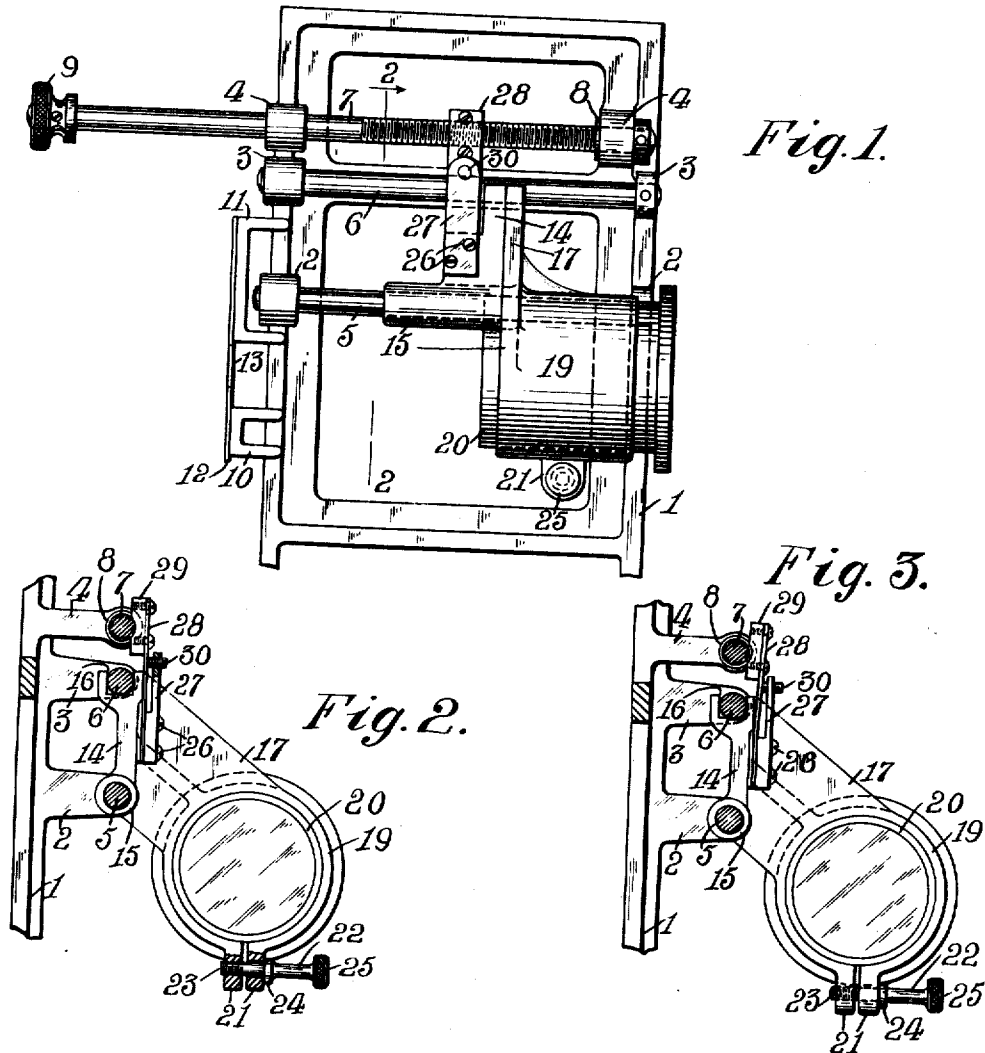


A. F. GALL.  
 LENS SUPPORTING AND ADJUSTING DEVICE.  
 APPLICATION FILED JAN. 24, 1914.

1,187,136.

Patented June 13, 1916.



*Witnesses:*  
 William A. Hardy.  
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 his Atty's.

# UNITED STATES PATENT OFFICE.

ADOLPH F. GALL, OF WEST ORANGE, NEW JERSEY, ASSIGNOR TO NEW JERSEY PATENT COMPANY, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## LENS SUPPORTING AND ADJUSTING DEVICE.

1,187,136.

Specification of Letters Patent.

Patented June 13, 1916.

Application filed January 24, 1914. Serial No. 814,227.

