(No Model.)

H. LUCAS.

LAMP FOR VELOCIPEDES.

No. 407,409. Patented July 23, 1889.

Fig. 1.

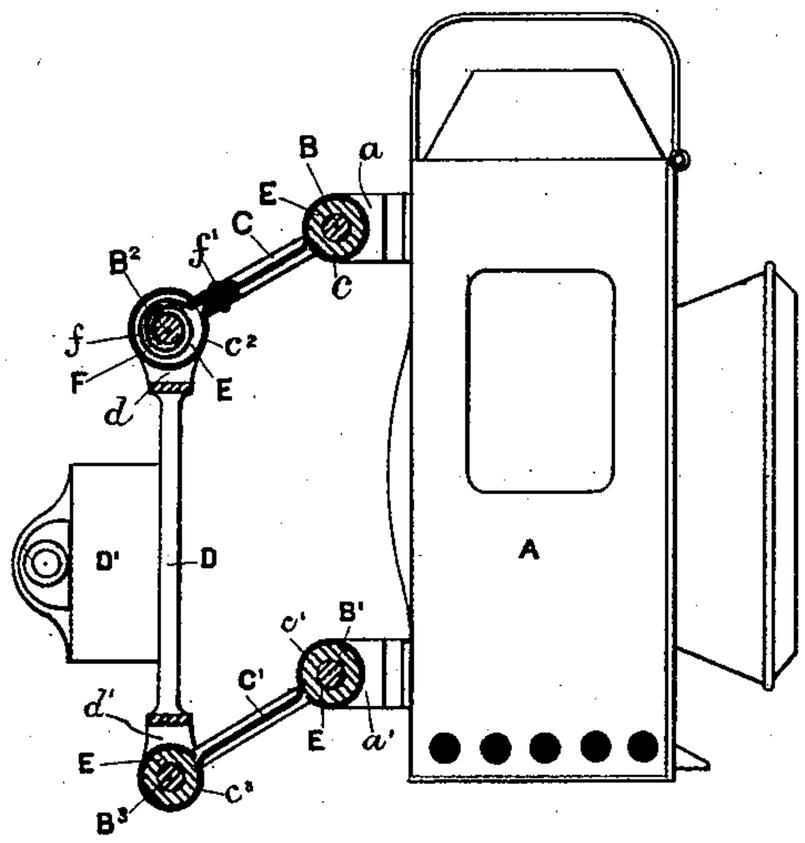


Fig. 2.

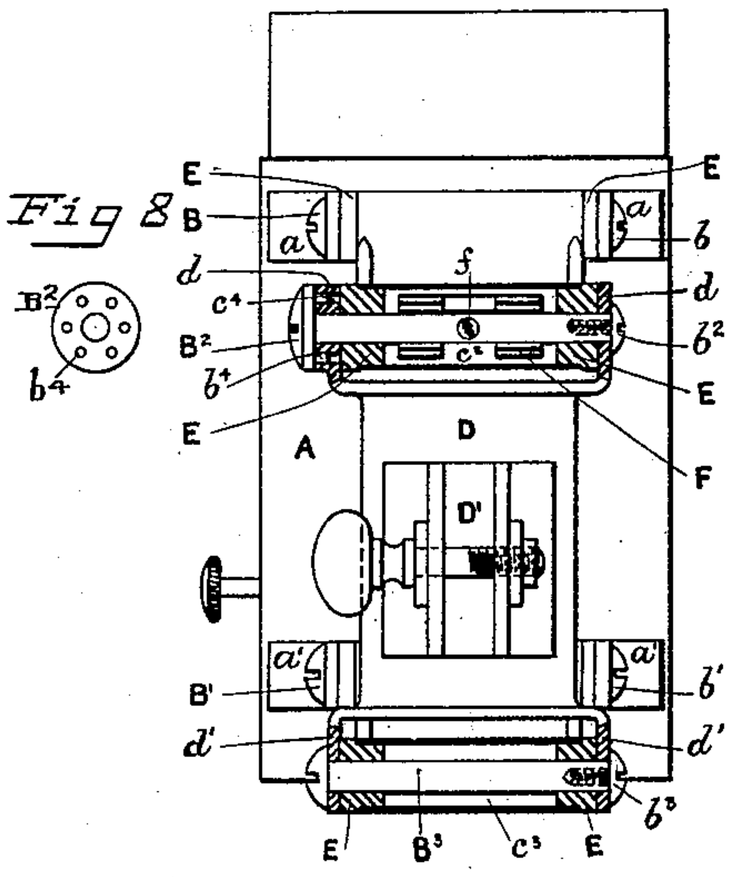


Fig. 3.

