

June 30, 1931.

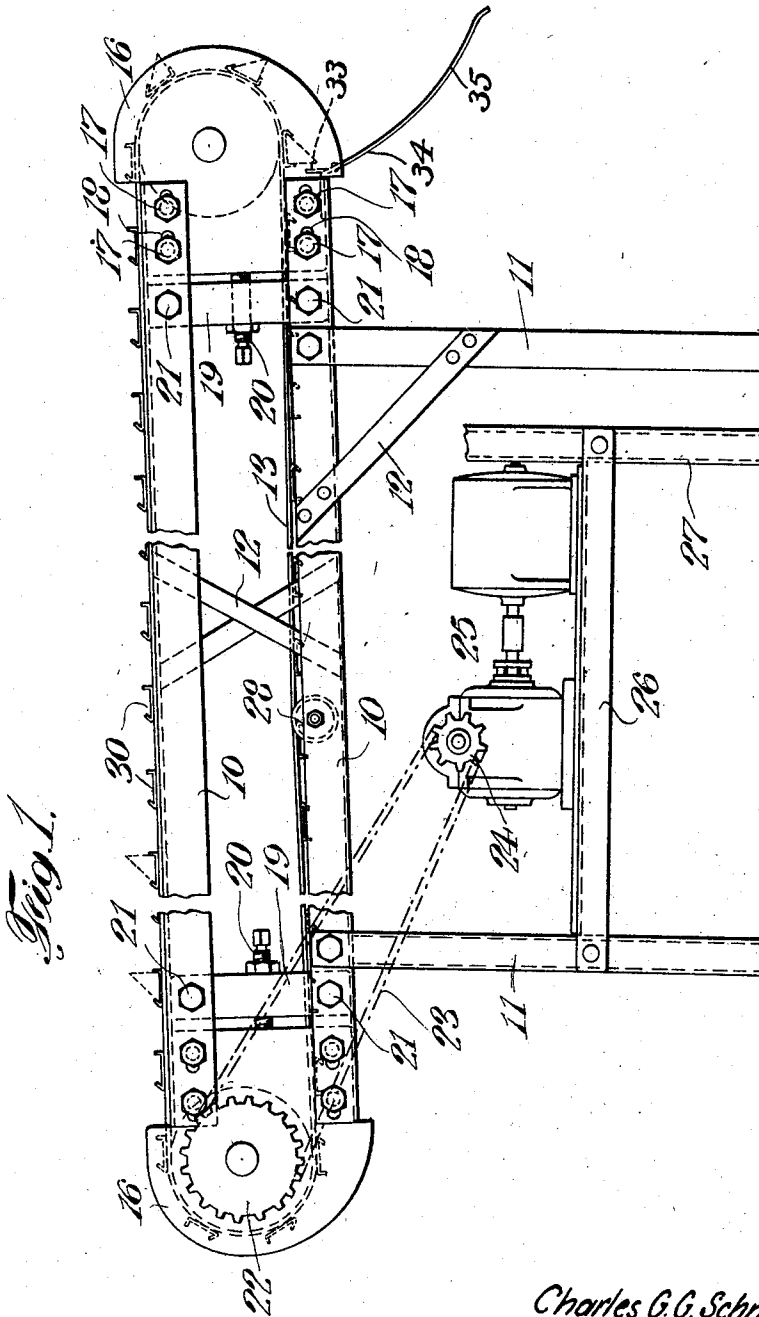
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MACHINE FOR GLUING CARTONS

