F. F. METZGER.

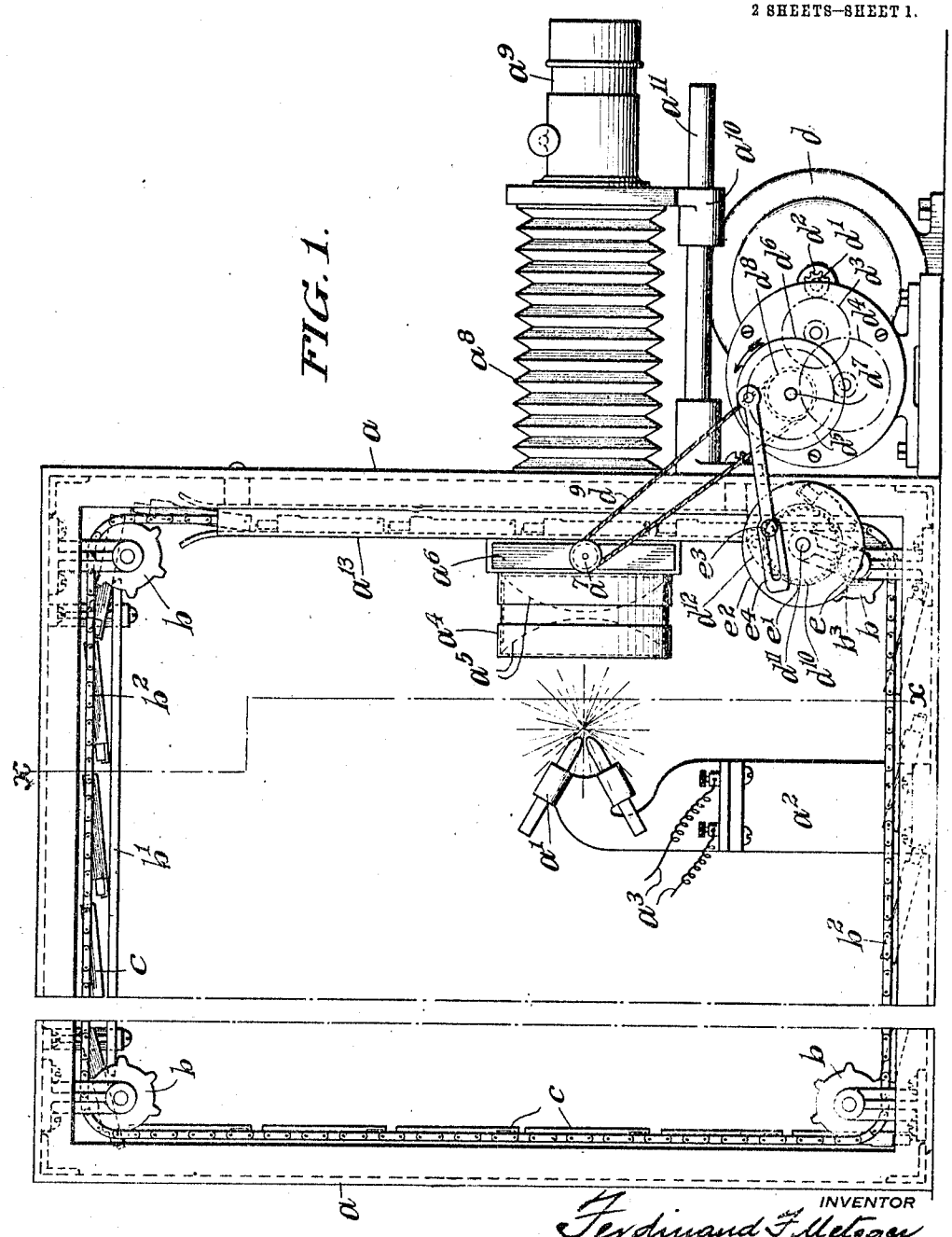
STEREOPTICON.

APPLICATION FILED JAN. 25, 1911.

1,003,774. Patented Sept. 19, 1911.

2 SHEETS—SHEET 1.

FIG. 1.



INVENTOR

Ferdinand F. Metzger,

WITNESSES

Thomas M. Smith.

Elizabeth A. Sheldrake

BY J. Walter Douglass

ATTORNEY

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2 SHEETS—SHEET 2.

FIG. 3.

