G. SCHULTZE.

APPARATUS FOR JOINTING THE ENDS OF KINEMATOGRAPH FILMS.

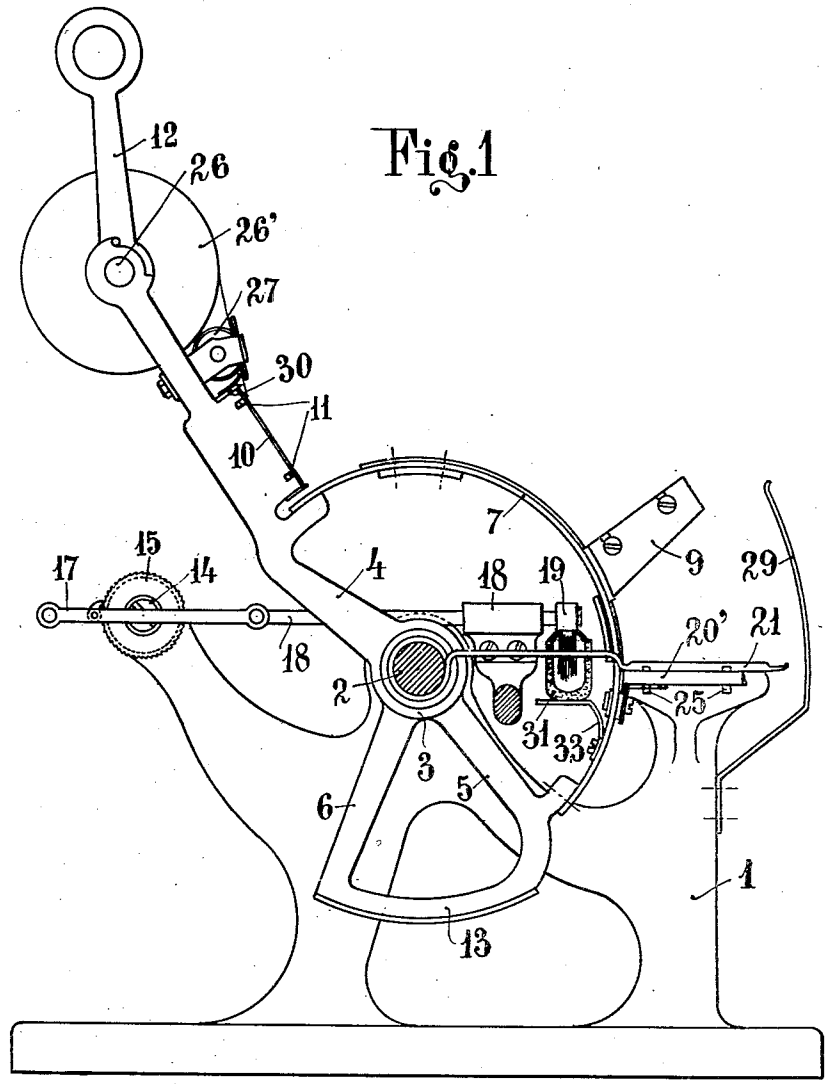
APPLICATION FILED NOV. 13, 1913.

1,121,765.

Patented Dec. 22, 1914.

