

[54] **FILM SPLICER**

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[51] **Int. Cl.**..... **B31f 5/06, G03d 15/04**

[58] **Field of Search** 156/157, 159, 266, 505, 156/506, 507, 511, 517, 545

[56] **References Cited**

UNITED STATES PATENTS

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Primary Examiner—William A. Powell

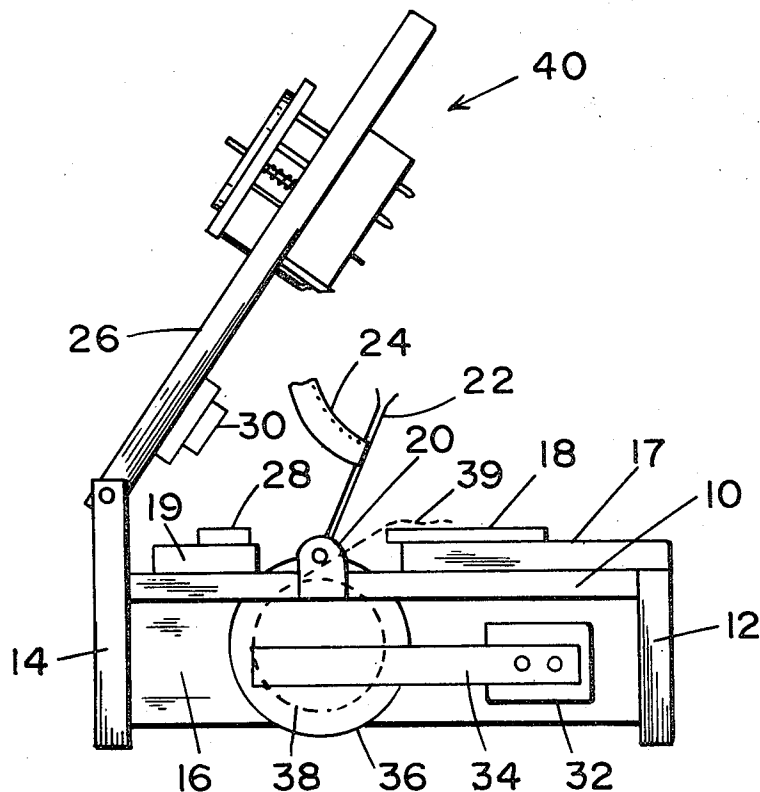
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[57] **ABSTRACT**

A film splicer in which the two ends of the film to be spliced are held in clips and pivoted between a cutting block and a taping block, the splicer including a roll of tape mounted between the two blocks designed to be pulled out into contact with the film so as to join the two ends together and further including a combination hole punch and knife pivotable above the film so as to cut off the excess tape and form new sprocket holes in the film.

