

Nov. 21, 1939.

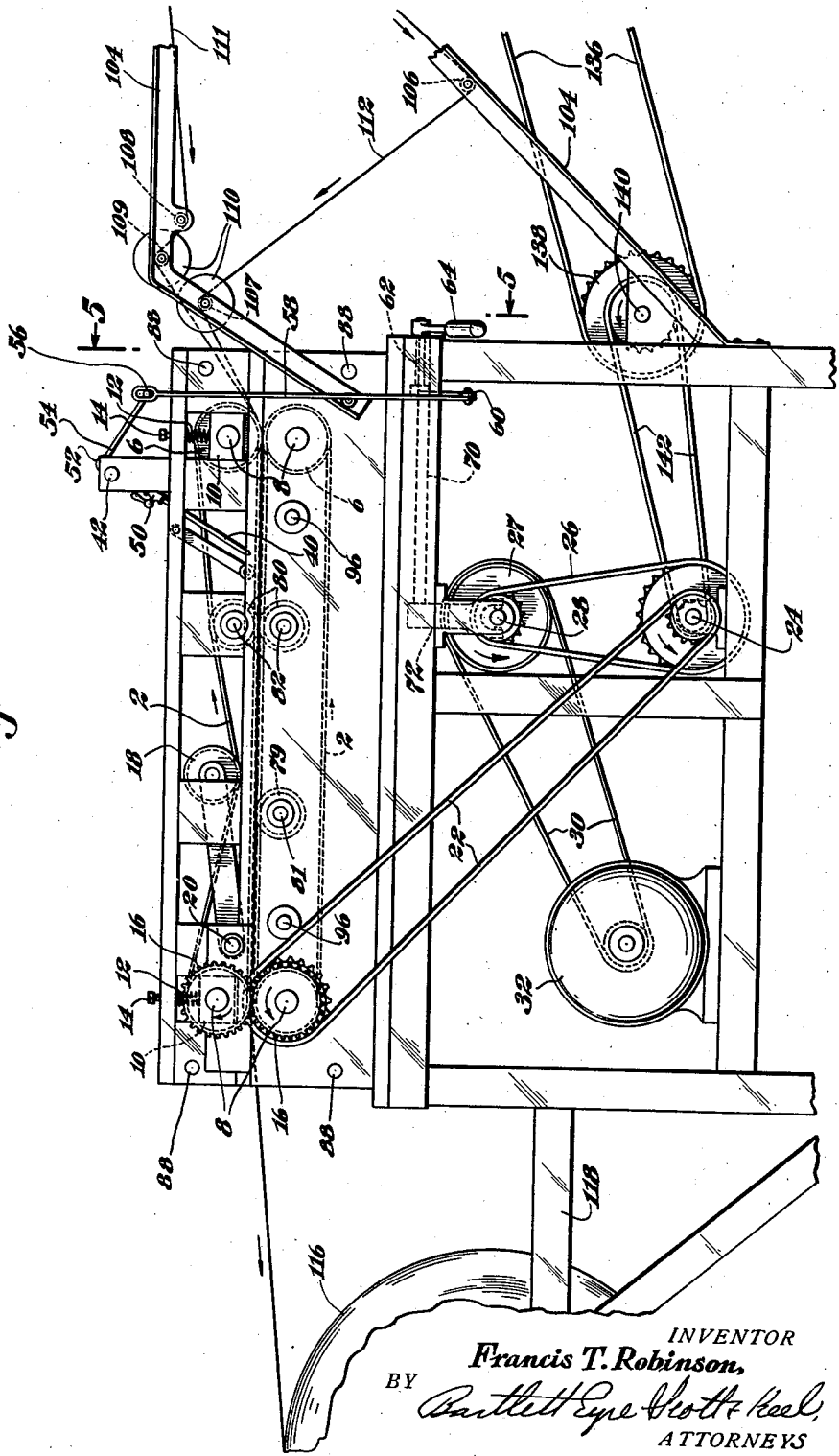
F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 1

Fig. 1



INVENTOR
Francis T. Robinson,
BY *Buttett, Eyrle, Hoelt & Keel,*
ATTORNEYS

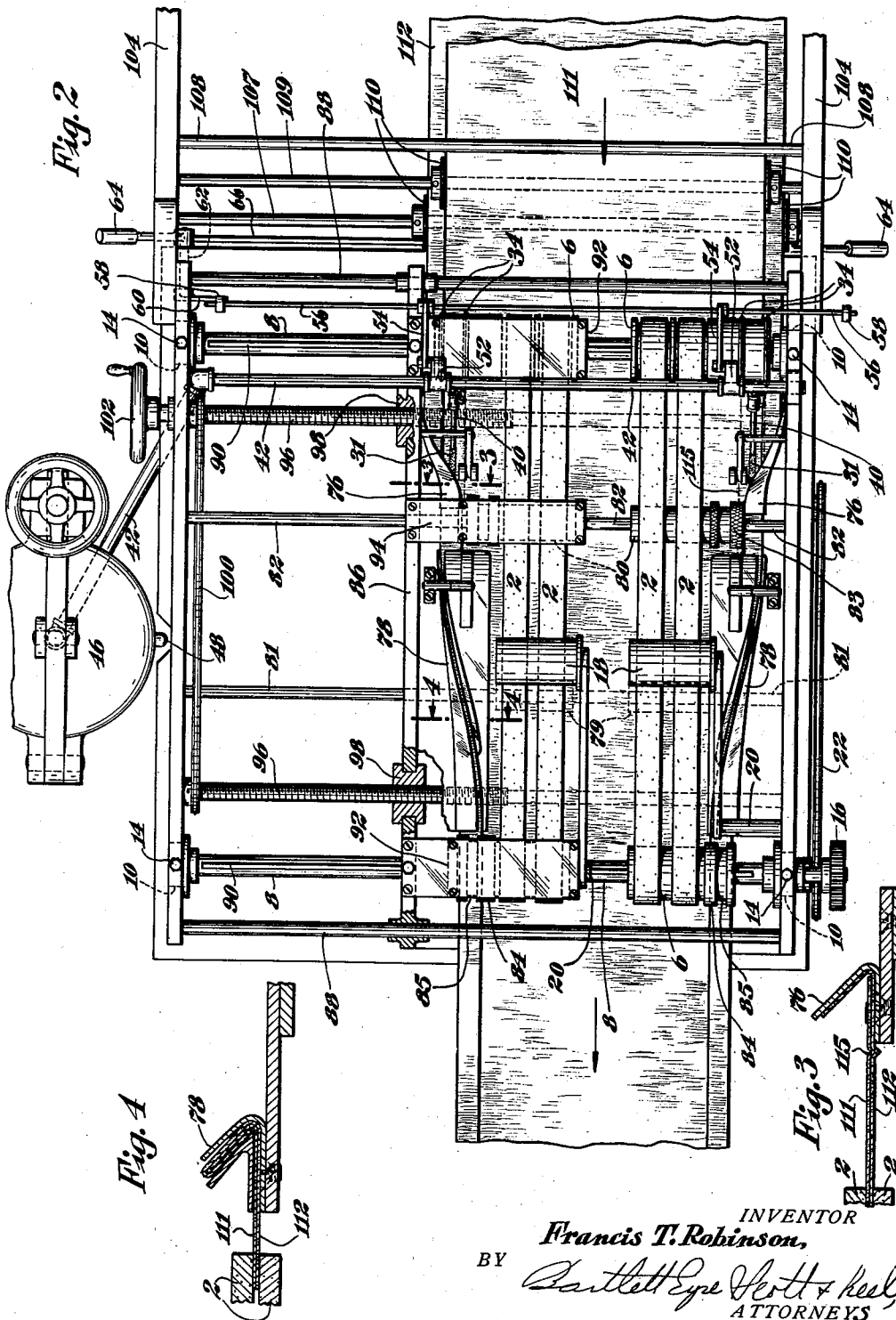
Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 2



