June 8, 1926. 1,588,037

J. C. LIGGETT

METHOD OF AND MEANS FOR MAKING INDEX SLIPS

Filed Oct. 21, 1922

Fig. 1.

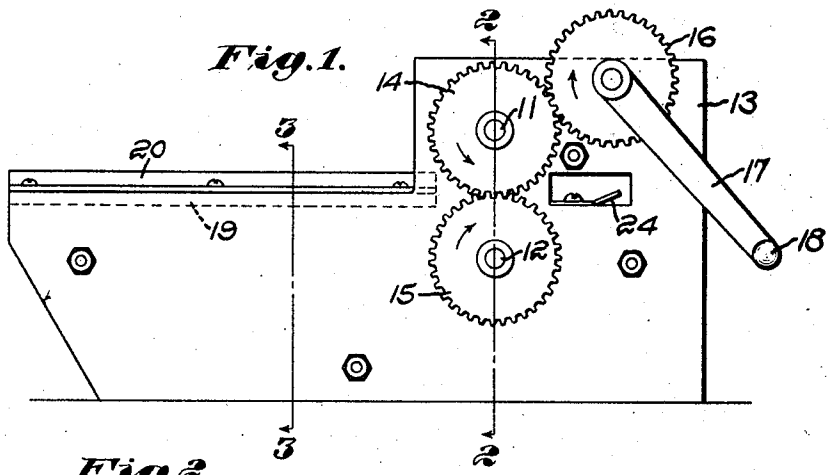


Fig. 2.

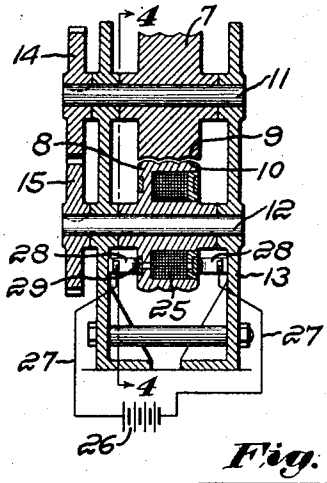


Fig. 3.

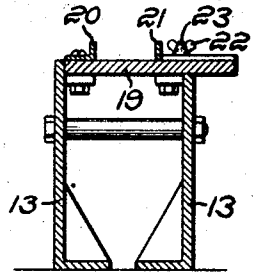


Fig. 4.

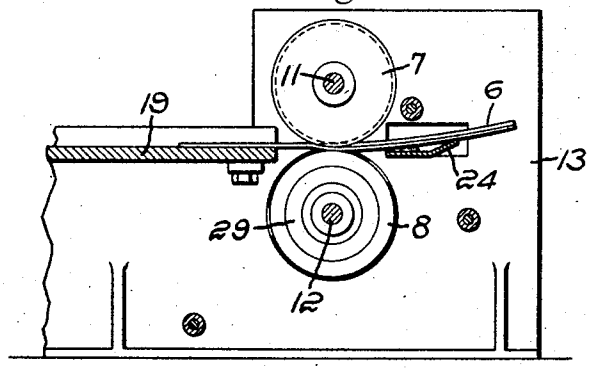
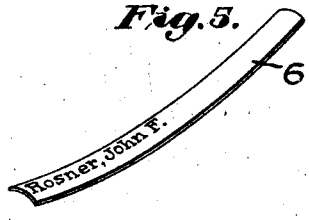


Fig. 5.



Inventor:
John C. Liggett,
by Emery, Booth, Jamieson & Varney.
Attys

Patented June 8, 1926. 1,588,037

UNITED STATES PATENT OFFICE.

JOHN C. LIGGETT, OF NEW YORK, N. Y., ASSIGNOR TO POSTINDEX COMPANY, INC., OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

METHOD OF AND MEANS FOR MAKING INDEX SLIPS.

Application filed October 21, 1922. Serial No. 596,157.

This invention aims to provide a novel and improved method of and means for making index slips for indexes of the class in which a series of slips placed edge to edge occupy a frame in which they are adjustably and interchangeably mounted.

The invention will be best understood by reference to the following description, when taken in connection with the accompanying drawings illustrative of one specific means by the aid of which the invention may be carried out.

In the drawings:

Fig. 1 is a side elevation of a machine for shaping the index slips;

Fig. 2 is a sectional view on line 2—2 of Fig. 1;

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

Fig. 4 is a sectional view on line 4—4 of Fig. 2; and

Fig. 5 is a sectional view of one of the index slips.

Referring to the drawings, Fig. 5 shows an index slip 6, which is concavo-convex transversely as well as longitudinally, thereby having a spring-like character which enables it to maintain its place in the index without danger of accidental displacement. One step in the method is to coat the paper, preferably on both sides, with a moisture and dirt-excluding coating, such as collodion, which can be applied before or after the data is applied to the paper. I prefer to apply the coating, which, by the way, may be as thin as desired, before the data is applied. Herein, this is conveniently accomplished by placing the sheet in a bath of liquid collodion, and then drying the sheet. In practice, the coating is so thin that it is difficult, if not altogether impossible, to detect the presence of the coating. The next step in the method is to apply to a sheet of paper of suitable dimensions and treated as above one or more names, or other desired data, by suitable means, such as a typewriter. Where a typewriter is employed for this purpose, it is most convenient to type the data for several slips, and afterwards to cut them.

