A. D. PHILPOT.

PORTABLE PROJECTING MACHINE.

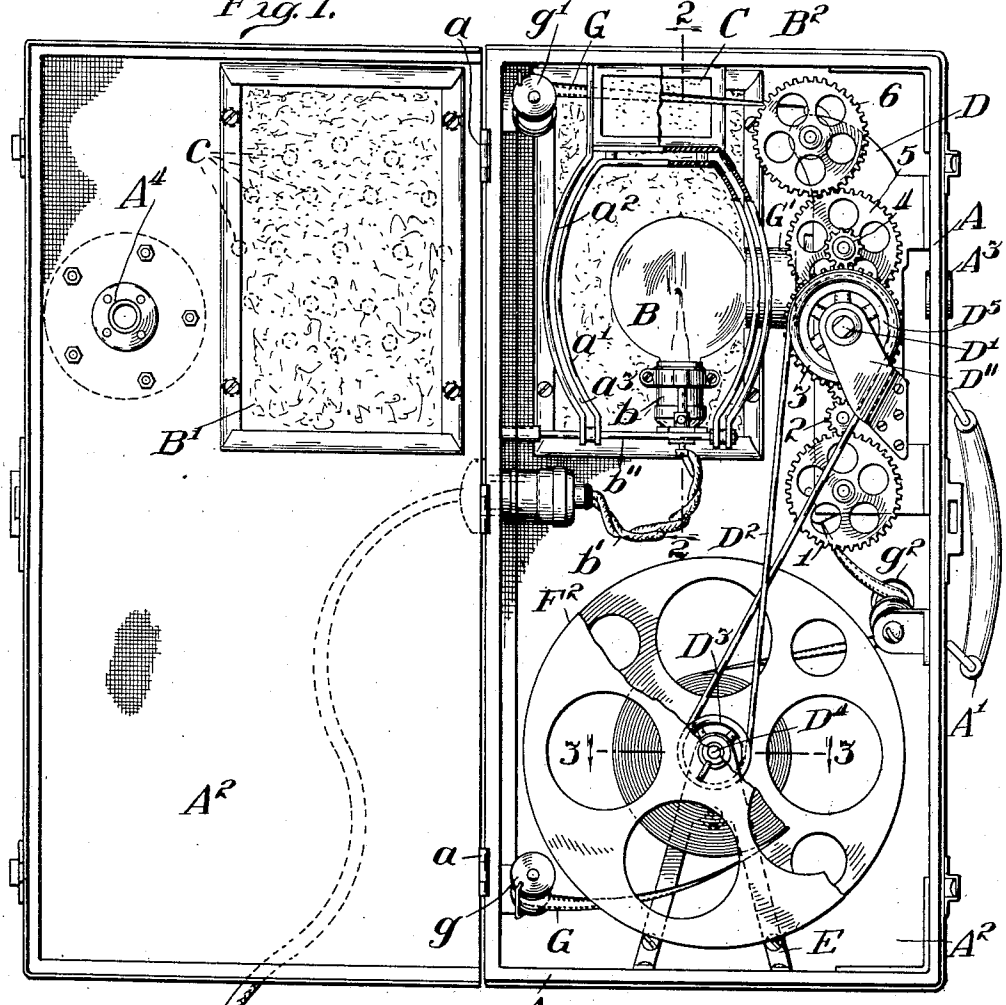
APPLICATION FILED JULY 14, 1916.

**1,310,211.**

Patented July 15, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



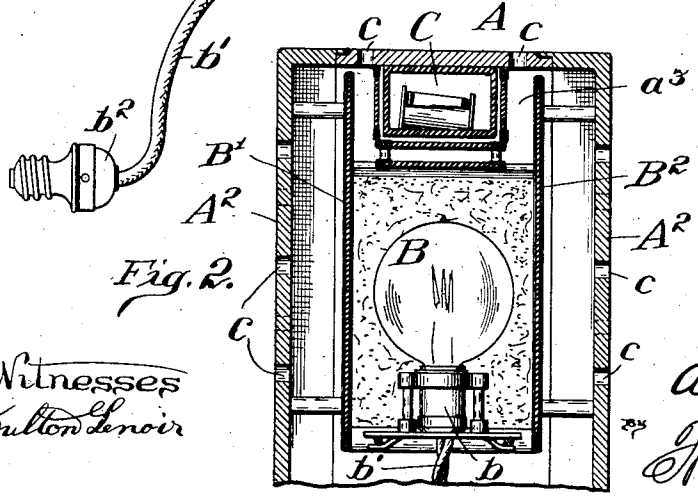




Fig. 2.

Witnesses
Fulton Lenoir

Inventor
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2 SHEETS—SHEET 2.

Fig. 3.