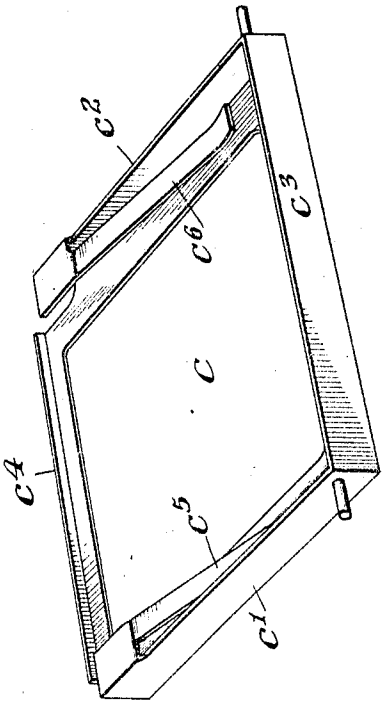
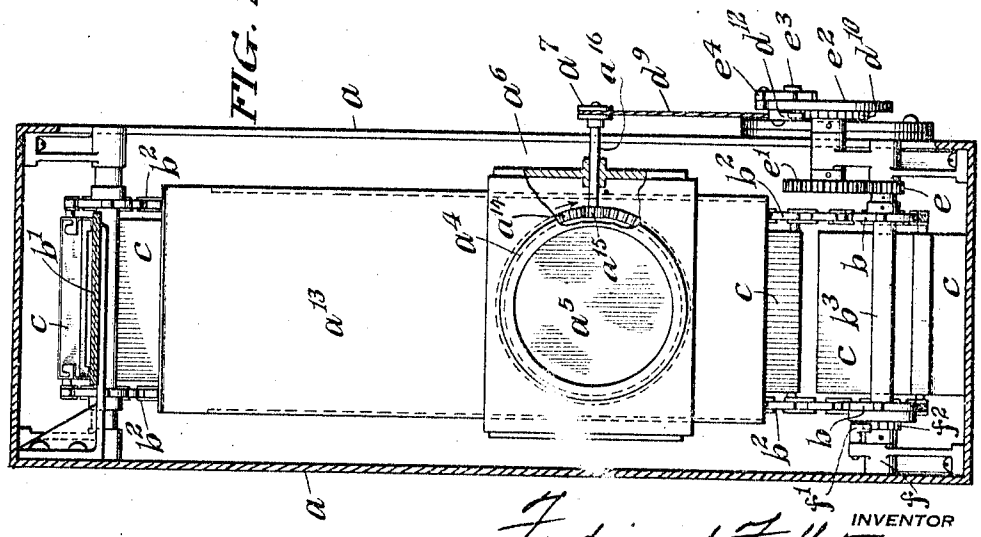


FIG. 2.



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ATTORNEY

UNITED STATES PATENT OFFICE.

FERDINAND F. METZGER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAMS, BROWN AND EARLE, INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

STEREOPTICON.

1,003,774. Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed January 25, 1911. Serial No. 604,515.

To all whom it may concern:

Be it known that I, FERDINAND F. METZGER, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Stereopticons, of which the following is a specification.

My invention relates to a type of stereopticon in which a conveyer carries a series of film or plate holders moving intermittently in proper relation to a lens system and source of illumination so that illustrations of such films or plates are successively projected in a manner well known to the art, upon a distant surface or screen.

My invention consists first, of the constructive arrangement of slide, film or plate holders movably supported from a conveyer and in which holders the slides, films or plates are detachably clamped thereto from two points and provided with end means to prevent shifting of the films, slides or plates in the said holders, in their travel; and second, to the employment of an endless conveyer having slide, film or plate holders in rectangular form provided with inturned side clamps and an end projection to receive and hold each slide, film or plate in operative position against displacement, in the travel of the conveyer.

The nature and scope of my present invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which—

Figure 1 is an elevational view of a stereopticon, embodying main features of my invention. Fig. 2, is a vertical sectional view on the line x, x, of Fig. 1, showing in broken section the chromotrope and means for revolving the same; Fig. 3, is a perspective view in detail of a slide, film or plate holder in one form, showing the side clamps and rear projection to receive and hold the slide, film or plate in normal or operative position therein.