INVENTOR
Francis T. Robinson,
BY *Bartlett Ege Scott & Keel*
ATTORNEYS

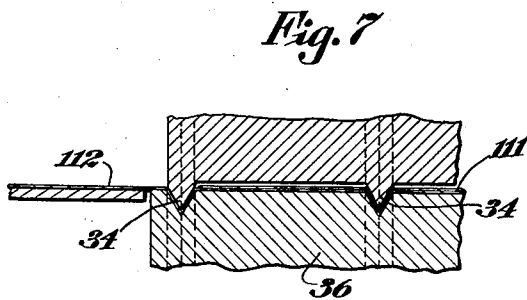
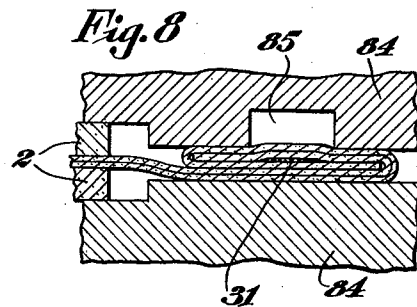
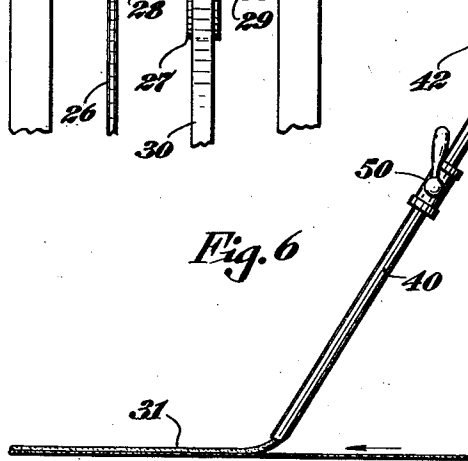
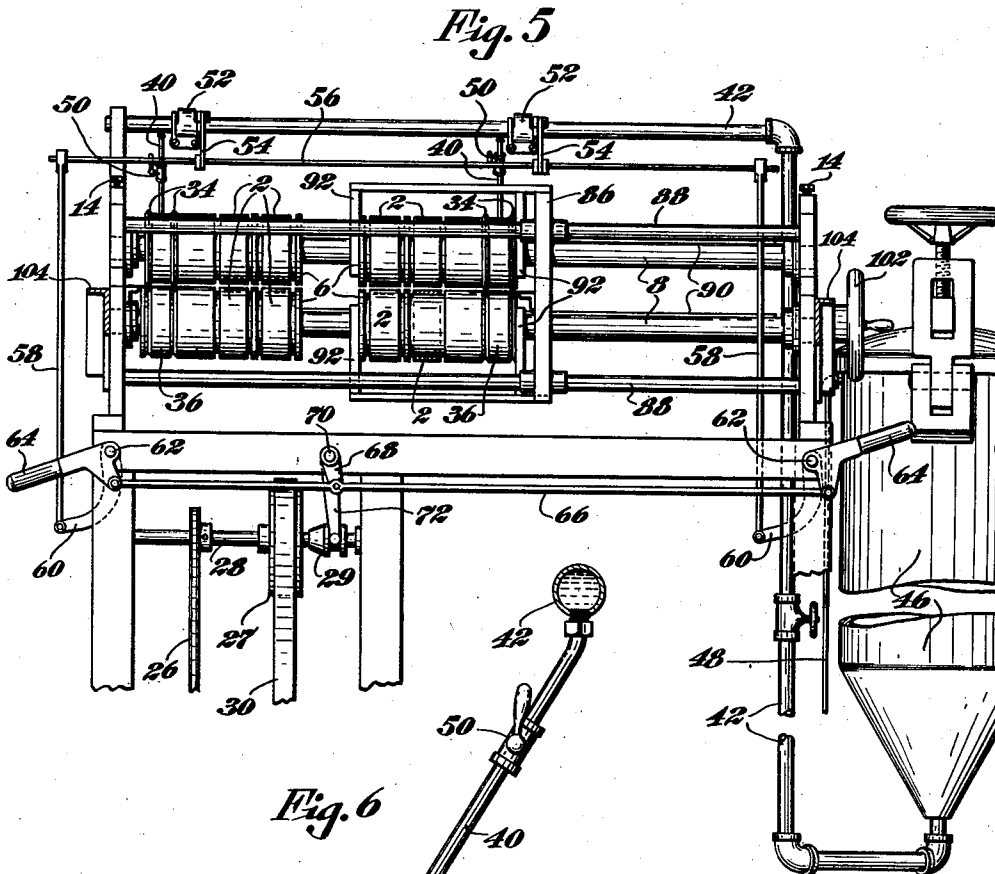
Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 3



