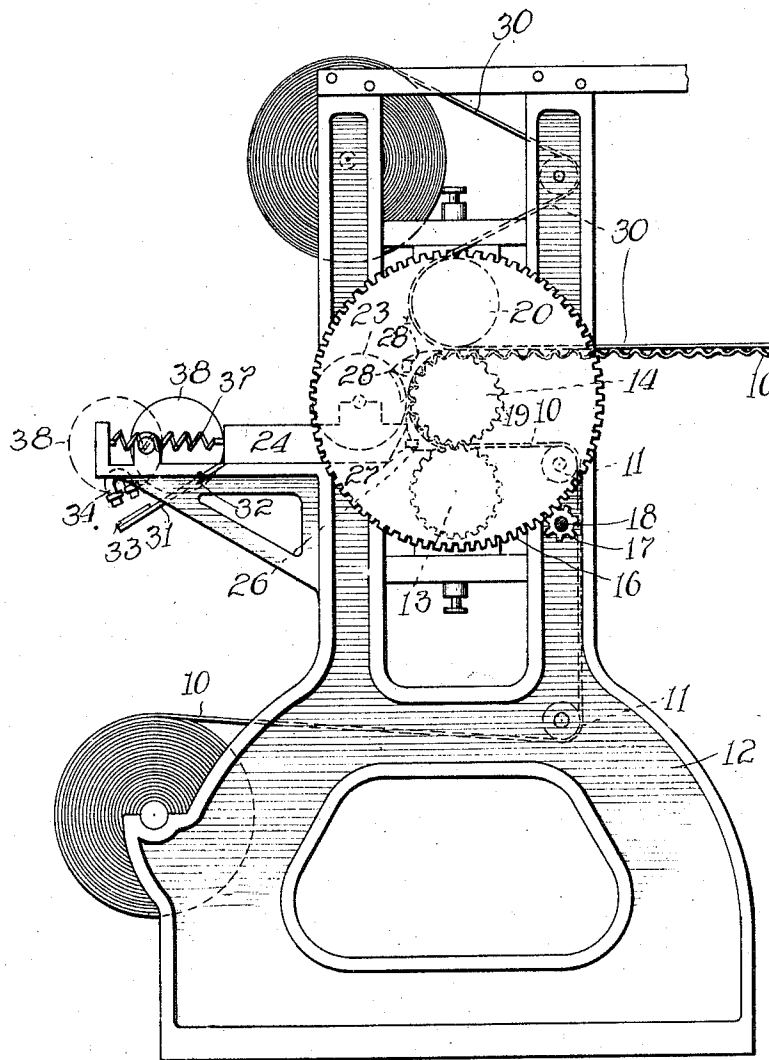


995,083.

