

Aug. 24, 1926.

1,596,966

F. C. GRISWOLD

FILM SPLICER

Filed Sept. 13, 1922

2 Sheets-Sheet 1

Fig. 1.

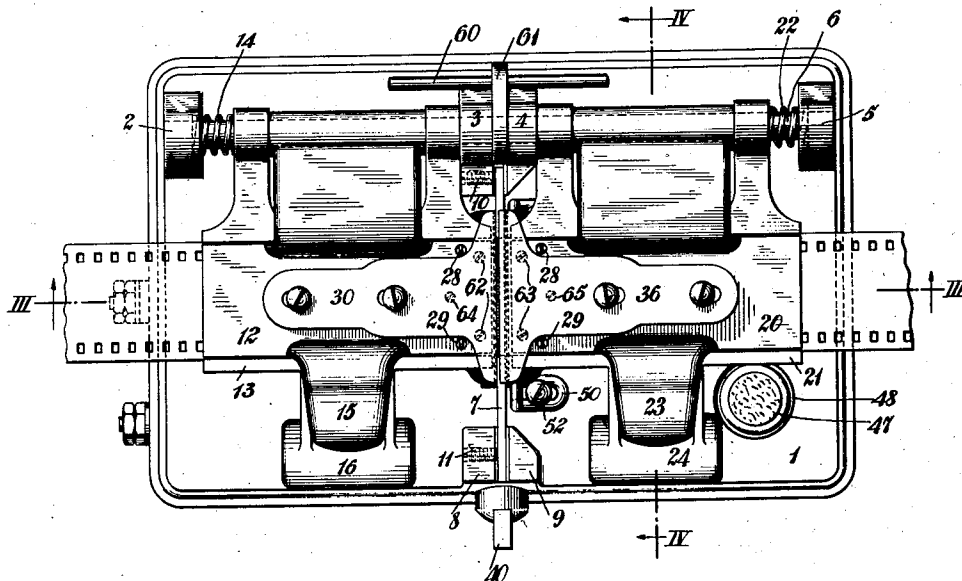
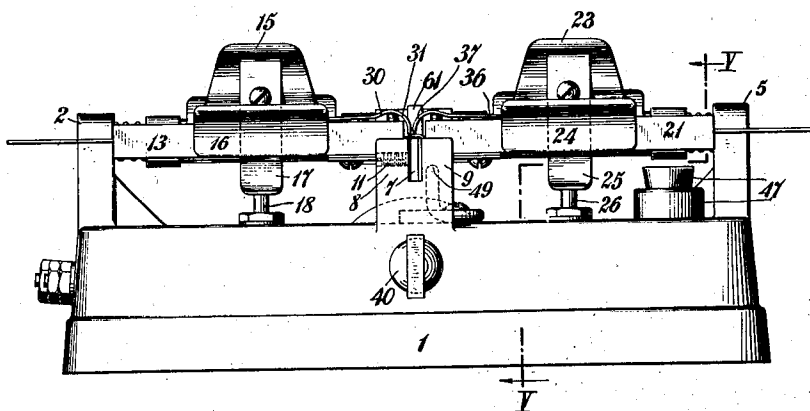


Fig. 2.



