

June 24, 1930.

E. H. JÄHNE

1,767,799

MEANS FOR FORMING PAPER BAGS OR CARDBOARD BOXES

Filed June 19, 1929

3 Sheets-Sheet 1

Fig. 1

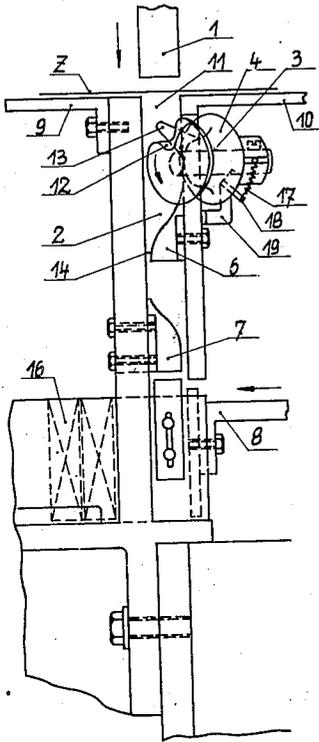


Fig. 2

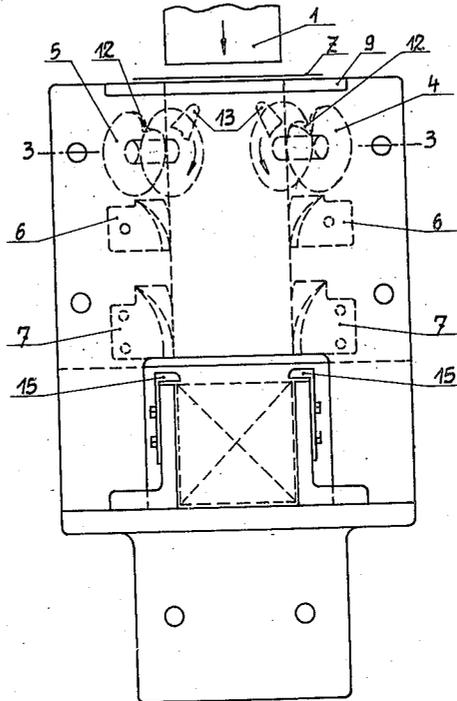
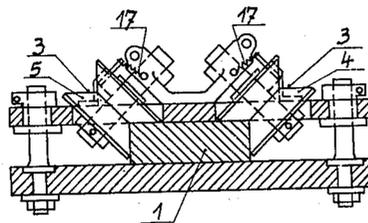


Fig. 3



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Fig. 4

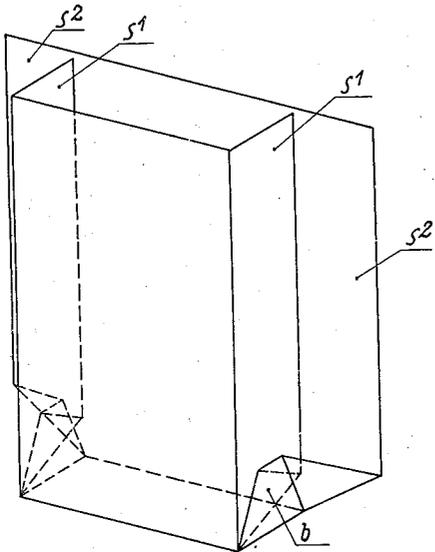


Fig. 5

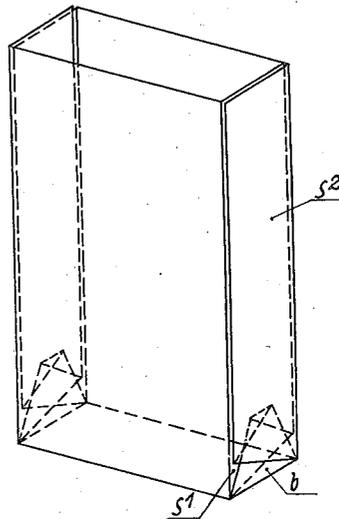
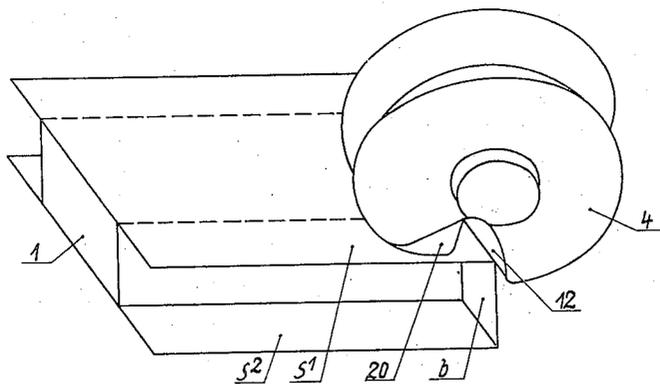


Fig. 6



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3 Sheets-Sheet 3.

