A. C. R. BLOOM.

PROJECTING APPARATUS.

APPLICATION FILED MAY 8, 1916.

1,206,984.

Patented Dec. 5, 1916.

Fig. 1.

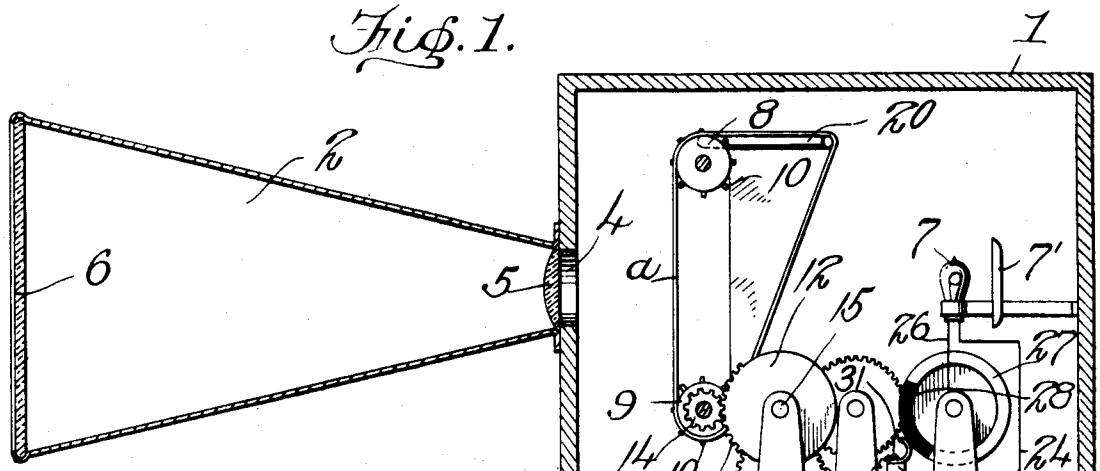


Fig. 6.

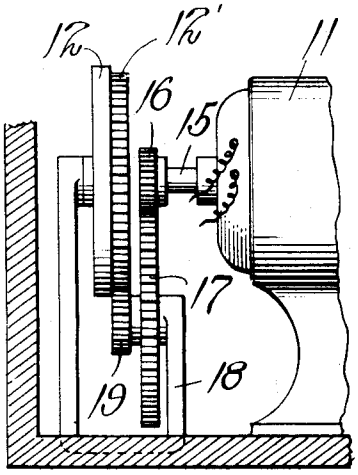


Fig. 2.

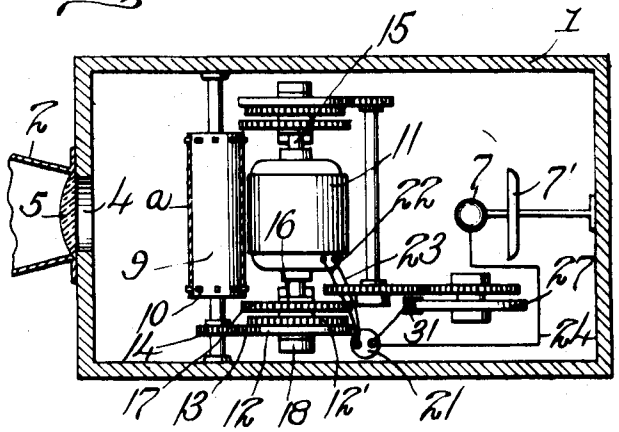


Fig. 5.

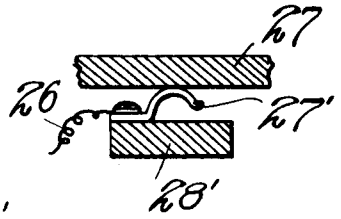


Fig. 3.

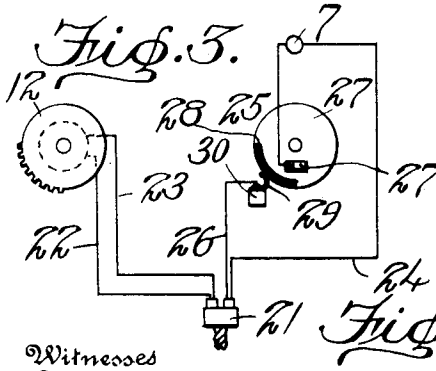
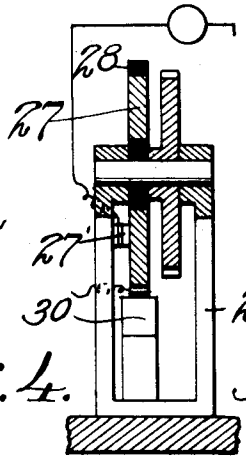


Fig. 4.



