J. MARETTE.

MACHINE FOR DRYING CINEMATOGRAPHIC FILMS AND THE LIKE.

APPLICATION FILED MAY 19, 1914.

1,150,609.

Patented Aug. 17, 1915.

2 SHEETS—SHEET 1.

FIG. 2



FIG. 1

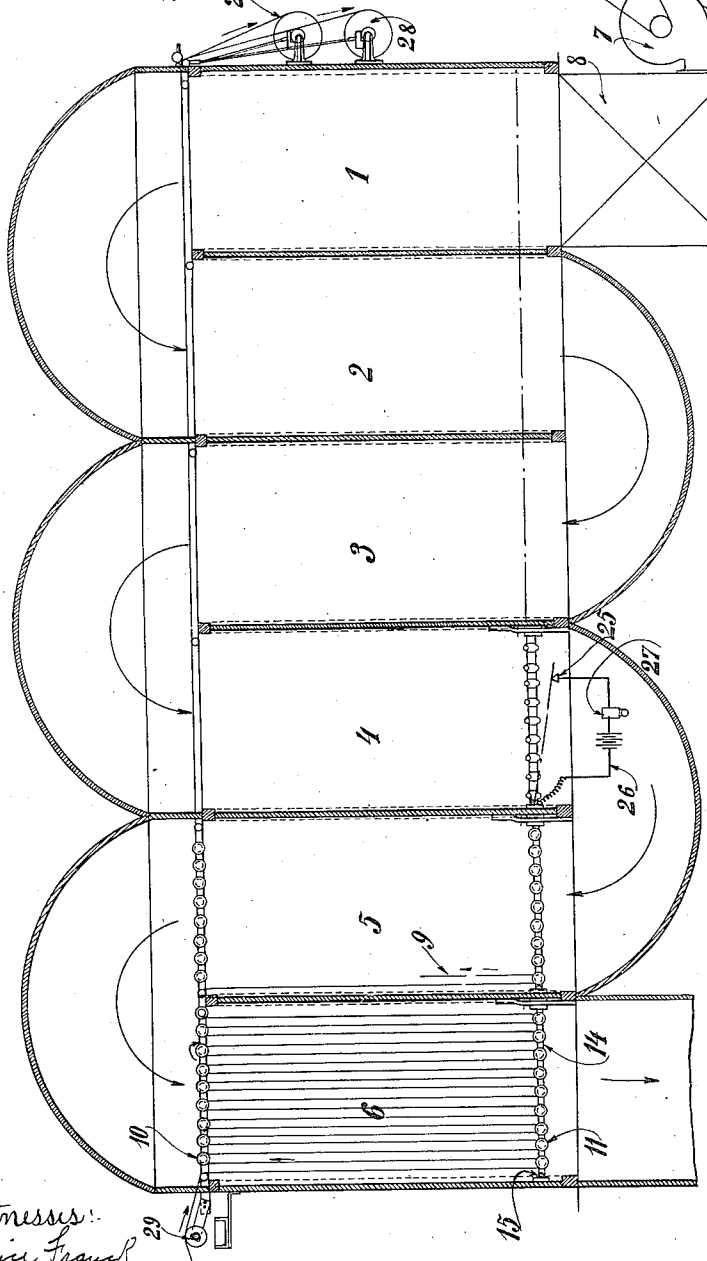
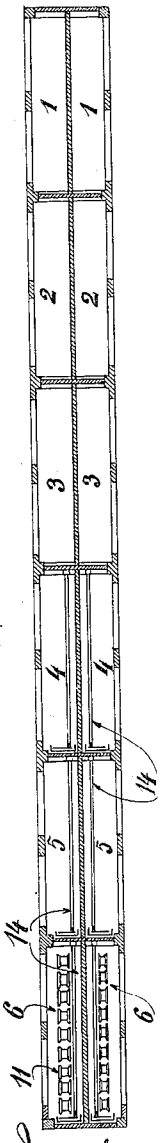


FIG. 3



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2 SHEETS—SHEET 2.

