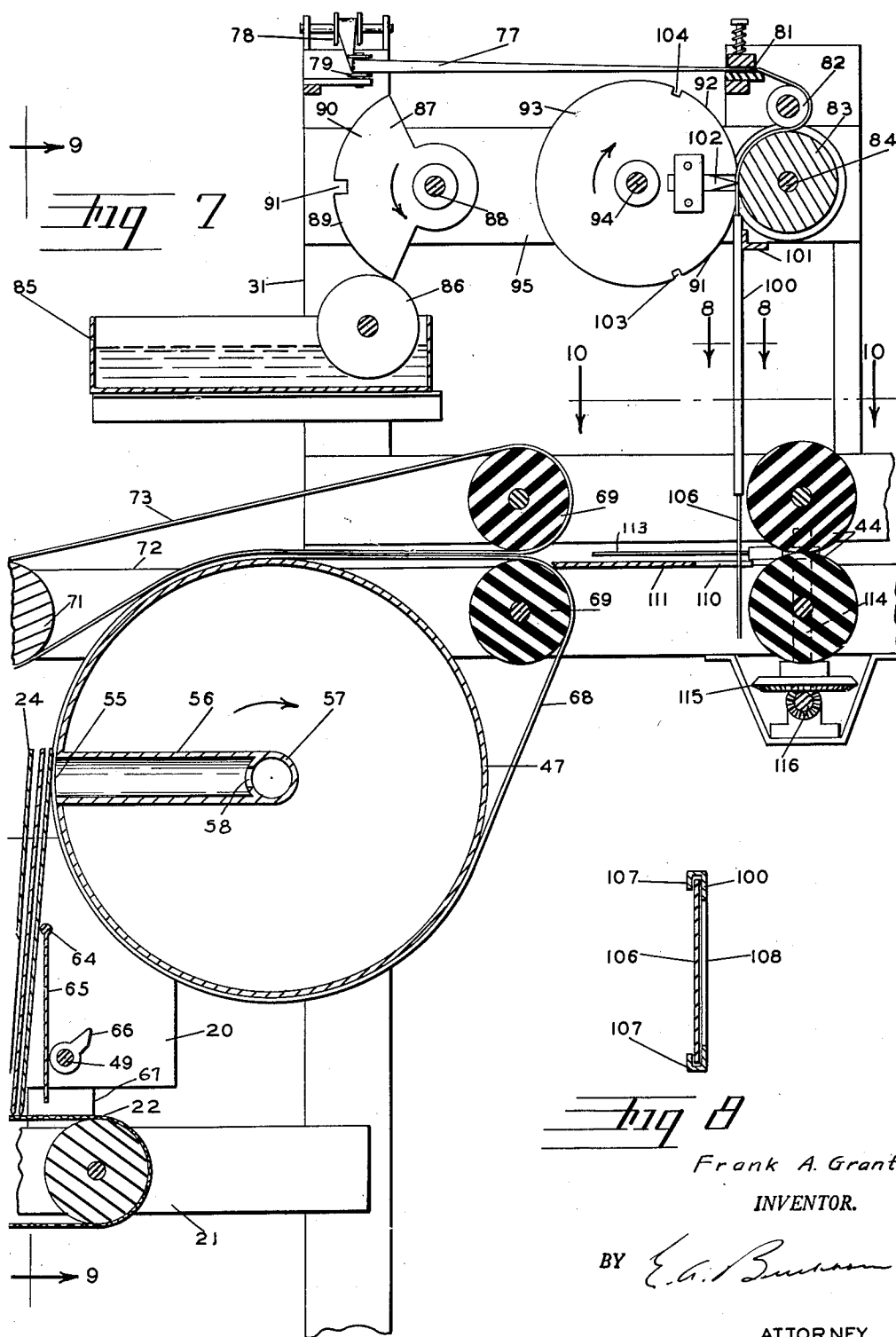
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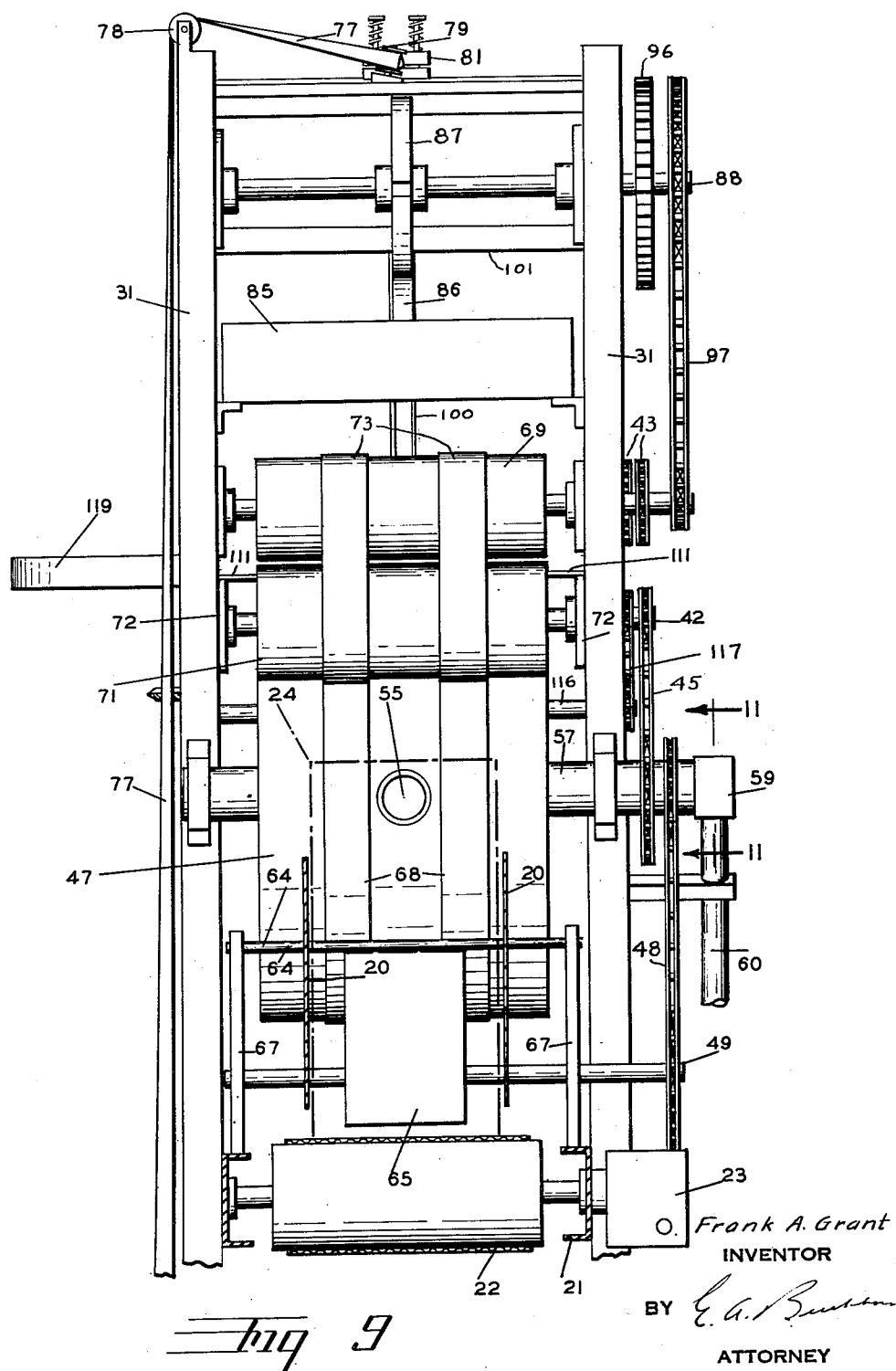
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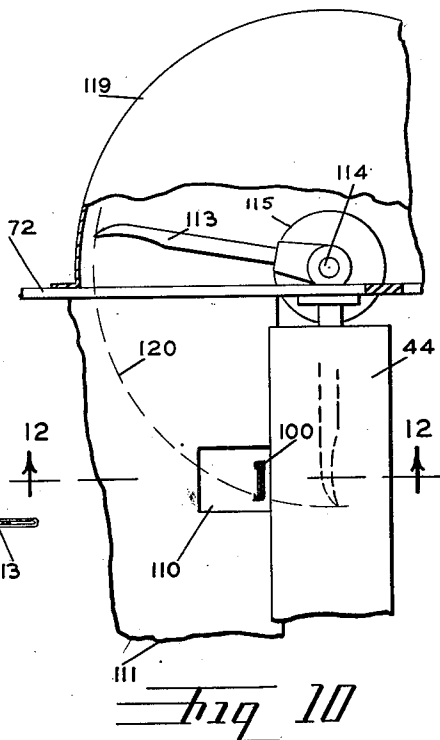