Witnesses

Inventor

A. C. R. Bloom,

By

Attorneys

UNITED STATES PATENT OFFICE.

ADOLPH CLIFFORD R. BLOOM, OF DES MOINES, IOWA.

PROJECTING APPARATUS.

1,206,984. Specification of Letters Patent. Patented Dec. 5, 1916.

Application filed May 8, 1916. Serial No. 96,179.

To all whom it may concern:

Be it known that I, ADOLPH CLIFFORD R. BLOOM, a citizen of the United States, residing at Des Moines, in the county of Polk, State of Iowa, have invented certain new and useful Improvements in Projecting Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the class of projecting apparatus, and pertains particularly to an automatic advertising device.

The primary object of my invention is to construct a picture projecting apparatus which may be used as an advertising medium in store windows, show cases, or in any other situation where it would be advantageous to intermittently display pictures of wares, signs or other reproductions in enlarged form.

It is a further object of the invention to provide an advertising medium consisting of a projecting apparatus which is automatically and intermittently operated to successively project pictures in enlarged form upon a suitable screen which can be disposed in a store window, show case, or other suitable position.

Another principal object of the invention is to provide a projecting apparatus of the type above mentioned which is of such a simple character and arrangement of parts that the user or advertiser may arrange or build up a picture roll from ordinary camera films which he himself has taken and developed. In this manner, the apparatus becomes an inexpensive mechanism to operate and maintain, since the films may be renewed at frequent intervals without the payment of rentals or licenses for stock films, and the films may be built up of pictures which are strictly local or personal to the business which is being advertised.

With the above principal objects, and others in view, as will hereinafter appear, my invention will now be fully set forth and described, with particular reference to the accompanying drawings which illustrate one embodiment of my invention, and in which:—

Figure 1 is a vertical longitudinal elevation of the apparatus, one side of the containing receptacle having been removed to disclose the apparatus, Fig. 2 is a plan view of the mechanism, Fig. 3 is a diagrammatic view showing the elecertical circuits and the relationship of the circuit breaker to the reel operating mechanism, Fig. 4 is an enlarged detail view of a circuit closing device used in connection with my apparatus, Fig. 5 is a detail of a part of the circuit closing device, and Fig. 6 is a detail view showing a reducing gear which is used between the driving motor and the film operating spools.

Referring more particularly to said drawings, 1 represents a casing or cabinet which incloses the mechanism of my improved projector, and 2 is a light-tight cone or hood, whose contracted end is secured over the lens opening 4 in which is mounted a suitable projecting lens 5. The large end of the hood or cone 2 is fitted with a ground glass 6, which acts as a screen for any enlarged image projected from the interior of the cabinet through the lens 5. In the rear portion of the cabinet 1, and in the axial line of the lens 1 is a light source 7, which may be an incandescent lamp of suitable candle power to project pictures from a film strip *a* through the lens 5 upon the ground glass or screen 6. A reflector 7′ behind the light source 7 throws the rays of the latter forwardly toward the lens 5.

In the forward portion of the cabinet 1, and in proper position behind the lens 5 are disposed the upper film roll or spool 8 and the lower film roll or spool 9, said spools being arranged in vertical alinement so as to present the film strip *a* in a transverse vertical plane behind the lens 5. Said spools 8 and 9 are of the usual type over which films are guided in motion picture projecting apparatuses, spurs or teeth 10 being provided on each spool for the purpose of engagaing the usual marginal perforations provided on film strips which are used in projecting apparatuses.

Mounted upon the base of the cabinet 1 is an electrical motor 11 which is geared to a segmental or mutilated gear 12. The segmental gear 12 consists of a disk which is provided with a toothed sector 13, said sector 13 being adapted to mesh, at each revolution of the segmental gear 12 with a gear wheel 14 mounted upon one end of the spool 9. The gear sector 13 is of such length that during its engagement with the gear 14, the film roll or strip *a* will be advanced the length of one picture section.

A reducing gear, which is best illustrated

in Fig. 6 is provided in order to properly time the revolution of the segmental gear 12. In said reducing gear, the shaft 15 of the motor 11 is provided with a pinion 16 which meshes with a gear 17 which is suitably journaled in the frame 18. Mounted upon the shaft of the gear wheel 17 is a pinion 19 which meshes with the segmental gear 12 above referred to.