3 SHEETS—SHEET 1.

Fig. 1



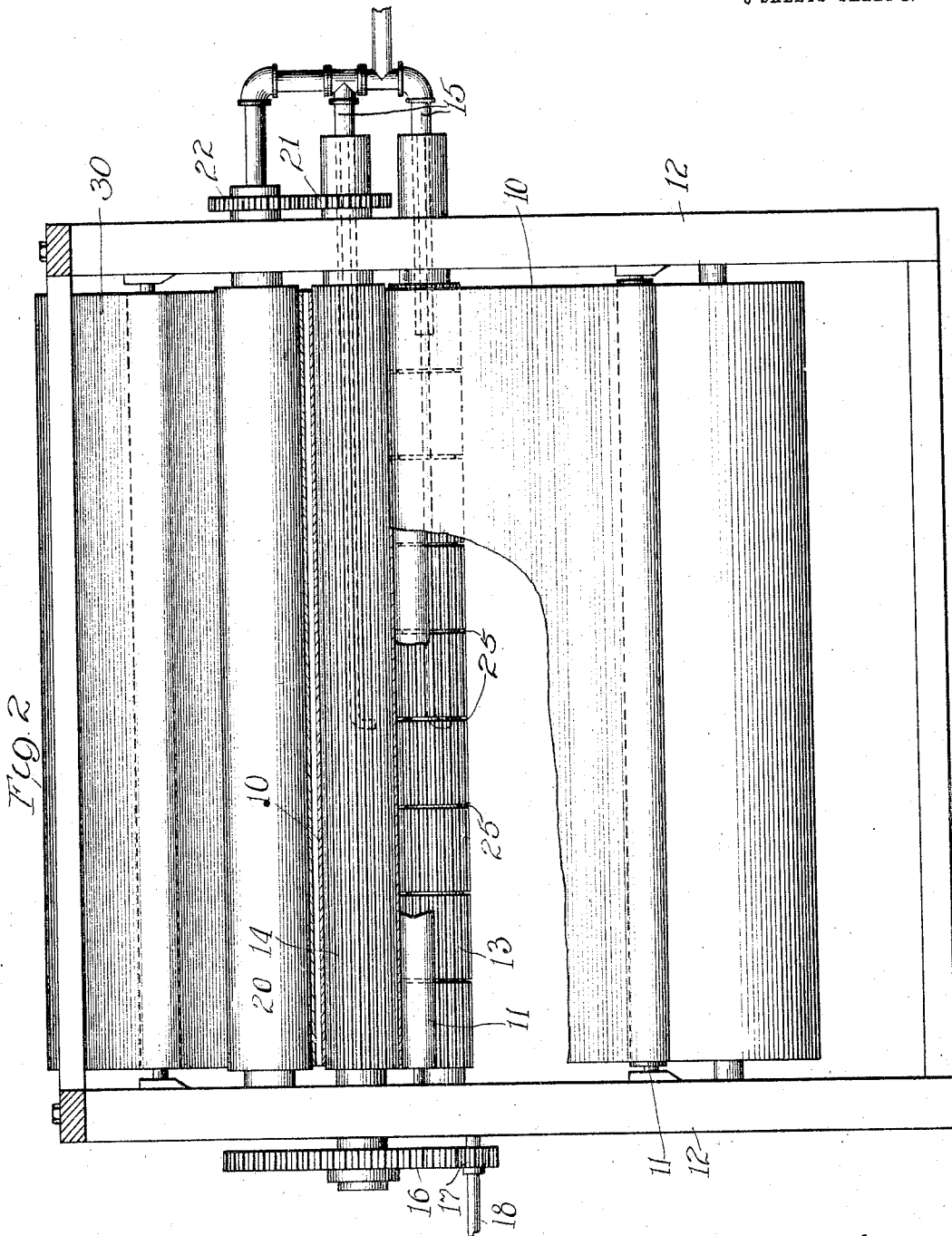
Inventor:
Arnold Paeyna
By Osburn M. Roberts
his Attys

A. PACYNA.
MACHINE FOR MAKING CORRUGATED PAPER.
APPLICATION FILED AUG. 29, 1910.

995,083.

Patented June 13, 1911.

3 SHEETS—SHEET 2.



Witnesses:
H. R. L. White
R. A. White

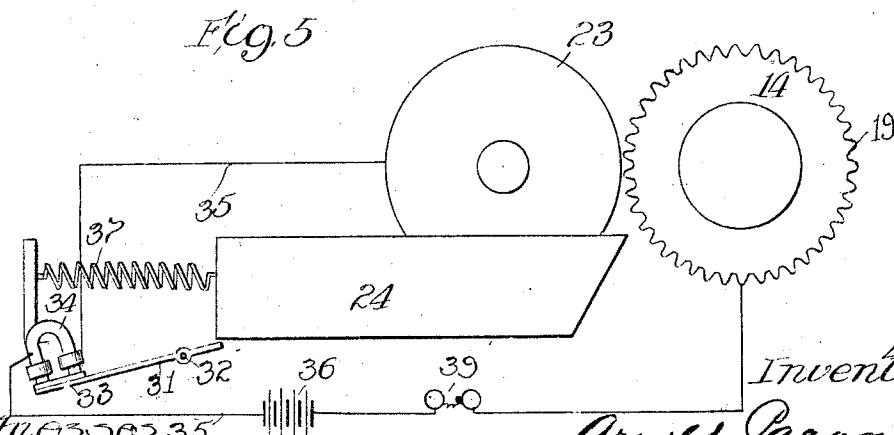
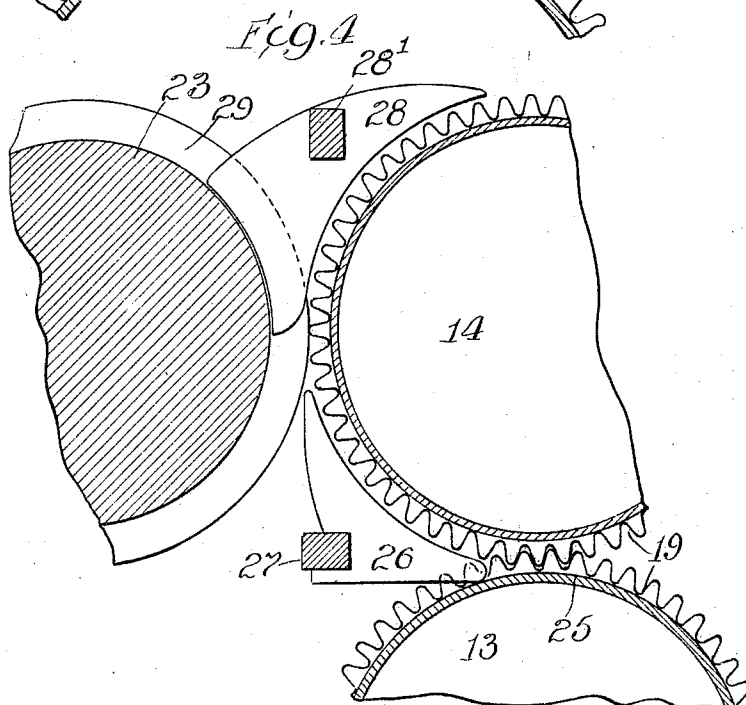
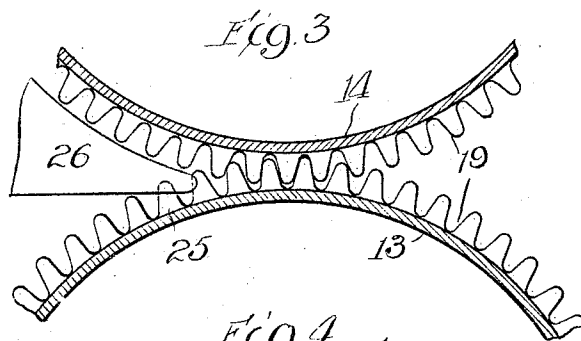
Inventor:
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Witnesses
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UNITED STATES PATENT OFFICE.