INVENTOR

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2 Sheets-Sheet 2

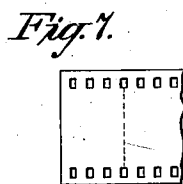
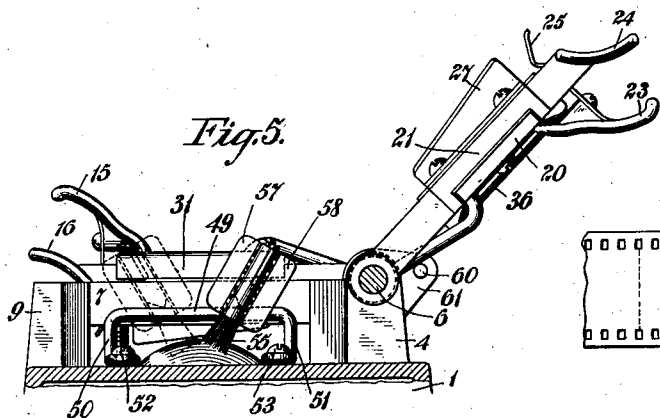
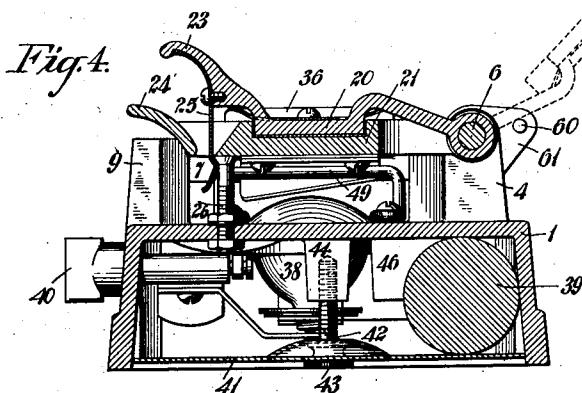
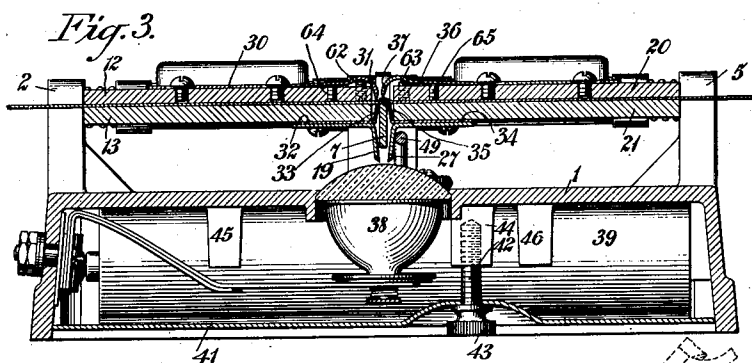


Fig. 6.

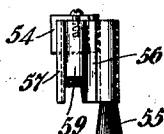
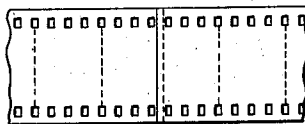


Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK CLARK GRISWOLD, OF PORT JEFFERSON, NEW YORK, ASSIGNOR TO OLIVE A. GRISWOLD, OF PORT JEFFERSON, NEW YORK.

FILM SPLICER.

Application filed September 13, 1922. Serial No. 587,991.

The object of my invention is to provide certain improvements in film splicing machines, whereby the film sections may be easily and readily prepared for splicing, and may be spliced without shifting the film sections lengthwise, means being employed to so trim the ends of adjacent film sections as to leave overlapping matched portions to be united.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a top plan view of the machine with the parts in the positions they assume when the overlapping ends of the film sections are being united.

Fig. 2 represents a front view of the same.

Fig. 3 represents a section taken in the plane of the line III—III of Fig. 1.

Fig. 4 represents a section taken in the plane of the line IV—IV of Fig. 1.

Fig. 5 represents a section taken in the two planes of the line V—V of Fig. 2, with the right hand film clamp in its raised position; a film scraper being shown in full lines and dotted lines in operative positions.

Fig. 6 represents a film scraper, which may be used in connection with my machine, in side elevation.

Fig. 7 represents a plan view of the trimmed ends of adjacent film sections, separated, and

Fig. 8 represents a similar view with the trimmed ends of the sections united.

The base of the machine is denoted by 1, and it comprises a top portion and a peripheral depending flange. Lugs 2, 3, 4 and 5 uprise from the base of the machine at the back thereof, which lugs form supports for a fixed shaft 6 on which the right and left film clamps, to be hereinafter described, are loosely mounted to swing vertically into and out of position.

A double shear block 7 is seated at its rear end between the lugs 3 and 4, and at its front end between the lugs 8 and 9, which uprise from the front of the base 1. Set screws 10 and 11 carried by the lugs 3 and 8 respectively, serve to removably clamp the double shear block in position. This shear block has a flat horizontal top face on which the trimmed overlapping ends of the film sections are united.

The upper and lower jaws of the left

hand film clamp are denoted by 12 and 13, which jaws are independently loosely mounted on the fixed shaft 6, a coil spring 14 being located between the lugs 2 and the film clamp for yieldingly pressing the film clamp laterally to the limit of its movement toward the double shear block, to ensure the proper coaction of the cutting blade with the shear block.

The upper and lower jaws of the left hand film clamp are provided with suitable handles 15 and 16, the upper handle 15 being provided with a spring catch 17 which serves the double function of locking the two jaws together, and of locking the clamp to its adjustable stop 18 when the clamp is in its lowered position.