4 SHEETS—SHEET 1.

Fig. 1



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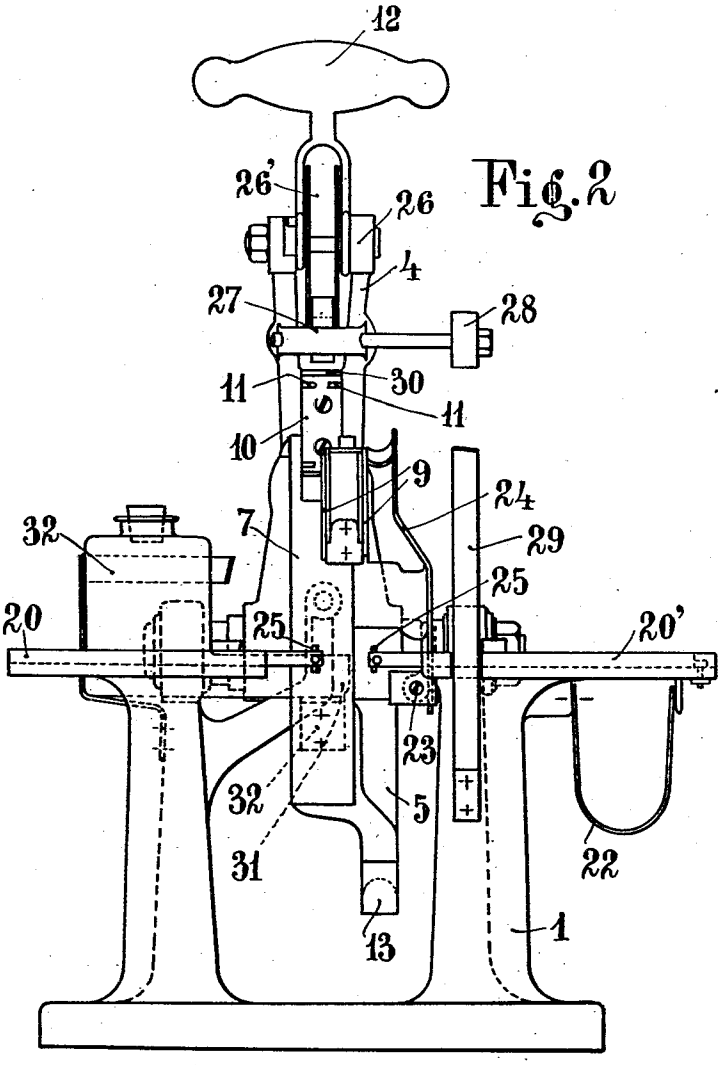


Fig. 2

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4 SHEETS—SHEET 3.