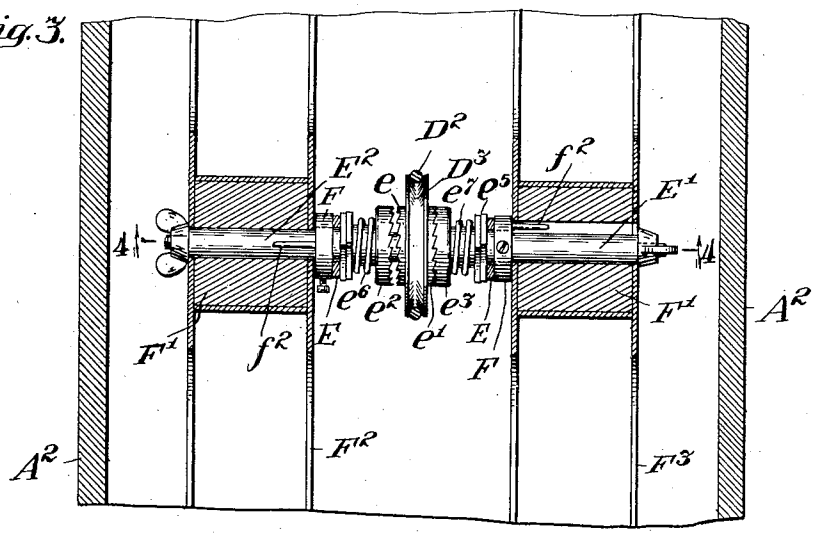



Fig. 4.

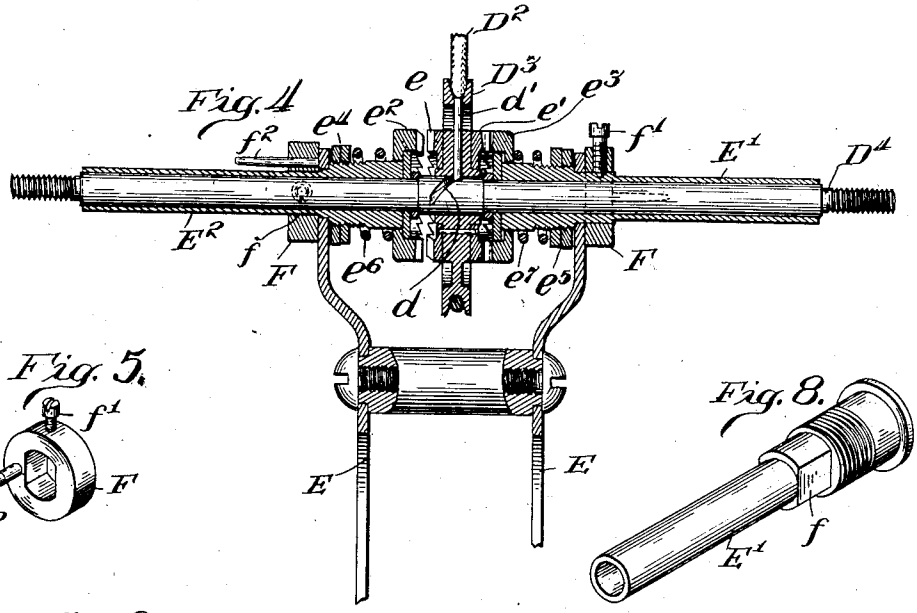



Fig. 5.




Fig. 8.




Fig. 6.

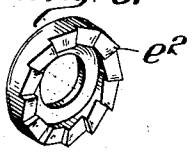
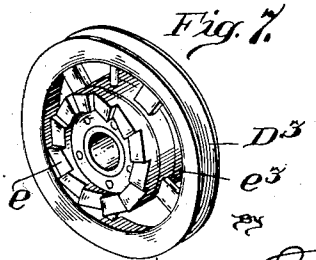



Fig. 7.




Witnesses
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Inventor
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# UNITED STATES PATENT OFFICE.

ALBERT D. PHILPOT, OF CHICAGO, ILLINOIS, ASSIGNOR TO TOMALPA MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## PORTABLE PROJECTING-MACHINE.

1,310,211. Specification of Letters Patent. Patented July 15, 1919.

Application filed July 14, 1916. Serial No. 109,228.

*To all whom it may concern:*

Be it known that I, ALBERT D. PHILPOT, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Portable Projecting-Machines, of which the following, taken in connection with the drawings, is a description.

My invention has for its object the production of a portable projecting machine for exhibiting moving pictures, and is so designed and constructed that the entire apparatus may be inclosed within a casing of convenient size to be easily transported from one place to another.

A further object of my invention is to provide means for quickly unwinding the film strip from the receiving spool at the end of each exhibition.

A further object of my invention is to provide means for ventilating the light box and the casing inclosing the projecting mechanism so that the film may not be affected by the heat generated by the electric light.

