L. V. ESTES.

PASTING MACHINE.

APPLICATION FILED MAY 4, 1908.

921,386. **Patented May 11, 1909.**

4 SHEETS—SHEET 1.

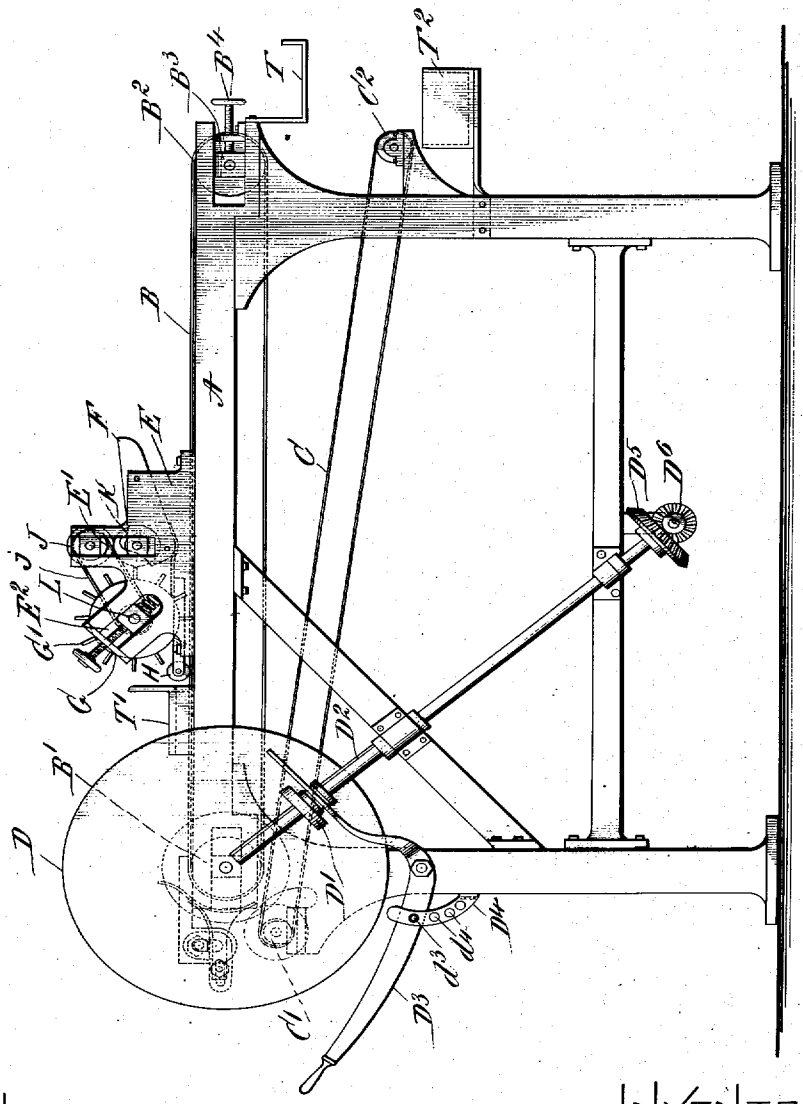


Fig. 1.

WITNESSES:

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Josephine M. Ryan

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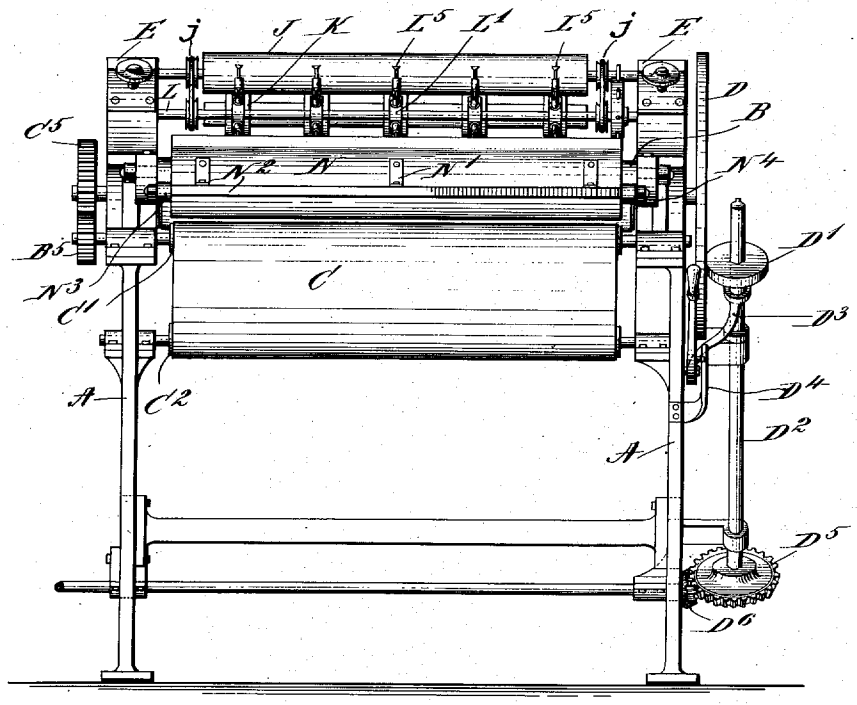


