June 22, 1937. L. R. FINK 2,084,485

FILM WIPER

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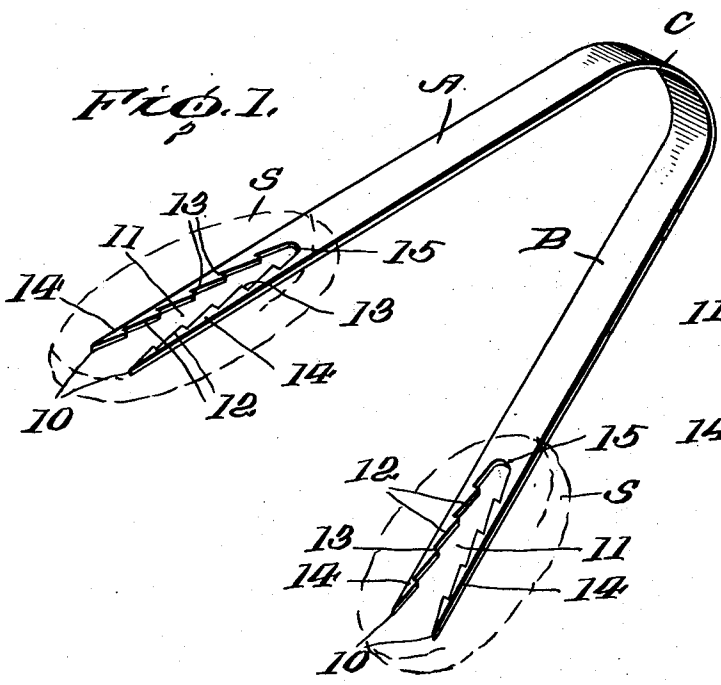


FIG. 1.

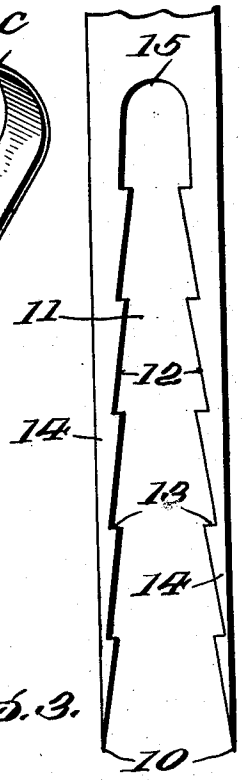


FIG. 3.

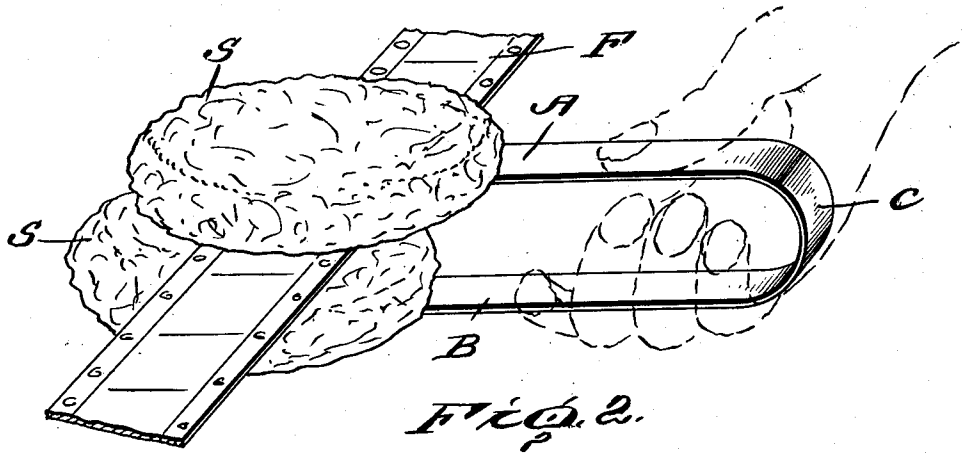


FIG. 2.

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FILM WIPER

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1 Claim. (Cl. 15—244)

This invention relates to a device for employment as a wiper for strips of film, and the like long, thin and relatively narrow objects.

The surfaces of photographic film are extremely delicate and very easily damaged, and the processing operations necessitate handling steps which are a constant source of danger, in that the slightest surface scratch, tear, or adherent dust particle, is reflected in the poor quality of the prints made from the film. The film must, therefore, be handled gently so as to avoid even the slightest surface injury, and this is particularly true in connection with operations entailed in the cleaning and wiping of the film free of the liquids with which the film is processed, and also, free of acquired dust and dampness, to both of which photographic film is rather susceptible. This cleaning and wiping presents quite a problem, since the film, which is ordinarily in long and narrow strips, is so easily damaged. Both surfaces of the strip must be cleaned, and if each surface is cleaned separately, the film undergoes a double handling. Also, in order to clean film strips properly, an even pressure must be exerted over the entire surface, and it is, therefore, desirable that the cleaning surfaces of the device used for the wiping, etc., be perfectly flat and parallel to the sides of the film being cleaned. This even pressure prevents any possible bending or twisting of the film.

It is, therefore, the main object of my invention to provide a device for cleaning (and by "cleaning" I mean wiping and drying, as well as cleaning) the surfaces of film strips, the effective faces of which approach and oppose each other in parallel relation when the device is in operation.