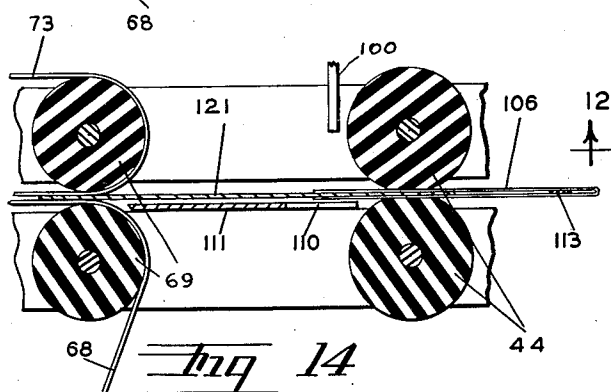
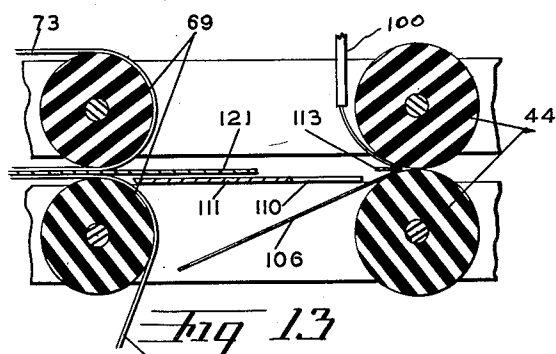
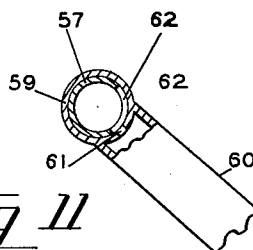
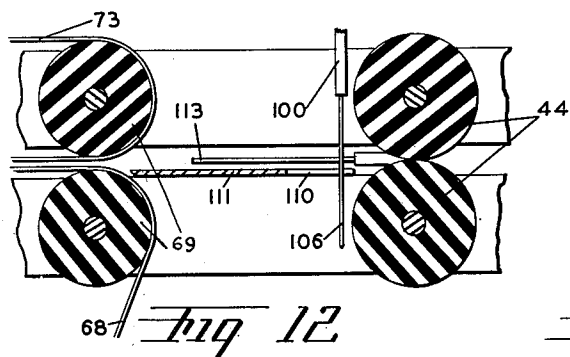
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APPARATUS AND METHOD FOR ATTACHING HANDLES TO BAGS