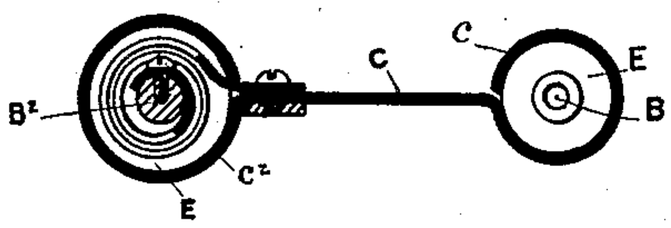


Fig. 4.

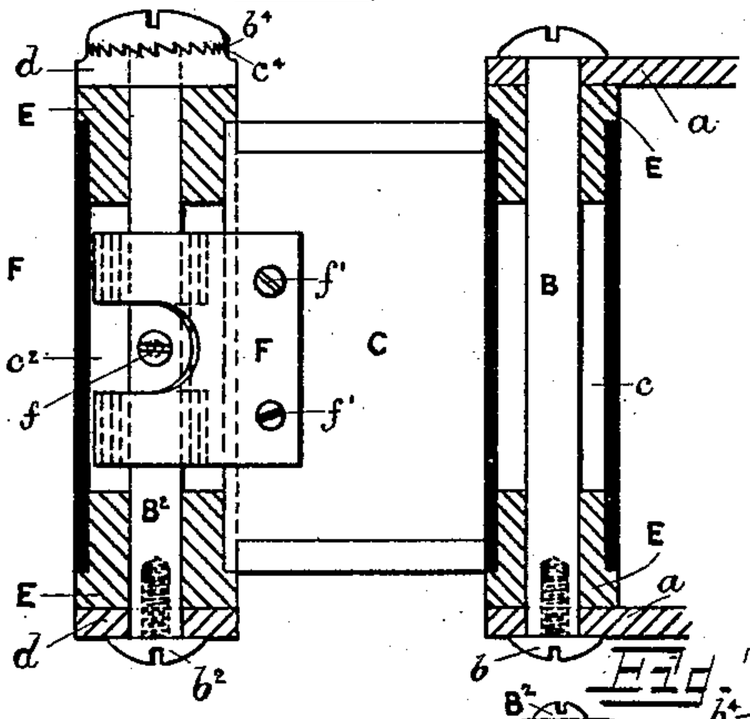


Fig. 5.

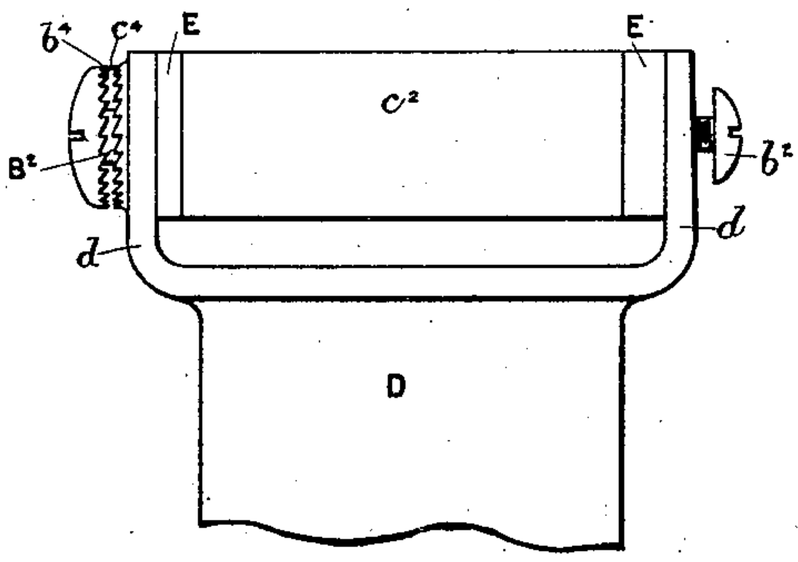


Fig. 6.

