

W. SPANNUTH & M. & M. R. DÜNNEBIER.
 PAPER FEEDING MECHANISM FOR MACHINES FOR MANUFACTURING ENVELOPES AND THE LIKE.
 APPLICATION FILED APR. 9, 1906. RENEWED AUG. 1, 1910.

987,682.

Patented Mar. 21, 1911.

3 SHEETS-SHEET 1.

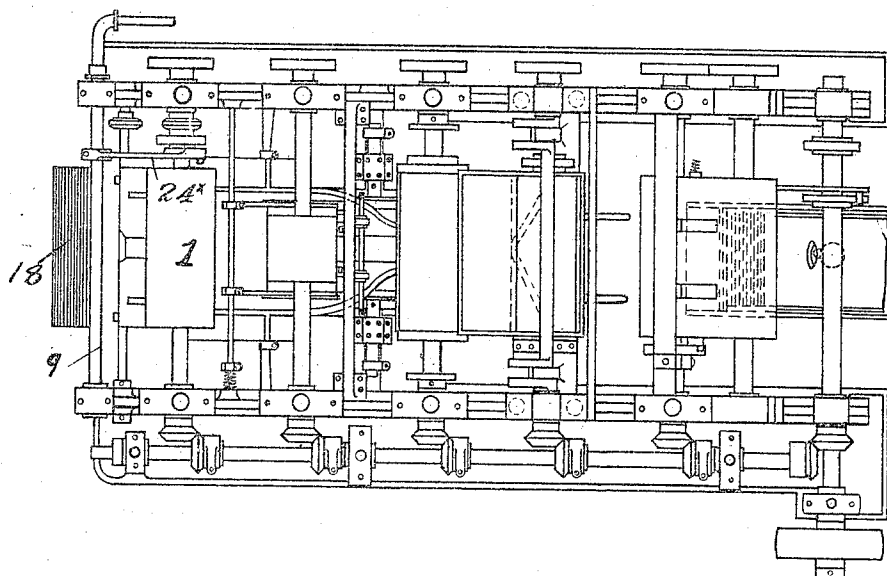
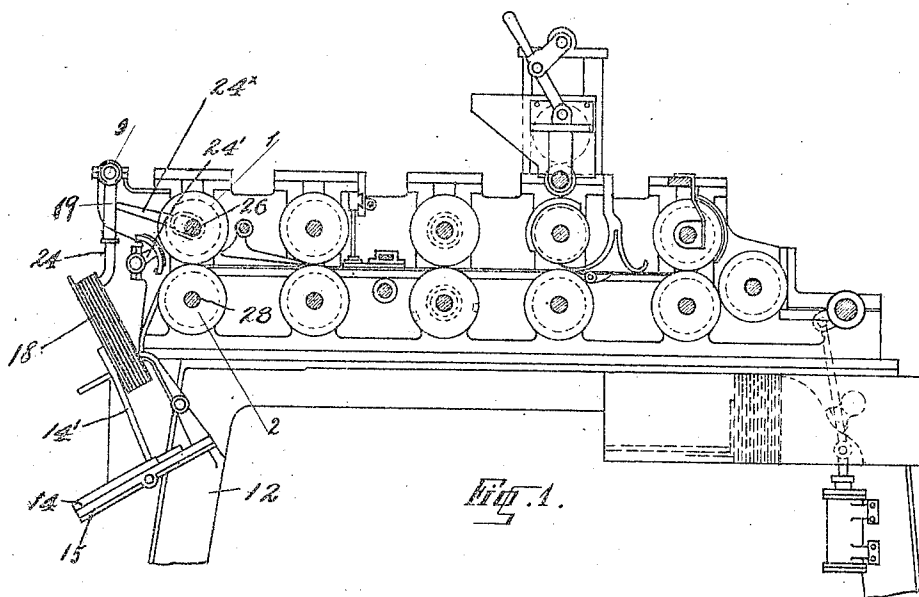


Fig. 2.

Witnesses.

J. M. Wyndrooper

H. H. Rogers

Inventor.

Wilhelm Spannuth.