The lower jaw 13 of the left hand film clamp is provided with a shear blade 19 arranged to coact with the adjacent side of the double shear block 7 for trimming off the rough projecting end of the film section carried by the right hand film clamp to be immediately described.

The upper and lower jaws of the right hand film clamp are denoted by 20, 21, which jaws are independently loosely mounted on the fixed shaft 6, a coil spring 22 being located between the lug 5 and the film clamp for yieldingly pressing the film clamp laterally to the limit of its movement toward the double shear block, to ensure the proper coaction of the cutting blade with the shear block. These upper and lower jaws of the right hand film clamp are provided with handles 23 and 24, the handle 23 being provided with a spring catch 25 which serves the double function of locking the two jaws together, and of locking the clamp to its adjustable stop 26 when the clamp is in its lowered position.

The lower jaw 21 of this right hand film clamp is provided with a shear blade 27 arranged to coact with its adjacent side of the double shear block 7 for trimming off the rough projecting end of the film section carried by the left hand film clamp.

The lower jaws of the right and left hand film clamp are channeled along their upper faces to provide seats for receiving the film section adjacent to the ends to be united, registering pins 28 being provided for engaging the perforations along the sides of the film sections, the upper jaws of

the right and left film clamps being provided with holes 29 for receiving the said registering pins when the jaws are closed.

The upper jaw of the left hand film clamp is provided with a longitudinally adjustable yielding combined guard and guide 30 having a downwardly turned lip 31 (preferably sharpened) arranged in position to press against the upper face of the projecting end of the film section carried by the left hand clamp. A combined guard and guide 32 is secured to the lower jaw 13 of the left hand film clamp and it is provided with an upwardly turned lip 33 (preferably sharpened) arranged to engage the underface of the projecting end of the film section carried by the left hand clamp. These combined guards and guides serve two purposes; first, to limit the distance back so that the emulsion can be scraped off from the upper face of the projecting end of the film section carried by the left hand film clamp, and second, to prevent the spreading of the cement along the film section between the upper and lower jaws of the film clamp.

The lower jaw 21 of the right hand film clamp is provided with a combined guard and guide 34 having an upwardly turned lip 35 (preferably sharpened) the edge of which lip engages the underface of the projecting end of the film section carried by the right hand clamp. This combined guard and guide serves to prevent the spreading of the cement between the jaws of the right hand film clamp. A longitudinally adjustable yielding presser blade 36 is secured to the upper jaw 20 of the right hand film clamp and it is provided with a downwardly turned lip 37 (preferably sharpened) forming a knife edge arranged to press the overlapping ends of the two film sections together on the shear block after the cement has been applied.

Lighting means, such for instance as an electric lamp 38, is mounted in the base 1 of the machine beneath the shear block. A suitable storage battery 39 may be mounted within the base and a suitable button 40 may be provided at the front of the base for controlling the lighting of the said lamp 38. This lighting means will materially assist in the proper matching up of the film sections, and also in manipulating the same. A bottom plate 41 for enclosing the base may be removably secured in position by a screw 42 having an exterior handle 43, the shank of which screw is threaded into a lug 44 depending from the top of the base.

Suitable lugs 45, 46 depending from the top of the base serve to properly position the storage battery 39.

A cement reservoir 47 may be removably positioned within the base 1, with the mouth of the reservoir projecting upwardly through a hole 48 in the top of the base.

A guide bar for the film scraper is carried by the base in close proximity to one side of the double shear block 7, which guide bar comprises a horizontal portion 49 and depending portions 50, 51 engaged by screws 52, 53 for securing the guide bar to the base. The film scraper illustrated in Figs. 5 and 6, comprises a blade 54, a brush 55, and a holder 56 for the blade and brush. This holder has lateral flanges 57 and 58 providing an extended surface for engagement with the side of the shear block 7. The shank of the holder has a recess 59, the end wall of which recess is provided with a double bevel forming an edge adapted to rest upon and slide along the horizontal portion 49 of the guide bar. To remove the emulsion from the projecting end of the film section carried by the left hand film clamp, the scraper has to be tilted as shown in full lines and dotted lines in Fig. 5 to bring the scraping edge of the blade 54 into engagement with the film section, thus preventing the scraper blade from cutting the film during the removal of the emulsion.

A stop bar 60 is carried by a plate 61 fast between the lugs 3 and 4 of the base in position to limit the vertical swinging movements of the film clamps.