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4 Sheets-Sheet 4



Frank A. Grant
INVENTOR.

BY *E. A. Benson*

ATTORNEY

UNITED STATES PATENT OFFICE

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APPARATUS AND METHOD FOR ATTACHING
HANDLES TO BAGS

Frank A. Grant, Vancouver, British Columbia,
Canada, assignor, by mesne assignments, to
Paper Strap, Inc., Portland, Oreg., a corpora-
tion of Oregon

Application July 19, 1947, Serial No. 762,170

19 Claims. (Cl. 93—8)

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The present invention relates to methods and machines for attaching strap handles onto containers, cartons, bags and the like articles; and, while it is not necessarily to be limited thereto, the invention is particularly adapted for adhesively securing handles formed of paper strap to paper bags.

It is a general object of the present invention to provide a machine of relatively simple, sturdy design for automatically attaching handles to the upper ends of bags at a relatively high rate of speed.

A further object of the invention is to provide a machine through which flat, folded bags are fed with continuous movement and having means operating with timed relation to the bag feeding means for attaching strap handles, the ends of which are coated with adhesive, to the upper end portions of the bags.

Another object is to provide a new and improved arrangement for measuring predetermined lengths from a continuous strip of paper strap and for applying adhesive to the opposite end portions of such measured lengths.

A further object of the invention is to provide a new and improved arrangement for folding lengths of strap, the opposite ends of which have been previously coated with adhesive preparatory to the attachment thereof to the bag ends.

Another object of the invention is to provide a new and improved conveyor arrangement for feeding bags to the handle attaching mechanism.

Another object of the invention is to provide a new and improved transfer arrangement for picking up one bag at a time from a conveyor and for feeding it in proper timed relation to the handle attaching mechanism.

Another general object of the invention is to provide a new and improved method for attaching strap handles to paper bags.

For a consideration of what is believed novel and inventive, attention is directed to the following description taken in connection with the accompanying drawings while the features of novelty will be pointed out with greater particularity in the appended claims.

In the drawings, Fig. 1 is a view in perspective illustrating a paper bag with a strap handle attached thereto by the machine and in accordance with the method of the present invention; Figs. 2, 3 and 4 are diagrammatic views illustrating different successive steps of the method of attachment of the handle to the bag shown in Fig. 1; Fig. 5 is an enlarged view in perspective

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illustrating a portion of paper strap utilized in forming handles attached to the bag; Fig. 6 is a side elevation illustrating a machine constructed in accordance with one form of the present invention; Fig. 7 is an enlarged longitudinal vertical sectional view taken through one portion of the machine illustrated in Fig. 6; Fig. 8 is a cross-sectional view taken along the line 8—8 of Fig. 7; Fig. 9 is a vertical cross-sectional view taken along line 9—9 of Fig. 7; Fig. 10 is a sectional view taken along the line 10—10 of Fig. 7; Fig. 11 is a sectional view taken along the line 11—11 of Fig. 9; Figs. 12, 13 and 14 are fragmentary sectional views of the machine illustrating certain parts in various successive positions during operation thereof and taken generally along the line 12—12 of Fig. 10.

Referring now to the drawings, the present invention is primarily concerned with the attachment of strap handles to paper bags of the type illustrated in Fig. 1 in which the paper bag 10 is shown having a strap handle 11 attached to the upper end thereof. The strap handle 11 is formed of a length of strap doubled upon itself in the manner of a hairpin, and the lower end portions 12 are adhesively secured to the opposite outer side walls of the bag adjacent the upper end thereof and substantially along the longitudinal center line thereover.

The method of the present invention and which is carried out by the machine herein disclosed is illustrated in part by the diagrammatic views of Figs. 2, 3 and 4. Flat, folded paper bags 10 are fed along with a continuous movement, open end first, in the direction indicated. A measured length of paper strap 11 previously severed from a supply roll and having the opposite end portions 12 coated with a suitable adhesive is fed in a direction normal to the plane of the bag 10 into the path of forward travel of the bag. As the bag 10 approaches the strap 11, the latter is doubled upon itself as indicated in Fig. 3 with the adhesive coated surfaces of the strap facing the bag. The bag is carried along and is fed between the ends of the strap 11 simultaneously with the folding of the latter so that by the time the folding of the strap upon itself is completed, the opposite end portions of the handle strap engage with the opposite outer surfaces of the bag end as illustrated in Fig. 4. Pressure is then applied upon the assembly and maintained until the adhesive has set sufficiently to permit packaging of the handled bags.