INVENTOR
Francis T. Robinson,
BY *Antlett E. Perkins & Reed*
ATTORNEYS

Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 4

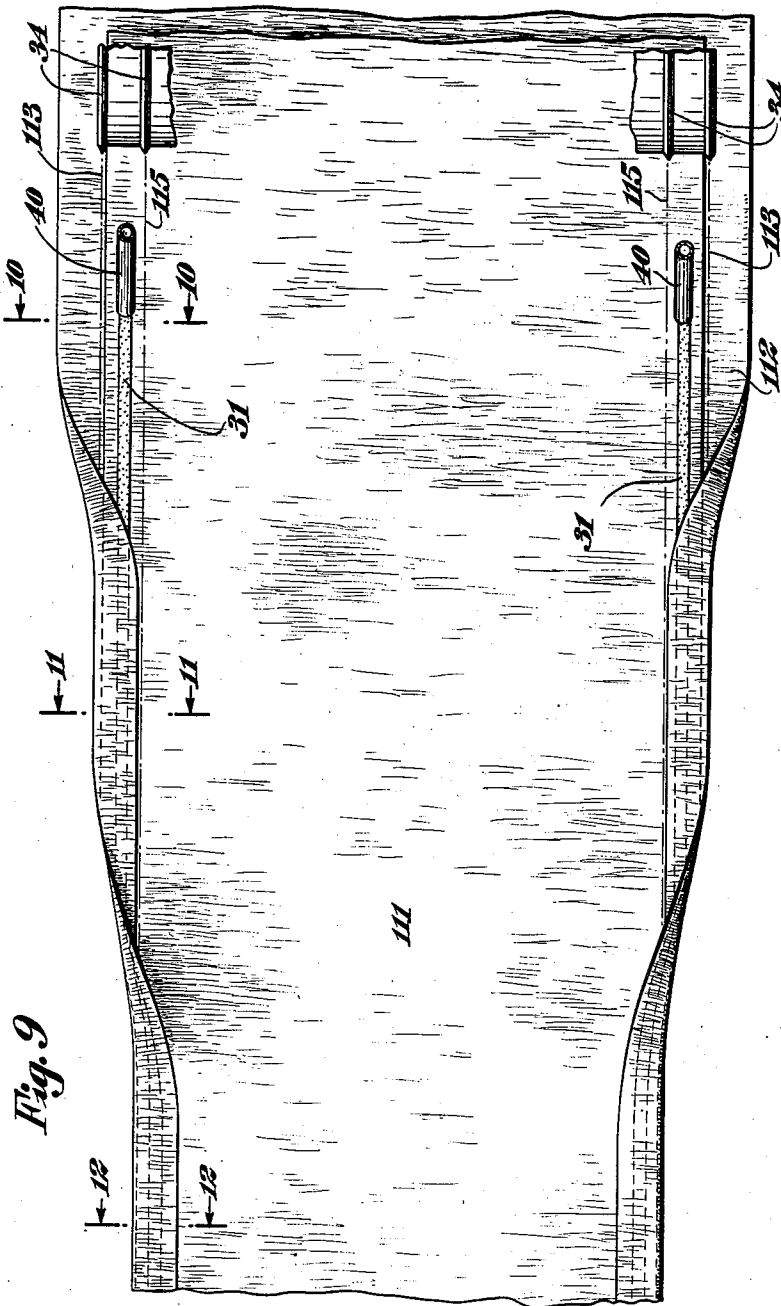


Fig. 9

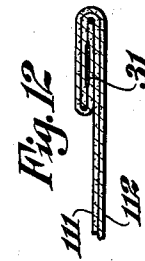


Fig. 12

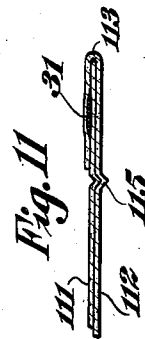


Fig. 11

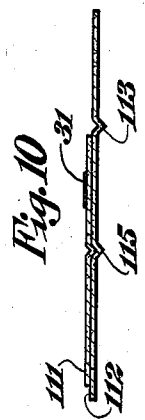


Fig. 10

INVENTOR
Francis T. Robinson,
BY *Bartlett E. Scott & Keel,*
ATTORNEYS

Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 5

Fig. 13

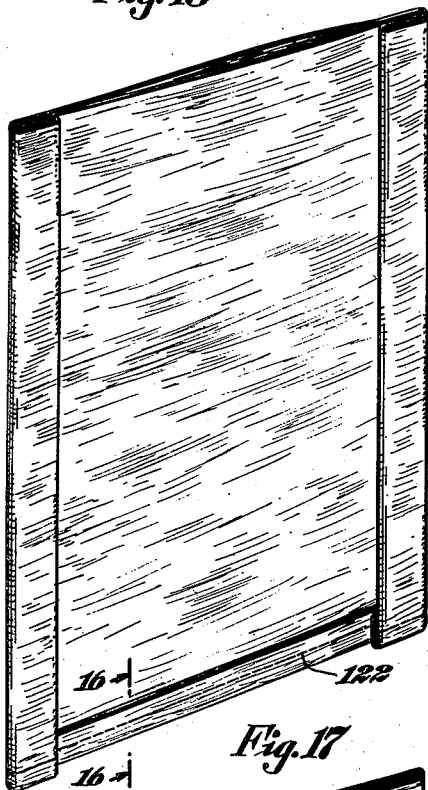


Fig. 17

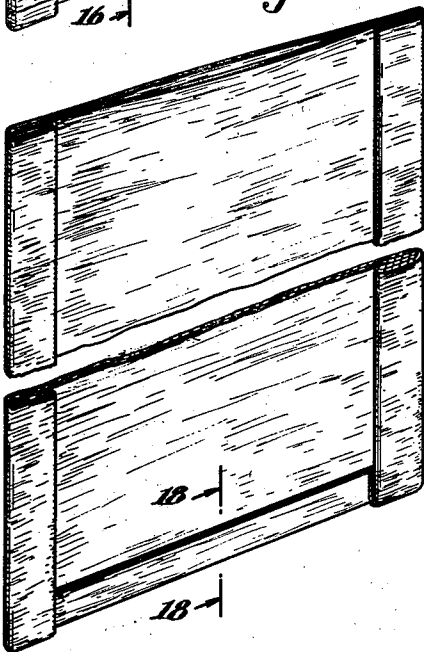


Fig. 14

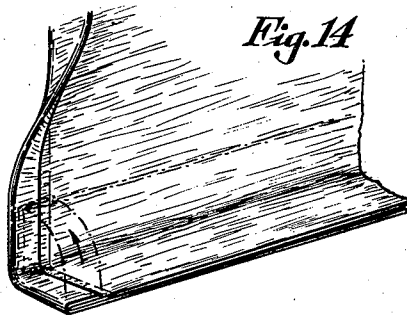


Fig. 15

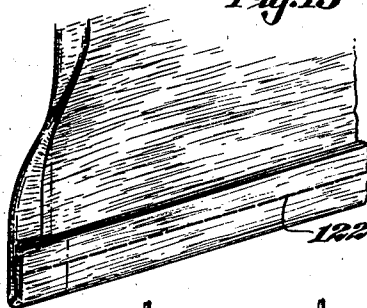


Fig. 16



Fig. 18

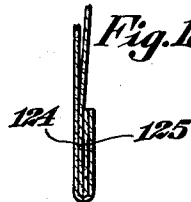
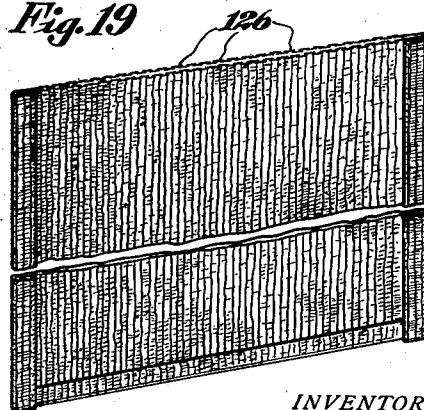


