July 29, 1924.

1,502,959

J. H. McNABB

FILM SPLICING APPARATUS

Filed Feb. 21, 1922

3 Sheets-Sheet 1

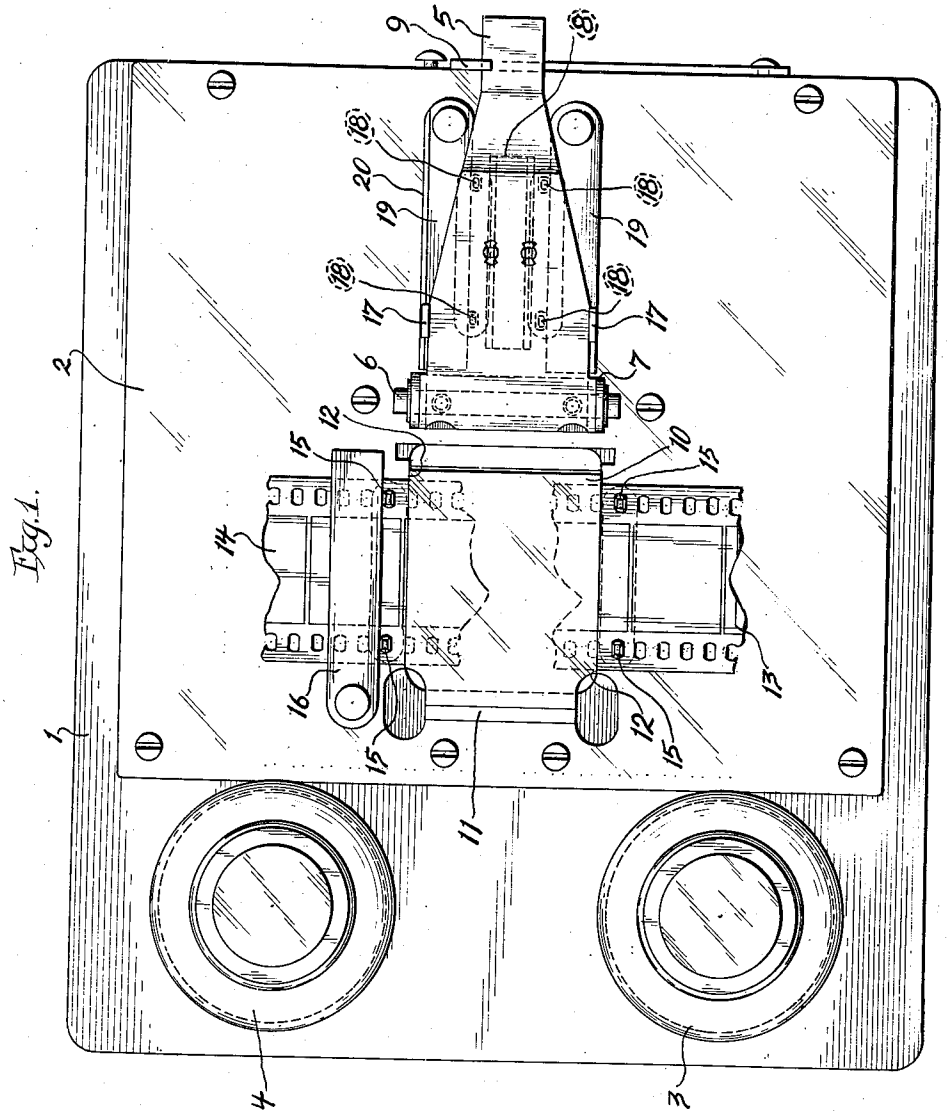

Fig. 1.

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Joseph H. McNabb.

By Miehle & Miehle,
Its Attys.

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Fig. 2.