With these and other objects in view, I have illustrated what I now consider the preferred form of my invention, although I wish to be understood as contemplating such changes as properly come within the scope of the appended claims.

In these drawings,

Figure 1 is a side elevation of my projector mounted in a casing, with one door of the casing opened;

Fig. 2 is a vertical, sectional detail, taken on line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view of the film spools, and a plan view of the clutch mechanism taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged sectional detail of the clutch mechanism, taken on line 4—4 of Fig. 3;

Fig. 5 is a perspective detail of one of the collars engaging the sleeve on the shaft;

Figs. 6 and 7 are, respectively, perspective views of the clutch members; and

Fig. 8 is a perspective view of one of the sleeves upon which the film spools are mounted.

Referring to the drawings, A represents a suitable casing with which the operative mechanism of my projecting machine is arranged, which is preferably of the form and size of an ordinary suit-case, having a handle A′ for carrying, and being provided upon each side thereof with a door $A^2$ which is suitably hinged to the casing, as at *a*, *a*, and having an exposure opening $A^3$ arranged in line with the projecting lenses.

When the projector is to be used, the casing is arranged in an upright position, as shown in Fig. 1, one end thereof forming the bottom of the casing. A light box is preferably positioned in the upper part of the casing and has supported thereon an electric light B, which is mounted in a socket *b*, carried upon a rod *b*″. A wire *b*′ extends from the light, having the proper connection $b^2$ at the opposite end thereof, to be attached to any electric socket convenient to the place where the apparatus is being used.

The light box is preferably formed of a double wall *a*′, $a^2$, having an air chamber $a^3$ therebetween. This double wall is formed upon two sides and the top of the light globe B, the bottom thereof being open, as shown in Fig. 1. The two opposite sides of the light box are closed by the walls B′, $B^2$, one of which is supported upon the inner side of each of the doors of the casing, completely closing the light box when the casing is closed, and opening away from the same when the doors $A^2$, $A^2$, are opened.

Extending horizontally across the top of the light box is another air chamber C, through which the film travels from the spool to the feeding mechanism. The casing formed on the parts A, $A^2$, $A^2$, is provided upon each side thereof and at the end in which the light box is mounted, with a plurality of apertures *c*, *c*, by means of which said casing and light box are ventilated to cool the chamber through which the film passes on its way from the reel to the feeding mechanism.

D is a frame which is supported upon the casing A and carries a film-feeding mechanism suitable for use in a machine of this kind. A train of intermeshing gears and pinions, 1, 2, 3, 4, 5, 6, are carried by said frame.

Mounted upon the shaft D′ is a driving pulley $D^5$, over which travels a belt $D^2$, which connects with a driven pulley $D^3$, which is mounted upon a shaft $D^4$. The stub of the shaft D′ projects beyond its bearing D″, and, when the door $A^2$ of the casing is closed, through the opening $A^4$, where it may

be engaged by a key, or crank for a purpose hereinafter explained.

E are supports secured to the casing and forming a bearing for the shaft $D^4$, on which are mounted the sleeves E', $E^2$, at each end thereof, as shown in Fig. 4. The driven pulley $D^3$ is mounted upon the shaft $D^4$. A short spirally-extending groove $d$ is provided in the shaft $D^4$, into which extends a pin $d'$, which is secured at one end to the pulley $D^3$. Arranged upon each side of the pulley $D^3$ is a clutch member $e$, $e'$, each of which is adapted to engage with a corresponding clutch member $e^2$, $e^3$, mounted upon the ends of the sleeves E', $E^2$, which are also carried upon the shaft $D^4$.

Surrounding the sleeves E', $E^2$, and between the clutch members $e'$, $e'$ and the disks $e^4$, $e^5$, are coiled springs $e^6$, $e^7$, which exert a tension against the clutch members $e'$, $e^2$.

Each of the sleeves E', $E^2$, is provided upon the outer face thereof for a portion of its length with an angular surface $f$, over which fits a collar F which is secured thereto by a set screw $f'$.

Each of these collars F is provided with a key $f^2$, which engages a socket in the hub F' of each of the film reels $F^2$, $F^3$, mounted upon the outer end of each of the sleeves E', $E^2$. The delivery and receiving film reels or spools $F^2$, $F^3$, are keyed to the sleeves E', $E^2$, which are loose upon the shaft $D^4$.

Each reel or spool revolves with the shaft $D^4$ when the clutch member on the sleeve is engaged by the corresponding clutch member upon the driven pulley $D^3$, as shown more clearly in Fig. 3, the disengaged reel or spool being carried by the sleeve which is loose upon the shaft as hereinafter explained.