If so desired, adjustable stops 62 and 63 may be provided in the upper jaws 12 and 20 of the film clamps in position to limit the downward movements of the combined guard and guide 30 and of the presser blade 36. Adjustable tension screws 64 and 65 are also provided in the upper jaws 12 and 20 in position to adjust the tension of the combined guard and guide 30 and the presser blade 36.

In splicing the film sections together, the cycle of operations may be as follows:

The left hand film clamp may be raised and the upper jaw of the right hand film clamp may be raised to permit the placing of the right hand film section in position with the end of the film section to be trimmed projecting the required distance beyond the shear block. The upper jaw of the right hand section is then closed, the presser blade carried by the upper jaw serving to hold the end of the film section snugly on top of the shear block. The left hand film clamp is then lowered to cause its shear blade 19 to trim said projecting end of the film section.

The right hand film clamp is then raised and the upper jaw of the left hand film clamp also raised sufficiently to permit the placing of the left hand film section in position with the end of the film section to be trimmed projecting the required distance beyond the shear block. The upper jaw of the left hand section is then closed, the downwardly turned lip 31 of the combined guard and guide 30 coacting with the

upwardly turned lip 33 of the combined guard and guide 32 to hold the projecting end of the film section in position on top of the shear block. The right hand film clamp is then lowered, thereby causing its shear blade 27 to trim the said projecting end of the film section.

These operations will leave the ends of the two film sections overlapping on the top face of the shear block. The right hand clamp may then be swung back together with its film section, thus leaving the exposed end of the other film section in position where the emulsion may be removed therefrom by the film scraper. The cement may then be applied to this exposed end of the film section, the downwardly turned lip of the combined guard and guide 30 serving to prevent the cement from spreading too far back from the end of the film section.

The right hand film clamp may then be again lowered, thus bringing the exposed end of its film section onto the exposed treated end of the other film section, this movement bringing the knife edge of the downwardly turned lip 37 of the presser blade 36 into engagement with the top overlapping film end to press the overlapping film ends together along a median line. This knife edge engagement of the presser blade will prevent the cement from being squeezed out of the joint between the overlapping ends, as was a common fault where a presser bar of considerable width was used. The upwardly turned lip 35 of the combined guard and guide 34 serves to prevent the escape of the cement into the right hand film clamp between the jaws. After the film ends have been firmly united, the upper jaws of the right and left film clamps are opened to permit the removal of the united film sections.

It is evident that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention; hence, I do not intend to be limited to the specific details herein shown and described, except as they may be included in the claims.

What I claim is:

1. In a film splicer, a double shear block, a pair of swinging film clamps having cutting blades arranged to alternately coast with the shear block to so trim the film sections as to leave overlapping ends, each film clamp comprising upper and lower jaws, a presser blade carried by the upper jaw of one film clamp in position to yieldingly press the overlapping film ends to-

gether along a median line on the shear block, a combined guard and guide carried by the lower jaw of said last named film clamp, and coacting combined guards and guides carried by the upper and lower jaws of the other film clamp.

2. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from the shear block, the film clamp comprising upper and lower jaws, and a longitudinally adjustable presser blade carried by the upper jaw of the film clamp.

3. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from the shear block, a film clamp comprising upper and lower jaws, a presser blade carried by the upper jaw of the film clamp, and means for adjusting the tension of the presser blade.

4. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from the shear block, a presser blade carried by the upper jaw of the film clamp, means for adjusting the tension of the blade, and adjustable stops for limiting the downward movement of the blade.

5. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from the shear block, the film clamp comprising upper and lower jaws, and a longitudinally adjustable combined guard and guide carried by the upper jaw of the film clamp.

6. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from the block, the film clamp comprising upper and lower jaws, a combined guard and guide carried by the upper jaw, and means for adjusting the tension of the combined guard and guide.

7. In a film splicer, a shear block, a vertically swinging film clamp for moving a projecting end of the film section onto and off from shear block, the film clamp comprising upper and lower jaws, a combined guard and guide carried by the upper jaw of the film clamp, means for adjusting the tension of the combined guard and guide, and adjustable stops for limiting the downward movement of the said combined guard and guide.

In testimony, that I claim the foregoing as my invention, I have signed my name this 11th day of September, 1922.

FREDERICK CLARK GRISWOLD.