Fig. 2.

WITNESSES:
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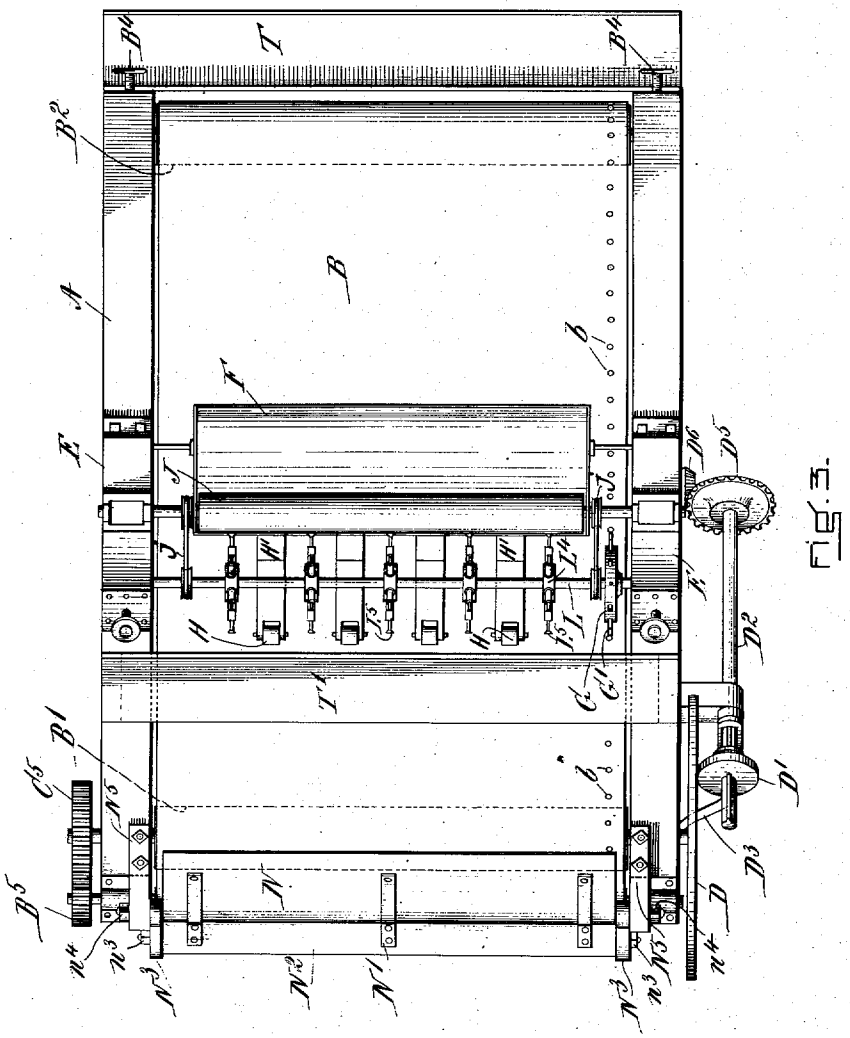


Fig. 3.