Max Dünn Bieber

Max Reinhold Dünn Bieber

By

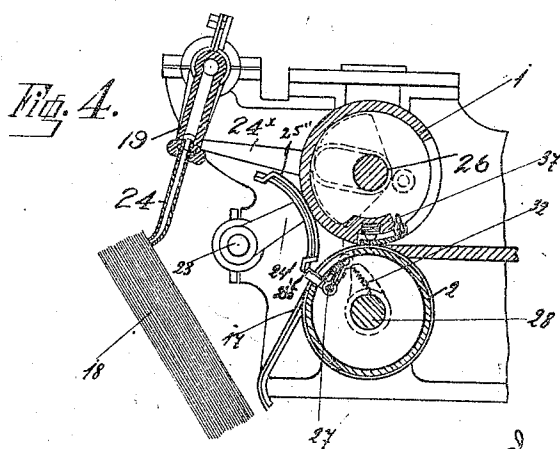
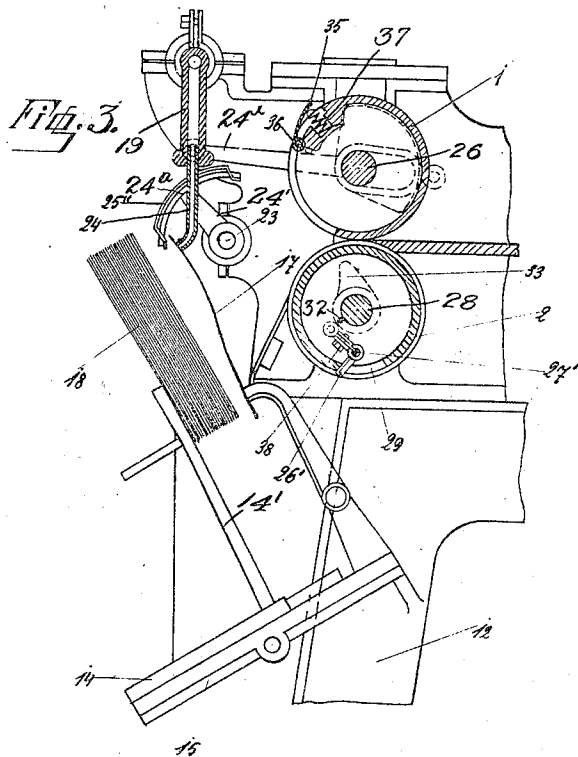
Knight & Co. Attorneys

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Witnesses
 J. M. Wynders
 L. R. Hewitt

Inventors
 Wilhelm Spannuth
 Max Dünnebier
 Max Reinhold Dünnebier.
 By Knight Bros.
 attys.

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 3 SHEETS—SHEET 3.

Fig. 5.

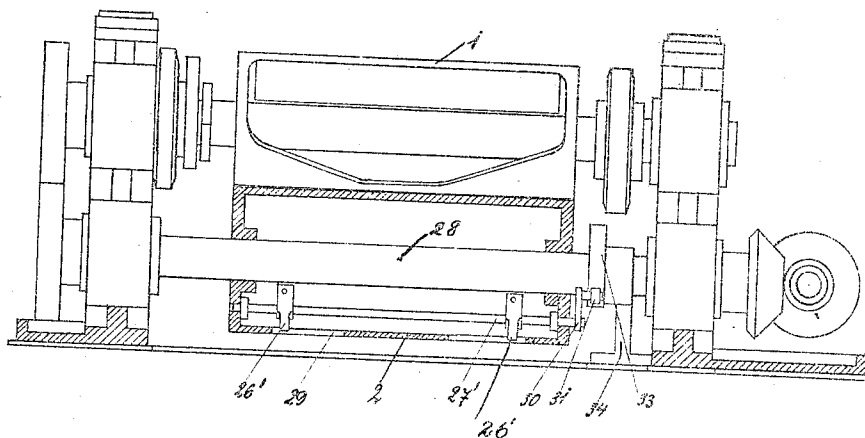
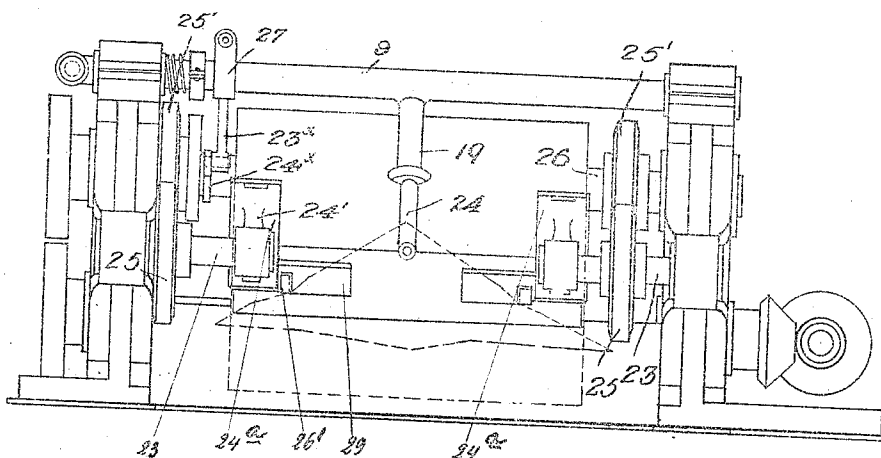


Fig. 6.