*To all whom it may concern:*

Be it known that I, ADOLPH F. GALL, a citizen of the United States, and a resident of West Orange, Essex county, New Jersey, have invented certain new and useful Improvements in Lens Supporting and Adjusting Devices, of which the following is a description.

My invention relates to lens supporting and adjusting devices and particularly to an improved mounting and support for the projecting lens or lenses of apparatus used for throwing pictures upon a suitable screen.

The principal object of my invention is the provision of an improved construction, whereby the lens or lenses of an apparatus for projecting pictures may be quickly and accurately adjusted for focusing by a single manipulation, and firmly supported in any adjusted position.

Another object of my invention is to provide an improved lens supporting and adjusting device adapted to be made as an attachment capable of being readily applied to apparatus such as moving picture machines and the like.

Other objects and features of my invention will appear more fully in the following description and appended claims.

In order that my invention may be clearly understood, attention is directed to the drawing accompanying and forming a part of this specification, in which the same reference characters are used to designate corresponding parts throughout, and in which:

Figure 1 is a side elevation of a portion of the frame of a projecting apparatus with my invention applied thereto. Fig. 2 is a vertical sectional view thereof taken on line 2-2 of Fig. 1; and Fig. 3 is a view similar to Fig. 2, showing parts of the device in a slightly different position.

Referring to the drawing, reference character 1 represents a frame or support which may be and preferably is a portion of the frame of a motion picture machine. The frame 1 is preferably provided at its opposite sides with pairs of projections or brackets 2, 3 and 4 preferably formed integrally

therewith and extending from one face thereof; the brackets on each side of the frame preferably being arranged vertically one above the other. A pair of rods 5 and 6 is fixedly secured in the brackets 2 and 3 respectively, while in the upper pair of brackets 4 is rotatably mounted a rod 7 having the portion between the brackets 4 screw threaded; the rods 5, 6 and 7 preferably being arranged in parallel relation to each other. Longitudinal movement of rod 7 is prevented by means of collars 8 secured thereto and engaging opposite faces of one of the brackets 4. The outer end of rod 7 is provided with a knurled head 9 whereby the rod may be easily rotated for a purpose which will presently appear. Frame 1 is also preferably provided at one side with a pair of spaced brackets or projections 10, 11, extending therefrom in substantially the same direction as brackets 2, 3 and 4, and suitably secured to these projections is the aperture plate 12 of the projecting apparatus, which is provided with the usual projection aperture 13.

Reference character 14 represents the carrier or mount for the lens casing or tube, which carrier comprises a substantially vertical portion or flange, a downwardly and forwardly projecting portion 17, and a substantially cylindrical bearing portion 19 at the lower end of the projecting portion 17, all of these portions being preferably though not necessarily integrally formed. The carrier 14 is slidably mounted on rods 5 and 6 for movement toward and away from the aperture plate 12, as by providing the vertical portion or flange thereof at its lower end with a sleeve 15 in which rod 5 is received and its upper end with a notch or recess 16 in which rod 6 engages. The bearing 19 is adapted to receive the lens tube or casing 20 and is so arranged that, when the carrier is mounted on rods 5 and 6 as described, its longitudinal axis will be substantially parallel to rods 5 and 6 and will pass approximately through the center of the projection aperture 13. Member 19 is preferably made as a split slightly

resilient bearing and is provided with a pair of lugs or ears 21 on opposite sides of the line where it is split.

Reference character 22 represents a bolt or rod which is provided with a smooth portion passing through one lug 21 and a threaded end 23 in screw threaded engagement with the other lug 21. This bolt is provided with a collar 24 to limit the movement thereof with respect to the lug 21 engaged by its smooth portion and a knurled head 25 to enable the same to be readily turned. It will be apparent that the turning of rod 22 will effect the tightening and loosening of the bearing 19 about the lens tube or casing 20 by drawing the ends of the bearing together or permitting them to spring apart.