WITNESSES:

Charles S. Wuskery

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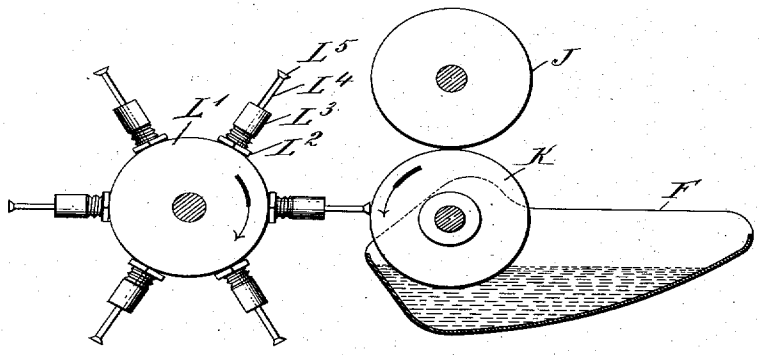


Fig. 4.

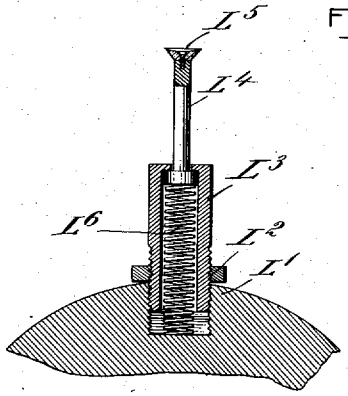


Fig. 5.

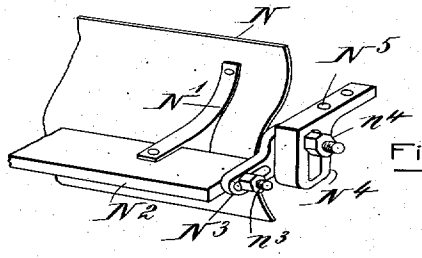


Fig. 6.

WITNESSES:

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UNITED STATES PATENT OFFICE.

LORING VINCENT ESTES, OF NEW YORK, N. Y., ASSIGNOR TO CLUETT, PEABODY & COMPANY, OF TROY, NEW YORK, A CORPORATION OF NEW YORK.

PASTING-MACHINE.

No. 921,386. Specification of Letters Patent. Patented May 11, 1909.

Application filed May 4, 1908. Serial No. 430,778.

To all whom it may concern:

Be it known that I, LORING VINCENT ESTES, citizen of the United States, and resident of New York city, in the county of New York and State of New York, have invented new and useful Improvements in Pasting-Machines, of which the following is a specification.

My invention relates to machines for applying paste or for the performance of analogous purposes or functions and is addressed particularly to situations wherein paste or other adhesive is to be applied in small regulated quantities, in spots rather than in means, and where objects to which the paste is to be applied are light and require careful handling.

More especially, my invention is peculiarly adapted to the work of applying the paste to thin blanks such as constitute the component parts of collars, cuffs, shirt bosoms and the like.

The pasting machine herein illustrated and described and which exemplifies my invention, is contrived especially for applying paste to collar and cuff blanks. In the manufacture of collars, cuffs and shirt fronts, blanks are cut from sheets of cloth and laid in several plies which are stitched together to form the composite which finally appears as the finished article. These blanks in order to conform to the many styles and sizes produced by the manufacturer of such goods, are cut in a great variety of shapes and it is essential that the several components, say of a collar, such as linings and tops, be laid in accurate register with each other so that when stitched together they shall conform to the predetermined style and size of the finished article. In order to hold these components of the finished structure in accurate register with each other, it has been the practice for a long time to paste together the several plies with a soluble adhesive which holds the pieces in correct relation previous to and during the stitching operation. Heretofore the almost universal practice has been to do this pasting by hand; pasting machines have been contrived for the purpose but, so far as I am informed, they have not been practically satisfactory nor have they in any sensible measure superseded the still prevalent hand operation.

The pasting operation in the collar, cuff and shirt manufacture is to be performed with reference to subsequent operations; the paste must be applied to blanks only on such portions thereof as will not subsequently be pierced by the sewing machine needle; if a spot of paste is applied at the place where stitching will be done, the presence of the hardened film of paste is almost certain to break the sewing machine needle. The paste is, therefore, applied to the blanks in this manufacture in small isolated spots, and in hand operation care has to be taken to see that these spots of paste are applied by the brush or other pasting utensil at proper places and in proper quantities upon the blank. When the blank is thus spotted with paste another blank is laid over it so that the two register accurately, they are then smoothed together and the paste allowed to set and secure the two pieces in their proper relation. An excess of paste even when it is applied in these isolated spots is, moreover, embarrassing or injurious during the subsequent manipulations of the material. Consequently, the requirements of this special situation are that paste shall be applied to a blank in isolated spots properly located and in minute measured quantities.