Referring to the drawings, a is a casing for the main working parts, including an arc light outfit a^1, supported from a standard a^2, having suitable connections a^3, with a source of generation, not shown. In the front portion of the casing a, is provided a guideway a^{13}, for the travel therethrough of an endless conveyer, to be presently fully explained.

a^4, is a framing for a lens a^5, and a revoluble chromotrope a^6. The chromotrope a^6, is revolved by a rack a^{14} and pinion a^{15}, carried on the shaft a^{16}, upon which a grooved pulley a^7, is mounted for revolving the same as clearly shown in Fig. 2.

a^8, is a bellows outside of the casing a, with a focusing device a^9. The bellows and focusing device of the objective is provided with a bearing a^{10}, slidable on a rod a^{11}, extending from the front of the casing a. In the several corners on the interior of the casing a, are arranged sprocket-wheels b. Beneath the upper set of wheels b, is arranged a shelf b^1, for a purpose to be presently explained.

b^2, is an endless open chain conveyer, as shown, arranged to engage the series of corner sprocket-wheels b, to permit of the impelling of the conveyer step-by-step around the casing a. This conveyer is provided with a series of slide, film or plate holders c. Each holder c, as shown in Fig. 3, is preferably of rectangular form and struck up from a blank of metal having two side walls c^1 and c^2, a front wall c^3, and a rear projection c^4, to form a back-stop for a removable slide, film or plate c^{10}, insertible therein and readily removable therefrom. The side walls c^1 and c^2, in one portion, as shown in Fig. 3, are bent inward, cut away and bent downward to form engaging clamps c^5 and c^6, for detachably holding each film or plate in the holder c, and by the back-stop c^4, to prevent being displaced in the travel of the holders with the endless conveyer b^2, and with which each holder is in swinging pivotal connection, for example, as clearly illustrated in Fig. 1. The shelf b^1, arranged beneath the upper set of sprocket-wheels as shown serves to direct the holders c, depending in an inclined position in Fig. 1, in the travel of the conveyer through the casing a.

d, is an electric motor.

d^2, is a pinion carried on one end of the motor-shaft d^1, and gearing with a series of gears d^3, d^4 and d^5, Fig. 1, for timing with accuracy the speed of travel in one direction of the endless conveyer b^2, in the casing a.

On the shaft b^3, of one of the lower

sprocket wheels b, is mounted a pinion e, gearing with a wheel e^1, the shaft of which carries a disk-wheel e^2. This wheel is provided with a crank-pin e^3, on which a slotted connecting rod e^4, is loosely mounted in the casing a, as shown in Fig. 1. This rod at the opposite end is pivoted to a wheel d^6, operatively arranged as a part of the train of gears of the motor d.

d^{10}, is a ratchet-wheel secured to the shaft d^{11}, carrying the gear-wheel e^1, and operated by a pawl d^{12}, which is caused by the disk-wheel e^2, to move the gear-wheel e^1, in one direction and at the same time the conveyer b^2.

On the shaft d^7, of the wheel d^6, is provided a fixed pulley d^8, which by chain or cord d^9, engages the grooved pulley a^7, of the chromotrope a^6. On the opposite end of the shaft b^3, in a bearing f, is arranged a movable pawl f^1, engaging a ratchet f^2, as clearly shown in Fig. 2, to prevent retrograde movement of the endless conveyer b^2.

The train of gears above described is operatively controlled by the motor d, and therewith the slidable connecting rod e^4, and the disk-wheel d^6, whereby each slide, film or plate of a holder c, carried by the endless conveyer b^2, within the casing a, will be presented for predetermined moments of time successively, before the lens within the field of the source of illumination in the rear so that the projections of the images of the slides, films or plates can be presented on a distant surface or screen and at the same time in unison with such momentary presentations of the images of said slides, films or plates the chromotrope a^6, will be revolved to afford an animated condition being given to the projected images of the slides, plates or films upon such distant surface or screen.

Having thus described the nature and object of my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A stereopticon provided with an endless conveyer having a series of swinging slide, film or plate holders, each of said holders having one end and two sides of corresponding height and both sides in one portion inturned and bent downward into spring clamps below the top or plane of the sides of said holder, in combination with a slide, film or plate adapted to be held in position by the spring clamps of said holder.

2. A stereopticon provided with an endless conveyer having a series of swinging rectangular-shaped holders, each of said holders having one end and two sides of corresponding height throughout and both sides in the front portion inturned and downwardly bent into flat spring clamps below the top or plane of the sides of said holder, in combination with a slide, film or plate adapted to be held against movement by the spring clamps and end of said holder in the travel of said conveyer.

In witness whereof, I have hereunto set my signature in the presence of two subscribing witnesses.

FERDINAND F. METZGER.

Witnesses:

J. WALTER DOUGLASS,

THOMAS M. SMITH.