

No. 649,392.

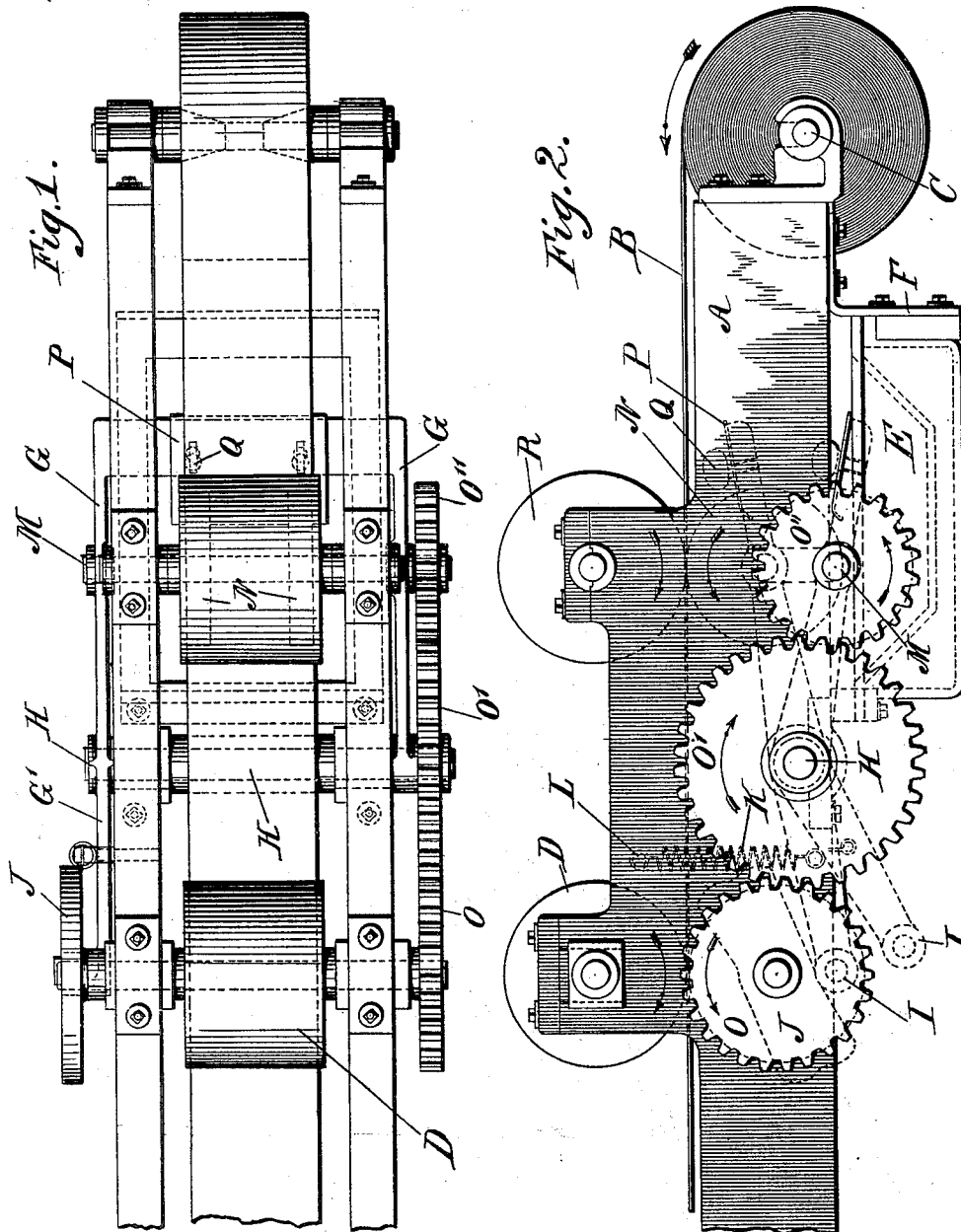
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G. A. BARNES.

DEVICE FOR APPLYING GLUE TO PAPER BOXES.

(Application filed Feb. 3, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR APPLYING GLUE TO PAPER BOXES.

SPECIFICATION forming part of Letters Patent No. 649,392, dated May 8, 1900.

Application filed February 3, 1899. Serial No. 704,369. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. BARNES, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Devices for Applying Glue to the Blanks for Paper Boxes, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The invention upon which my present application is based is an improvement in devices or apparatus primarily designed to constitute that element in a machine for making paper boxes the special function of which is to apply glue to the blanks or web of paper fed into the machine; but while it is especially useful for use in this connection it is generally applicable to other machines or uses of an analogous character.