ARNOLD PACYNA, OF EVANSTON, ILLINOIS, ASSIGNOR TO CHICAGO FOLDING BOX COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MACHINE FOR MAKING CORRUGATED PAPER.

995,083.

Specification of Letters Patent. Patented June 13, 1911.

Application filed August 29, 1910. Serial No. 579,583.

To all whom it may concern:

Be it known that I, ARNOLD PACYNA, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Corrugated Paper, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to machines for making corrugated paper, and consists in the matters hereinafter described and then pointed out in the appended claims.

The object of the invention is to construct a paper corrugating and lining machine for producing single-faced corrugated paper or paper composed of a corrugated sheet or web and a lining or facing of paper secured to the crowns of the corrugations upon one side thereof.

In the accompanying drawings, which illustrate a practical embodiment of my present invention, Figure 1 is a side elevation of a machine illustrating a practical exemplification of my invention for making single-faced corrugated paper; Fig. 2 is a rear elevation of parts shown in Fig. 1 with the paper broken away and the single-lined web or sheet in section; Figs. 3 and 4 are detail views of portions of the machine shown in Fig. 1; and Fig. 5 is a detail view showing an embodiment of that portion of my invention for automatically moving the paste-applying device when the latter contacts with one of the corrugating rollers.

The same reference letters refer to the same or corresponding parts in the several views.

A strip of suitable paper 10 to be corrugated and lined is delivered over suitable idlers 11 from a suitable roll supported in bearings upon the frame 12 to the bite of a pair of hollow corrugated rolls 13 and 14 suitably heated as by steam pipes 15 and mounted in the frame and one of which, as 14, is driven from any suitable source of power, as by gears 16 and 17 from a power shaft 18, the rollers being provided with longitudinal corrugations 19 which mesh with each other to drive the other roll and corrugate the paper. Journaled in the frame above the roller 14 is a heated smooth-faced pressure roller 20 driven by suitable gears 21 and 22 from the roller 14. A paste-applying roller 23 is journaled in

suitable bearings so as to revolve partly in a paste pan 24 and with its face in position to apply paste to the corrugated paper upon the roll 14. The roll 13 is provided with a series of circumferential grooves 25, and a series of curved fingers 26 mounted on a cross-bar 27 are secured in position adjacent to and concentric with the face of the roller 14 and with their ends extending into the grooves of the roller 13 as shown in Figs. 3 and 4. This set of fingers extends between the bites of the corrugated rolls and of the paste roll with the upper corrugated roll, and lift the paper off the roller 13. A second set of similarly curved fingers 28 mounted on a cross-bar 28' is arranged in position adjacent the face of the corrugated roller 14 beyond the bite of the paste roll therewith, and the latter roll is provided with a series of circumferential grooves 29 to receive the fingers 28 to prevent the paper adhering to the paste roll and the paper from being caught by the ends of the fingers. The functions of the fingers 26 and 28 are as described and also to hold the paper in the corrugations of the roll 14, it being apparent that with the paste roll they act to hold the paper thus in position from the time it passes from between the corrugated rolls until it enters between the upper corrugated roll and the pressure roll.