While any suitable form of strap may be used in carrying out the method of the present in-

vention and in connection with the machine, I prefer to use strap of the type illustrated in the enlarged view of Fig. 5. The strap therein shown is formed of a web of relatively thin kraft paper and having the opposite marginal edge portions 14 and 15 folded over upon the same side in a nonoverlapping relation. Such strap is admirably suited for use in forming bag handles in accordance with the method of the present invention and with the machine disclosed herein since it possesses the requisite degree of stiffness to permit ready handling thereof. It is pointed out that adhesive is applied to the surfaces of the folded edge portions 14 and 15 of the strap and which side is then attached to the bags. Unfolding of the strap is thereby precluded and a smooth outer surface is presented.

Neither the strap disclosed in Fig. 5 nor the handled bag shown in Fig. 1 forms any part of the present invention, these having been previously invented by J. D. Crary of Portland, Oregon, and disclosed and claimed in other patent applications.

Referring now particularly to the general arrangement view of Fig. 6, the machine may be divided generally into three successive sections; namely, a bag conveyor section indicated generally at 17, a central, handle attaching section indicated generally at 18, and an adhesive setting section indicated generally at 19. The conveyor section 17 consists essentially of a trough arrangement defined by a pair of adjustable outer side walls 20 suitably supported from the longitudinal frame members 21. The bottom of the trough is defined by a belt 22 extending over rollers at the opposite ends of the frame 21. The belt is driven from the roller at the aft end through a worm gear drive unit 23 connected thereto whereby a plurality of bags 24 stacked on end with the open end up may be carried slowly toward the handle attaching section 18. The side walls 20 may be adjusted as to width in accordance with the width of the bags 24. For reasons which will subsequently appear, it is desirable that the upper ends of the bags 24 be fed to the transfer mechanism for the handle attaching section 18 at a substantially predetermined height and, accordingly, provisions are made for effecting raising and lowering of the frame 21. Jack screws 25 are provided between the opposite ends of the frame 21 and the subframe 26, the raising and lowering of the jack screws being accomplished through rotatable nuts operatively connected to a longitudinally extending shaft 27 having a hand crank 28 mounted upon the end thereof. Raising and lowering movements of the forward end of the frame 21 are guided between the uprights 29 and at the rear end between the frame uprights 31.

The central, or handle attaching, section 18 will now be described. A driving motor 33 is mounted upon the subframe 26, and a suction pump 34 is directly connected thereto. The motor is also connected by belt 35 to a jack shaft 36 through which power is transmitted to other parts of the machine. Power is transmitted from the shaft 36 through the chain or belt 37 to the shaft 38 mounting the lower one of a pair of co-operative parallel rollers 39. The rollers 39 are geared together as indicated at 40. The shaft 38 is operatively connected by a chain 41 to the shaft 42 mounting the lower one of a pair of parallel cooperating rollers 44. The uppermost of the rollers 39, 44, and 69 are connected to-

gether by chains 43. The shaft 42 is also operatively connected by a chain 45 to the shaft rotatably mounting the transfer drum 47, the latter shaft being in turn connected by chain 48 to shaft 49 and the reduction gear unit 50. The reduction gear unit 50 is pivotally mounted upon the upright 31 and is connected by a splined shaft to the gear unit 23 mounted on the end of the shaft supporting the rear roller for the conveyor. It will thus be observed that the drive connection between the gear units 50 and 53 permits raising and lowering movement of the conveyor frame 21.

An idler wheel 52 mounted upon a swingable bracket bears against the chain or belt 48 to keep it reasonably tight. The transfer drum 47 is provided for the purpose of lifting one bag at a time from the conveyor and for feeding it to the handle attaching section 18 of the machine. As shown more clearly in the views of Figs. 7 and 9, the drum 47 is provided with an aperture 55 and which is connected by a pipe 56 to the hollow shaft 57, an opening 58 providing communication between the hollow shaft and the pipe 56. The shaft 57 is sealed at one end while the opposite end is connected through a valve 59 and pipe or hose 60 to the inlet of the suction pump 34. As illustrated more clearly in the fragmentary detail view of Fig. 11, the valve 59 consists of a cylindrical cap surrounding the end of the hollow shaft 57, a narrow slit 61 extending axially of the shaft 57 being provided through the cap 59 in communication with the pipe 60. The shaft 57 is provided with an arcuate slot 62 in radial alignment with slit 61, the slot 62 extending through an angle of approximately 90 degrees. By operation of the valve described, suction is applied at the aperture 55 in approximately the position of the drum 47 as shown in Fig. 7. The valve is closed and suction cut off upon rotation of the drum 47 through an angle of substantially 90 degrees in a direction indicated by the arrow.

As previously mentioned, the paper bags 24 are carried by the conveyor belt 22 toward the transfer drum 47. As illustrated more clearly in the view of Fig. 7, a rod 64 is mounted transversely of the conveyor between the trough side walls 20 and supports a plate 65 which depends therefrom. Mounted on the shaft 49 previously described is a cam 66 which, upon rotation of the shaft 49, strikes against the lower end of the plate 65 to swing the latter in the clockwise direction as viewed in Fig. 7 thereby pushing the lower ends of the bags back against the direction of travel of the upper surface of the conveyor belt 22. This causes the upper ends of the bags to rock about the rod 64 and more positively to engage with the surface of the drum 47. The rod 64 as well as the shaft 49 are suitably journaled within a pair of upright members 67 secured at their lower ends to the frame members 21.