Fig. 7

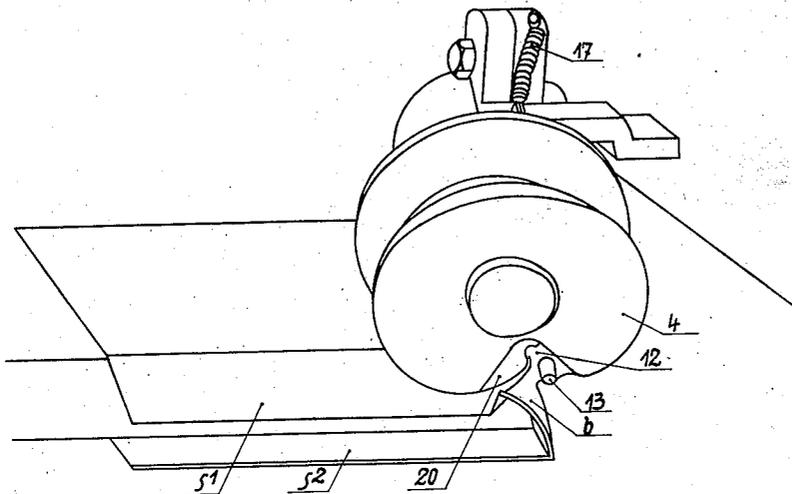
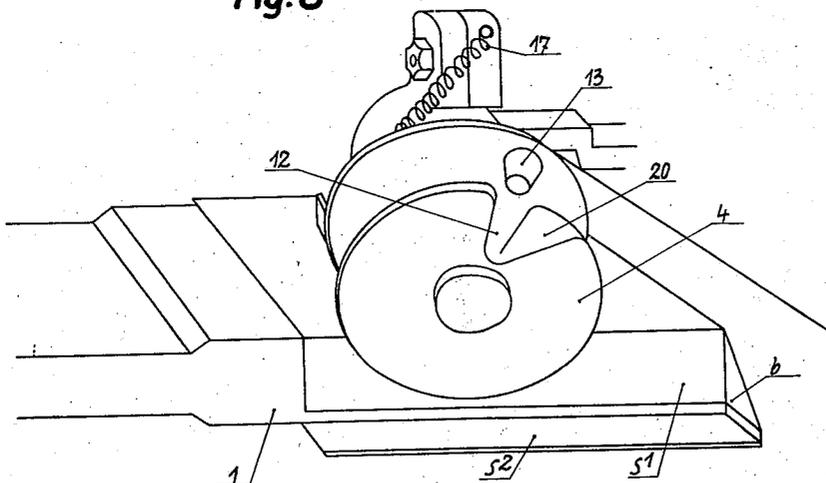


Fig. 8



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UNITED STATES PATENT OFFICE

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MEANS FOR FORMING PAPER BAGS OR CARDBOARD BOXES

Application filed June 19, 1929, Serial No. 372,197, and in Germany June 26, 1928.

Devices for forming paper bags or the like with flat rectangular bottoms are known in which a former is used which grips a paper blank, pressing on the part of the blank which is to form the bottom and on its entrance into a shaping channel causes the sides of the blank to be folded around itself i. e. gives them a U-shape. In this channel folders are arranged which first form a side of the bag on each side wall of the former whereupon further folders press in the bottom flaps and finally the remaining sides which are coated if desired with adhesive are formed by folders applied to the bag on the former.

Since in devices of this kind the folders have been formed as flaps operated by the former rapid operation is not possible while unsatisfactory work was produced due to the sensitiveness of the flaps acting under duplex springs.

As distinguished therefrom the present invention resides in this that in the shaping channel rollers provided on the periphery with wedge shaped grooves are freely rotatably mounted at two opposite side walls of the former in such manner that they roll along the moving former the edges of which engage the wedge shaped grooves in the rollers.