FIG. 4

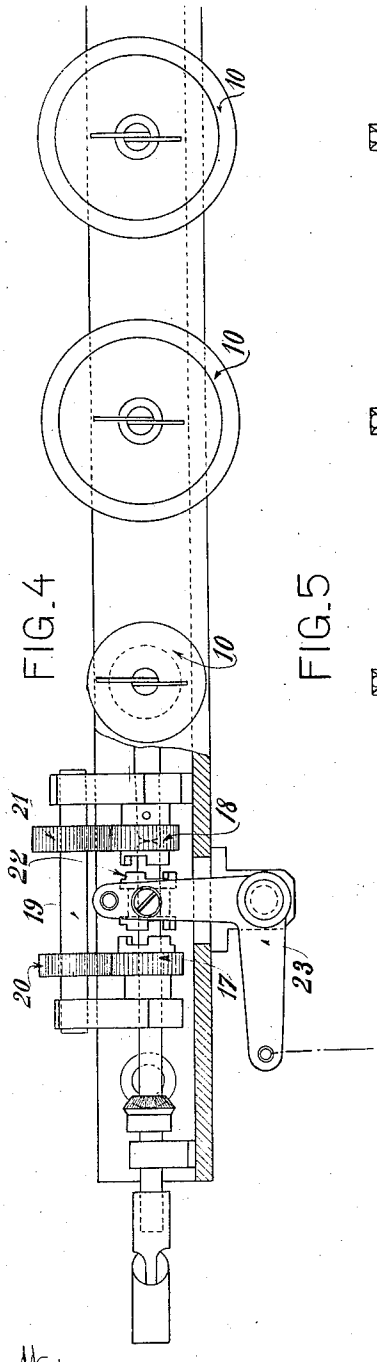
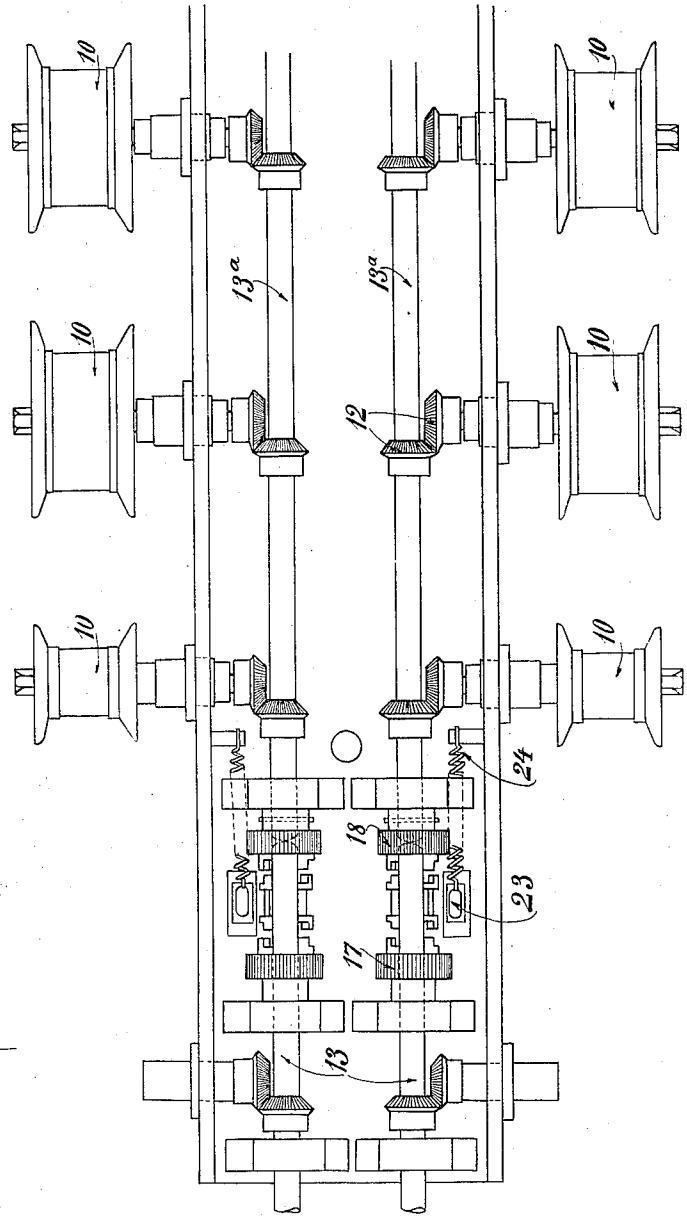