The conveyor frame 21 is so adjusted as to height, depending upon the length of the bags 24, that the upper ends of the bags extend slightly above the axis of the drum 47. In the operation of the machine, suction will be applied at the aperture 55 shortly before the leading edge of the aperture reaches the uppermost end of the next adjacent bag 24. The bag will thereupon be held against the drum and will be carried upwardly thereby and fed into the handle attaching section of the machine. A pair of spaced apart belts 68 extend around the drum 47 and around the lower one of a pair of superposed parallel rollers 69. A roller 71 is mounted between

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the forwardly extending arms 72 of the frame and a pair of belts 73 extend between the roll 71 and the uppermost of the rollers 69. The belts 73 are aligned with the belts 68 and the lower runs thereof engage the upper runs of the belts 68 considerably in advance of the point where the upper runs of the belts 68 leave the drum 47. As the bag is picked up by the drum 47, it is carried between the adjacent runs of the belts 68 and 73; and, as suction is cut off when the aperture reaches the position above the drum axis, the bag is carried along in a straight line and passed between the superposed rollers 69.

The strap feeding mechanism of the machine will now be described. A supply roll 75 of paper strap may be mounted at any convenient point such as within the cradle 76 attached to the sub-frame 26 of the conveyor section. From the roll 75, the strap may be lead toward the adjacent frame upright 31 and upwardly therealong as indicated at 77 in Fig. 9. The strap 77 passes over the pulley 78 at the top of the upright 31 from whence it passes over the direction changing pulley 79. From the pulley 79, the strap 77 passes through the friction block 81 and over the pulley 82. The pulley 82 is of a width substantially equal to the width of the strap 77 and depends between the flanges of a second pulley or anvil roller 83 mounted on shaft 84.

A pan 85 for holding a supply of adhesive is suitably mounted between the frame uprights 31. Rotatably mounted within the pan 85 is a transfer wheel 86 for transferring adhesive to the sector wheel 87, the sector wheel being fixedly mounted upon shaft 88. The sector wheel 87 is provided with a pair of arcuate outer surfaces 89 and 90 separated by a notch 91, the surfaces 89 and 90 being adapted for picking up a layer of adhesive from the transfer wheel 86 and for transferring such adhesive to the surfaces of the segments 91 and 92 respectively of the wheel 93. The wheel 93 is mounted upon shaft 94 suitably journaled at its opposite ends within a pair of frame members 95. The shafts 88, 94 and 84 are all geared together at their outer ends by cooperatively meshed gears 96 and are driven through a chain 97 from the shaft of the uppermost of the rollers 69. The peripheral velocities of the sector 87, wheel 93, and pulley 83 are the same.

The strap 77 passes around the pulley 82 and between the pulley or anvil roller 83 and the wheel 93 and is directed downwardly therefrom through the guide 100 suitably mounted upon transverse supporting member 101. The wheel 93 is provided with a knife 102 secured within a radial slot, the knife edge projecting slightly beyond the periphery of the wheel 93 so that, with each revolution of the wheel, a measured length 106 of strap is severed from the continuous length 77. Attention is directed to the fact that the knife 102 is arranged between the wheel segments 91 and 92 and coincides with the notch 91 in the sector 87. Furthermore, the segments 91 and 92 are divided from the remainder of the periphery of wheel 93 by notches 103 and 104 respectively, the arcuate length of the segments 91 and 92 corresponding accurately to the length of the arcuate surfaces 89 and 90 of the sector wheel 87. Upon rotation of the sector wheel and wheel 93, adhesive is transferred from the arcuate surface 89 to the segment 91 and from the surface 90 to the surface of the segment 92. The notches 103 and 104 preclude spreading of adhesive over the remaining peripheral surface of the wheel 93. It will be obvious that, upon rotation of the wheel

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93, the opposite end portions of each severed length of strap will be coated with adhesive. Referring more particularly to the detail sectional view of Fig. 8, it will be observed that the guide 100 consists of a metal member rolled over along its opposite edges providing relatively short flanges 107 for retaining the strap length 106 therebetween. The rear surface of the guide 100 is provided with an opening 108 throughout substantially the full length thereof to preclude accumulation of adhesive thereupon which might interfere with free sliding movement of the strap through the guide. The edges of the strap keep the edge channels reasonably polished through frictional engagement.

In order to insure proper feeding of the measured strap lengths through the guide 100, the knife 102 in wheel 93 is slightly narrower than the strap so that the strap is not completely severed thereby. A slight pull exerted on the strap section 106 by the arm or flail 113, to be described, is sufficient to tear the section 106 free from the remainder.

The handle strap 106 is fed downwardly by the guide 100 in a direction perpendicular to the plane of the bag fed theretoward between the belts 68 and 73 and centered with respect thereto. The strap handle passes through the opening 110 in the plate 111 extending between the lower ones of the rollers 69 and 44 and mounted upon the opposite frame members 72.