Fig. 19



INVENTOR

Francis T. Robinson,

BY

Bartlett Eyrle Scott-Kel,
ATTORNEYS

Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 6

Fig. 20

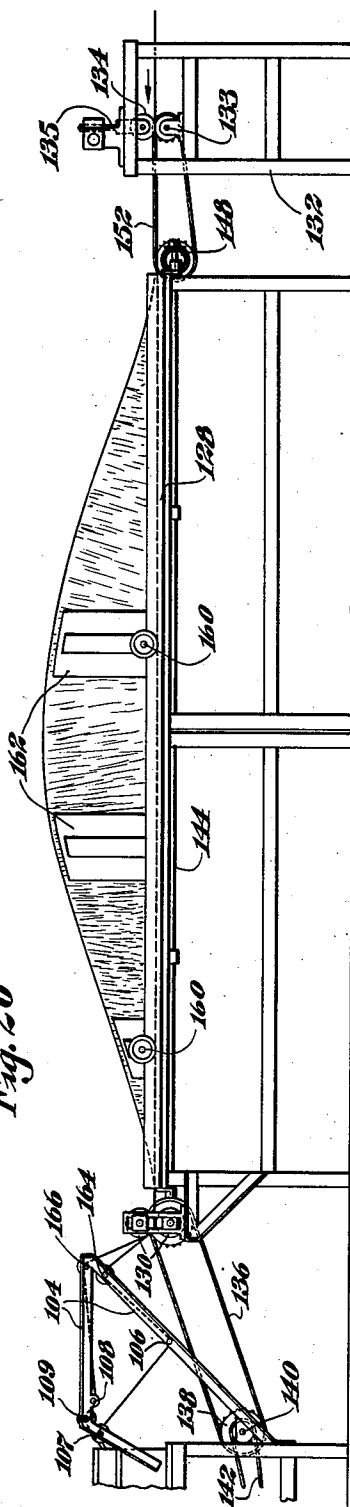
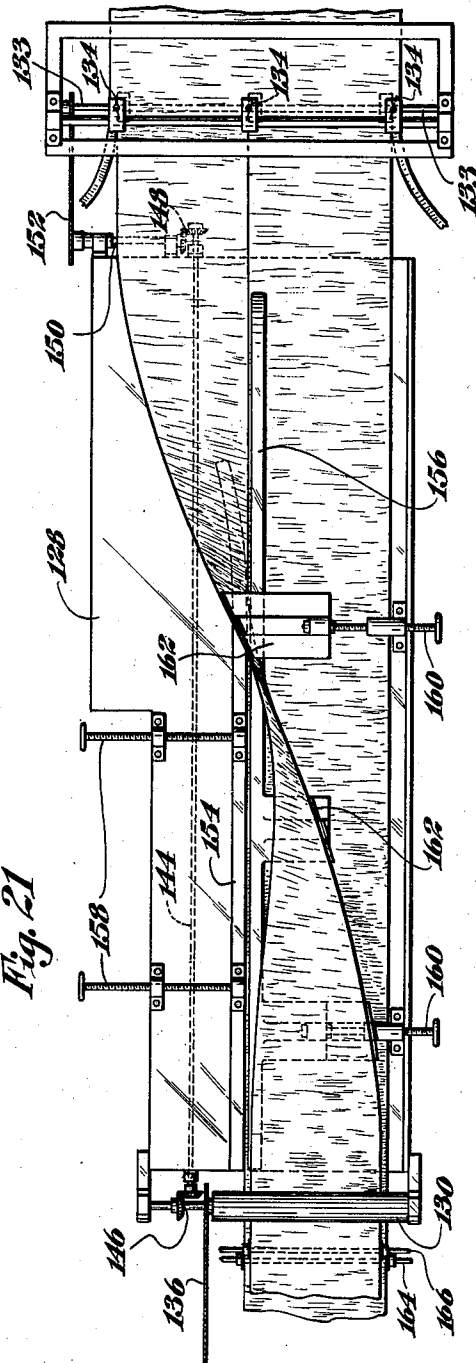


Fig. 21



INVENTOR
Francis T. Robinson,
BY *Bartlett Ege Smith & Red,*
ATTORNEYS

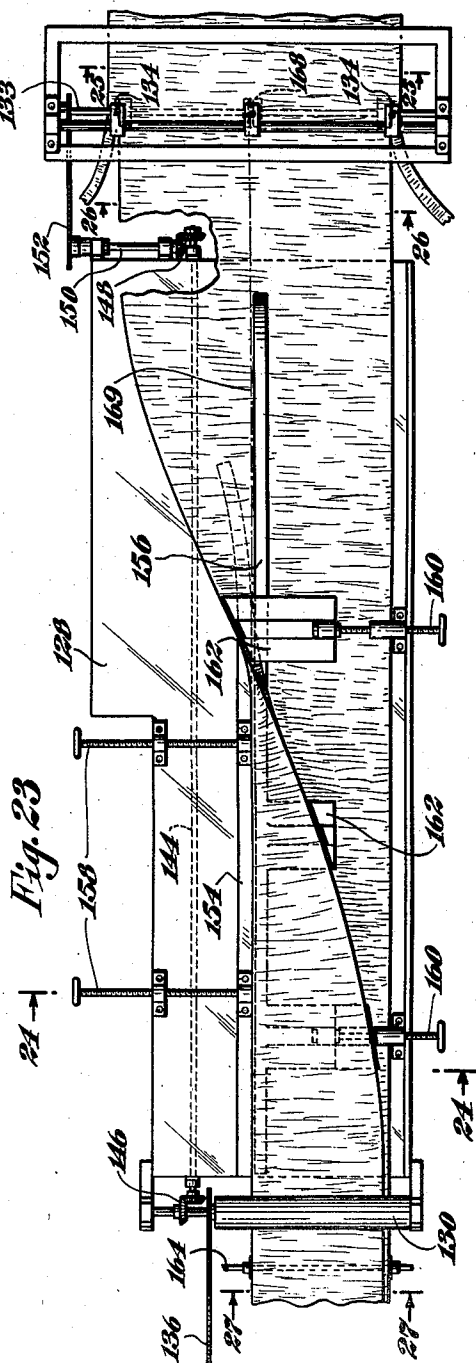
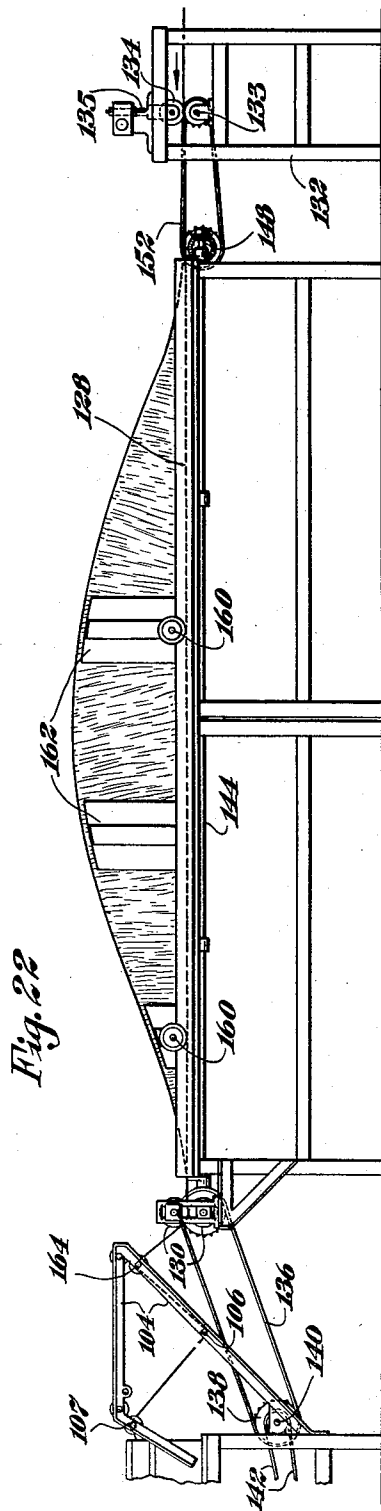
Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 7