When ready for operation, the film G is wound upon one reel or spool $F^2$, and when arranged for operation in the projector, is first carried over the guide pulley $g$ (Fig. 1) secured to the casing A, thence perpendicularly (as the casing is shown in Fig. 1) to the top of said casing over a second guide pulley $g'$, and horizontally through the air chamber C to the feeding reels and in front of the projector G'; through the feeding mechanism, over the guide pulley $g^2$, and thence to the receiving reel or spool $F^3$.

When the entire film has been exposed, the operator attaches a key or crank (not here shown) to the stub of the shaft D', and reverses the operation of the driving and driven pulleys $D^5$ and $D^3$, which causes the clutch members $e$, $e^2$, to disengage, and the clutch members $e'$, $e^3$ to engage, thereby transmitting motion to the receiving reel $F^3$. The sleeve $E^2$ upon which the reel or spool $F^2$ is mounted being loose upon the shaft $D^4$, the spool readily revolves, releasing the film, which is rapidly wound upon the spool $F^3$ and the film is ready for the next exposure operation.

The connecting member $b^2$ is engaged to any convenient electric light socket for the purpose of carrying the current to the electric light in the light box of the apparatus. The crank attached to the stub of the shaft D' is used to operate the feeding mechanism and through the belt $D^2$ to feed the film through the machine.

I claim:

1. In a portable projecting machine, the combination of a casing, a revoluble shaft supported therein, said shaft having a groove therein, a pulley mounted upon said shaft, a projection on said pulley moving in the aforesaid groove, a sleeve loosely mounted on said shaft on each side of said pulley, a film reel mounted on each of said sleeves, and clutch mechanism mounted in operative relation to each of said reels, substantially as described.

2. In a projecting machine, the combination of a portable casing, a revoluble shaft supported in said casing, said shaft having a spirally extending groove therein, a pulley mounted on said shaft, a projection carried by said pulley and movable in said groove to limit the movement of said pulley, a sleeve loosely mounted on said shaft upon each side of the pulley, film reels mounted on said sleeves, and clutch mechanism controlling the direction of rotation of said shaft and reels.

3. In a projecting machine, the combination of a portable casing, a revoluble shaft supported in said casing, a pulley mounted on said shaft, a sleeve mounted on said shaft on each side of said pulley, a reel mounted on each of said sleeves, clutch mechanism between each of said reels and the pulley, and means for operating said clutch mechanism whereby one of said reels may be turned in one direction and the other reel may be turned in the opposite direction as said clutch members are moved into and out of engagement with the respective sleeves.

4. In a projecting machine, the combination of a portable casing, a revoluble shaft supported in said casing, a pulley mounted on said shaft, a groove extending spirally a short distance on said shaft, a pin projecting from said pulley and traveling in the aforesaid groove, a delivery reel and a receiving reel loosely mounted on said shaft, clutch mechanism coacting between said pulley and each of said reels, whereby the direction of rotation of said reels may be opposite to each other.

5. In a projecting machine, the combination of a portable casing, a revoluble shaft having a groove extending spirally of the face thereof, a pulley mounted on said shaft, a pin projecting from said pulley into the aforesaid groove, film reels loosely mounted on said shaft on opposite sides of the pulley, clutch mechanism between each of said reels

and the aforesaid pulley, and means for actuating the clutch mechanism to operate either of said reels.

6. In a projecting machine, the combination of a pair of film reels, each adapted to rotate in opposite directions, a power shaft adapted to be rotated in either direction, concentric sleeves mounted on said shaft, a reversing connection mounted on said power shaft and adapted to cause one of said reels to wind the film when said shaft is turned in one direction and to cause the other reel to wind said film when said shaft is turned in the opposite direction.

7. In a projecting machine, the combination of a driving shaft, a discharging reel and a receiving reel, coaxial sleeves loosely mounted on the driving shaft, reversing mechanism mounted on said shaft, and clutch mechanism mounted in operative relation with said shaft, whereby either of said reels may be operated independently of the other.

8. In a projecting machine, the combination of a driving shaft provided with a spiral groove on its face, a pair of film reels mounted thereon, loose sleeves mounted on said driving shaft, a pulley carrying a pin projecting into the aforesaid spiral groove, film moving mechanism in operative relation with each reel and operating to unwind the film from its corresponding reel when moving in one direction and winding it on the other reel when moving in a reverse direction, reversing mechanism carried on the driving shaft and adapted to rotate either reel independently of the other.

9. In a projecting machine, the combination of a driving shaft, having a spiral groove therein, coaxial sleeves loosely mounted on said shaft, a pulley on said shaft between said sleeves, a projection carried by said pulley and movable in the aforesaid groove, a film reel mounted on each of said sleeves, a reversing connection comprising a pair of clutch members mounted on said power shaft and adapted to engage either of said sleeves and drive one reel when turned in one direction and adapted to drive the other reel only when the shaft is turned in the opposite direction.

In testimony whereof I have signed this specification.

ALBERT D. PHILPOT.