Means are provided for folding the strap handle 106 in the center thereof in timed relation with respect to the oncoming bag and which means comprises a relatively thin arm or flail 113 mounted upon the end of a shaft 114 and rotatable in a horizontal plane coinciding with the plane of engagement of the superposed rollers 44. Mounted upon the lower end of the shaft 114 is a bevel gear 115 and which is meshed by a pinion mounted upon the end of a drive shaft 116 extending to the opposite side of the machine frame where it is connected by suitable chain 117 to the driven shaft 42 previously described. A guard or housing 119 is provided for the flail.

The flail is of a length so that, when it is in a position parallel with the rollers 44 and passing therebetween, it extends somewhat beyond the center thereof. The path of travel of the end of the flail is indicated by the dotted line 120 in Fig. 10.

Referring now to the fragmentary views of Figs. 12 to 14 inclusive, the operation of the flail 113 will be more fully described. In Fig. 12, the handle strap 106 is shown moving downwardly from the guide 100 and through the opening 110 ahead of the rollers 44. The flail 113 is shown moving toward the handle strap but not yet in engagement therewith. The downward movement of the handle strap 106 is so timed with the rate of rotation of the flail 113 that the flail will engage with the handle strap 106 substantially at the center thereof and sweep it between the rollers 44 as shown in Fig. 13. At this instant, the next bag 121 is fed forwardly from between the rollers 69, the forward end of the bag 121 being spaced a predetermined distance behind the flail and between the ends of the strap handle 106. This distance will, ordinarily, be about one-half the length of the doubled handle strap. It might here be mentioned that the rollers 44 are of a compressible material, such as rubber, as well as the rollers 69 and 39. As soon as the flail carries the doubled strap handle between the rollers 44, the strap handle will be propelled for-

wardly in a straight line and be unhooked from the end of the flail. The rate of speed of the rollers 69 is, of course, the same as that of the rollers 44; and, as the bag 121 is pushed forwardly between the rollers 44, the opposite ends of the strap handle 106 will be compressed with their adhesively coated surfaces against the opposite side walls of the bag 121 as illustrated in Fig. 14. It should be noted that the extent of overlap of the handle strap 106 over the bag end is somewhat greater than the length of the end portions which have been coated with adhesive as a safeguard against any adhesive squeezeing past the upper end of the bag and which would result in the bonding together of the bag walls or the two sides of the strap handle, or both.

After leaving the rollers 44, the bag 121 with the handle attached thereto is passed between the last pair of compression rollers 39 and is then fed out upon a wide continuous belt 125 of the adhesive setting section 19 shown in Fig. 6. The belt 125 is trained around the relatively large diameter drums 126, 127 and 128. From the drum 128, the belt 125 extends forwardly to the roller 129 from whence it is returned over rollers 130, 131, 132 and 133 to a point adjacent the discharge rollers 39 of the handle attaching section 18. A second belt 136 trained over the driven roller 137 extends around the drums 126, 127 and 128 in a superposed relation with respect to the belt 125. The roller is driven by belt 134 from the jack shaft 36. The bags with handles freshly attached and discharged onto the apron of the belt 125 ahead of the roller 137 are carried in a relatively tightly compressed relation between the belts 125 and 136 throughout the extent of their common path of travel. Emerging from between the belts 125 and 126, the bags are deposited upon the collector rack 140 from which they may be periodically removed and packaged.

It will be obvious that the strap measuring and feeding wheel 93, flail 113 and the transfer drum 47 all rotate at exactly the same speed and in a properly phased relationship so that the sequence steps will take place in the manner described.

The invention has been described with reference to a machine as adapted for attaching handles onto bags previously manufactured by a remote bag machine. It will be obvious that the handle attaching section 18 may be mounted directly adjacent a conventional bag machine and driven therefrom in proper timed relationship so that handles could be attached to bags as they emerge from the bag machine. In some bag machines presently in use, the bags are discharged bottom end first so that it would be necessary to provide means for turning the bags end for end prior to feeding them between the rollers 69 of the bag handle attaching section. Any suitable bag inverting mechanism could be supplied by any mechanic skilled in the art. In such a modification of the present invention, the conveyor section 17 and including the transfer drum 17 of the handle attaching section 18 would be dispensed with.

It is also obvious that the specific details of the adhesive setting section 19 are also relatively unimportant and any equivalent means may be provided for simply applying slight pressure to the freshly assembled bags and handles until the adhesive has set sufficiently to permit handling and packaging thereof.

With particular regard to the details of the handle attaching section 18, it will be further apparent to those skilled in the art that many

variations may be made for carrying out the method of the present invention. It is contemplated, therefore, in the appended claims to cover all such variations and modifications both as to apparatus and method as fall within the true spirit and scope of the invention.

What I claim as my invention is:

1. In a machine of the class described, a pair of parallel cooperating compression rollers, means for driving said rollers, means for feeding a flat, folded bag open end first flatwise along the plane extending between said rollers, means for feeding a handle strap at right angles to said plane immediately ahead of said rollers and across the path of travel of said bag, means for applying a coating of adhesive to the opposite end portions of said strap and on the side thereof facing said bag and on the opposite side thereof with respect to said rollers, an arm rotatably mounted at one end of said rollers for movement in said plane and about an axis at right angles to the axis of said rollers, means for driving said arm in timed relation with respect to said strap feeding means and said bag feeding means whereby said arm engages the mid-point of said strap and forces it between said rollers, said bag being fed by said bag feeding means between said end portions of said strap whereby said end portions of said strap are compressed against the opposite outer side walls of said bag as said bag and said strap are carried between said rollers.