Filed Aug. 28, 1928

3 Sheets-Sheet 1



Inventor
Charles G. G. Schmidt
By his Attorneys
Hoguet and Neary

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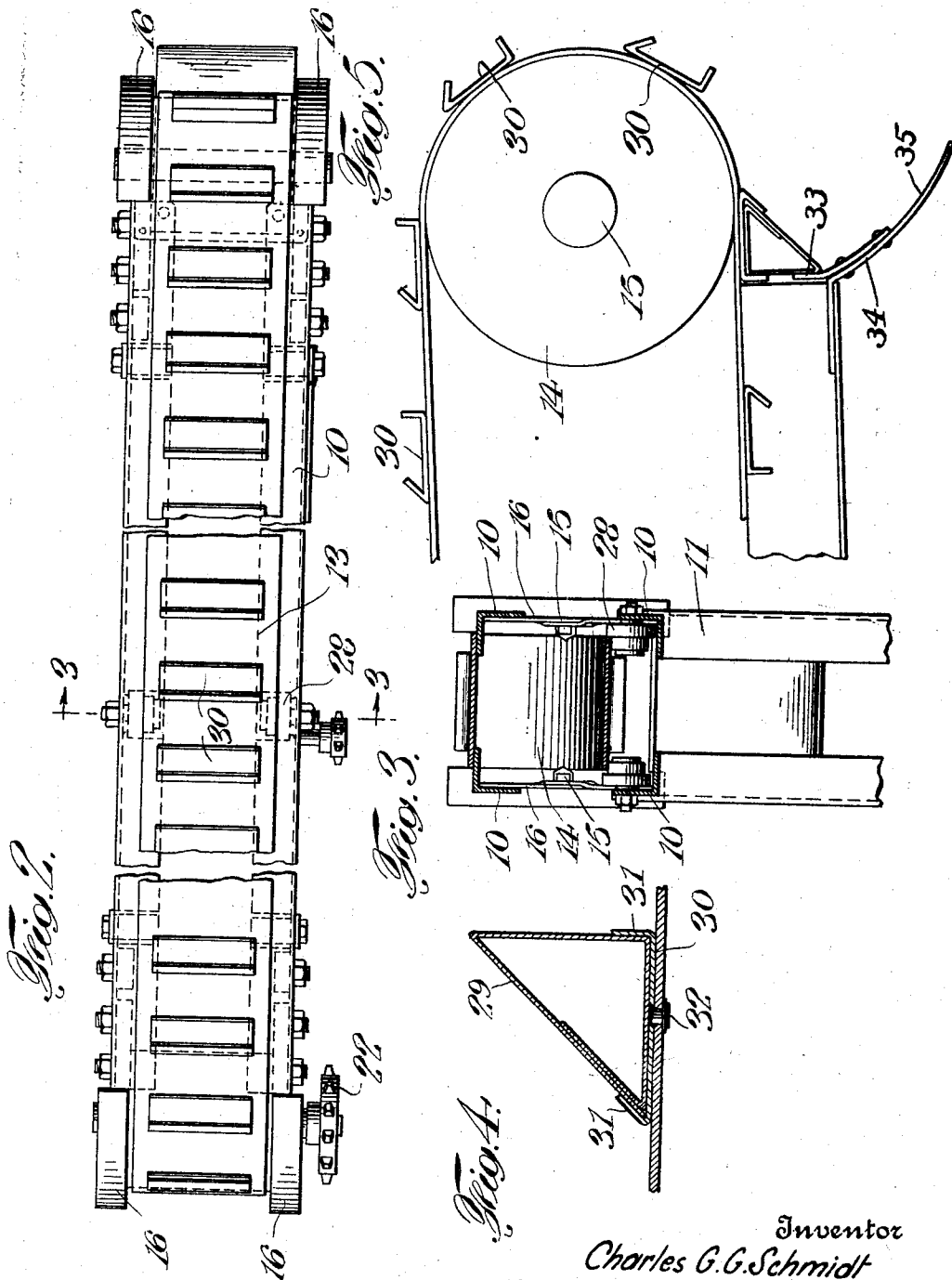
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Fig. 6.