Having typed and cut the index slips, the next step is to shape them by subjecting each slip to pressure to give it a concavo-convex formation, transversely as well as longitudinally. One convenient means for carrying out this step is a machine having a pair of rollers 7 and 8, whose mating surfaces are given a shape corresponding to the desired cross-sectional shape of the slip. In most cases, it will be desirable to use a single name slip, such as that shown in Fig. 5, but there may be intances where it will be desirable to provide a multiple slip having, say, twice or three times the width of the single slip. Slips of the multiple type are useful where it is desired to place on the slip more information than merely the name and address. To this end, the rollers 7 and 8, as herein shown, are provided one with a plurality of grooves 9, which are concave in cross-section, while the roller 8 is provided with a corresponding number of ridges 10 of convex formation. Of course, the space between the rollers will be suitable to accommodate the desired thickness of paper.

Herein the rollers are secured to shafts 11 and 12, which are journaled in suitable bearings presented by a frame 13. In the present embodiment, the rollers are caused to travel at the same peripheral speed by the use of spur gears 14 and 15, secured to the shafts 11 and 12, respectively. The rollers are conveniently driven by a third spur gear 16, meshing with the gear 14, and mounted to turn on the frame 13. To this gear is secured a crank 17, provided with a handle 18 conveniently grasped by one hand of the operator; the other hand may be used to feed the slips to the rollers.

The slips are conveniently guided to the rollers by a platen 19, presenting a pair of lateral guides 20 and 21, one of which, herein the guide 21, in the present embodiment is adjustable with reference to the guide 20 to permit the accommodation of slips of different widths. The adjustment is normally maintained conveniently by a wing-nut 22 and bolt 23, shown in Fig. 3.

The longitudinal curvature is given to the slips by appropriate means, such as a fixed forming guide 24 (see Fig. 4), which is so inclined as to deflect the slip from the straight path which it would otherwise follow in passing through the rollers. In this way, the slip is conveniently curved lengthwise contemporaneously with the transverse curve. Thus, the shaping of the slip in both directions is accomplished in a minimum length of time.

There is another important step in the

forming of the slip, which is yet to be described, namely: the application of heat to the slip while it is being subjected to pressure. This is conveniently accomplished by heating one of the forming rolls, as by the use of an electric resistance element 25, received in the roller 8, which is chambered for this purpose. Current is conveniently conducted from a suitable source 26 through conductors 27 and brushes 28 to annular conductors 29, carried by the roller 8 and attached to the respective ends of the heating element. By the application of heat to the slip while it is being formed, it is found that better results are obtained than when the slip is not heated, because the forming of the slip is more readily accomplished, and it retains the form better.

If desired, a further protective coating of collodion may be applied to the index slips after the slips have been shaped, although in most cases the second coating is unnecessary, and this step may be omitted if desired. Whether applied before or after the application of the data, the coating prevents the slip from becoming soiled, as well as protecting it from the entrance of moisture, which might impair its spring-like qualities. The addition of the coating has the effect of actually increasing the spring-like characteristic of the slip. The slip is now completed, and may be placed in the file.

Having thus described one method, and means for carrying out the method, but without limiting myself thereto, what I claim and desire by Letters Patent to secure is:

1. The art of making an index slip, which is characterized by printing characters on the slip, giving it a concavo-convex formation, and coating it with a protective material.

2. The art of making an index slip, which is characterized by printing characters on the slip, giving it a concavo-convex formation, and coating it with a material which tends to preserve such formation.

3. In a machine for shaping index slips, the combination of means for curving the index slip transversely, and means for curving the slip longitudinally.

4. In a machine for shaping index slips, the combination of means for curving the index slip both transversely and longitudinally, and means for subjecting the slip to the action of heat while it is being curved.

5. In a machine for shaping index slips, the combination of cooperating shaping rollers, one having a convex surface and the other a concave surface, between which surfaces the slip to be shaped is passed, there to be curved transversely, and means for causing the slip to be curved longitudinally.

6. In a machine for shaping index slips, the combination of cooperating shaping rollers, one having a convex surface and the other a concave surface, between which surfaces the slip to be shaped is passed, there to be curved transversely, and means for causing the slip to be curved longitudinally contemporaneously with the transverse curving.

7. In a machine for shaping index slips, the combination of cooperating shaping rollers, one having a convex surface and the other a concave surface, between which surfaces the slip to be shaped is passed, there to be curved transversely, and means for causing the slip to be curved longitudinally during its transit between said rollers.

8. In a machine for shaping index slips, the combination of cooperating shaping rollers, one having a convex surface and the other a concave surface, between which surfaces the slip to be shaped is passed, there to be curved transversely, and means for causing the slip to be curved longitudinally, and engageable with the advancing strip forward of said rollers, to cause said slip to be curved longitudinally as it progresses.

In testimony whereof, I have signed my name to this specification.

JOHN C. LIGGETT.