The general object of the improvement is to provide a means for applying the glue in a very thin and perfectly-even layer and in which the pads or surfaces which take up the adhesive substance and deposit it on the paper are so arranged that no glue in excess of the minimum quantity actually required is transferred to the paper. This is accomplished by using, in connection with a circular gluer roll or rolls, scrapers or wipers which are at all times in contact with both the periphery and sides of the roll or rolls, so as to remove all excess of glue not only from the peripheral surfaces which come in direct contact with the paper, but also from all surfaces adjacent thereto, and by mounting or supporting said roll or rolls in such manner that they may be intermittently brought in contact with the surfaces of the paper.

In my Patent No. 640,171, dated January 2, 1900, I have shown as a part of a paper-box machine a device for accomplishing the same result; but in that case the rolls which applied the glue were mounted in stationary bearings and were of special form, having peripheral projections with rounded ends, over which the scrapers passed in uninterrupted contact. The device of the present application is therefore in a broad sense another embodiment of the same invention, although it is further distinguished by certain useful and novel features of structural detail, which will be more

fully described by reference to the accompanying drawings; and to such end my invention consists in the device for applying glue to blanks for paper boxes, substantially as and for the purpose hereinafter specified.

Figure 1 is a top plan view of a glue-pan and gluing mechanism and so much of a machine for feeding a web or band of paper as is necessary to a clear understanding of the nature and purposes of the invention. Fig. 2 is a side view of the same.

A is a portion of the frame of a machine, such, for example, as a machine for making paper boxes from blanks cut or punched from a web of paper B, which is wound on a roll C and advanced by feed-rolls D to the mechanism for cutting and folding the blanks.

The particular mechanism in which my present improvement resides is that for applying paste or glue to the web or band of paper B at proper intervals, and comprises the following devices:

E is any suitable pan or receptacle for containing the adhesive mixture, which is preferably secured by brackets F to the frame A.

G is a frame the side bars of which have bearings on a shaft H, mounted in the frame A, and is adapted to oscillate through a limited arc about said shaft as a center. One or each side bar G' of said frame G is prolonged beyond the shaft H and carries a roller I, which rides over the surface of a cam J, keyed to the shaft of one of the feed-rolls D, said roller I being held in contact with the cam by a spiral spring K, one end of which is secured to a stud L on the frame A and the other end to the extended side bar of the frame G. A transverse shaft M is mounted in suitable bearings on the frame G and carries one or more gluer-rolls N, to which rotation is imparted by a train of gears composed of an open wheel O on one of the feed-roll shafts, an intermediate wheel O' on the shaft H, and a wheel O'' on the gluer-roller shaft M.

A scraper or wiper composed of a spring-plate P is secured by set-screws Q, passing through slots therein, to the forward cross-bar of the frame G and has notches which admit the gluer-rolls, so that it bears upon the peripheral and adjacent side surfaces of the latter in a manner to scrape off all excess of glue therefrom.

The operation of the device is as follows: A quantity of glue being placed in the pan E and power being applied to the feed-rolls, the paper web or band is advanced by the latter 5 and the gluer-rolls set in rotation. The character of the cam J controls the movement of the tilting frame G. When the said frame is depressed, the gluer-rolls rotate in the body of the glue; but by the elevation of the frame 10 their wiped or scraped surfaces are brought up into contact with the under side of the paper, above which is a bearing-roll R. In the device shown the cam has a special configuration, as shown in dotted lines in Fig. 2, 15 so that the gluer-rolls are forced against the paper twice at short and close intervals during such period of elevation of the frame G. The spring-plate P being in close rubbing contact with the peripheries and adjacent sides 20 of the gluer-rolls and these being true cylinders, all excess of glue is removed from not only the surfaces of the rolls which come in direct contact with the paper, but the portions of the rolls adjacent thereto and on 25 which there is any possibility of the accumulation of glue which would be liable to be deposited on the paper. I have found that a

very great practical advantage is secured by applying in this way only a very thin and even layer of glue to the paper and provides 30 against the possibility of any glue reaching the paper, except such as is rubbed thereon from the well scraped or wiped surfaces of the rolls. When this is done, the surfaces of the paper brought into contact under pres- 35 sure instantly and firmly adhere to each other even though a cheap and inferior grade of glue be used.

Having now described my invention, what I claim is— 40

The combination with paper-feed rolls, of a glue-pan, a swinging frame, a gluer-roll mounted on said frame, a scraper carried by said frame and having unbroken rubbing 45 contact with said gluer-roll, gearing for revolving the gluer-roll until an even coating of glue is obtained, and means for actuating the swinging frame to dip the gluer-roll into the glue and to bring said roll into contact with the paper, substantially as described. 50

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