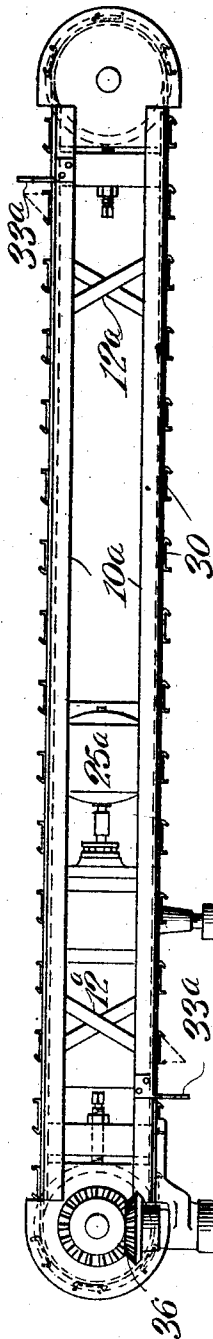
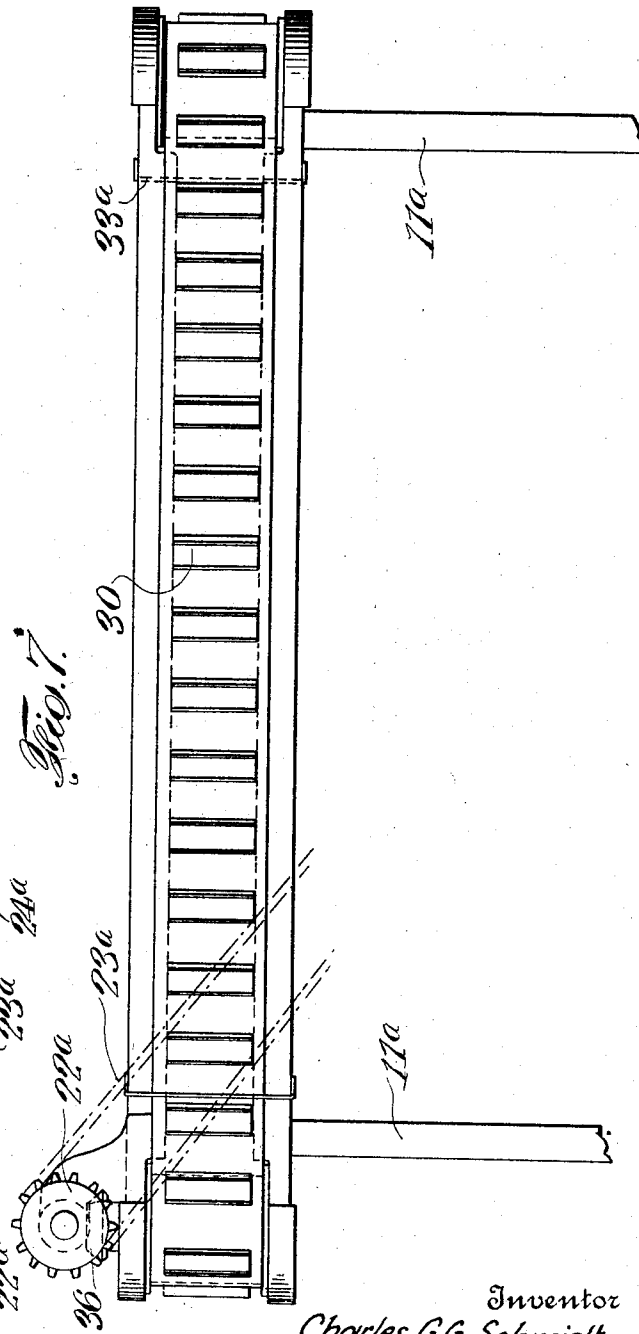


Fig. 7.



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UNITED STATES PATENT OFFICE

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MACHINE FOR GLUING CARTONS

Application filed August 28, 1928. Serial No. 302,497.

This invention relates to an improved machine for gluing cartons and more particularly triangular cartons.

Hitherto, in this art, it has been found impossible to develop a machine to turn out satisfactorily a triangular carton. No machine, up to the present invention, has been devised for gluing and forming a triangular carton with three creases only, so that the finished package is a perfect triangle without any side being broken by additional scoring. In all previous practices, an additional crease had to be added so as to glue under a press as is done with rectangular cartons.