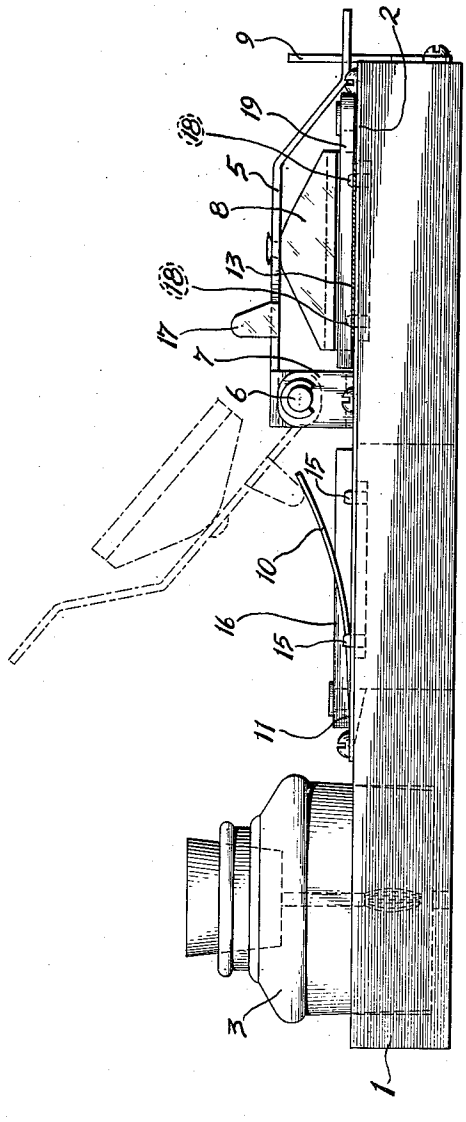

Fig. 7.

Fig. 6.

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Fig. 3.

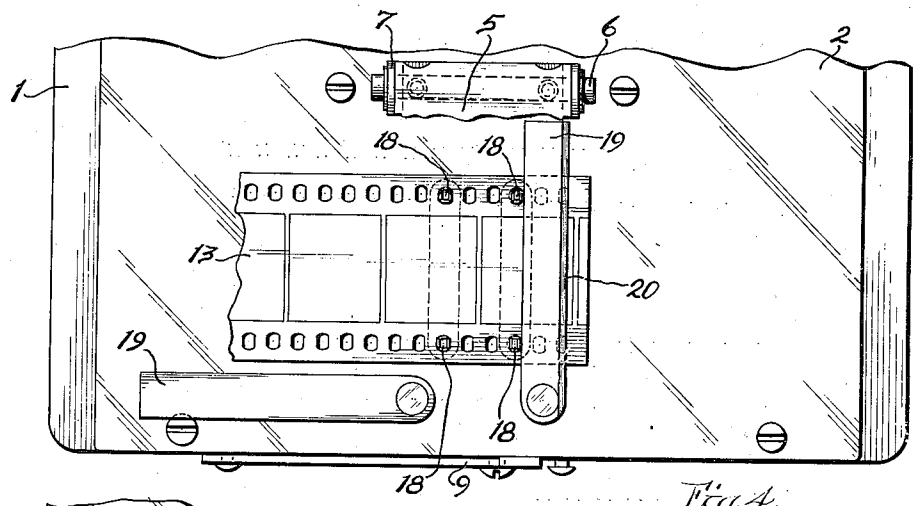


Fig. 4.

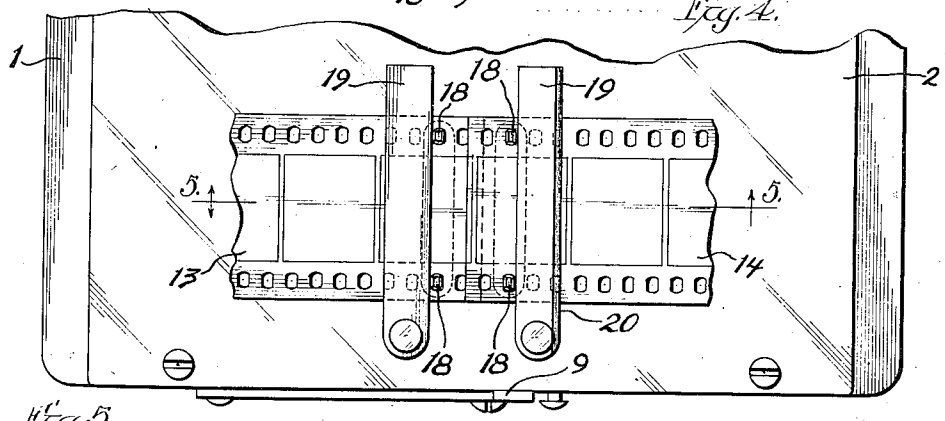
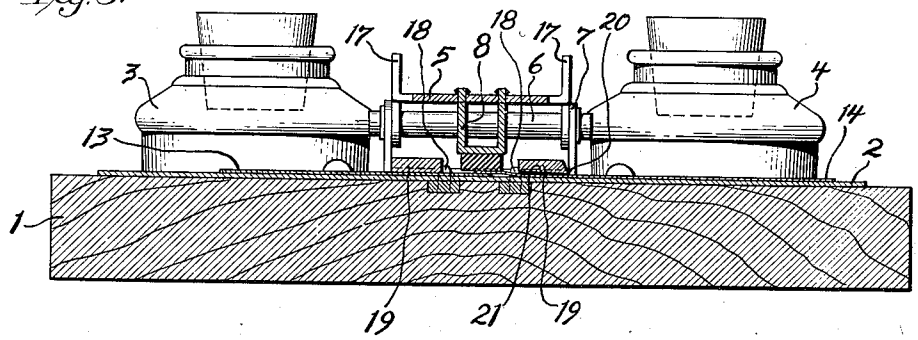


Fig. 5.