The film strip *a* is an endless band, which in the commercial use of my improved apparatus, may be furnished in regular lengths, and in sizes to fit the ordinary hand cameras which are in uniform use, so that the user of the apparatus may photograph specimens of his stock, or any other desired views, and after the usual development of the roll to provide a positive film may fasten the ends of the latter together to form the endless band, which is then fitted upon the spools 8 and 9, and is furthermore looped over a guide arm 20 which preferably projects from one side of the cabinet 1 and in the position shown in Figs. 1 and 2 so that the slack of the film will be guided out of the line of the light rays proceeding from the light source 7 through the lens 5. The guide arm 20 is extended at such an angle that the rear or slack run of the film is carried just out of the path of the light rays, and since the arm does not exert any pull upon the film, or the latter is not stretched taut over the arm, the film strip can not be torn. Furthermore, the angle at which the guide arm 20 is extended is arranged with relation to the upper reel 8 as not to cause the latter to be pulled off of the teeth 10.

The motor 11 and the light source 7 are furnished with current through an inlet block 21, the current for the motor passing over the conductors 22 and 23 in entering and returning from the motor. The current to the lamp 7 enters through the wire 26 to a circuit breaker 25 and returns over the wire 24.

Referring to Figs. 3 and 4, 27 denotes a disk of electrically conductive material which is peripherally provided with a non-conducting sector 28 and is insulated from the frame 28′. A contact brush 29 carried upon a block 30 and electrically connected to the binding post 31 with the conductor 24 bears against the periphery of the disk 27, so that as the disk 27 is revolved, the circuit which includes the light source 7 is intermittently broken. The disk 27 is driven by the motor 11, and is also geared thereto so that the revolution of the disk 27 is timed in exact accord with the revolution of the mutilated gear 12. The insulating sector 28 of the disk 27 and the gear sector 13 of the segmental gear 12 are of the same length, and the gear 12 and the disk 27 are so timed that the circuit through the light source is broken by the contact of the brush 29 with the sector 28 during the same period that the film strip *a* is being moved to bring a fresh view before the lens 5. It will be evident from the above that the light 7 will illuminate the apparatus during the time that the film strip is at rest, but is extinguished during the time that the film strip is being stepped to bring a new view into the line of the lens. Mounted on the frame 28′ is a contact brush 27′ which is in constant, electrical contact with the body of the disk 27, and this contact carries the current to the disk 27. A reducing gear of the same type illustrated in Fig. 6 for timing the revolution of the segmental gear 12 is employed for reducing the speed of the rotating contact disk 27.

From the foregoing description it will be clear that I have provided a simple and compact apparatus for use by merchants and others which may be conveniently placed in show windows, show cases, and other localities, and after being set into operation for automatic projection of pictures upon the screen 6 may be dressed to conceal the cabinet or casing, leaving the screen only visible, so that an attractive exhibit may be combined with a unique attention attracting feature. Furthermore, by my improved apparatus, an exhibitor may provide his own collection of views, so that a source of expense common to the ordinary projecting apparatuses, mainly the necessity of paying rentals or licenses for films may be avoided, and the supply of views in the exhibitor's possession will only be limited by the number of views which he personally desires to make. The cost of maintenance and supply of any exhibiting matter is thus reduced to a minimum.

What I claim as my invention is:—

1. A projecting apparatus, comprising in combination, a projecting lens and light source, a power source, upper and lower reels for supporting an endless film in front of said projecting lens, means driven by said power source for actuating one of said reels to move the film the space of one picture at predetermined intervals, and a circuit breaker also actuated by said power source for interrupting the current of said light source synchronously with the movement of the film.

2. A projecting apparatus, comprising in combination, a projecting lens, a light source, means for supporting the endless film in projecting position in front of said lens, means for supporting the slack portion of said film out of the line of the rays passing from said light source to the lens, means for advancing said film step by step at predetermined intervals, means for extinguishing said light source simultaneously with the advance of said film, said film advancing means and light extinguishing

means including radial elements of like diameter and having the same radial rotating speed, and a common driving means for said rotating elements.

3. A projecting apparatus comprising in combination, a projecting lens, a light source, means for supporting an endless film between said light source and said lens, a power source, a segmental gear interposed between said power source, and said film supporting means for advancing said film at predetermined intervals, an electric circuit including said power source, and a circuit breaker in said circuit, said circuit breaker being also actuated from said power source and including a radial element whose movement is synchronous with the movement of said segmental gear, to interrupt said circuit during the period that said film is being advanced.

4. A projecting apparatus, comprising in combination, a projecting lens, a light source, a translucent screen supported in fixed relation to said lens for receiving pictures projected by the latter, means for supporting an endless film between said lens and said light source, said supporting means consisting of upper and lower reels and a guide rod disposed at one side of said reels to guide the slack portion of the film out of the path of light rays from said light source to the lens, means for advancing said film intermittently at predetermined periods, and means synchronous with said advancing means for extinguishing said light source simultaneously with the advance of said film.

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

A. CLIFFORD R. BLOOM.

Witnesses:

EDWIN J. FRISK,

J. H. ANDERSON.