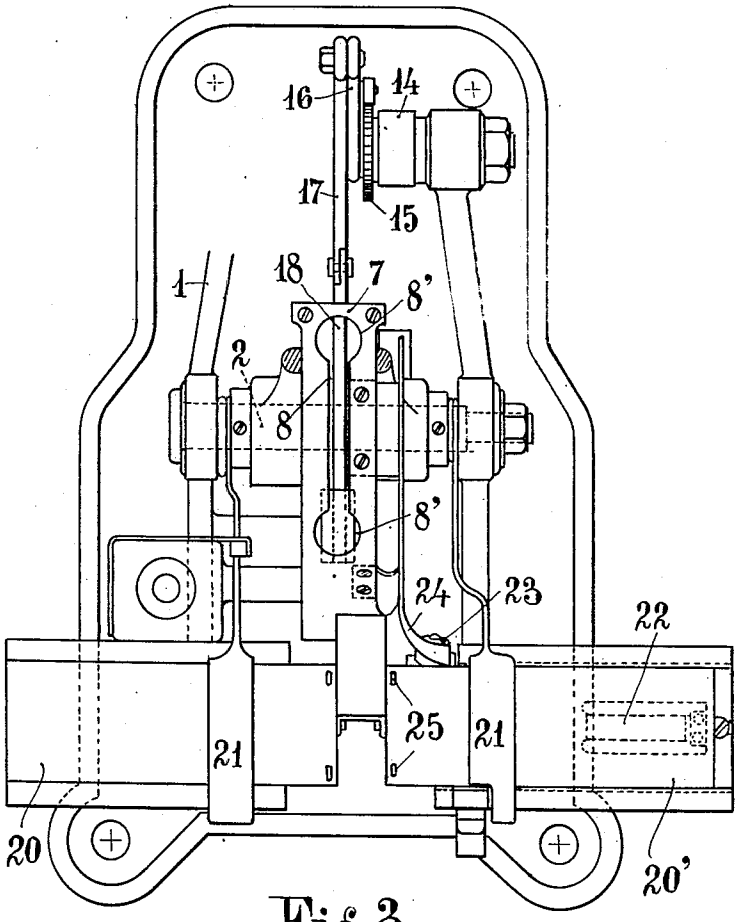


Fig. 3

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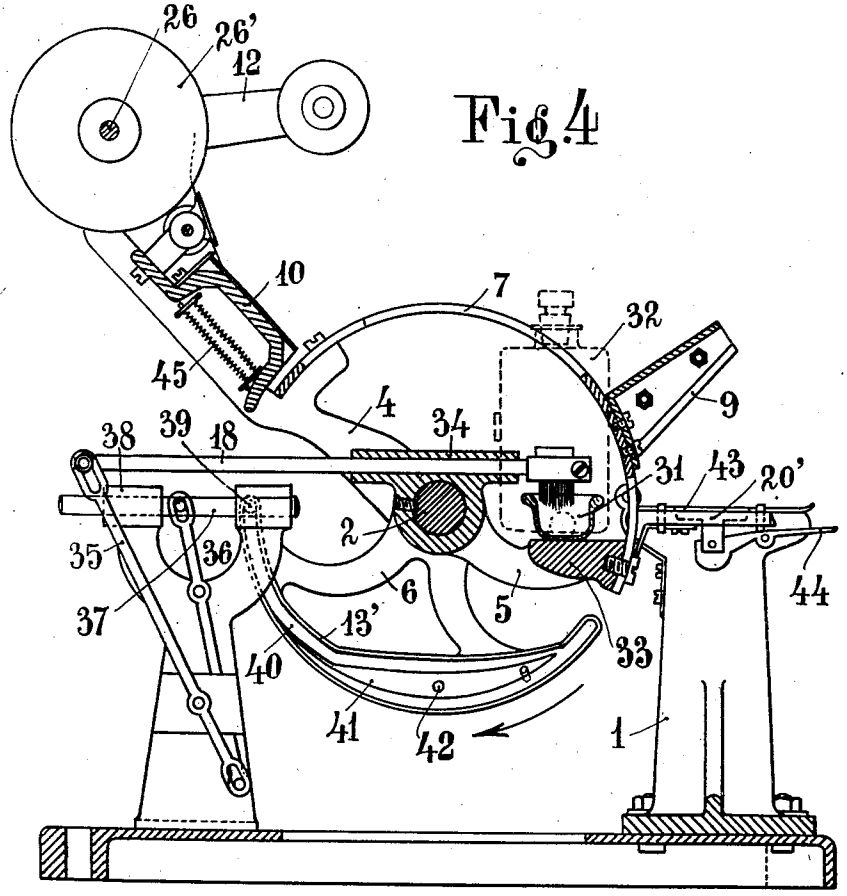
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4 SHEETS—SHEET 4.

Fig. 4



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UNITED STATES PATENT OFFICE.

GIULIO SCHULTZE, OF TURIN, ITALY.

APPARATUS FOR JOINTING THE ENDS OF KINEMATOGRAPH-FILMS.

1,121,765. Specification of Letters Patent. Patented Dec. 22, 1914.

Application filed November 13, 1913. Serial No. 800,796.

To all whom it may concern:

Be it known that I, GIULIO SCHULTZE, residing at Turin, Italy, have invented certain new and useful Improvements in Apparatus for Jointing the Ends of Kinematograph-Films, of which the following is a specification.

The object of this invention is to provide an apparatus allowing of jointing the ends of the films by a single operation, in which the apparatus cuts the ends of the films, wets them with a suitable preparate, for example with acetate of amyl, and exerts the pressure required to obtain the joint.

In order to avoid the need of removing the emulsion from the end of one of the films, it is possible to arrange an independent strip of film on the adjoining ends of the films, instead of causing one end to overlap on the other one.

In the annexed drawings a construction of the apparatus according to this invention is shown, and Figure 1 is a longitudinal sectional view; Fig. 2 is a front view; Fig. 3 is a plan and Fig. 4 is a side view of a modified construction.

The apparatus comprises the stand 1 carrying the shaft 2 on which is mounted to turn the hub 3 having arms 4, 5 and 6. Two of these arms, as 4 and 5, carry an arc-shaped plate 7; this plate being provided with a slot 8 ending in enlarged holes 8′ and carrying two knives 9. To the arm 4 extending beyond the plate 7 are also secured a radial plate 10 provided with holes 11 and an arm 12 for the handle serving to actuate the apparatus. An electric resistance 45 can be arranged under said plate 10 in order to heat it so as to assist the drying of the jointed parts (Fig. 4).

To the arms 5 and 6 is secured an arc-shaped plate 13, provided with teeth if desired, intended to come in engagement with the friction or gearing wheel 14 solid with the gear wheel 15 which by means of the crank 16 and rod 17 causes the bar 18 to travel axially, this bar 18 being supported in 18′ and carrying at its end the brush 19.