Inventor;
Joseph H. McNabb.

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Patented July 29, 1924. 1,502,959

UNITED STATES PATENT OFFICE.

JOSEPH H. McNABB, OF CHICAGO, ILLINOIS, ASSIGNOR TO BELL & HOWELL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FILM-SPLICING APPARATUS.

Application filed February 21, 1922. Serial No. 538,161.

To all whom it may concern:

Be it known that I, JOSEPH H. McNABB, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Film-Splicing Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of the specification.

My invention has for its main object the provision of a simple and efficient film splicing apparatus.

With this end in view one of the features of the invention relates to combined shearing and clamping means so arranged that either may be conveniently operated and so that one does not interfere with the other or require a complicated structure or require complicated operations in the splicing of film.

My invention embodies the above and certain other features hereinafter appearing, and is hereinafter fully described and illustrated in the accompanying drawings, forming a part of this specification, and embraces certain novel constructions, combinations, and arrangement of parts particularly pointed out in the claims.

In the said drawings—

Figure 1 is a top plan view of the film splicing apparatus of my invention;

Figure 2 is a side elevation of the same;

Figure 3 is a partial top plan view with a part broken away;

Figure 4 is a similar view with parts in different positions;

Figure 5 is a section on the line 5—5 of Fig. 4;

Figures 6 and 7 are respectively a plan view and side elevation of the tool used with the apparatus.

Like characters of reference indicate like parts in the various views.

In the said drawings 1 designates a base member, preferably made of wood, having a flat upper surface upon which lies a metal plate 2, preferably hard spring steel, which is secured to the base member and forms a base therewith. The base member projects beyond the plate at the rear end thereof and has two openings in the upper surface of the projecting portion thereof in which cement and water bottles 3 and 4 are set for convenience in use with the apparatus.

Pivotally mounted above the base at an intermediate point of the plate on an axis disposed in substantial parallelism with the plane of the plate is a clamp lever 5, it being mounted on a shaft 6 which is mounted on a pivot bracket 7 secured on the upper surface of the plate 2. The lever 5 is provided with a pressure member 8 tiltably secured thereto and with this pressure member is adapted to cooperate with a portion of the plate in front of the axis of the lever to clamp overlapping film ends when the lever is in a forward horizontal position, see Figs. 1, 2, and 5, and a gravity latch member 9 pivotally mounted on the front edge of the base member 1 is adapted to engage the outer end of the lever 5 to maintain the lever in clamping position under pressure to maintain pressure on the overlapping film ends during the cementing thereof.

A blade portion 10 is struck up from the plate 2 to be flexibly connected at one end 11 thereof with the plate and to have a normal position above the upper surface of the plate.

The blade portion 10 is adapted with its side edges to cooperate with respective edges 12 of the opening in the plate resulting from the striking up of the blade portion 10 therefrom and forming spaced and opposing blade edges to shear simultaneously two film ends 13 and 14 on the upper surface of the plate when the blade portion 10 is pressed downwardly in the direction of the plane of the plate. Thus is provided a simple and effective shearing device formed from a portion of the plate 2 with another portion of which the lever 5 and its pressure member 8 cooperate to clamp the overlapping film ends. Two pairs of pilot pins 15 are mounted on the plate and are disposed adjacent respective shear edges 12 to engage sprocket perforations of the films to locate them for shearing, and a retaining lever 16 is pivotally mounted on a vertical axis adjacent the rear edge of the plate and is adapted to be swung over the film 14 against the adjacent pilot pins to retain this film on the respective pilot pins 15, the

operator holding the film 13 in located position on the respective pilot pins 15 with one hand during the shearing operation.

The blade portion 10 lies on the side of the axis of the lever 5 opposite the side on which the portion of the plate 2 lies with which the lever 5 and its pressure member 8 cooperate to clamp the film ends, and the free end of the blade portion is disposed adjacent and extends toward the axis of the lever 5. The axis of this lever is disposed normal to the plane of movement of the blade portion so that the lever has the same plane of movement as the blade portion. The lever 5 has two lugs 17 thereon spaced in parallelism with its axis and disposed adjacent thereto. In the movement of the lever 5 out of its clamping position to a substantially opposite position the lugs 17 engage the upper surface of the free end of the blade portion 10 adjacent respective side edges thereof and press the blade portion in the direction of the plane of the plate 2 to shear the film, the arrangement providing ample leverage. Thus the clamp lever functions to operate the shearing device. In Fig. 2 the lever 5 is shown in dotted lines in the position thereof in which the lugs 17 are engaged with the blade portion 10.