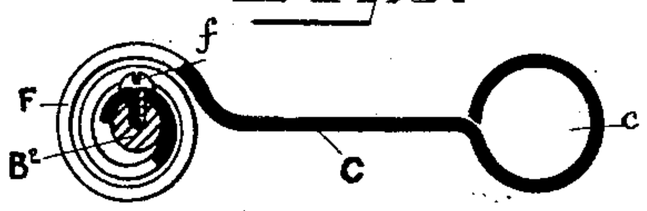
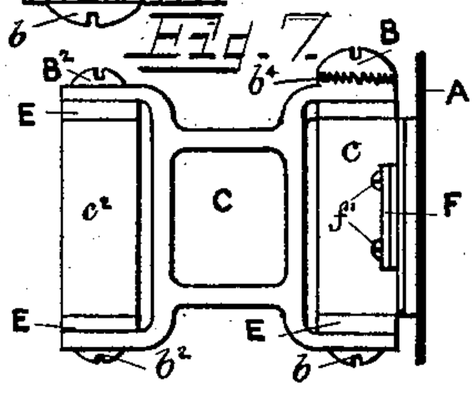


Fig. 7.



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HARRY LUCAS, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

LAMP FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 407,409, dated July 23, 1889.

Application filed December 3, 1888. Serial No. 292,448. (No model.) Patented in England January 2, 1888, No. 8, and August 20, 1888, No. 12,009.

To all whom it may concern:

Be it known that I, HARRY LUCAS, a subject of the Queen of Great Britain, residing at Little King Street, Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Lamps for Velocipedes, (for which I have obtained patents in Great Britain, No. 8, bearing date January 2, 1888, and No. 12,009, bearing date August 20, 1888,) of which the following is a specification.

My invention relates to improvements in velocipede-lamps, in which the body of the lamp is attached to the frame of the machine by an elastic connection to cut off vibration from the lamp and to prevent its flame being extinguished; and the objects of my improvements are, first, to provide non-metallic joints for the elastic connection; second, to inclose the controlling spring to protect it from atmospheric influences, and, third, to provide for the adjustment of the resiliency of the said spring.

Hitherto velocipede-lamps supported by a bracket on the frame of the machine have been constructed with a socket-plate, for attachment to the said bracket, connected to the body of the lamp by a pair of jointed arms arranged to allow the body of the lamp a free movement in approximately the same plane as the socket-plate is fixed, the movement of the body of the lamp being controlled by a coiled spring acting between the body of the lamp and the socket-plate. These springs, being uncovered and exposed to atmospheric influences, frequently break or vary in their resiliency, no means having hitherto been provided to adjust the elasticity of such springs. I overcome these defects by my improvements, which I attain in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a lamp fitted with my improved elastic connection. Fig. 2 is a view in back elevation thereof. Fig. 3 is a view on an enlarged scale in cross-section of one of the connecting-arms and the controlling-spring. Fig. 4 is a view on an enlarged scale in plan thereof, partly in section; and Fig. 5 is a broken view, on an enlarged scale, in elevation, showing one of the joints and the locking device for the adjustment of the elasticity of the spring. Fig. 6 is a view on an enlarged scale in cross-section of a modification of the arm and spring, and Fig. 7 is a view in plan of a modified form of the arrangement of the several parts. Fig. 8 is an end view of the pin B^2. (Shown in Fig. 2.)

Throughout the several views similar parts are marked with like letters of reference.

On the body of the lamp A are fixed or formed ears *a a* and *a′ a′*, forming jaws, to which are hinged, by the pins B and B′, two arms C and C′. The free ends of these arms are hinged by pins B^2 and B^3 to ears *d d* and *d′ d′*, forming jaws on a plate D, carrying a socket D′, to fit on the bracket carried by the machine. This socket is preferably a split one, as illustrated, controlled by a thumb-screw to adapt it to fit brackets of any size. The pins B, B′, B^2, and B^3 are locked to the ears *a a*, *a′ a′*, *d d*, and *d′ d′*, forming the jaws on the body of the lamp and socket-plate, respectively, by the screws *b*, *b′*, b^2, and b^3, as shown, or by nuts. The eyes or bushes *c*, *c′*, c^2, and c^3, formed on the ends of the arms C and C′, are made of a larger diameter than the pins B, B′, B^2, and B^3, to allow of the interposition of washer-bushes E E, &c., of rubber, felt, or other pliant material, to cut off the metallic connections in the said joints. The eye c^2 of the arm C is made of an increased diameter to allow of the introduction of a flat coiled spring F within the said eye. The spring F is coiled round the pin B^2 and fixed thereto by a screw *f*, or in any other suitable manner. The free end of the spring F passes out through a slot in the eye c^2, and is fixed to the flat part of the arm C by the screws *f′ f′*. The spring F is preferably bifurcated where it is coiled on the pin B^2 to enable it to be readily fixed to the screw *f*. By bifurcating the coiled spring a thicker gage of metal can be used, thereby preventing lateral torsion of the spring without affecting its resiliency. The elasticity of the spring F is regulated by rotating the pin B^2 in the ears *d d* of the jaw of the socket-plate D to wind or unwind the coils of the said spring,