2. In a machine of the class described, a pair of parallel cooperating compression rollers, means for driving said rollers, means for feeding a flat, folded paper bag open end first flatwise along the plane extending between said rollers, means for feeding a handle strap at right angles to said plane in front of said rollers and adjacent thereto, an arm mounted at one end of said rollers for rotation within said plane for engaging the mid-point of said strap and forcing said strap between said rollers, said bag being fed by said bag feeding means between the end portions of said strap, and means for attaching said end portions of said strap to the opposite outer side walls of said bag upon passage of the latter between said rollers.

3. In a machine of the class described, a pair of cooperating compression rollers, means for driving said rollers, means for feeding a paper bag along the plane extending between said rollers, means for feeding a length of strap at right angles to said plane ahead of said rollers, means mounted at one end of said rollers for engaging a mid-point of said strap and for carrying said strap in an endwise doubled relation between said rollers, said bag being fed by said bag feeding means between the end portions of said strap and means for attaching said end portions of said strap to the opposite outer side walls of said bag.

4. A machine for attaching strap handles to bags comprising means for feeding a continuous length of strap, means for applying adhesive to spaced portions of said strap, means for severing a short length from said strap having adhesive applied to opposite ends thereof, means for feeding a bag along a predetermined path of travel, means for folding said strap lengthwise with the adhesive coated end surfaces facing said path of travel, and means for pressing said adhesive coated surfaces of said strap length against the surface of said bag as it is fed along said path of travel at a substantially constant rate of speed.

5. A machine for attaching strap handles to

bags comprising means for feeding a continuous length of strap, means for applying adhesive to spaced portions of said strap, means for severing a short length from said strap having adhesive applied to the opposite ends thereof, means for doubling said short length of strap endwise with the adhesive coated portions facing each other, means for feeding a bag between the ends of said lengths of strap as it is being doubled, means for pressing said strap end portions against the opposite sides of said bag.

6. A machine for attaching strap handles to bags comprising means for coating the outer surfaces of the opposite end portions of a length of strap with adhesive, means for feeding a folded bag, means for feeding said strap into the path of travel of said bag, means for folding said strap length transversely intermediate its ends and doubling said strap endwise slightly in advance of the adjacent end of the approaching bag, and means for pressing the opposite end portions of said strap against the opposite sides of the bag end.

7. A machine for attaching strap handles to bags comprising means for feeding a length of strap, means for applying adhesive to the outer surfaces of the opposite end portions of said strap, means for folding said strap length transversely intermediate its ends and doubling said strap endwise upon itself with the adhesive coated surfaces facing each other, means for feeding a bag between the doubled end portions of said strap, and means for pressing said end portions against corresponding outer surface portions of said bag.

8. The method of attaching a strap handle to a bag which comprises the steps of applying a coating of adhesive to spaced portions of a continuous length of strap, severing said strap at the center of each of said adhesively coated portions, folding said strap at the center and lengthwise upon itself with said adhesively coated surfaces facing each other, inserting a bag endwise and with the open end first between the end portions of said strap handle simultaneously with the folding thereof and applying pressure between the outer surfaces of said strap handle and maintaining said pressure until said adhesive has set.

9. The method of attaching a strap handle to a bag which comprises applying a coating of adhesive to the surface on one side of the opposite end portions of a length of strap, forcing the central portion of said strap between a pair of superposed parallel compression rollers with the uncoated side of said strap facing said rollers thereby doubling said strap endwise upon itself, feeding a bag between the adjacent end portions of said strap in parallel longitudinal alignment with said strap end portions as it is drawn between said rollers and passing said bag between said rollers whereby the opposite end portions of said strap are pressed against the opposite outer sides of said bag in longitudinal alignment with said bag.

10. The method of attaching a strap handle to a bag which comprises feeding a bag open end first with continuous movement along a predetermined plane extending between a pair of co-operating rotating compression rollers, applying a coating of adhesive to the opposite end portions of a length of strap and on one side thereof, feeding said strap across the path of travel of said bag perpendicularly to the plane thereof and ahead of said rollers with the adhesive

coated surfaces facing said bag, arresting the feeding movement of said strap as the mid-point thereof reaches a position of alignment with the plane of said bag and forcing the mid-point of said strap between said rollers whereby said strap is doubled endwise upon itself, feeding the open end of said bag between said adhesively coated end portions of said strap as said strap is drawn between said rollers and passing said bag between said rollers whereby said end portions of said strap are pressed against the opposite outer surfaces of said bag end.

11. In a machine of the class described, a conveyor for receiving a plurality of bags in the upright position with the open end up, a transfer drum mounted at one end of said conveyor for rotation about a horizontal axis, said drum having an aperture in the periphery thereof, a suction pump, a hollow shaft rotatably supporting said drum, means providing communication between said aperture and interior of said hollow shaft, a conduit connecting said suction pump to said hollow shaft, valve means on said shaft for controlling the suction applied to said aperture, a pair of parallel cooperating compression rollers, said drum being operative for lifting said bags one at a time from said conveyor into a plane extending between said rollers, means for feeding a handle strap at right angles to said plane in front of said rollers and adjacent thereto, an arm mounted at one end of said rollers for rotation within said plane for engaging the mid-point of said strap and forcing said strap between said rollers, said bag being fed from said drum between the end portions of said strap, means for attaching said end portions of said strap to the opposite outer side walls of said bag upon passage of the latter between said rollers, and common means for driving said drum, said strap feeding means and attaching means.