Two pairs of pilot pins 18 are mounted on the plate 2 on opposite sides of the portion of the plate over which the pressure member 8 lies when the lever 5 is in clamping position. These pilot pins serve to engage sprocket perforations of the films to locate the film ends for clamping the same in overlapping relation on the upper surface of the plate 2 by the pressure member 8 when the lever 5 is in clamping position. Figs. 4 and 5 show the films 13 and 14 so clamped. A pair of retaining levers 19 are pivotally mounted on spaced vertical axes adjacent the front edge of the plate 2 and are adapted to be swung over respective films 13 and 14 located on the pilot pins 18 against the outer sides of respective pairs of pilot pins 18 to retain the films on the pilot pins for clamping.

When the right hand lever 19 is swung against the respective pilot pins 18 its outer edge 20 is adapted to form a guide for scraping the emulsion from the sheared end of the film 13 located on the pilot pins 18 as shown in Figure 3. This edge 20 is slanted upwardly and inwardly for this purpose, and the lower surface thereof is slanted upwardly and inwardly, as designated at 21 in Fig. 5, so that the portion of this surface adjacent the edge 20 will contact the film. A hand tool 22, see Figs. 6 and 7, is provided which has a sharpened end 23 adapted for scraping. This tool is also adapted to be passed under the overlapped ends of the films 13 and 14 located on the pins 18 to expose the lower film end for the application of cement thereon just prior to clamping the overlapping film ends to cement the film ends together.

While I have herein described and shown the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but

Having thus described my invention I claim as new and desire to secure by Letters Patent the following:

1. A film splicing apparatus including a base, film clamping means on the base comprising a clamp lever pivotally mounted on the base at an intermediate point for clamping overlapping film ends on one side of the lever axis, and film shearing means on said base and disposed on the other side of the lever axis and adapted to be actuated to shear with the movement of the lever in a direction out of its clamping position.

2. A film splicing apparatus including a base, film clamping means on the base comprising a clamp lever pivotally mounted on the base, film shearing means on the base adapted to be actuated to shear by said lever when moved in a direction out of its clamping position, pilot pins on the base for locating film for shearing the same, and additional pilot pins on the base for locating the film for clamping the same to splice.

3. A film splicing apparatus including a base, film clamping means on the base comprising a clamp lever pivotally mounted on the base at an intermediate point for clamping overlapping film ends on one side of the lever axis, film shearing means on said base and disposed on the other side of the lever axis and adapted to be actuated by movement of the lever into a position substantially opposite its clamping position, pilot pins on the base for locating the film for shearing the same, and additional pilot pins on the base for locating the film for clamping the same to splice.

4. A film splicing apparatus including a base member, a metal plate lying on a surface of said base member and secured thereto, a film shearing device formed from a portion of the plate, and means cooperating with another portion of the plate to clamp overlapping film ends to splice.

5. A film splicing apparatus including a base member, a metal plate lying on a surface of said base member and secured thereto, a film shearing device formed from a portion of the plate, and a pivoted clamp lever cooperating with another portion of plate to clamp overlapping film ends to splice.

6. A film splicing apparatus including a base member, a metal plate lying on a surface of said base member and secured thereto, a film shearing device formed from a

portion of the plate, a clamp lever pivoted above the exposed surface of the plate and cooperating with another portion of the plate to clamp overlapping film ends to splice, pilot pins secured to said plate for locating the film for shearing and additional pins secured to said plate for locating the film for clamping.

7. A film splicing apparatus including a base member, a metal plate lying on a surface of said base member and secured thereto, a film shearing device formed from a portion of the plate, a pivoted clamp lever cooperating with another portion of the plate to clamp overlapping film ends to splice, pilot pins secured to said plate for locating the film for shearing, additional pilot pins secured to said plate for locating the film for clamping, and pivoted levers for retaining the film on said second mentioned pilot pins.

8. A film splicing apparatus including a base member, a plate of hard spring steel lying on a surface of said base member and secured thereto, a film shearing device formed from a portion of the plate, and a pivoted clamp lever cooperating with another portion of the plate to clamp overlapping film ends and adapted for operating said film shearing device during a portion of the pivotal movement thereof.