In the front portion of the stand 1 are arranged two plates 20, 20′, for receiving the ends of the films on which press two spring fingers 21. These two plates, or a single one of them, can be displaced sidewise; in the latter case one of them (as 20′) is normally maintained spaced apart from the other one by a spring 22 (Figs. 2 and 3) and is actuated by the suitably profiled edge of the plate 7 acting on the roller 23 mounted on the plate 20′ so that this plate is displaced to left after the knives have passed beyond the plane of the plates. Each plate 20 and 20′ carries also two pins 25 intended to penetrate into holes 11 of the plate 10 when this latter rests on the plates 20 and 20′, in order to perforate the strip of film serving to effect the joint or simply to grasp it. This strip of film is carried by a reel 26′ mounted on the support 26 of the arm 4 and is caused to unwind itself from said reel by the friction exerted by the roller 27 solid with roller 28 which is actuated by hand or by rolling on the fixed plate 29. A knife 30 mounted on the arm 4 is intended to cut the film strip when the plate 10 presses on plates 20, 20′.

A small receiver 31, which if desired may be connected to a tank 32, contains a suitable preparate, as for example acetate of amyl, and is carried by a support 33 under the brush 19 when the brush has the position shown in Fig. 1, while it is lowered by the displacement of the arc-plate 7.

In the modified construction shown in Fig. 4, the displacement of the rod 18 carrying the brush is obtained by having this rod guided on supports 34 and connected to a swinging lever 35 articulated to an arm 36 which in turn is connected to a rod 37 guided in supports 38 and provided with a pin 39 intended to engage in a slot 40 in the side surface of the arm plate 31′. Said slot is divided in two portions by the swinging member 41 pivoted in 42 so that during the rotation of the arc-plate 13′ in one direction the pin 39 is caused to travel in the direction of the arrow (Fig. 4) in a given moment, while when the said arc plate turns in the opposite direction said pin will remain in its extreme position of rest.

A slot may be made in the plates 20 or 20′ in which slot a small arm 43 is arranged, said arm being able to be raised by the lever 44 in order to remove the films from the plates when the joint is effected (Fig. 4).

Whatever the construction adopted may be, the operation of the apparatus is as follows:—The ends of the two films to be jointed are arranged on the plates 20, 20′ and under the fingers 21, and the handle 12 is actuated so that the whole apparatus is operated. Then the knives cut the ends of the films, and the cam profile 24 acting on

the roller 23 approaches to each other the plates 20 and 20′ and also the edges of the ends of the films. Then the arc plate 13 comes in engagement with the wheel 14 (Figs. 1–3) or the pin 39 mounted on the inclined surface of the member 41 (Fig. 4), so that the brush 19, free from the receptacle 23 which has been lowered, advances and wets the adjoining ends of films. At this time the roller 28 comes in engagement with the plate 29 (Fig. 2) and the roller 27 causes a portion of film to unwind itself from the reel 26′, which portion takes place on the plate 10, so that when this plate rests on the plates 20, 20′, it presses the strip of film arranged on it, on the adjoining ends of the films to be connected and cuts the same strip by means of the knife 30. The pins 25 will perforate the strip if required or simply grasp it. The joint is so effected and immediately dried by the heat produced by electric resistance 45. Then all the members of the apparatus are caused to retake the position shown in Fig. 1 by raising the handle 12 in its primitive position, and the jointed films are removed from the pins 25 by aid of the lever 44.

What I claim as my invention and desire to secure by United States Letters Patent is:—

1. Apparatus for jointing the ends of kinematograph films, comprising two moving supports for the ends of the films to be jointed, a rotatable member, knives on said member, means on said member coöperating with said supports for approaching them to each other, a receiver on said member containing the adhesive preparate, a brush plunging in said receiver, means connected to the brush coöperating with means on the rotating member for advancing the brush on the ends of the films, a piece on the rotatable member comprising a pressure surface adapted to rest on the supports for the ends of the films, a reel bearing the strip intended to form the joint piece, means for feeding said strip on the pressure surface, means for cutting said strip after the joint is effected and means for actuating the rotatable member.