6 Claims, 4 Drawing Figures



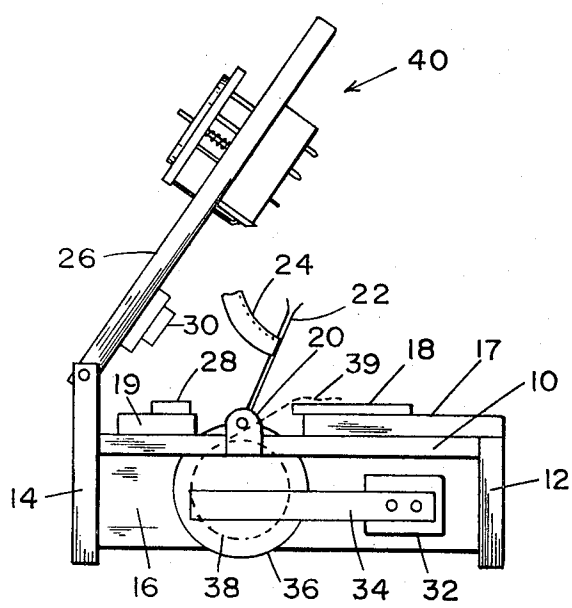


FIG. 1

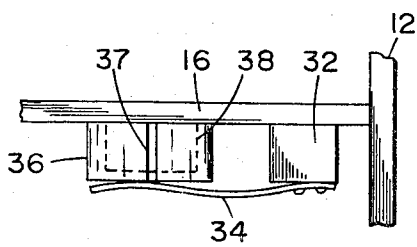


FIG. 2

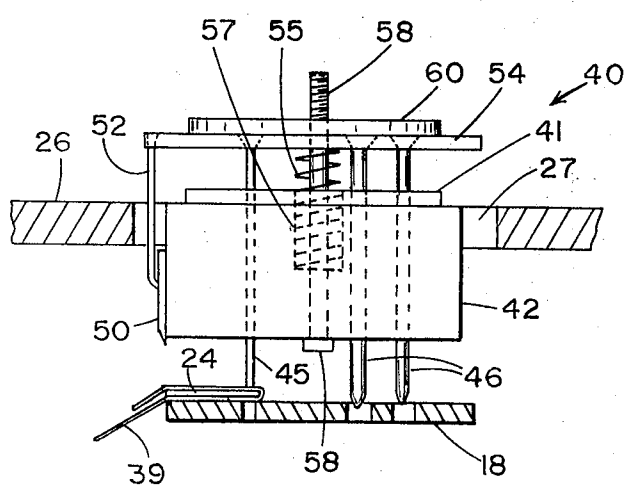


FIG. 3

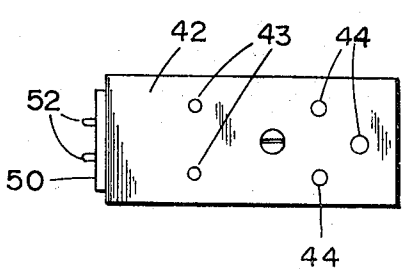


FIG. 4

FILM SPLICER

BACKGROUND OF THE INVENTION

The present invention comprises an improvement to the film splicer shown in my prior co-pending patent application, Ser. No. 348,227, filed Apr. 5, 1973, now U.S. Pat. No. 3,833,447, and the subject matter of that application is herewith incorporated by reference. My prior patent application showed a novel film splicer wherein the two ends of the film were held in perfect alignment by means of a pair of spring clips pivoted about a common axis. The film is aligned perfectly in the spring clips by small springable lugs which snap into the sprocket holes in the film. These lugs may be mounted on separate springs or formed directly from one part of the spring clip itself. This arrangement allows the two ends of the film to be placed first over a cutting block, and thence into a tape splicing well with the two pieces of film remaining in an abutting relationship relative to each other. When the film is on the cutting block, a knife mounted on an overhead pivoting arm is brought down to trim the film. When the film is in the splicing well, separate pieces of splicing tape are utilized to fasten the two ends of the film together.

SUMMARY OF THE INVENTION

The present invention comprises an improvement to this above-described splicer wherein a roll of tape is positioned on the splicer so that it can be applied directly to the film and then cut off and punched in alignment with the sprocket holes by means of a pivoting springable knife and punch device also mounted on the overhead pivoting arm.

My improved film splicer includes a guide block on the overhead pivoting arm within which the cutting blade and small sprocket hole punching pins are mounted for springable movement down against the two ends of the film after they have been taped on the taping block.

The tape is supplied from a tape roll mounted on the underside of the film splicer thus doing away with the necessity of separately supplying small pieces of tape which include prepunched sprocket holes and which must be applied to each side of the film.

It may therefore be seen that it is an object of my invention to provide an improved film splicer in which the two ends of the film can be cut simultaneously with matching cuts, taped with a ready supply of tape, and cut and punched to a proper size and shape all with the same machine. Further objects and advantages will become apparent from the following description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of my invention showing most of the more important components thereon;

FIG. 2 is a detail view of the tape holding mechanism as seen from above in FIG. 1;

FIG. 3 is a detail, partly sectional, enlarged view of the guide block which holds the cutting blade and the sprocket hole punch pins; and

FIG. 4 is a bottom view of the guide block itself showing the arrangement of the guide pins, sprocket punching pins, and the cutting blade.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 the elevational view of the film splicer of the present invention shows a platform 10 supported by a pair of legs 12 and 14 upon which rest spacers 17 and 19. A generally vertical reinforcing dividing wall 16 spans between legs 12 and 14 underneath platform 10. Wall 16 supports the tape roll in a manner that will be discussed later. Spacer 17 supports a taping block 18 in a position such that a pair of spring clips 22 can carry the two ends of the film 24 down into position on taping block 18. The spring clamps 22 are pivoted in brackets 20 on the sides of platform 10. The configuration of spring clips 22 may be seen by reference to the above-mentioned copending patent application which relates their structure in detail. Spring clips 22 also permit the film 24 to be carried back onto a cutting block 28 supported on spacer 19. In this position the knife blade 30 mounted on pivot arm 26 can be swung down to cut off the ends of the two pieces of film 24 held in spring clamps 22. Again, all of this structure is shown in detail in the aforementioned co-pending application and therefore is not further discussed here.