FIG. 5



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UNITED STATES PATENT OFFICE.

JACQUES MARETTE, OF VINCENNES, FRANCE, ASSIGNOR TO COMPAGNIE GENERALE DES ETABLISSEMENTS PATHE FRERES, PHONOGRAPHE ET CINEMATOGRAPHE, OF PARIS, FRANCE.

MACHINE FOR DRYING CINEMATOGRAPHIC FILMS AND THE LIKE.

1,150,609. Specification of Letters Patent. Patented Aug. 17, 1915.

Application filed May 19, 1914. Serial No. 839,506.

To all whom it may concern:

Be it known that I, JACQUES MARETTE, citizen of the Republic of France, residing at 30 Rue des Vignerons, Vincennes, Seine, in the Republic of France, have invented new and useful Improvements in Machines for Drying Cinematographic Films and the like, of which the following is a specification.

This invention relates to a machine intended for drying cinematographic films and the like that are fed from a roller in the form of a web and in a continuous manner.

The main feature of the invention consists in that the film is guided in a zig-zag manner on feed rollers or feeders arranged in the same vertical plane so as to facilitate the filling and control of the machine. The latter comprises several juxtaposed compartments that successively communicate with each other alternatively at the top and at the bottom so as to form a sinuous channel, through which an air current is passed in one direction and the film to be dried in the opposite direction. The film is forwarded by feed rollers or reels arranged at the upper part of the compartments and the tension of the film is secured owing to the fact that the rollers arranged in the loops of the film at the lower part of said loops are mounted in each compartment on a movable lever arranged on a pivot for instance said lever being of a suitable weight.

In the accompanying drawings shown by way of example: Figure 1 is a longitudinal section of a drying machine constructed according to the invention. Fig. 2 is a cross section of said machine. Fig. 3 is a horizontal section of the same. Figs. 4 and 5 are a side elevation and plan of details of one of the clutches and change speed gearings that form part of the mechanism for controlling the rollers.

The machine shown by way of example is intended to dry two films at the same time and is divided into two parallel longitudinal chambers each of which receives a film. Each chamber comprises several compartments 1, 2, 3, 4, 5, 6, that successively communicate with each other alternately at the top and at the bottom, so that the series of compartments forms a sinuous channel through which an air current is passed in the direction of the arrows. This current of air can be produced by a ventilator 7 and may be passed through a radiator 8 intended to heat the air to the extent required. A filter for keeping back the dust may if necessary be combined with this radiator. The compartments are preferably provided with glass doors.

The moist film 9 to be dried is guided in a zig-zag manner on a series of upper rollers 10 and on a series of lower rollers 11. The upper feed rollers, that may be toothed or smooth are actuated so as to secure a continuous unwinding of the film in an opposite direction to that of the air current, so that the film as it dries meets drier air, a methodical drying being obtained in this manner. The upper rollers or feeders 10 can be actuated with the intervention of bevel wheels 12 (Fig. 5) by a longitudinal shaft such as 13, 13^a which is driven in any suitable manner. The machine shown naturally comprises two shafts 13, 13^a one for each film. The lower rollers 11 are carried in each compartment by an arm or lever 14 on which they are adapted to rotate. This lever is pivoted at 15 at one of its ends and is guided vertically at its other end. The weight of the rollers 11 and lever 14 may be adjusted once for all for keeping the various loops stretched that are formed by the film in each compartment.