2. Apparatus for jointing the ends of kinematograph films, comprising two moving supports for the ends to be jointed, a rotatable member provided with means for hand actuating the same, two knives on said member adapted to cut away the two ends of the films on the supports, an arc-shaped member on the rotatable member, profiles on said arc-shaped member coöperating with the supports for the ends of the films in order to approach them to each other after the ends of the films are cut, a pressure surface on the rotatable member, a reel mounted near to said surface, a strip carried by said reel, means for turning said reel, a knife on the pressure surface for cutting the strip after the joint is effected, a receiver on the rotatable member for the adhesive preparate, a brush plunging in the receiver and capable of being removed from it and advanced on the adjoining ends of the films and means on the rotatable member for actuating the brush at the required moment.

3. Apparatus for jointing the ends of kinematograph films comprising two moving supports for the ends to be jointed, a rotatable member provided with means for hand actuating the same, two knives on said member adapted to cut away the two ends of the films on the supports, an arc shaped member on the rotatable member, profiles on said arc-shaped member coöperating with the supports for the ends of the films in order to approach them to each other, a pressure surface on the rotatable member adapted to press on the edges of the films, a reel mounted near to said surface and bearing a strip, means for turning automatically the said reel at the end of the stroke of the rotatable member, a knife on the pressure surface for cutting the strip after the joint is effected, a receiver on the rotatable member for the adhesive preparate, a brush plunging in said receiver and capable of advancing on the adjoining ends of the films, and means on the rotatable member for actuating the brush at the required moment.

4. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, a rotatable member having two knives and means coöperating with said supports for approaching them to each other, a receiver on said member containing an adhesive preparate, a brush plunging in said receiver and mounted on a rod connected with a crank controlled by a wheel, a roller connected to said wheel and capable of engagement with an arc of the rotatable member so that the brush advances at the required moment for wetting the ends of the films and means on said member for supporting, feeding, pressing the strip intended to form the joint piece on the adjoining ends of the films and cutting it.

5. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, a rotatable member having two knives and means coöperating with said supports for approaching them to each other, a receiver in said member containing an adhesive preparate, a brush plunging in said receiver and mounted on a rod, a system of levers connected to said rod and to a guide, a pin on said guide engaging in a profiled slot provided in the rotatable member so that the brush advances at the required moment for wetting the ends of the films and means on said member for supporting, feeding, pressing the strip in-

tended to form the joint piece on the adjoining ends of the films, and cutting it.

6. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, a rotatable member, two knives on said member, means coöperating with the supports for approaching them to each other after the ends of the films are cut, means actuated by the rotatable member for wetting with an adhesive preparate the adjoining ends of the films, a support for the strip intended to form the joint piece, a wheel capable of acting on said support and coöperating with a fixed member at the end of the operation in order to feed the strip, a pressure plate and a knife for cutting the strip after the joint is effected.

7. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, a rotatable member, two knives on said member, means coöperating with the supports for approaching them to each other after the ends of the films are cut, means actuated by the rotatable member for wetting with adhesive preparate the adjoining ends of the films, means on the rotatable member for feeding the strip intended to form the joint piece, a plate for pressing the same on the supports, a knife on this plate and means for generating heat in this plate for assisting the drying of the joint.

8. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, pins extending from said supports and corresponding with the perforations of the films, a rotatable member having knives for cutting the ends of the films, means on said members coöperating with the supports for approaching them to each other after the ends are cut, means actuated by said member for wetting with adhesive preparate the adjoining ends of the films, means on the rotatable member for feeding the strip intended to form the joint piece, a plate for pressing the same on the supports, holes in said plate corresponding to the pins of the supports, and a knife on this plate for cutting the strip.

9. In an apparatus for jointing the ends of kinematograph films, two moving supports for the ends to be jointed, rods in said supports intended to raise the films after the joint is made, a rotatable member having knives for cutting the ends of the films, means on said member coöperating with the supports for approaching them to each other, means actuated by said member for wetting with adhesive preparate the adjoining ends of the films, means on the rotatable member for feeding the strip intended to form the joint piece, a plate for pressing the joint and a knife for cutting the strip.

In testimony whereof I affix my signature in presence of two witnesses.

GIULIO SCHULTZE.

Witnesses:
CARLO TORTA,
MARIE TORTA.