It is another object of my invention to reduce the handling operations and hence, reduce the damage hazards incident to cleaning, by providing a device for cleaning both surfaces of the film strip simultaneously, in the one operation.

Another object of my invention is the provision of a device for cleaning film strips which is cheap and easy to manufacture, has relatively few parts, and is simple to operate. Other objects of my invention will in part be obvious, and in part be pointed out specifically hereinbelow in connection with the following description of an illustrative embodiment.

An illustrative form of the invention is shown in the accompanying drawing in which:

Fig. 1 is a perspective view of the holder.

Fig. 2 is a similar perspective view, showing the holder with sponges thereon employed for wiping a motion picture film.

Fig. 3 is a view, on a larger scale, showing the end of one arm.

My invention resides not only in the particular shape of the wiper holder, but also in the particular size and shape of the wiping sponges, and in the particular relation in which the sponge is mounted on the holder.

The structure is preferably made from a strip of sheet metal, which should be non-corrosive with respect to the atmosphere and the agents employed on films and for cleaning films. This material should be resilient. The material is cut to length and provided at its ends with notches. In Fig. 1, the strip is shown as bent to form a tongs with the arms A and B extending from the central bight C. The end of each arm, in this illustrative form, has a pair of points 10, and a notch 11 of substantially triangular form is presented between the bifurcations. The walls of this notch are formed by successive long convergent surfaces 12 extending from the corresponding end of the strip toward one another and toward the bight of the tongs, separated by short divergent surfaces 13, so that teeth or barbs are provided and each tine 14 of the bifurcated ends has a spear-like form, with a general convergence of the adjacent walls of the tines 14 toward one another. It is preferred to form the upper end of the notch as a curve 15.

In service, a swab or sponge S is forced onto and over each end of the tongs, so that the tines 14 pass into the sponges and the material of the sponge is compressed by the walls of the notch owing to its generally convergent form, the material of the sponge sliding along the long convergent surfaces 12 and becoming engaged successively behind the short divergent surfaces 13.

Sponges S are provided with substantially flat cleaning surfaces, see Fig. 2, that is, the faces thereof are flat. Thus, when the sponges are placed on the arms A, B, the portions of sponges S which face and oppose each other, are in substantial parallelism, and the tines of each are pushed into the sponge in such manner that the plane of the arm is parallel to the plane of the cleaning surfaces of the sponge. Unless this is done, my device will not functon properly to clean the film surfaces evenly. It will be noted that the metallic holder ends are entirely embedded within the interior of sponges S, so that there is no possibility of any injury to the film from that particular source. Splitting the arm ends, providing two forked points 10 on each end, serves to accomplish another purpose, to wit, keeping the sponges S from twisting or being

turned around from the normally parallel opposed position illustrated in Fig. 2, for when the holder and film being wiped are moved relatively to each other, the turning or twisting tendency of the sponge is counteracted by the spaced tines 10, 10, on each arm, which act to keep the sponge and arm in the plane parallel relation above indicated.

Sponges S are of such thickness that when same are in position on the holder arms, one on each arm, and the arms brought into parallelism, the opposing faces of the sponges will meet in parallel abutting relationship. In other words, each sponge S is of such thickness that when each of arms A, B are embedded within their respective sponges and the arms pressed into parallelism, they will be separated in such relation by the thickness of the sponges therebetween. This relationship is not disturbed by the relatively insignificant thickness of the film strip.

The device may then be gripped in the hand as shown in Fig. 2, and the strip of film is passed between opposing faces of the sponges S, and pressure exerted against the resilience of the holder to bring arms A and B into parallelism. The cleaning and wiping surface of sponges S are thus brought into parallel relation to both sides of surfaces of the film and an even pressure is exerted over the entire film area contacted by the sponges which bear against the two surfaces of a motion picture film F, and by relative movement of the film and wiper, a squeegeeing effect is produced, for example in drying the film. It has been found that by using sponges of viscose, excess water and dust may be removed from the film after processing, without danger of injury to the surface of the film.

The device is simple of manufacture and use, as the sponges can be easily stripped away and discarded when they have become dirty, without injury to the material of the holder itself.

A presently preferred size of parts is to form the strip 15 inches long of material ½ inch wide and .040 inch thick, with the notch 11 about 2½ inches long.

It is obvious that the invention may be employed in other ways within the scope of the appended claim.

I claim:

A wiper for strips of film or the like comprising a one-piece holder and a pair of sponges; said holder comprising a thin, flat strip of resilient metal bent medially to form a pair of spring-opposed, normally divergent arms, each arm end having formed at the end thereof a pair of spaced-apart tines, and having mounted thereon a normally flat sponge in such relation thereto that the plane of the sponge is parallel to the plane of the tines, the sponge being of such size and thickness that the tines are entirely embedded within and covered thereby, movement of the arms toward each other bringing the opposed faces of the sponges into substantial parallelism so that both surfaces of the film passing therebetween will be entirely contacted and cleaned by said sponge faces, said spaced-apart tines serving to secure said sponges against displacement from the parallel relationshp to the holder arms.

LAWRENCE RICHARD FINK.