Witnesses
 J. M. Wynkoop
 L. R. Wirtz

Inventors
 Mathias Spannuth
 Max Dünnebier
 Max Reinhold Dünnebier
 By August B. B.
 atty.

UNITED STATES PATENT OFFICE.

WILHELM SPANNUTH, MAX DÜNNEBIER, AND MAX REINHOLD DÜNNEBIER, OF DRESDEN, GERMANY, ASSIGNORS TO CARL HERZBERG, OF COLOGNE, GERMANY.

PAPER-FEEDING MECHANISM FOR MACHINES FOR MANUFACTURING ENVELOPS AND THE LIKE.

987,682.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed April 9, 1906, Serial No. 310,820. Renewed August 1, 1910. Serial No. 574,993.

To all whom it may concern:

Be it known that we, WILHELM SPANNUTH, mechanic, a subject of the German Emperor, and resident of 1 Reiniskstrasse, Dresden, Germany, MAX DÜNNEBIER, mechanic, a subject of the German Emperor, and a resident of Dresden, Laubegast, Germany, and MAX REINHOLD DÜNNEBIER, mechanic, a subject of the German Emperor, and a resident of Mosenstrasse, Dresden, Germany, have invented certain new and useful Improvements in or Relating to Paper-Feeding Mechanism for Machines for Manufacturing Envelops and the Like, of which the following is a full, clear, and exact description.

This invention relates to improvements in machines for manufacturing envelops, paper bags and the like, wherein the formation of blanks into envelops or bags is effected by passing them through a plurality of sets of rollers.

More particularly the invention consists in improvements in the mechanism for feeding the blanks to the machine and has for its purpose to provide a means wherein the blank sheets are uniformly delivered one by one, to the forwarding rollers, which rollers have associated therewith improved means for holding the individual sheets in their passage therethrough thus insuring accuracy in the forwarding of the blanks to the mechanism for performing the several other operations to complete the articles being made.

The invention is illustrated by way of example in the accompanying drawing wherein,

Figure 1 is a side elevation of the complete machine. Fig. 2 is a top plan view thereof. Fig. 3 is a transverse sectional view of the mechanism. Fig. 4 is a similar view showing the feeding arm in a different position. Fig. 5 is an end elevation, shown partly in section, and with the feeding arm removed. Fig. 6 is an end elevation of the complete machine.

Referring more in detail to the several figures wherein like letters of reference indicate corresponding parts in the different figures shown the numeral 12 designates that end of the machine frame to which the feeding mechanism is attached, and 1 and 2 in-

dicate a pair of vertically disposed and co-operating rollers mounted upon shafts 26 and 28 respectively, said rollers constituting the means for forwarding the blank sheets to the following sets of rollers. At a point beneath and a little in advance of these forwarding rollers the machine frame 12 is provided with an inclined track 15 on which is adapted to slide a carriage 14 which carriage is provided with a shelf 14' adapted to hold a stack of blanks 18 from which the articles are to be formed. Said carriage 14 is adapted to be adjusted on the inclined way 15 whereby varying quantities of blanks may be held in position for feeding, as will be readily understood.

Disposed immediately above the pile of blanks 18 is an oscillating arm 19 which constitutes, with the tubular member 24, the means for separately delivering the sheets from the pile 18 to the forwarding rollers 1 and 2. Said arm 19 is carried by a hollow shaft 9 mounted in the machine frame and to which is adapted to be connected a suction pipe that leads to an air pump not shown in the drawing. The shaft 9 is adapted to be oscillated through the medium of a pitman 24* and an arm 23*, the former connecting with the shaft 26 of the roller 1 and the latter secured to the shaft 9 at 27 as indicated in Fig. 6. It will therefore be clear that as the suction arm 24 is oscillated it will on each of its movements contact with the pile of blanks 18 and by reason of the suction through said arm, carry a blank with its reverse movement as shown by the numeral 17 in Fig. 3. It will be understood that in manufacturing envelops the stack of blanks 18 will be so positioned upon the shelf 14' that the portion of the blank which is normally open in the finished article will be disposed downwardly, i. e. the end first going through the forward rolls 1 and 2 is the permanently sealed portion opposite to said normally opened flap.

Intermediate the forwarding rolls 1 and 2 and the pile of blanks is disposed a pair of rotating segments 24* carried by arms 24' that are mounted on stub shafts 23 as shown in Fig. 6. The function of these segmental rollers is to engage the sheet 17 while it is being carried by the suction tube 24, and

deliver the same between the forwarding rollers 1 and 2. The shafts 23 which carry said segmental rollers are provided with pinions 25 that engage with pinions 25' mounted on the shaft 26, through which gearing continuous operation is imparted to said segmental plates. The periphery of each of the segmental rollers is provided with a plate 25'' resiliently set whereby said segmental surface may readily contact with the peripheries of the rollers 1 and 2 when delivering the blank sheet thereto.