9. A film splicing apparatus including a base member, a metal plate lying on a surface of said base member and secured thereto, a film shearing device formed from a portion of the plate, and a clamp lever pivoted above the exposed surface of the plate at an intermediate point and cooperating with another portion of the plate to clamp overlapping film ends and adapted for operating said film shearing device during an extended movement thereof out of clamping position.

10. A film splicing apparatus including a base member, a metal plate lying on a surface of and secured to the base member and having a blade portion struck up therefrom to be flexibly connected at one end with the plate and to have a normal position above the exposed surface of the plate and cooperating with an edge of the resulting opening in the plate to shear a film on the exposed surface of the plate when pressed in a direction toward the plane of the plate, and a clamp lever pivoted above the exposed surface of the plate on an axis extending in substantial parallelism with the plane of the plate and adapted for pressing said blade portion in the direction of the plane of the plate during extended movement thereof out of clamping position.

11. A film splicing apparatus including a base member having a flat upper surface, a plate of hard spring metal lying on said upper surface and secured to the base member and having a blade portion struck up therefrom to be flexibly connected at one end with the plate and to have a normal position above the plate and adapted with a side edge to cooperate with the corresponding edge of the resulting opening in the plate to shear a film on the upper surface of the plate when pressed in a direction toward the plane of the plate, and a clamp lever pivoted above the plate adjacent the free end of the blade portion on an axis parallel with the plate and normal to the plane of movement of the blade portion and adapted for pressing said blade portion in the direction of the plane of the plate during a portion of its pivotal movement.

12. A film splicing apparatus including a base member having a flat upper surface, a metal plate lying on said surface and secured to the base member and having a blade portion struck up therefrom to be flexibly connected at one end with the plate and to have a normal position above the plate and adapted with the side edge thereof to cooperate with the corresponding edges of the resulting opening in the plate to shear simultaneously two film ends on the upper surface of the plate when pressed in the direction of the plane of the plate, and a clamp lever pivoted above the plate adjacent the free end of the blade portion on an axis parallel with the plate and normal to the plane of movement of the blade portion and adapted for pressing the blade portion in the direction of the plane of the plate during a portion of its pivotal movement.

13. A film splicing apparatus including a base member, a metal plate lying on a surface of and secured to said base member, a clamp lever above the exposed surface of the plate and pivoted at an intermediate portion of the plate on an axis disposed in substantial parallelism with the plate and adapted for clamping overlapped film ends against the plate on one side of the axis thereof, said plate having a blade portion struck up therefrom on the opposite side of the lever axis to be flexibly connected at one end with the plate and to have a normal position above the exposed surface of the plate and having its free end extending toward the lever axis and adapted to be pressed in a direction toward the plane of the plate by said lever in an extended movement thereof out of clamping position, said blade portion with a side edge thereof cooperating with the corresponding edge of the resulting opening in the plate to shear a film when pressed in the direction toward the plane of the plate.

14. A film splicing device including a metal plate having a blade portion struck up therefrom to be flexibly connected at one end to the plate and cooperating with an edge of the resulting opening in the plate to shear a film when moved from a position out of the

plane of the plate in a direction toward such plane.

15. A film splicing device including a plate of hard spring metal having a blade portion struck up therefrom to be flexibly connected at one end with the plate and to have a normal position above the plate and having a side edge cooperating with an edge of the resulting opening in the plate to shear a film when pressed in a direction toward the plane of the plate.

16. A film splicing device including a plate of spring metal having a blade portion struck up therefrom to be flexibly connected at one end with the plate and adapted with its side edges to cooperate with corresponding edges of the resulting opening in the plate to shear simultaneously two film ends when moved from a position out of the plane of the plate in a direction toward such plane.

17. A film splicing device including a base member, a plate of spring metal lying on a surface of said base and secured thereto and having a blade portion struck up therefrom to be flexibly connected at one end of the plate and cooperating with an edge of the resulting opening in the plate to shear a film on the exposed surface of the plate when moved from a position above the exposed surface of the plate in a direction toward the plane of the plate.

18. A motion picture film shearing device including a base member having a flat upper surface, a metal plate lying on said surface and secured to the base member and having a blade portion struck up therefrom to be flexibly connected with the plate at one end and having a normal position above the plate and adapted with its side edges to cooperate with corresponding edges of the resulting opening in the plate to shear simultaneously two motion picture film ends on the upper surface of the plate when it is pressed in a direction toward the plane of the plate, pilot pins secured to the plate for engaging perforations in the film ends to locate the same to be sheared, and a pivoted lever for retaining one of the film ends in shearing position with respective pilot pins engaged therewith.

In witness whereof I hereunto affix my signature this 17th day of February, 1922, A. D.

JOSEPH H. McNABB