The paper is led from its roll over its idlers to the corrugated rolls and when these rolls are revolved it is fed between them and corrugated by them and is held in place in the corrugation of the roll 14 while the paste is applied and until it passes to the bite of the pressure roll. The liner sheet 30 leads from its roll over an idler and between the pressure roller 20 and the corrugated paper on the roll 14 where it meets the glued or pasted crowns of the corrugated web to which it is applied by the pressure roll, whereby single-faced corrugated paper is produced with the crowns on the lower face and the liner sheet on the upper face.

In case of imperfections or holes in the paper between the corrugated rollers there is liability of paste being applied to the roller 14 instead of to the paper upon the roller, and to avoid this the paste pan 24 is suitably movable so that the paste roller may be drawn from contact with the corrugated roller 14. This movement may be accomplished by the operator by hand or

automatically by means or any suitable device such as an electro-magnetic mechanism which is included in a suitable circuit adapted to be closed by the contact of the rolls 14 and 23. A suitable means for this purpose is shown in Figs. 1 and 5 consisting of an electromagnetic latch or trigger 31 suitably pivoted at 32 upon the frame and at one end normally engaging the paste pan to hold it in position with the paste roller in contact with the corrugated roller 14 or the material upon the latter. The latch is held in place by the weight of its outer end and is withdrawn by an armature 33 on the outer end adapted to be attracted by a magnet 34 when the latter is energized, this magnet being located in a normally-open electric circuit indicated by the conductors 35 in Fig. 5 and which includes the rolls 14 and 23 and a suitable source of electric power, as the battery 36, so that when the circuit is closed by the contact of the rolls 14 and 23 the magnet will be energized to attract its armature to release the trigger or latch from engagement with the pan to allow the latter to be withdrawn from normal position by the spring 37 or other suitable device. It is obvious from this arrangement that if for any reason paper is not present between the rolls 14 and 23 or through imperfections in the paper these rolls come in contact, the circuit will be closed so that the paste roll will be automatically withdrawn from its operative position in contact with the corrugating roll 14. When starting the machine the paste-roll may be held in place by a suitable cam 38, which is thrown out of operative position as shown in dotted lines in Fig. 1 after the paper is between the rolls so as not to interfere with the automatic operation of the spring 37.

An alarm of any suitable character may be included in the circuit, as the bell 39, which will give a signal to show that the paper or web is not properly functioning.

The rolls 13, 14 and 20 preferably are heated as by steam pipe connections 15 in any suitable manner now well understood in the art whereby the corrugations are more readily set and the paste between the web and liner is more quickly dried and the moisture removed from the stock. The passage of the material through the machine under normal conditions is uninterrupted so

that the several operations of corrugating the web, applying the paste to the crowns of its corrugations, bringing the web and liner or facing together and uniting them are performed in sequence and as a continuous operation of the machine, the single-faced corrugated paper passing from the roll 14 as shown in Fig. 1.

I claim:—

1. In a device of the class described, a pair of revolving paper-corrugating rolls, a roll for applying paste to the crowns of a corrugated strip on one of the corrugating rolls, and a pressure roll to bring a lining sheet into contact with the corrugations of the web on the said corrugating roll, the other corrugating roll and the paste roll having circumferential grooves, and two sets of fingers adjacent the corrugating roll carrying the web, the ends of the fingers of one set being located in the grooves of the other corrugating roll and the ends of the fingers of the other set being in the grooves of the paste roll.

2. In a device of the class described, a pair of revolving paper-corrugating rolls, means for applying paste to the crowns of a corrugated strip on one of the rolls, a pressure roll to bring a lining sheet into contact with the corrugations of the web on the said corrugated roll, and means to automatically stop the operation of the paste-applying means.

3. In a device of the class described, a pair of revolving paper-corrugating rolls, a roll for applying paste to the crowns of a corrugated strip on one of the corrugating rolls, a pressure roll to bring a lining sheet into contact with the corrugations of the web on the said corrugated roll, a normally-open electric circuit including said paste-roll and the corrugating roll carrying the strip and adapted to be closed when said rolls contact, an electro-magnetic latch device to hold the paste-roll in place and operated to release it when the circuit is closed, and means to withdraw the paste roll when the latch is released.

In testimony whereof I affix my signature in presence of two witnesses.

ARNOLD PACYNA.

Witnesses:

GEORGE R. HARBAUGH,
J. McROBERTS.