The present invention produces a machine for gluing a triangular carton with three creases only which occur at the corners and so that the finished article presents a perfect triangle with smooth sides unbroken by an additional scoring. The invention thus fills a long-felt need in the industry, as it provides for the first time a machine for making satisfactorily a triangular carton.

Further objects and advantages of the invention will appear as the description proceeds.

In the drawings:

Figure 1 is a side elevation of a machine constructed in accordance with the present invention.

Figure 2 is a plan view thereof.

Figure 3 is a transverse sectional view taken as on the line 3—3 of Figure 2.

Figure 4 is a section on an enlarged scale, in elevation, of a carton as operated upon in the practice of the invention.

Figure 5 is a side elevation of a fragment of the construction, illustrating the means for removing the finished carton from the machine.

Figure 6 is a plan view of a modification.

Figure 7 is a side elevation of a modification.

In detail, the invention is embodied in a construction which, as shown in Figures 1 to 5, may be in the form of a machine having frame members 10 such as angle irons or beams positioned at four corners as shown in Figure 3 and supported by suitable legs 11 and braces 12. The machine includes an end-

less belt 13 of leather or such material which is arranged in a vertical plane and extends over pulleys 14. The pulleys are mounted on horizontal pivots 15 supported by journal members 16, the latter being carried by the frame members 10 and attached thereto as by bolts 17. The pulley mounting construction may be as shown in Figure 3 with the pulleys positioned between the pointed pivots or bearings 15 which are carried on the journal members. This construction reduces friction and allows easy rotation of the pulleys. The bolts 17 extend thru slots 18 in the members 10, thus providing for adjustment of the journal members 16 whereby the belt tension may be varied and adjusted at will. The journal members may be maintained at the desired separation by means such as blocks 19 with adjusting screws 20. These blocks may, for example, be mounted between the frame members 10 as shown in Figure 1 and attached in position by suitable fastening elements 21.

Means for continuously driving the belt and preferably for causing a constant movement thereof, are provided, and, as shown, includes a sprocket 22 on the end of a pulley shaft. The sprocket is driven by a chain 23 from another sprocket 24 which derives its motion or rotation from an electric motor unit 25. The latter may be mounted on a platform 26 beneath the belt and supported in any desired manner on the legs 11 and on other vertical elements or columns 27. Of course, this type of drive is purely optional and may be altered at will and any means for moving the belt may be employed in the practice of the invention. The pulley mounts described are also optional and these constructions may also be varied or altered in the practice of the invention. The rotation of the sprocket 22 in the construction illustrated causes the rotation of the pulley shaft and also of the pulley mounted on the shaft and, consequently, the belt is driven by friction by the pulley and thus caused to move. The belt may also travel over idle pulleys 28 supported on the frame members 10, the idle pulleys being provided to prevent sag-

ging of the belt and to maintain a tension thereon.

The construction, as thus far described, is analogous to the usual conveyor of the belt type. This construction is therefore to be construed as optional and illustrative. The machine is, however, designed for the gluing of triangular cartons, as represented by numeral 29 in Figure 4. The belt is provided with retaining members 30 which are spaced at intervals along its length and held in place by fastening elements 32. These members may, for instance, be of sheet metal with upturned ends forming resilient fingers 31, bent to closely embrace the lower ends of the cartons. The fingers exert a light, resilient grip upon the cartons and hold them exactly as the human hand would hold them if the gluing were done by hand. The cartons are formed as shown in Figure 4 with three creases only which occur at the corners and so that the finished article is a perfect triangle with all the sides smooth and unbroken by an additional scoring. One end of the sheet from which the carton is formed terminates at a corner of the carton and the other end is folded beneath it. The folded end is glued to the side under which it is placed by hand and the attendant then places the carton in a freshly glued state in the machine and between the fingers, 31, as shown in Figure 4, so that the glued side is firmly held and the carton maintained in a fixed position between the fingers. These fingers hold the carton just like a human hand would and the carton is not subject to any appreciable pressure but comes out of the machine uncrushed and a perfect triangle with smooth sides unmarred by additional creases or scorings. In the carton shown, one of the corners is a right angle, so that the finger engaging this corner is at a right angle or perpendicular to the belt, while the finger engaging the other corner having the glued ends is at an angle less than a right angle to the belt. In the travel of the belt, the perpendicular end is in advance, which facilitates removal of the cartons as shown in Figure 5.