The result accomplished by my invention is the regular and uniform automatic application of suitable paste spots in properly measured quantities to a blank.

The physical conditions to the realization of my invention are the provision of a suitable supply of adhesive, the periodic abstraction from that supply of small measured quantities of adhesive and the impression thereof upon blanks in regular succession. In order that these physical conditions shall be uniformly maintained, a mechanism is required which does not employ conveying tubes for the adhesive, or any surfaces upon which the adhesive will quickly harden so as to clog the operation of the machine. A characteristic of mechanism which exemplifies my invention is the abstraction from the paste supply of individual small films of adhesive and their transfer to the object to be pasted. Such a mechanism is illustrated in the accompanying drawings, in which,—

Figure 1 is a side view of a pasting machine; Fig. 2 is a front elevation; Fig. 3 is a plan view; Fig. 4 is a detail on a larger scale showing the paste reservoir and paste transferring members; Fig. 5 a detail showing the construction of the paste transferring mem-

bers; and Fig. 6 a further detail illustrating the guide apron at the front of the machine.

In the machine illustrated which is adapted to the pasting of collar, cuff or shirt front blanks there is provided a suitable frame A in the general form of a table. A conveyer for the blanks, in the instance shown an endless belt B, is mounted on the frame A and passes over the rollers B′, B² at opposite ends of the frame, the roller B² being mounted in an adjustable bearing B³ which is provided with adjusting devices, as the screw B⁴, for the purpose of taking up the stretch of the belt B. The roller B′ is the driving roller for the conveyer B and is driven by means of the disk D which, in turn, derives motion frictionally from the friction roller D′ which slides on and rotates with the shaft D², this shaft being driven by the bevel gears D⁵, D⁶ from any appropriate source of power. The speed of rotation of the disk D is determined by the position thereon of the roll D′. This position is regulated by the shipper lever D⁸ which is pivoted upon the frame and carries a pin d^3 which catches in holes or depressions d^4 upon the sector bracket D⁴. The lever D⁸ may be made of sufficiently resilient material to allow the pin d^3 to be sprung out of one of the depressions d^4 and transferred to another.

One set of blanks as, for instance, collar linings, is placed in the tray T at the rear end of the machine and another set as, for instance, collar tops, in the tray T′ which extends across and over the conveyer B near the front of the machine.

The movement of the conveyer B carries blanks in succession upon the conveyer from the rear to the front of the machine; in their traverse they pass successively beneath the pasting mechanism which is located midway between the front and the rear ends of the machine.

The standards E are mounted on either side of the machine frame and contain the bearings and supports for the pasting mechanism; the bearing slots E′ contain block bearings for the rolls J and K and the slot E² contains the bearing block for the shaft on which the paste transferrers or spotters are mounted. A trough F constituting the paste reservoir is supported between the standards E and the paste carrying roll K dips beneath the surface of the paste in the trough F and is given a movement of rotation by means of the belt and pulleys at K in the direction shown by the arrow in Fig. 4. The paste carrier K carries on its surface a film of adhesive, and the roll J driven by the belt and pulleys at *j*, acts as a film-regulator by pressing upon the upper portion of the roll K spreading this film to a uniform thickness. The paste transferring members are mounted upon the shaft L; these in the illustrative example shown in the drawings, consist of disks L′, (see Fig. 4), in the circumference of which the tubes L² are mounted. These tubes serve as carriers for the stems L⁴ (see Fig. 5) and at the outer ends of these stems there are secured elastic tips L⁵, preferably composed of rubber and slightly cupped at their outermost surfaces. These tips, in the illustration here shown of my invention, constitute the paste transferring members which apply paste in spots to the blanks. Springs L⁶ housed in the tubes L³ serve to hold the stems L⁴ yieldingly pressed outward. The shaft L is driven by the pin wheel G whereof the pins G′ engage with a series of gromets *b* secured to the conveyer belt B along one margin thereof. The proportions of the wheel G are such that as the tips L⁵ of the stems L⁴ come in contact with the blank upon the conveyer B they move at the same rate as the surface of conveyer B and consequently do not tend to rub on the blanks. Thus the contact of the tips L⁵ with the blank on the conveyer B will not displace the blank from its position on the conveyer. The relative positions of roller K and shaft L are determined so that each of the paster tips L⁵ will come into gentle pressure contact with the paste covered roller K, preferably just enough to flatten out the cupped extremity of the tip L⁵. When, in the rotation of these members, the tip leaves the roller K and assumes its normal form, it will remove from the roller K a small portion of the film of paste carried by the roller. When the paster tip L⁵ comes in contact with the blank, the tip presses thereon, squeezing the small quantity of paste carried by the tip upon the blank, depositing it there preferably with sufficient pressure to cause the paste to enter the meshes of the blank rather than by depositing it only by touching it upon the surface. The spring support of the stems L⁴ allows a reasonable range of adjustment between the shaft L and roller K and also between the shaft and the surface of the conveyer B; moreover, should any foreign substance accidentally lodge upon the conveyer B and be struck by one of the paster tips, the spring support of its stem L⁴ will enable the object to pass without damaging the mechanism.