INVENTOR
Francis T. Robinson,
BY *Bartlett Ege Scott Keel*
ATTORNEYS

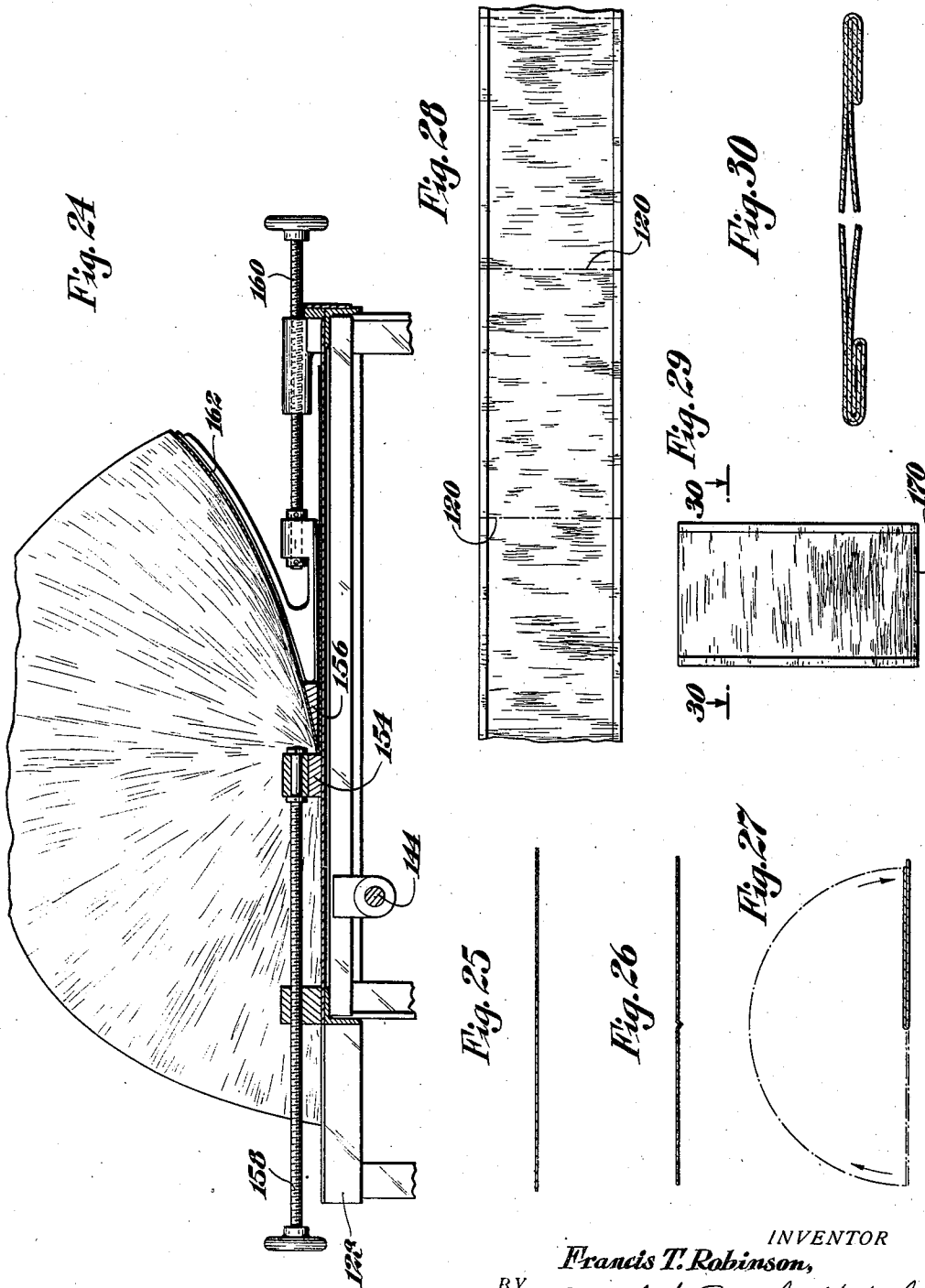
Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 8



INVENTOR
Francis T. Robinson,
BY *Bartlett Egan Scott & Keel,*
ATTORNEYS

Nov. 21, 1939.

F. T. ROBINSON

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Original Filed June 23, 1933 9 Sheets-Sheet 9

Fig. 31

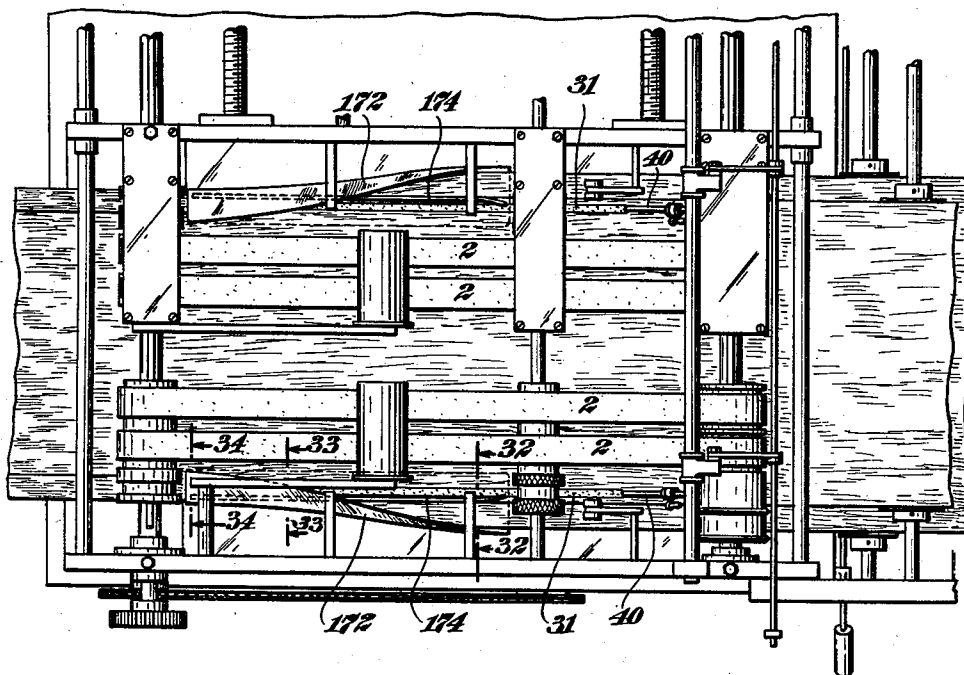


Fig. 32

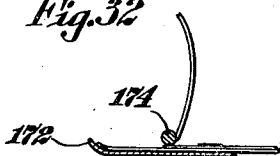


Fig. 33



Fig. 34

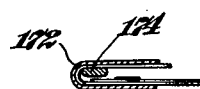


Fig. 35

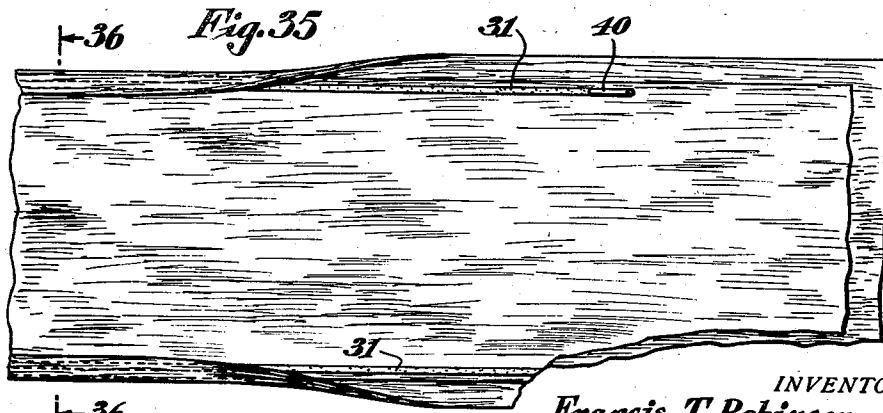
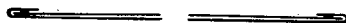


Fig. 36

36



INVENTOR

Francis T. Robinson,

BY

Bartlett Eyr. Scott & Keel,
ATTORNEYS

UNITED STATES PATENT OFFICE

2,180,431

METHOD OF AND MACHINE FOR PRODUCING CRINKLED PAPER LINED BAGS

Francis T. Robinson, Rockville Centre, N. Y., assignor to Arkell Safety Bag Company, New York, N. Y., a corporation of New York

Application June 23, 1933, Serial No. 677,238

Renewed April 26, 1939

11 Claims. (Cl. 93-8)

The present invention relates to the manufacture of crinkled paper lined bags of textile fabric and crinkled paper linings for bags, barrels and other containers, and has for its object to provide novel and improved articles of the character indicated, and methods and machines for use in the manufacture thereof.