The cartons travel to the right as seen in Figure 1 and are taken off the belt at the right hand side of the machine just after passing over the pulley. By this time, the glue of the cartons has sufficiently dried to maintain the carton formations and shapes. The ejection of the cartons may be by a stop 33 which is shown carried on a bracket 34 secured and attached to the frame members 10. The stop projects in the path of the cartons and as shown in Figure 5, forces them out of engagement with the angular ends 31 permitting the cartons to fall. The cartons may be guided by the curved portion 35 of the bracket 34 into a chute or other reposi-

tory therefor which may be provided beneath the guide 35.

A modification of the invention is shown in Figures 6 and 7 which differs from the former in all practical purposes only in that the belt passes over pulleys having vertical shafts. In this case, the belt is arranged in a horizontal plane and the fingers exert sufficient grip upon the cartons to hold them horizontally. The motor unit 25^a in this modification is supported between the frame members 10^a and drives a sprocket 24^a which connects thru a chain 23^a to the sprocket 22^a, the latter driving, thru bevel gears 36, the shaft of the pulley. The stops or carton ejecting means are herein shown at 33^a and, of course, differ somewhat in construction from the former design. Otherwise, the modification is similar to the former and is provided with legs 11^a and braces 12^a for supporting the apparatus.

While the specific constructions shown are preferred, it will be understood that variations and alterations may be made therein in the practice of the invention and without departing from the scope thereof or of the appended claims.

What I claim is:—

1. A machine for gluing triangular cartons formed from sheet material with three creases only and with one end of the sheet terminating at a corner and the other end folded beneath the first end and glued thereto, comprising retaining fingers between which two corners of a carton are gripped, one of said corners being the corner of the glued ends of the sheet material, said fingers acting to lightly urge the glued ends together while firmly retaining the carton therebetween without crushing.

2. A machine for gluing triangular cartons formed from sheet material with three creases only and with one end of the sheet terminating at a corner and the other end folded beneath the first end and glued thereto, comprising a sheet metal member with up-turned ends forming resilient fingers between which two corners of a carton are gripped, one of said corners being the corner of the glued ends of the sheet material, said fingers acting to lightly urge the glued ends together while firmly retaining the carton therebetween without crushing.

3. A machine for gluing triangular cartons formed from sheet material with three creases only and with one end of the sheet terminating at a corner and the other end folded beneath the first end and glued thereto, comprising means forming fingers between which two corners of a carton are gripped, one of said corners being the corner of the glued ends of the sheet material, said fingers acting to lightly urge the glued ends together while firmly retaining the carton therebetween without crushing, a belt on which the fingers

are mounted, means for moving the belt, and means for removing the cartons therefrom after a predetermined amount of travel.

4. A machine for gluing cartons formed from sheet material with one end of the sheet terminating at a corner and the other end folded beneath the first and glued thereto, comprising retaining fingers between which two corners of a carton are gripped, one of said corners being the corner of the glued ends of the sheet material, said fingers acting to lightly urge the glued ends together while firmly retaining the carton therebetween without crushing.

5. A machine for gluing triangular cartons formed from sheet material with one end of the sheet terminating at a corner and the other end folded beneath the first and glued thereto, comprising means forming a pair of fingers between which two corners of a carton are gripped, a belt on which the fingers are carried, one of said fingers being perpendicular to the surface of the belt, and the other at an angle less than a right angle with respect thereto, the perpendicular end being in advance in the travel of the belt, means for moving the belt, and means for removing the carton therefrom after a predetermined amount of travel.