12. A machine for attaching handles onto elongated containers, means for feeding a container along a predetermined path of travel and with the end of said container extending in a predetermined direction, means for feeding a length of strap toward said path of travel, means arranged adjacent said path of travel for engaging said strap length transversely thereof intermediate its ends for transversely folding the end portions of said strap in the same direction, means interconnecting said container feeder means, strap feeding means and strap folding means whereby said strap end portions are folded transversely in timed overlapping relation with respect to the approaching container, and means for effecting attachment of said strap end portions onto spaced surface portions of said container and in a direction extending longitudinally parallel therewith at right angles to said container end.

13. A machine for attaching strap handles onto containers comprising means for feeding a container along a predetermined path of travel with one end edge thereof extending in a predetermined direction, means for feeding a length of strap toward said path of travel, means for engaging said strap length in the direction transversely thereof intermediate its ends for transversely folding the end portions of said strap in the same direction extending at right angles to said one end edge of said container, means interconnecting said container feeding means, strap feeding means and strap folding means whereby said strap end portions are folded in timed overlapping relation with respect to the end of said container, and means for effecting attachment of

said strap end portions onto spaced apart surface portions of said container intermediate the opposite edges of said container end.

14. A machine for attaching strap handles onto articles comprising means for feeding an article along a predetermined path of travel, means for feeding a length of strap toward said path of travel, means for applying a coating of adhesive onto the opposite end portions of said length of strap and on the same surface thereof while leaving the portion intermediate said end portions free of adhesive, means for engaging said length of strap in a direction transversely thereof intermediate said end portions and for folding the same transversely intermediate its ends whereby said end portions extend parallel to each other in the same direction and with said adhesive coated surface portions facing said path of travel, and means for engaging said end portions of said folded strap length and for pressing the adhesive coated surface portions thereof against spaced surface portions of said article.

15. A machine for attaching strap handles onto articles comprising means for feeding an article along a predetermined path of travel, means for feeding a length of strap toward said path of travel, means for applying a coating of adhesive onto the opposite end portions of said length of strap and on the same outer surface thereof while leaving the portion intermediate said end portions free of adhesive, means for engaging said length of strap in a direction transversely thereof intermediate said end portions and for simultaneously transversely folding said strap and advancing the same in a direction parallel with said path of travel and with said adhesive coated surface portions of said length of strap facing said path of travel, means operatively interconnecting said last mentioned means and said article feeding means whereby said strap length is advanced simultaneously with said article, and means for engaging said end portions of said strap length and for pressing said adhesive coated surface portions against spaced surface portions of said article.

16. A machine for attaching strap handles onto articles comprising means for feeding an article along a predetermined path of travel, means for feeding a length of strap toward said path of travel, means for applying adhesive onto opposite end portions of said length of strap and on the same outer surface thereof, means adapted to engage a midportion of said strap length in a direction transversely thereof for folding said strap transversely intermediate its ends with said adhesive coated end surfaces facing said path of travel, means for advancing said folded strap length in the direction of said path of travel and with said end portions overlapping one end of said article at right angles to the edge of said one end, said last mentioned means engaging and pressing said adhesive coated surface portions of said strap length against spaced apart surface portions of said article.

17. A method for attaching strap handles onto articles comprising feeding an article along a predetermined path of travel and with one end edge of said article extending in a predetermined direction, feeding a length of strap toward said path of travel, applying a coating of adhesive onto the outer surface of opposite end portions

and on the same side of said length of strap, folding said strap end portions in a direction toward and at right angles to said end edge of said article in timed relation to the travel of said article toward said strap length whereby said end portions overlap the end portion of said article, maintaining the intermediate portion of said strap length in predetermined spaced apart relation from said end edge of said article, advancing said folded strap length in the direction of said path of travel of said article, and pressing the end portions of said strap length overlapping the end portion of said article against outer surface portions of said article.

18. A method for attaching strap handles onto articles comprising the steps of feeding an article along a predetermined path of travel and with one end edge of said article extending in a predetermined direction, feeding a length of strap toward said path of travel, applying adhesive onto opposite end portions of said length of strap and on the same outer surface thereof, folding said strap transversely intermediate its ends to bring the end portions thereof relatively together with said adhesive coated surfaces facing said path of travel, overlapping said end portions of said strap length with said end portion of said article and in a direction at right angles to said predetermined direction, and pressing said adhesive coated surface portions of said strap length against spaced apart surface portions of said article as said article is fed along said path of travel.

19. A method of attaching strap handles onto elongated containers comprising the steps of feeding a container along a predetermined path of travel and with said container extending longitudinally in a predetermined direction, feeding a length of paper strap toward said path of travel, folding said strap length transversely intermediate its ends to bring the opposite end portions thereof adjacent each other and in a direction extending parallel with said predetermined direction whereby said end portions overlap the adjacent end portion of said container, and attaching said end portions of said strap length against spaced apart surface portions of said container and longitudinally parallel therewith as said container is fed along said path of travel and with the intermediate portion of said length of strap extending beyond said end portion of said container.

FRANK A. GRANT.

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