The unique improvements of the present invention comprise a splicing tape housing 36 containing a roll of tape 38 which is designed to be pulled out through a slot 37 in the top of housing 36 and onto taping block 18 as shown by the dashed line 39 in FIG. 1.

Additional reference to FIG. 2, which provides a small detail drawing of the tape housing as seen from above, will facilitate an understanding of this structure. Vertical divider wall 16 supports a block 32 which, in turn, mounts a spring clip 34. Spring clip 34 holds housing 36 against vertical divider wall 16 so as to contain the roll of tape 38 therein. The tape exit slot 37 may be clearly seen in FIG. 2 as well. After the tape 39 is drawn through slot 37 and onto taping block 18, the film 24 is brought down by means of spring clips 22 onto the tape 39. The clips 22 have an opening in the center to expose the film ends. The tape 39 is then folded over the top of the film 39 and a guide block assembly 40 is pivoted down so that the sprocket holes may be punched through the tape and the excess tape cut off against the lefthand side of the taping block 18 as shown in FIG. 3.

In FIG. 3 a much enlarged view of the guide block assembly 40 is presented with the guide block assembly nearly lowered into position above the taping block 18. The guide block assembly 40 comprises a guide block 42 secured through a hole 27 in pivoting member 26 by means of a bracket 41 which bracket 41 extends across the top surface of pivoting member 26. A number of holes 44 are provided through guide block 42 to accommodate guide pins 46. The location of holes 44 may be seen by reference to FIG. 4.

FIG. 4 also shows a pair of guide holes 43 which accommodate the sprocket hole punching pins 45. Finally, the cutting blade 50 slides against the end of guide block 42, held in place by means of a pair of spring pins 52, only one of which is visible in FIG. 3. The guide pins 46, the sprocket punching pins 45 and the blade mounting spring pins 52 are all connected to a support member 54 which is springably mounted above guide block 42 and bracket 41 by means of a spring 55. Spring 55 rests in a hole 57, in guide block 42, and surrounds a threaded member 58 which

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threaded member extends through guide block 42 to be secured in place by a large threaded disc 60.

As can be seen in FIG. 3, guide pins 46 and sprocket punching pins 45 are aligned with matching holes in taping block 18 so that a simple downward pressure on the top of member 54 or disc 60 will compress spring 55, pressing down the guide pins, and driving the sprocket hole punch pins 45 through the tape 39 in the proper locations to form new sprocket holes in the now-spliced film 24. At the same time, this downward motion will carry spring pin members 52 and cutting blade 50 down past the end of film 24 and the left end of the taping block 18 to slice off the excess tape 39.

It may therefore be seen that not only does the splicing machine permit the film to be held in place in the spring clamps 22 and cut by blade 30 and taped on block 18, but the excess tape can be cut off and the sprocket holes can be punched at the same time. Of course, the particular arrangement of guide pins are optional along with the particular position of the tape supply roll and therefore various changes and modifications could be made without departing from the spirit and scope of the invention. I therefore intend to be limited only to the appended claims.

I claim:

1. A film splicer comprising in combination: a base having a cutting surface and a splicing surface thereon; film holding means on said base between said cutting surface and said splicing surface, and pivotable about an axis running generally along said surface so as to be operable to carry the ends of two pieces of film in abutting relationship into position on the cutting surface and the splicing surface, said film

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holding means comprising a pair of proximate spring members extending up from the pivot axis in two branches, one for each of said two pieces of film;

tape supply means on the base adapted to permit tape to be applied to the ends of the film on the splicing surface;

a first cutting means on said base operable to make congruent cuts in the ends of said two pieces of film when said film is on said cutting surface; and

a second cutting means mounted on said base operable to cut off excess tape when said film is on the splicing surface.

2. The apparatus of claim 1 in which said second cutting means includes also a sprocket hole punching means operable to punch new sprocket holes in the film when said film is on the splicing surface.

3. The apparatus of claim 2 in which said second cutting means comprises a guide block assembly for holding and guiding a cutting blade and sprocket hole punching pins against the action of a spring toward and away from the film on the splicing surface.

4. The apparatus of claim 3 in which said guide block assembly is mounted on a pivot arm pivoted on said base, said arm also supporting said first cutting means.

5. The apparatus of claim 1 in which said tape supply means comprises a tape roll containing housing mounted on said base generally between and beneath the splicing surface and the cutting surface.

6. The apparatus of claim 4 in which said tape supply means comprises a tape roll containing housing mounted on said base generally between and beneath the splicing surface and the cutting surface.

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