6. A machine for gluing triangular cartons comprising a belt on which is mounted a gripping means comprising a sheet metal member with ends up-turned to form resilient retaining fingers, one of said fingers forming a right angle with the central portion of said member and the other finger forming an acute angle with said central portion, means for moving the belt so that the perpendicular finger precedes the other finger, and means for removing the carton from said gripping means comprising a stop against which the carton strikes.

7. A machine for gluing triangular cartons comprising a belt on which are mounted a plurality of gripping means comprising sheet metal members with ends up-turned to form resilient retaining fingers, one of said fingers forming a right angle with the central portion of said member and the other finger forming an acute angle with said central portion, means for moving the belt so that the perpendicular finger of each member precedes the other finger, and means for removing the cartons from said gripping means comprising a stop against which the carton strikes.

8. A machine for gluing triangular cartons comprising a belt on which are mounted a plurality of gripping means comprising sheet metal members with ends up-turned to form retaining fingers, one of said fingers forming a right angle with the central portion of said member and the other finger forming an acute angle with said central portion, means for moving the belt so that the

perpendicular finger of each member precedes the other finger, and means for removing the cartons from said gripping means comprising a stop against which the carton strikes.

9. A machine for gluing triangular cartons comprising a belt, pairs of resilient retaining fingers projecting from said belt, one of said fingers in each pair being substantially perpendicular to said belt and the other at such an angle that it firmly presses the carton against the belt and against said perpendicular finger without distorting the carton, means for moving the belt, and means for removing the carton from said gripping means comprising a stop against which the carton strikes.

10. A machine for gluing triangular cartons comprising a belt, pairs of resilient retaining fingers projecting from said belt, one of said fingers in each pair being substantially perpendicular to said belt and the other at such an angle that it firmly presses the carton against the belt and against said perpendicular finger without distorting the carton, means for moving the belt so that the perpendicular finger of each pair precedes the other finger, and means for removing the carton from said gripping means comprising a stop against which the carton strikes.

11. A machine for gluing triangular cartons comprising a belt, pairs of retaining fingers projecting from said belt, one of said fingers in each pair being substantially perpendicular to said belt and the other at such an angle that it firmly presses the carton against the belt and against said perpendicular finger without distorting the carton, means for moving the belt, and means for removing the carton from said gripping means comprising a stop against which the carton strikes.

12. A machine for gluing triangular cartons comprising a belt, pairs of resilient retaining fingers projecting from said belt, one of said fingers in each pair being substantially perpendicular to said belt and the other at such an angle that it firmly presses the carton against the belt and against said perpendicular finger without distorting the carton, means for moving the belt, and means for removing the carton from said gripping means.

13. A machine for gluing triangular cartons comprising a belt on which are mounted a plurality of gripping means comprising sheet metal members with ends up-turned to form resilient retaining fingers, one of said fingers forming a right angle with the central portion of said member and the other finger forming an acute angle with said central portion, means for moving the belt so that the perpendicular finger of each member precedes the other finger, and means for removing the cartons from said gripping means.

14. A machine for gluing triangular cartons comprising a belt on which are mounted a plurality of gripping means comprising sheet metal members with ends up-turned to
5 form resilient retaining fingers, one of said fingers forming a right angle with the central portion of said member and the other finger forming an acute angle with said central portion, means for moving the belt, and means
10 for removing the cartons from said gripping means comprising a stop against which the cartons strike.

15. In a machine for gluing triangular cartons a sheet metal member with up-turned
15 ends forming resilient retaining fingers between which the carton is gripped, one of said fingers forming a right angle with the central portion of said member and the other forming an acute angle with the central portion of said member.
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16. In a machine for gluing triangular cartons a sheet metal member with up-turned ends forming resilient retaining fingers between which the carton is gripped, said retaining
25 fingers forming such angles with the central portion of said member that they retain the carton in the desired shape.

17. A machine for gluing cartons comprising a belt, retaining fingers projecting from
30 said belt, means for moving said belt, and means for removing the cartons from said fingers comprising a stop against which the carton strikes.

In testimony whereof, I have signed my
35 name to this specification this 21 day of August, 1928.

CHARLES G. G. SCHMIDT.

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