The several features of the invention, whereby the above-mentioned and other objects may be attained, will be readily understood from the following description and accompanying drawings, in which:

Figure 1 is a side elevation of a portion of a machine embodying certain features of the invention in their preferred form;

Fig. 2 is a plan view of the same with certain parts shown in section;

Figs. 3 and 4 are detail sectional views, on an enlarged scale, taken respectively on the lines 3-3 and 4-4 of Fig. 2;

Fig. 5 is a sectional end elevation of a portion of the machine taken substantially on the line 5-5 of Fig. 1;

Fig. 6 is a side elevation, partly in section, of a glue applying device, shown applying a line of glue to a lining blank;

Fig. 7 is a detail sectional view of portions of paper scoring rolls, hereinafter described;

Fig. 8 is a similar view of portions of pressure applying rolls operating on a lining blank;

Fig. 9 is a plan view, partly diagrammatical, illustrating certain steps in the method of forming linings;

Figs. 10, 11 and 12 are detail sectional views on an enlarged scale, respectively taken on the lines 10-10, 11-11 and 12-12 of Fig. 9;

Fig. 13 is a view in perspective of a lining made in accordance with my improved method;

Figs. 14 and 15 are corresponding views of the lower portion of the lining, showing one method of closing the bottom of the lining;

Fig. 16 is a detail sectional view, on an enlarged scale, taken on the line 16-16 of Fig. 13;

Fig. 17 is a view similar to Fig. 13 showing a modified form of lining;

Fig. 18 is a detail sectional view taken on the line 18-18 of Fig. 17;

Fig. 19 is a view in perspective of another modified form of lining;

Fig. 20 is a side elevation of an attachment for the rear portion of the machine, said attachment being particularly adapted for use in making linings of two-piece construction;

Fig. 21 is a plan view of the same;

Figs. 22 and 23 are views similar to Figs. 20

and 21, illustrating the manner of use of the attachment in forming linings of a single piece;

Fig. 24 is a sectional view on an enlarged scale taken on the line 24-24 of Fig. 23;

Figs. 25, 26 and 27 are sectional views of the crinkled paper taken substantially on the lines 25-25, 26-26 and 27-27 of Fig. 23;

Fig. 28 is a plan view of a crinkled paper tube formed by my improved machine from which the bag tubes may be severed in accordance with my improved method;

Fig. 29 is a side view of one of the bag tubes;

Fig. 30 is a sectional view on an enlarged scale taken on the line 30-30 of Fig. 29;

Fig. 31 is a plan view corresponding to a portion of Fig. 2 showing the devices that may be employed in forming bag tubes having the crinkles in the paper running longitudinally of the tubes;

Figs. 32, 33 and 34 are detail sectional views respectively taken on the lines 32-32, 33-33 and 34-34 of Fig. 31;

Fig. 35 is a detail plan view of the longitudinally crinkled strips as operated upon by the devices illustrated in Fig. 31;

Fig. 36 is a diagrammatical sectional view, taken on the line 36-36 of Fig. 35.

The machine illustrated in Figs. 1 to 7, inclusive, is particularly adapted for use in forming the bag lining illustrated in Fig. 13 of the drawings.

This machine is provided with two sets of upper and lower feed belts 2 which pass over pulleys or rolls 6 that are secured on shafts 8, the adjacent stretches of the belts being arranged horizontally one upon the other. The lower shafts 8 have their ends journaled in bearings in the frame of the machine. The upper shafts 8 have their ends journaled in bearing blocks 10 which are mounted to slide vertically in suitable guideways in the machine frame so as to cause the upper belts by gravity to be pressed downwardly toward the lower belts. The upper belts are still further pressed downwardly upon the lower belts by means of coil springs 12 interposed between the upper ends of the blocks 10 and adjusting screws or bolts 14. The upper and lower shafts 8 are operatively connected by gears 16 so as to cause the adjacent stretches of the upper and lower belts to travel in the same direction and at the same speed. The upper belts are placed under tension by gravity rollers 18 that engage the upper stretches of these belts, the rollers being mounted on arms that are pivotally mounted on pins 20.

The two sets of feed belts are driven by a belt or sprocket chain 22 which passes over a sprocket

wheel on the lower forward shaft 8, and a sprocket wheel on a drive shaft 24 in the base of the machine. This shaft 24 is driven through a belt or sprocket chain 26 which passes over a sprocket wheel on the shaft 24 and a sprocket wheel on a shaft 28. A pulley 27 is mounted on the shaft 28 and is driven by a belt 30 from the shaft of an electric motor 32, the pulley 27 being adapted to be clutched to shaft 28 by means of a sliding clutch member 29.

The upper one of the rear shafts 8 carries two sets of scoring disks 34 which have beveled edges that are received in correspondingly beveled grooves in rolls 36 carried by the lower one of the rear shafts 8 (Figs. 2, 5 and 7).

As the material passes between the feed belts 2, lines of glue 31 are applied to the top surface thereof adjacent its longitudinal edges by means of nozzles on the lower ends of pipes 40 which lead from a supply pipe 42 that in turn leads from the lower end of a glue supply tank 46. The glue in the tank may be forced up through the pipe 42 by air pressure supplied through a pipe 48 in communication with the upper end of the tank. Each of the nozzle pipes 40 is provided with a hand operated pet cock 50 so that the glue to either pipe may be shut off. The pipe 42 is provided with valves 52 arranged at the further side of the nozzle pipes 40 and adapted to be opened and closed by means of arms 54 that are connected by a rod 56, extending across the rear of the machine, with links 58 that have their lower ends pivotally connected with arms 60 secured to pivot shafts 62. These shafts 62 are adapted to be turned to open and close the valves 52 simultaneously by means of hand levers 64 secured thereon, said levers being arranged at opposite sides of the rear of the machine so that one or the other of them may be conveniently operated by the operator and the hand levers being connected to move together by means of a link 66.

Upon operating either one of these hand levers 64 to open the valves 52, the feed belts 2 are thrown into operation and upon operating them to close the valves 52 the feed belts are brought to rest. To provide for this, the link 66 is connected through an arm 68, a pivot shaft 70 and an arm 72 with the clutch member 29 on the shaft 28.

The machine is provided with folding devices 76 adjacent the nozzles of the glue pipes 40, and with folding devices 78 placed a distance in front thereof. Between the folding devices 76 and 78, upper and lower guide rolls 80 on shafts 82 respectively engage the top side of the lower stretches of the upper feed belts and the under sides of the upper stretches of the lower feed belts. In addition the upper stretches of the lower belts are supported by the rolls 79 mounted on the shaft 81.

