Nov. 1, 1932. W. L. DUCKER 1,885,808

TAPE FOR CONTROLLING ELECTRICAL APPARATUS

Filed June 3, 1930

FIG. 1

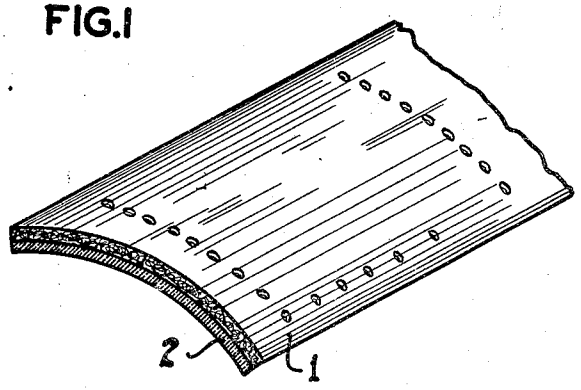


FIG. 2

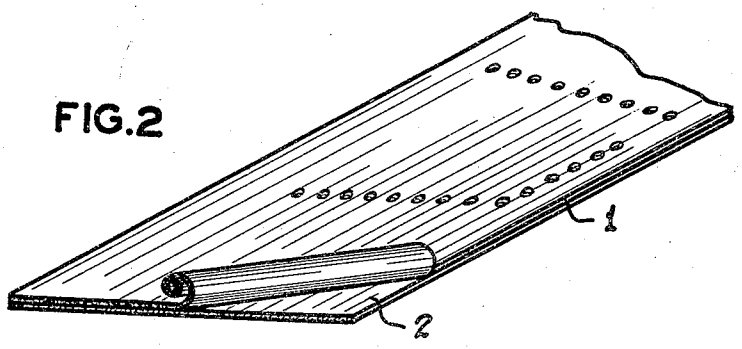


FIG. 4

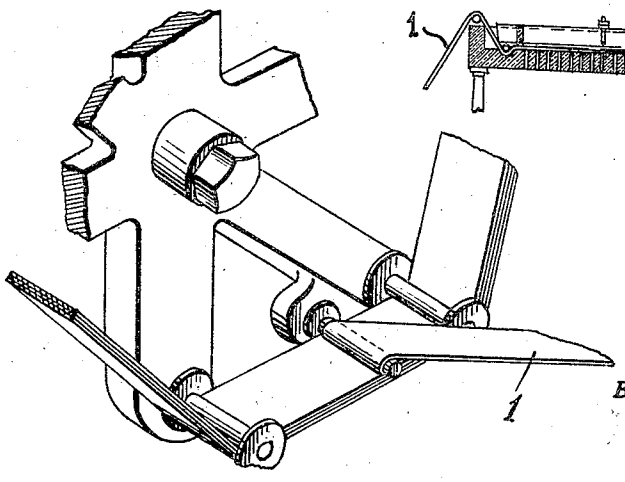
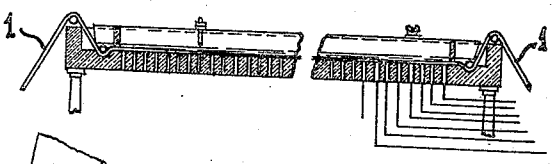


FIG. 3



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UNITED STATES PATENT OFFICE

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TAPE FOR CONTROLLING ELECTRICAL APPARATUS

Application filed June 3, 1930. Serial No. 459,091.

My invention relates to tape for controlling the making and breaking of contact in electrically operated apparatus.

One object of my invention is to provide a tape which will efficiently operate upon a tape winding device of which I am the inventor and upon which application for a United States patent was filed by me April 18th, 1930, under Serial Number 445,466.

In order to obtain ideal results with the device above referred to, it is imperative that one side of the tape be smooth and slick. It is also imperative that the tape be comparatively strong. This is because of the fact that there is necessarily a certain amount of slippage between the convolutions in the roll of the tape upon the device. In order that a maximum amount of tape may be handled by a given sized device, it is necessary that the tape be as thin as possible without sacrificing a detrimental amount of its tensile strength.

The above mentioned device is primarily designed for use in connection with electrical devices covered by United States Patent Numbers 1,394,565, and 1,572,212, issued in favor of John E. Long, respectively, on October 25th, 1921, and February 9th, 1926, but may be used in connection with any other electrical apparatus in which a perforated tape is used in making and breaking an electrical contact.