and by afterward locking the pin to the said ears by means of the screw b^2 or its equivalent. To insure a firm interlocking of the pin B^2 with the ears *d d*, a series of ratchet-teeth b^4 b^4, &c., are cut or formed on the head of the pin B^2 to engage with a series of similar teeth c^4 c^4, &c., cut or formed on the ear *d*, against which it abuts, as illustrated by Figs. 4 and 5 of the accompanying drawings, Fig. 4 showing the pin locked and Fig. 5 showing it unlocked.

Instead of ratchet-teeth a series of circular dowel-pins b^4 b^4 may be fixed or formed on the head of the pin B^2, and suitable holes c^4 c^4, &c., to receive them formed in the face of the ear *d*, as illustrated by Fig. 2 of the accompanying drawings. These interlocking pins and holes will act exactly the same as the ratchet-teeth and insure the firm interlocking of the pin (carrying the spring) with the socket-plate. The spring F may sometimes be formed in one piece with one of the arms, as illustrated by Fig. 6, in which case it is made of a plate of a sufficiently thick gage to be stiff enough to form the arm, the necessary elasticity of the coiled part being obtained by the bifurcation hereinabove referred to.

Although but one spring F is hereinabove described and shown, two or more may be used, if desired, each fitted within one of the eyes *c*, *c'*, c^2, or c^3, and if one spring only is used, as shown in the accompanying drawings, it may be fitted to either of the other eyes *c*, *c'*, and c^3 with equal effect. Furthermore, instead of making the arms C and C' solid, as hereinabove described, they may be made, as illustrated by Fig. 7 of the accompanying drawings, of skeleton form to fit over eyes or bushes *c*, *c'*, c^2, and c^3, formed on or fixed to the body of the lamp A and the socket-plate D, respectively, in which case the pins B, B', B^2, and B^3 would be carried by and locked to the arms C and C', and the free end of the spring F would be fixed either to the body of the lamp A by the screws *f' f'*, as illustrated, or to the socket-plate D.

I desire it to be understood that I do not limit myself to the exact construction and arrangement of the several parts hereinabove described, and shown by the accompanying drawings, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

I am aware that prior to my invention the lamps of velocipedes have already been connected to their supporting-sockets by arms controlled by springs. I therefore do not claim such a combination broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a lamp and a fixed support, of an arm provided at one end with an eye having a bush of non-metallic material and a pin connecting it to the lamp, and a coiled spring connecting the other end of the arm with the said support, substantially as and for the purpose set forth.

2. The combination, with a lamp and a fixed support, of an arm provided at one end with an eye having a bush of non-metallic material and a pin connecting it to the lamp, and provided at the other end with a coiled spring connecting the arm with the said support, and an eye inclosing the said spring, substantially as and for the purpose set forth.

3. The combination, with a lamp and a fixed support, of an arm provided at one end with an eye having a bush of non-metallic material and a pin connecting it to the lamp, and provided at the other end with a coiled spring connected to said support, and having a bifurcated central portion, substantially as and for the purpose set forth.

4. The combination, with a lamp, of an arm pivoted to the lamp at one end and provided with an adjustable coiled spring at the other end, a revoluble pin passing axially through said spring and secured to it, a fixed bracket supporting the said pin, and projections for securing the pin to the bracket after the tension of the spring has been adjusted, substantially as set forth.

5. The combination, in a velocipede-lamp, of the arms C and C', having eyes or bushes *c*, *c'*, and c^3, fitted with pliant washer-bushes, the pins B, B', and B^3, the pin B^2, having interlocking teeth b^4 b^4, the spring F, secured to the said pin B^2, and the socket D', carried by the socket-plate D, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HARRY LUCAS.

Witnesses:
JAMES ROLAND ATKINS,
WALTER JAMES PERKINS.