The guide rolls 80 have knurled extensions 83 that engage the material as it enters the second folding devices 78.

For the purpose of applying pressure to the folds of the material as they leave the folders 78, pressure rollers 84 are carried by the front upper and lower shafts 8, each of the upper rollers being provided with a clearance groove 85.

The set of material engaging devices above described at each side of the machine are of the same general construction, arrangement and mode of operation as the corresponding parts of the machine of my pending application Ser. No. 589,831, filed January 30, 1932.

In the present machine, means are provided

for adjusting the set of such devices at the further side of the machine, viewing Fig. 2, toward and from the other set. To provide for this, said devices are carried by a frame 86 which is mounted to slide on four rods 88 extending between the side frames of the machine. The folding devices 76 and 78 of the further set are secured to this frame so as to move therewith. The pulleys over which the upper and lower feed belts 2 of the further set pass, the upper and lower pressure rolls 84 on the front shaft 8, and the upper and lower scoring disks or rolls 34 on the rear shaft 8, are all mounted to slide on said shafts 8, these parts being caused to rotate with the shafts by means of a key 90 on each shaft that extends through slots in said parts. These pulleys, rolls and disks on each shaft are secured together and caused to move with the sliding frame 86 by means of bars 92 secured to the frame which extends over the ends of each group of pulleys, rolls and disks. The further set of upper and lower guide rolls 80 are similarly caused to move with the frame 86 through bars which engage the ends of the rolls, the upper bars being secured to the cross member 94. The further one of the tension rolls 18 has the pivot pin 20 for its arm secured to one of the bars 92 so that this tension roll is also carried by the sliding frame 86.

With this construction, the further set of the several work engaging devices may be simultaneously moved toward and from the other set by sliding the frame 86 on the rods 88. To thus slide the frame 86, screw-threaded rods 96 are screw-threaded through blocks 98 secured to the frame, the ends of the rods being journaled in the side frames of the machine. The two screw-threaded rods are connected to turn together by means of a sprocket chain 100 which passes over sprocket wheels secured to the rods. The rods are adapted to be turned by means of a hand wheel 102 secured to one of the rods.

Adjacent the rear end of the machine there are mounted on brackets 104 transverse guide rods 106, 107, 108 and 109. The rods 107 and 109 have guide disks 110 secured thereon, the further disks being adapted to be adjusted longitudinally of the rods.

In setting up the machine to form the bag lining illustrated in Fig. 13 of the drawings, two strips 111 and 112 of crinkled paper may be supplied to the machine from supply rolls, the crinkles in the strips extending transversely thereof. The strip 112 is passed under the guide rod 106 and over the guide rod 107 to the feed belts 2, and the strip 111 is passed beneath the guide rod 108 over the guide rod 109 to the feed belts, these two strips being positioned together in superposed relation between the feed belts. The lower strip 112 is of greater width than the other, and the two strips are centrally positioned so that when they are brought together between the feed belts the longitudinal edges of the lower strip project a distance beyond the longitudinal edges of the upper strip. The lower strip is guided by means of the disks 110 on the guide rod 107 engaging the longitudinal edges of the strip, and the upper strip is guided by the disks 110 on the rod 109 engaging the longitudinal edges of the upper strip. These guide rods serve to smooth out the strips without placing them under material stretching strain.

As the two strips thus arranged pass between the feed belts 2, the scoring disks 34 make lines

113 and 115 of scoring in the material, the lines 113 being in the lower strip adjacent the longitudinal edges of the upper strip, and the score lines 115 being spaced inwardly therefrom.

After the strips pass the scoring devices, the lines of glue 31 are applied to the top surface of the upper strip adjacent the longitudinal edges thereof by means of the nozzles 40. Each line of glue is spaced midway between the line of scoring in the upper strip and the longitudinal edge thereof.

As the strip passes beyond the nozzles, it is acted upon by the folding devices 76 which fold over the projecting edges of the lower strip upon the lines of glue. As the two strips leave these folding devices 76, they enter the folding devices 78 which fold the strip on the inner score lines 115. As the strips pass from the folding devices 76 to the folding devices 78, they are firmly held down by means of the extensions 83 of the rolls 80. As the strips leave the folding devices 78, their folds are firmly pressed together by means of the pressure rolls 84, the clearance grooves 85 allowing pressure to be applied without applying pressure to the lines of glue. When the two strips thus pass through the machine and are secured together to form a tube, the tube may be wound in a roll 116 supported on a bracket 118 at the front of the machine.

It will be apparent that by adjusting the sliding frame 86 by means of the hand wheel 102, by suitably positioning the glue applying nozzles 40 and adjusting the position of the guide disks 110, the machine may be adjusted to form tubes of different widths as desired. The glue supplying means comprising the pipes 40 permits a sufficiently heavy gob-like line of glue to be applied to insure that the glue may thoroughly fill the spaces between the crinkles and thus insure a firm and secure seam being formed.

The machine as above described is adapted to form the tube without placing the transversely crinkled paper under any material strain that would affect the stretchability thereof, and in winding the formed tube into the roll 116, the roll may be driven at such speed, with relation to the speed of operation of the machine, to insure smooth winding without placing material tension on the tube.

After the formed tube has been wound into the roll 116, the glue is permitted to become more or less dry or set and then the roll or strip may be unwound and severed into bag tubes. The lines of severing of the tube may be substantially as indicated at 120 in Fig. 28.

Instead of winding the formed tube into a roll and allowing the glue to dry before cutting into bag lengths or tubes, the formed tube may be cut into bag tubes as it leaves the machine, and the tubes stacked to permit the glue to dry.

To form the bag lining illustrated in Fig. 13, the lower end portions of the longitudinal folds in the bag tube are turned outwardly as indicated in Fig. 14, and then the lower end portion of the tube turned upwardly and the same secured by a line of stitching 122. Upon returning the lower end portions of the longitudinal folds to their initial positions, the bag lining is completed.

Instead of closing the lower end of the lining by the sewed seam 122 the upwardly turned lower end may be secured in position by means of a line of glue 124, the two sides of the lining at its lower end being secured together by a line of glue 125.

The lining illustrated in Fig. 19 is similar to the lining illustrated in Figs. 13 and 17 except instead of providing folds at the longitudinal edges of the lining the transversely crinkled paper from which the lining is made is also provided with longitudinally extending crinkles or pleats 126.

Instead of supplying the two strips of crinkled paper to the machine from separate supply rolls as above described, they may be cut from a single strip or web and supplied to the machine by the mechanism illustrated in Figs. 20 and 21, this mechanism being an attachment for the machine. As shown, this attachment comprises a table 128 which has upper and lower feed rolls 130 at its forward end, and on a stand 132 spaced from the rear end of the table are cutting disks 134.

The lower disks 134 are secured on a shaft 133 and the upper disks are mounted in brackets secured to a rod 135. The lower feed roll 130 is driven by means of a sprocket chain 136 which passes over a sprocket wheel on the shaft of said roll and a sprocket wheel 138 on a shaft 140 which is driven by a sprocket chain 142 that passes over a sprocket wheel thereon and a sprocket wheel on the drive shaft 24 of the machine. The cutting disk shaft 133 is driven through connections with the lower feed roll 130. This connection comprises a longitudinally extending shaft 144 which is connected with the shaft of the lower feed roll 130 through beveled gears 146. The rear end of this shaft is connected through beveled gears 148 with a transverse shaft 150 that drives the disk shaft 133 through a sprocket chain 152.