So far as this applicant knows or can ascertain the Long devices have in practice been confined to signs operated on a low voltage electrical energy, due to the fact that no economical tape of sufficient insulating quality has been devised for use with the device. This lack of a proper tape, together with the expense of manufacturing a large sign adapted to operate upon low voltage electric energy, has caused the Long devices to be confined exclusively to small signs such as may be used in window displays and the like.

By providing my above mentioned tape winding device, with an ideal tape as described and claimed herein, and combining both of them with either control mechanism of Long as above mentioned, I make it possible to economically operate large outdoor signs on commercial voltage and other voltage higher than have heretofore been possible with the said Long devices.

Other objects of the invention are to provide a tape of this class and within this art which will be new, novel, practical, and of utility; which will bear sufficient insulation to the passage of electrical current to be practical in operating a sign on comparatively high voltage electrical current; which may be easily perforated mechanically; which will be easily mended; and, which will be efficient in accomplishing all the purposes for which it is intended.

With these and other objects in view as will more fully appear, my invention consists in the construction, novel features, and combination of parts hereinafter more fully described, pointed out in the claims hereto appended, and illustrated in the accompanying one-sheet drawing, of which;

Figure 1 is a perspective view of a fragment of the tape, partially in section;

Fig. 2 is a similar view showing a portion of the tape turned back and exposing therebeneath the layer of insulating material;

Fig. 3 is a vertical sectional view of a portion of an electrical control apparatus upon which my tape may be used; and,

Fig. 4 is a fragmentary perspective view of the tape winding device upon which application for United States patent is now pending under Serial No. 445,446, and upon which the tape covered herein is intended to be used.

Like characters of reference designate like parts in all the figures.

It is understood that various changes in the form, proportion, size, shape, weight and other details of construction, within the scope of my invention may be resorted to without departing from the spirit or broad principle of my invention and without sacrificing any of the advantages thereof; and it is also understood that the drawing is to be interpreted as being illustrative and not restrictive.

One practical embodiment of the invention as illustrated in the drawing comprises:

A strip of tape 1, of some suitable fibrous material, but preferably of a good quality of

long fibered paper. Upon one face of tape 1, I provide a layer 2 of insulation. Said layer 2 will preferably be composed of impure animal gelatin applied in a liquid or viscous state and permitted to dry. It will be noted in the embodiment shown in Fig. 1 of the drawing that the tape is slightly curved in cross-section and that both of its side edges are slightly lower than it is at its center. This is done so that when the tape travels across a plane surface and is covered with mercury it will have a tendency to adhere closely at its edges to the plane surface over which it is traveling, thus preventing the mercury from flowing beneath the tape's edges and reaching a position between the plane surface and the tape. Another virtue in having the tape slightly curved transversely, is the ease with which it may be guided over a reel. The curve gives the tape a natural tendency for one of its convolutions to aline itself upon another.

It is obvious however that the tape may be made perfectly flat as shown in Fig. 2 without departing from the principle of my invention.

Obviously, the invention is susceptible of embodiment in forms other than that which is illustrated in the accompanying drawing and described herein, and applicable for uses and purposes other than as detailed, and I therefore consider as my own all such modifications and adaptations and other uses of the form of the device herein described as fairly fall within the scope of my invention.

Having thus described my invention, what is claimed and desired to be secured by Letters Patent, is;

1. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of a fibrous material faced with an insulating material.

2. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying an endless strip of fibrous material faced with an insulating material.

3. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous non-insulating material faced with an insulating material.

4. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous non-insulating material having one of its faces covered wth an insulating material.

5. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous material faced with a smooth insulating material.

6. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous material, and a strip of insulating material, said insulating material attached firmly and evenly to the face of said strip of fibrous material.

7. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying an endless strip of fibrous material, and an endless strip of an insulating material attached firmly and evenly to the face of said strip of fibrous material.

8. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous material, and a strip of smooth surfaced insulating material, said insulating material attached firmly and evenly to the face of said strip of fibrous material.

9. The combination with mechanism for making and breaking electrical circuits through the agency of a traveling perforated tape, of a perforated tape embodying a strip of fibrous material faced with impure animal gelatin.

10. A tape for the purposes described embodying a strip of fibrous material faced on one face with impure gelatin, said tape being arcuate in cross-section.

11. Organization as described in claim 10, in which the tape is slightly curved in cross section.

WILLIAM L. DUCKER.