In order to guide the work in a rectilinear direction between the rolls 1 and 2 the lower roll 2 is provided with stops 26' against which two corners of the rear of the envelop blank abut during the passage of the blank between the rolls. Said stops are mounted on a shaft 27' fitted within said roller and are removably secured on the shaft 27' by means of screw clamping devices 38. When the screws are loosened stops 26' may be moved longitudinally on said shaft, and they may also be moved around the shaft and again screwed in position. By this adjustment said stops may be regulated to conform with the dimensions of the required size of envelop. On one end of the shaft 27', projecting beyond the head of the roller, is arranged a lever 30 which carries a guide roll 31 at its free end, and which under the action of a spiral spring 32 (see Fig. 4) presses against the periphery of a cam 33. The cam 33 is carried by an upright member 34 secured on the bed of the machine, which part as well as the cam is provided with a perforation so that the shaft 28 of the lower roll can pass through said parts and turn within the same, while the cam 33 remains stationary. At each rotation of the roll 2 therefore the shaft 27' is by the cam 33 turned once to the right, and to the left. The outer face of the roll 2 is provided with apertures 29 through which project the ends of the stops 26' so that the same are on each rotation of the shaft 27' intermittently projected and withdrawn beyond the periphery of the roll 2. In the position shown in Fig. 4 stops 26' project in front of the periphery of the roll 2 in such position that the meeting point of the upper and side flaps of the envelop blank at the rear is engaged, and in substantially this position the blank is carried until the segments 24* and the stops 26' separate, whence the sheet is evenly and steadily passed between the rollers 1 and 2 and to the several folding and creasing mechanisms. Naturally in order to effect this the rolls 1 and 2 should not hold the blank too firmly and to overcome which the upper roll 1 is provided with a strip 35 rotatably mounted on an axis 36, and actuated by a spiral spring 37. Said strip 35 forms a part of the periphery of the roll 1

and continues in contact with the article only so long as the stops 26' project beyond the periphery of the lower roller, (as seen in Fig. 4).

What we claim as our invention and desire to secure by United States Letters Patent is:

1. The combination with the upper and lower feed rolls, of means for separating and lifting the blank from the pile, and means for feeding the blank to the feed rolls; said last-named means comprising a pair of roller segments rotating in unison with the feed rolls and having resilient surfaces adapted to press the blank against the lower feed roll.

2. The combination with the upper and lower rotary feed rolls, of means intermittently cooperating with the periphery of one of said rolls for guiding the blank between the rolls, and adjustable stops carried by one of said rolls.

3. The combination with the upper and lower feed rolls, of rotary means cooperating with the periphery of the lower roll for guiding the blank between the rolls, adjustable stops carried by the lower roll, and a yielding strip carried by the upper roll.

4. The combination with the upper rotary feed roll and the lower rotary feed roll having slots therein, of means cooperating at intervals with the periphery of the lower roll for guiding the blank between the rolls, adjustable stops carried by the lower roll, and means for oscillating the stops through the slots in the lower roll.

5. The combination with the upper rotary feed roll and the lower rotary feed roll having slots therein, of rotary means cooperating at intervals with the periphery of the lower roll for guiding the blank between the rolls, a shaft arranged within the lower roll and eccentrically to the axis of rotation of the roll, adjustable stops carried by said shaft, and means for oscillating said shaft to cause the stops to pass through the slots in the lower roll.

6. The combination with the upper and lower feed rolls, of a pair of segments rotating in unison with the feed rolls and adapted to cooperate at intervals with the periphery of the lower roll whereby to feed the sheets between the rolls, and a suction pipe oscillating in the space between said segments.

7. The combination with means for feeding the blanks to the feed rolls, said means comprising a pair of roller segments rotating in unison with the feed rolls and having resilient surface plates adapted to press the blanks against the lower feed roll, and means cooperating with said segments for guiding the blanks between the rolls.

8. The combination with the upper feed roll, of the lower feed roll having slots

therein, a yielding strip carried by the upper feed roll, a shaft arranged within the lower roll and eccentrically to its axis of rotation, adjustable stops carried by said shaft and adapted to project through the slots in the lower roll, while the yielding strip of the upper roll is in contact with the lower roll.

In testimony whereof we have signed our

names to this specification in the presence of two subscribing witnesses.

WILHELM SPANNUTH.

MAX DÜNNEBIER.

MAX REINHOLD DÜNNEBIER.

Witnesses:

PAUL E. SCHILLING,

PAUL ARRAS.