On the top of the table there are strip guiding bars 154 and 156 that are respectively adapted to be adjusted across the table by means of adjusting screws 158 and 160.

With this attachment a single web of paper is fed between the cutters 134, the end cutters trimming the rough edges of the sheet, and the central cutter 134 severs the web on a line spaced a distance to one side of the longitudinal center line of the web so as to cut the web into two strips of different widths. The wider strip passes beneath the guide bar 156 and its inner longitudinal edge is guided by the bar 154. The narrow strip is initially given a half turn so as to position it centrally over the wider strip, the two strips passing between the feed rolls 130 in this condition. As the strips pass from the cutters 134 to feed rolls 130, curved guiding devices 162 serve to properly guide the narrow strip. From the feed rolls 130 the lower strip passes over a guide rod 164 and then beneath the rod 106. The upper strip passes over a guide rod 166 and then to the guide rod 108.

Instead of making the tube of two strips as described, the machine may be employed to form a tube of a single strip by means of the attachment illustrated in Figs. 22 and 23. This attachment may be substantially the same as the attachment illustrated in Figs. 20 and 21, except that in place of the central cutting devices 134, scoring disks 168 are employed. With this construction as the web passes between the scoring disks it is scored on a line 169 spaced to one side of the center line of the web. As the web is fed along, it is folded over on the score line so as to position the longitudinal edge of its narrower portion a distance inwardly from the other longitudinal edge. From the feed rolls the folded web may be passed over the guide rod 164 be-

neath the rod 106 and over the guide rod 107 to the feed belts.

When the tube is thus formed from a single web, the gluing device comprising the nozzle 40 and the first folding device 76 on the further side of the machine is not used, the nozzle being shut off. When the tube is thus formed from a single web it may be severed into bag tubes. The lower end of the bag tubes may be closed by a line of stitching 170, the complete bag lining being shown in Figs. 29 and 30.

In some cases it may be desirable to form a bag lining with the crinkles in the paper extending longitudinally of the lining. In such case where the lining is to be made of two sheets of crinkled paper, folding devices 172 (Figs. 31 to 36) may be employed for folding the projecting edges of the wider strip over the narrow strip. Instead of this folding being guided by scoring in the strip as in the case of strips that are transversely crinkled, it is guided by a rod 174 which is positioned close to the grooved guiding device and over which the guiding device bends and folds the paper.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. The method of forming bag linings of the class described which comprises feeding longitudinally two strips of crinkled paper of different widths, the crinkles in the paper extending transversely thereof, bringing the strips together into superposed relation with the longitudinal edges of the wider strip projecting beyond the longitudinal edges of the other strip, folding the projecting edges of the wider strip over the longitudinal edges of the other strip, applying lines of glue to the strips whereby said edges are secured together when said projecting edges are folded over to form a tube, severing said tube into bag tubes, closing one end of the bag tubes, and folding over the longitudinal margins of the tube previously to severing the tube into bag tubes.

2. The method of forming bag linings of the class described which comprises feeding a web of crinkled paper longitudinally, severing the web longitudinally on a line spaced at one side of the longitudinal center thereof so as to form two strips of different width, during the continued feeding of the paper positioning the narrower strip over the other strip with the longitudinal edges of the wider strip projecting a distance beyond the longitudinal edges of the narrower strip, folding the projecting edges of the wider strip over the edges of the narrower strip, and securing said edges together by adhesive applied previously to said folding operation.

3. The method of forming bag linings of the class described which comprises feeding a web of crinkled paper longitudinally, the crinkles in the paper extending transversely thereof, severing the web longitudinally on a line spaced at one side of the longitudinal center thereof so as to form two strips of different width, during the continued feeding of the paper positioning the narrower strip over the other strip with the longitudinal edges of the wider strip projecting a distance beyond the longitudinal edges of the narrower strip, folding the projecting edges of the wider strip over the edges of the narrower strip, securing said edges together by adhesive applied previously to said folding operation, and folding over the longitudinal edges of the formed tube.

4. The method of forming bag linings of the class described which comprises feeding a web of crinkled paper longitudinally, the crinkles in the paper extending transversely thereof, folding the web over on a line spaced at one side of the longitudinal center thereof so as to position one of the longitudinal edges of the web a distance inwardly from the other longitudinal edge, folding the projecting longitudinal edge over the other longitudinal edge, gluing the two edges together so as to form a tube, thereafter severing the tube into bag tubes, and folding over the longitudinal edges of the formed tube.

5. The method according to claim 4 comprising the additional steps of severing the formed tube into bag tubes and closing one end of the bag tubes.

6. In a machine for use in the manufacture of bag linings, the combination of means for feeding two sheet portions of crinkled paper longitudinally, said sheet portions being arranged in superposed relation, comprising two sets of feeding devices for respectively engaging opposite longitudinal edge portions of the material, means for folding over the longitudinal margins of said material as it is being fed comprising two sets of folding devices arranged to act respectively on the longitudinal edges of the material, and means for adjusting one set of said feeding devices and the associated folding device toward and from the other set of feeding devices and the other folding device.

7. In a machine for use in the manufacture of bag linings, the combination of means for feeding two sheet portions of crinkled paper longitudinally, two sets of devices for respectively acting on opposite longitudinal edge portions of the material as the material is being fed, each set comprising devices for folding over the associated longitudinal edge portion of the material and a device for compressing the fold thus made in the material, and means for adjusting one set of said devices toward and from the other set.

8. In a machine for use in the manufacture of bag linings, the combination of means for feeding two sheet portions of crinkled paper longitudinally, two sets of devices for respectively acting on opposite longitudinal edge portions of the material as the material is being fed, each set comprising devices for folding over the associated longitudinal edge portion of the material and a device for compressing the fold thus made in the material, a carrier for one set of said devices, and means for moving said carrier to move the set of said devices carried thereby toward and from the other set.

9. In a machine for use in the manufacture of bag linings, the combination of means for feeding two sheets of paper longitudinally in superposed relation, the sheets being of different width, and the wider sheet having its longitudinal edges projecting beyond the other sheet, devices for scoring the wider sheet on a line adjacent the longitudinal edges of the narrower sheet and for scoring both sheets on lines spaced inwardly from the longitudinal edges of the narrower sheet, devices for applying a line of glue to the outer side of the narrower sheet adjacent its longitudinal edges, devices for folding over the projecting edges of the wider sheet upon said lines of glue so as to secure the two sheets together and for folding the longitudinal edges of the two sheets upon the second mentioned lines of scoring, and devices for compressing said folds.

10. In a machine for use in the manufacture of

bag linings, the combination of means for feeding a web of paper longitudinally, means for severing the web as it is fed into strips of different widths, devices for positioning one of the strips over the
5 other strip with the longitudinal edges of the wider strip projecting beyond the longitudinal edges of the narrower strip, and means for folding the projecting edges of the wider strip over the edges of the narrower strip and securing them
10 together to form a tube.

11. The method of forming bag linings of the class described which comprises feeding crinkled paper in a direction transversely of the crinkles in the paper, forming the crinkled paper into a
5 flattened tube having its longitudinal edges closed, folding over the longitudinal margins of the tube thus formed, and severing the thus formed tube into bag tubes.

FRANCIS T. ROBINSON. 10