Secured to the vertical portion or flange of the carrier 14, as by screws 26, is a vertically extending rigid arm 27 which is cut away on the inner side thereof above where it is secured to the carrier. The lower end of a vertical stiff spring arm 28 is also secured to the carrier between the same and the lower end of arm 27 and projects beyond the arm, and to the upper end thereof is suitably secured a feed nut 29 adapted to engage the threaded portion of rod 7. The spring arm 28 normally tends to hold the feed nut in engagement with the threads on rod 7 and in order to regulate this engagement I provide the upper end of arm 27 with an adjusting member or set screw 30, the inner end of which engages the spring arm 28. If the notch or recess 16 is a bit large so as to allow play of rod 6 therein and for this or any reason the feed nut should tend to assume the position shown in Fig. 3, this may be compensated for by turning screw 30.

The utility and operation of my invention will now be clear. A rough or approximate adjustment of the lens or lenses for focusing may be secured by loosening the bearing 19 and adjusting the lens casing 20 therein by hand, after which the bearing is tightened by means of bolt 22. The rod 7 is then turned to move the lens carrier or mount 14 backward or forward with respect to the projection aperture 13 to obtain a fine and accurate adjustment of the lens or lenses for exact focusing.

From the above description, it will be clear that I have produced a very simple and effective construction for supporting and adjusting a lens for focusing, and while I intend the same primarily for use in moving picture projecting machines, it is by no means limited to such use but may also be employed on other types of apparatus for projecting and taking pictures. Also, while I have shown and described frame 1 as the

frame of a projecting apparatus, it is to be understood that this frame may be separate and distinct from that of the projecting apparatus and, together with the support for the lens and the parts cooperating therewith for mounting and adjusting the same, may be made as an attachment capable of being readily applied to motion picture projecting machines and other projecting apparatus.

While I have shown and specifically described a preferred embodiment of my invention, this embodiment is capable of many changes and modifications without any departure from the spirit of my invention and the scope of the appended claims.

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

1. The combination of a support or frame, a split resilient bearing adjustably mounted thereon, a lens casing adjustably mounted in said bearing, means to control the loosening of the bearing with respect to the lens casing to permit the latter to be adjusted therein and for tightening the bearing to clamp the lens casing in adjusted position, and means for adjusting said bearing on said support or frame, substantially as described.

2. The combination of a bearing containing a lens casing, means on which the bearing is adjustably mounted, mechanism for adjusting the bearing on said means comprising a rotatable screw threaded member and another threaded member in engagement therewith, one of said members being mounted on said bearing, and a device on the bearing for regulating the engagement of said members, substantially as described.

3. The combination of a frame having a pair of substantially parallel rods mounted thereon, a carrier comprising a bearing adapted to receive a lens casing, said carrier having a sleeve and a projection provided with a recess, said rods loosely engaging said sleeve and recess respectively, whereby the carrier is slidably supported on the frame, a threaded member rotatably mounted on said frame, a threaded element resiliently mounted on the carrier and adapted to engage said threaded member, and means for regulating the engagement of said member and element, substantially as described.

4. In a projecting apparatus, a frame having a projection aperture, a lens carrier slidably mounted on said frame toward and away from said aperture comprising a bearing for a lens casing, the longitudinal axis of the bearing passing substantially through the center of said aperture, and means for sliding said carrier on said frame comprising a threaded member rotatably mounted

on the frame and a threaded member carried by said carrier and engaging the first member, substantially as described.

5 5. An attachment for projecting apparatus, comprising a frame, a lens carrier adjustably mounted thereon, means for adjusting said carrier on said frame comprising a pair of members in screw threaded engagement, one of said members being mounted

on the frame and the other on the carrier, 10 and means for adjusting the engagement of said members, substantially as described.

This specification signed and witnessed this 23rd day of January, 1914.

ADOLPH F. GALL.

Witnesses:

WILLIAM A. HARDY,  
MARY J. LAIDLAW.

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Correction in Letters Patent No. 1,187,136.

It is hereby certified that in Letters Patent No. 1,187,136, granted June 13, 1916, upon the application of Adolph F. Gall, of West Orange, New Jersey, for an improvement in "Lens Supporting and Adjusting Devices," an error appears in the printed specification requiring correction as follows: Page 1, line 18, for the word "single" read *simple*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 13th day of February, A. D., 1917.

[SEAL.]

R. F. WHITEHEAD,  
*Acting Commissioner of Patents.*

Cl. 95—45.

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[SEAL.]

R. F. WHITEHEAD,  
*Acting Commissioner of Patents.*