In order to prevent the pasted blanks from adhering to the paster tips L⁵, I provide the strippers H which consist of rollers arranged just in front of the shaft L and attached to the ends of hinged or flexible arms H′, the latter being secured to the reservoir F. These strippers bear upon the blanks as they pass under the shaft L and strip them from the paster tips as the latter rise from the conveyer. As the blanks come forward under the tray T′, a second operator takes the second set of blanks one by one from the shelf and lays them upon the pasted blank, securing the two blanks together by means of the paste spots previously applied to the

blanks on the conveyer B by the paste transferring members.

As the pasted pairs of blanks pass to the front of the machine, they fall from the conveyer B onto the delivery band C which is an endless belt passing over the rollers C′ and C^2, the roller C′ being driven by gears C^3, B^5, the latter rotating with the shaft of the conveyer roller B′. In order that the blanks which are lightly secured together by moist paste may be so guided in their fall to the band C that they will not be mutually displaced, I provide the guide apron N (see Fig. 6) which is a curved adjustable sheet of smooth material, such as sheet brass, hung by arms N′ upon a bar N^2 which is adjustable horizontally upon the brackets N^3 as by bolts and nuts at n^3. The bracket N^3 is vertically adjustable upon the side hanger N^4 as by bolts and nuts at n^4. This hanger N^4 is secured at the front corners of the machine, the securing means being at N^5. As the pasted blanks tip forward over the roller B′, they are turned by the apron N and deposited gently upon the band C which conveys the blanks to the tray T^2.

The operation of the above described machine is as follows: Collar lining blanks, for instance, being stacked on the shelf or tray T and the machine being started, an operator places the lining blanks one by one upon the conveyer B, being guided by the suitable marks upon the surface of the conveyer so that the blanks shall be placed properly to receive paste from the paster tips. As this procession of blanks passes under the pasting mechanism, the paster tips of the paste transferring members having taken each its measured supply of paste from the roller K, deposit the paste upon the blanks one after the other; the blanks pass under the strippers H and the tray T′ and emerge toward the front of the machine. There a second operator takes the collar top blanks one by one from the shelf T′ and places them upon the pasted lining blanks taking care that the two blanks register properly with each other in each instance. Then the pasted pairs of blanks pass from the front of the machine down over the guide apron N and are deposited upon the band C which conveys them to the shelf T^2.

The speed of the machine may be regulated as above described by means of the shipper D^3 so that the speed of delivery of pasted blanks may be within the operating capacity of the person at the front of the machine.

What I claim and desire to secure by Letters Patent is:

1. In a pasting machine, the combination of a paste reservoir, a paste transferring member provided with a cupped elastic tip, means to apply the cupped tip of the transferring member alternately to the paste and into contact with objects to be pasted.

2. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped elastic tip mounted adjacent to the conveyer and to a paste reservoir, the reservoir, means to move the tips of the paste transferring members alternately into contact with paste from the reservoir and with blanks on the conveyer, and means to move the conveyer.

3. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped elastic tip and mounted adjacent to the conveyer and to a paste reservoir, the reservoir, a paste carrier mounted to carry paste from the reservoir means to move the tips of the paste transferring members alternately into contact with the paste carrier and with the blanks on the conveyer, and means to move the conveyer.

4. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped elastic tip, said transferring members rotating on an axis transverse to the conveyer and mounted adjacent to the conveyer and to a paste reservoir, means to rotate the transferring members into contact alternately with the paste from the reservoir and with blanks on the conveyer, and means to move the conveyer.

5. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped elastic tip mounted adjacent to the conveyer and to a paste reservoir, the reservoir, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with blanks on the conveyer, strippers overlying the blanks on the conveyer to strip said blanks from the paste transferring members and means to move the conveyer.

6. In a pasting machine, the combination of a conveyer for blanks, a paste reservoir, yieldingly mounted paste transferring members adjacent to the conveyer and the paste reservoir, each paste transferring member provided with a cupped elastic tip, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with the blanks on the conveyer, and strippers overlying the conveyer to strip said blanks from the paste transferring members, and means to move the conveyer.

7. In a pasting machine, the combination of an endless belt adapted to receive and carry blanks to be pasted, a paste reservoir, and paste transferring mechanism comprising pasting tips and a shaft whereon said tips are mounted, a pin wheel on said shaft and a row of apertures in the belt spaced to engage the pins on said wheel to actuate the paste carriers directly from the belt, and means to move the belt.

8. In a pasting machine, the combination of an endless belt adapted to receive and carry blanks to be pasted, a paste reservoir and paste transferring mechanism comprising yieldingly mounted pasting tips and a shaft whereon said tips are carried, a pin wheel on said shaft and a row of apertures in the belt spaced to engage the pins on said wheel to actuate the pasting tip directly from the belt, and means to move the belt.

9. In a pasting machine, the combination of an endless belt to support and carry blanks to be pasted, a paste reservoir, and means for transferring paste from the reservoir to the blanks on the belt comprising movable pasting tips and pasting tip actuating mechanism driven directly by the belt, and means to move the belt.

10. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped tip mounted adjacent to the conveyer and to a paste reservoir, the reservoir, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with blanks on the conveyer, strippers overlying the blanks on the conveyer to strip said blanks from the paste transferring members and means to move the conveyer.

11. In a pasting machine, the combination of a conveyer for blanks, a paste reservoir, yieldingly mounted paste transferring members adjacent to the conveyer and the paste reservoir, each paste transferring member provided with a cupped tip, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with blanks on the conveyer, and strippers overlying the conveyer to strip said blanks from the paste transferring members, and means to move the conveyer.

12. In a pasting machine, the combination of a conveyer for blanks, paste transferring members each provided with a cupped tip mounted adjacent to the conveyer and to a paste reservoir, the reservoir, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with blanks on the conveyer, strippers overlying the blanks on the conveyer to strip said blanks from the paste transferring members and means to move the conveyer.

13. In a pasting machine, the combination of a conveyer for blanks, a paste reservoir, yieldingly mounted paste transferring members adjacent to the conveyer and the paste reservoir, each paste transferring member provided with a cupped tip, means to move the tips of the paste transferring members alternately into contact with the paste from the reservoir and with blanks on the conveyer, and strippers overlying the conveyer to strip said blanks from the paste transferring members, and means to move the conveyer.

Signed by me at Troy, Rensselaer county, New York, this twenty-third day of April, 1908.

LORING VINCENT ESTES.

Witnesses:
ALBERT E. CLUETT,
MARY A. MOAK.

Correction in Letters Patent No. 921,386.

It is hereby certified that in Letters Patent No. 921,386, granted May 11, 1909, upon the application of Loring Vincent Estes, of New York, N. Y., for an improvement in "Pasting-Machines," an error appears in the printed specification requiring correction, as follows: In line 15, page 1, the word "means" should read *smears;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of May, A. D., 1909.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

8. In a pasting machine, the combination of an endless belt adapted to receive and carry blanks to be pasted, a paste reservoir and paste transferring mechanism comprising yieldingly mounted pasting tips and a shaft whereon said tips are carried, a pin wheel on said shaft and a row of apertures in the belt spaced to engage the pins on said wheel to actuate the pasting tip directly from the belt, and means to move the belt.

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