In accordance with the invention also, the rollers drawn by springs into their position of rest on their profiled parts bearing on the side walls are provided with notches or recesses which are so disposed with respect to the arriving former that the bottom portion enters the recesses or notches and the folding of the side walls commences only later when the former has set the rollers in motion by means of projections mounted on the rollers.

The shaped rollers co-operating with the former rest on the corresponding side walls of the former and are entrained by friction. The still projecting sides can then be turned over by means of known folders or rails.

The invention is illustrated in the accompanying drawing in which Fig. 1 is a side elevation, Fig. 2 a front elevation and Fig. 3 a horizontal section on the line 3—3 of Fig. 2. Figs. 4 and 5 show to enlarged scale the work in different conditions. Figs. 6, 7 and 8 show to enlarged scale the co-operation of the rollers with the shaping member.

The principal parts of the device are as follows:—the former or die 1, the shaping channel 2 in which the former operates, the two rollers 4 and 5 formed with wedge shaped grooves 3, the rails or bars 6 and 7, and the ejector 8.

Referring to the drawing, the rectangular blanks a are brought by suitable means (not shown) to the plates 9 and 10 in front of the opening 11 of the shaping channel 2. The former 1 is now moved downwards and passes with the blank into the shaping channel, the side walls of the bag being thus formed. The former then passes to the rollers 4 and 5, the edges of the blank projecting beyond the former entering the notches 12 in the rollers 4 and 5 (Fig. 6). At the same time the front wall of the former 1 strikes against the projections 13 on the rollers which are thus set in rotation (Fig. 7) and roll along two edges of the moving former. As the result the two side walls s' are folded on the former (Fig. 8). While now the former moves forwards the two sides b are folded by the rails or bars 6. The sides s^2 in upright position move past the rails 6 through the gaps 14 and are then folded by the rails 7.

When the former has reached the end of its stroke resilient strippers 15 engage behind the bag and retain it when the former moves upwards again. The ejector 8 then ejects the completed bag or box into a pile holder 16 or the like. After the former has moved out of the shaping channel the rollers 4, 5 are rotated backwards by springs 17 until the projections 18 on the rollers strike

against the fixed stops 19, when the rollers 4 and 5 have reached their initial positions. The operation can then be repeated.

The stops 18 and 19 permit the rollers 4 and 5 to make only a single revolution. The diameter of the rollers must therefore be such that on rolling along the edges of the former they need only make one revolution.

Before the blanks enter the device they are suitably coated on their side and bottom portions with adhesive. This operation can be carried out in known manner by gluing rollers.

I claim:—

1. Means for forming paper bags or cardboard boxes with flat rectangular bottoms comprising in combination with a former and a shaping channel serving in conjunction with the former to form the blank to U-shape, folding means acting to form two sides and the bottom and means for pressing the other sides against the former, said folding means including a pair of rollers located within the shaping channel one at each side of the former, said rollers provided with peripheral wedge shaped grooves and said rollers being freely rotatable and adapted to roll along the former with the wedge shaped grooves engaging the edges of the former.

2. Means for forming paper bags or cardboard boxes with flat rectangular bottoms comprising in combination with a former and a shaping channel serving in conjunction with the former to form the blank to U-shape, folding means acting to form two sides and the bottom and means for pressing the other sides against the former, said folding means including a pair of rollers located within the shaping channel one at each side of the former, said rollers provided with peripheral wedge shaped grooves, said rollers freely rotatable and adapted to roll along the former with their wedge shaped grooves engaging the edges of the former, springs for moving the rollers into inoperative position, notches in said rollers to receive the blank advancing with the former and projections on the rollers adapted to be engaged by the former and to set the rollers in rotation.

3. Means for forming paper bags or cardboard boxes with flat rectangular bottoms comprising in combination with a former and a shaping channel serving in conjunction with the former to form the blank to U-shape, folding means acting to form two sides and the bottom and means for pressing the other sides against the former, said folding means including a pair of rollers located within the shaping channel one at each side of the former, said rollers provided with peripheral wedge shaped grooves, said rollers freely rotatable and adapted to roll along the former with their wedge shaped grooves

engaging the edges of the former, springs for moving the rollers into inoperative position, notches in said rollers to receive the blank advancing with the former, projections on the rollers adapted to be engaged by the former and to set the rollers in rotation, and inwardly inclined tongues adjacent the notches and adapted to initiate the folding movement of the sides.

In testimony whereof I affix my signature.

ERNST HERMANN JÄHNE.

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