A clutch and a change speed gearing are preferably arranged between two successive compartments so as to be able to vary at will the speed of rotation of the rollers 10 in the compartments. The duration of the transition of the film in either of the compartments may thus be varied and the level of the lever that carries the lower rollers can be adjusted. The longitudinal shaft that drives the upper rollers is then formed of several parts such as 13, 13^a. The device may, as shown in Figs. 4 and 5 comprise a pinion 17 that is loose on the first part 13 of the driving shaft, a second pinion 18 that is keyed on part 13^a and an intermediary shaft 19 having pinions 20, 21 that respectively engage with pinions 17 and 18. In the example shown, the two pinions 17 and 20 are equal and pinion 18 is smaller than pinion 21. On shaft 13 is splined a sleeve provided with teeth 22 that can be made to

engage with teeth provided on pinions 17 and 18 by means of a lever 23 actuated for instance with the aid of a chain. A spring 24 acts to normally keep the sleeve 22 in engagement with the pinion 18. When by the action of spring 24 the sleeve 22 is engaged with pinion 18 the shaft 13^a is directly engaged with shaft 13 and thus rotates at the same speed as the latter. If the chain controlling lever 23 is drawn to an extent, so that sleeve 22 is engaged with pinion 17, shaft 13^a is actuated with the intervention of pinions 20, 21 and 18 at a greater speed. It will readily be understood that the device described thus allows of very easily varying the duration of the transition of the film in any compartment.

If desired each lever 14 may, when moved upward or downward on its pivot, be made to meet a contact plug 25 comprised in an electric circuit 26, as shown diagrammatically in Fig. 1. This circuit is provided with a bell 27 intended to announce the fact that the lever has attained its uppermost or lowermost position.

The film must be twisted half-way around between each upper roller and the following lower roller, so as to prevent the gelatinized side which is still moist from coming in contact with the surface of the rollers.

At the outlet of the machine a winding friction drum 28 is provided for each chamber that allows of forming a bobbin with the dry film. A wiping device 29 may be arranged at the point where the film is introduced into the machine.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine for drying cinematographic films and the like, a chamber comprising a number of juxtaposed compartments communicating successively together alternatively at the top and at the bottom, cross shafts mounted in said compartments at one end, feeding rollers on said cross shafts for the film, a longitudinal shaft, means for coupling the longitudinal shaft and the cross shafts, means for actuating the longitudinal shaft, pivoted levers at the other end of the compartments, guiding rollers on said pivoted levers for the film, means on the pivoted levers for stretching the film and means for producing an air current passing successively through the compartments in the opposite direction to that of the film, substantially as described and for the purpose set forth.

2. In a machine for drying cinematographic films and the like, a chamber comprising a number of juxtaposed compartments communicating successively together alternatively at the top and at the bottom, cross shafts mounted in said compartments at the top, feeding rollers on said cross shafts for the film, a longitudinal shaft, made in sections, bevel gears coupling the longitudinal shaft sections and the cross shafts, means for actuating one end section of the longitudinal shaft, clutches for operatively connecting the sections of the longitudinal shaft together, levers freely pivoted at the bottom of the compartments, guiding rollers on said pivoted levers for the film, and means for producing an air current passing successively through the compartments in the opposite direction to that of the film, substantially as described and for the purpose set forth.

3. In a machine for drying cinematographic films and the like, a chamber comprising a number of juxtaposed compartments, communicating successively together alternatively at the top and at the bottom, cross shafts mounted in said compartments at the top, feeding rollers on said cross shafts for the film, a longitudinal shaft made in sections, bevel gears coupling the longitudinal shaft sections and the cross shafts, means for actuating one end section of the longitudinal shaft, clutches and change speed gears for operatively connecting the sections of the longitudinal shaft together, levers freely pivoted at the bottom of the compartments, guiding rollers on said pivoted levers for the film, and means for producing an air current passing successively through the compartments in the opposite direction to that of the film, substantially as described and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACQUES MARETTE.

Witnesses:
CHAS. P. PRESSLY,
ALFRED GEHET.