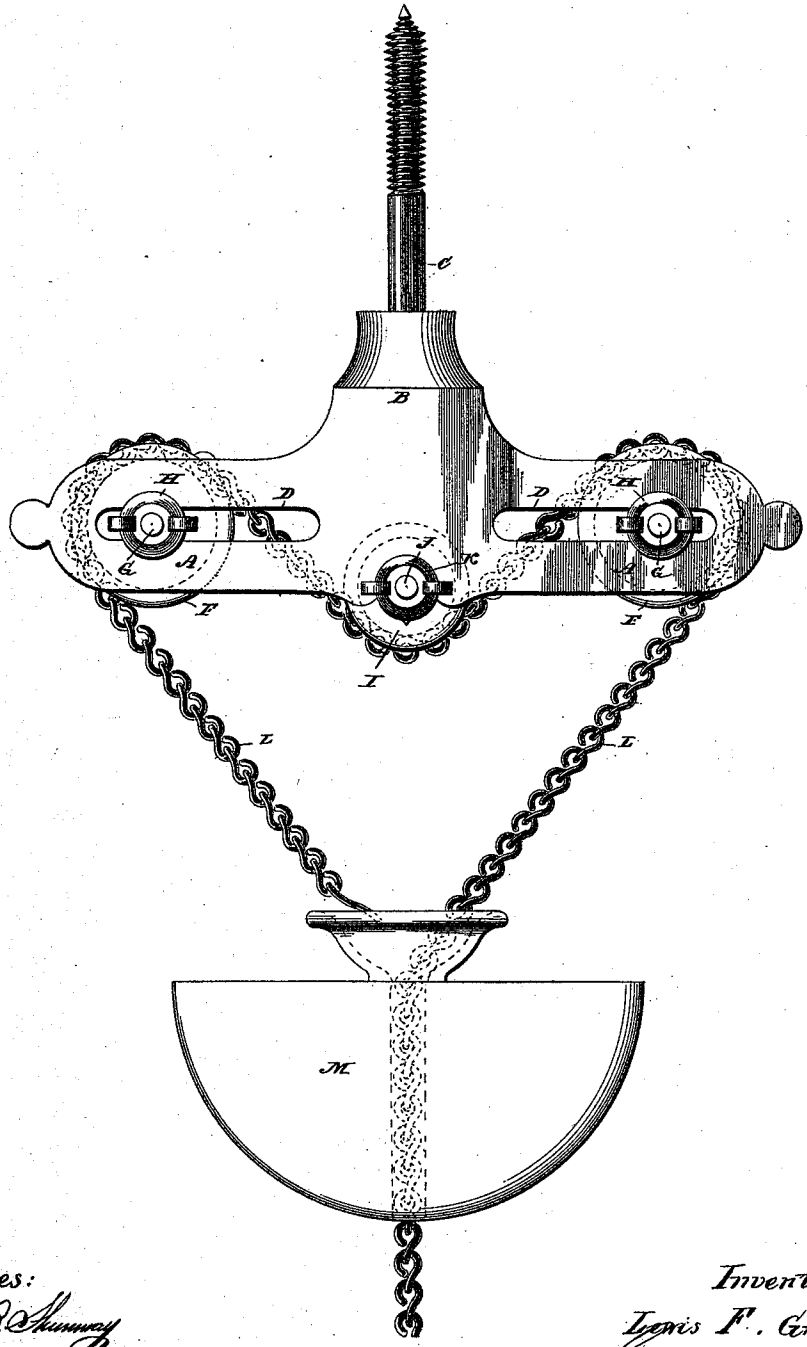
(No Model.) 2 Sheets—Sheet 1.

L. F. GRISWOLD.

SUSPENSION DEVICE FOR HANGING LAMPS.

No. 413,780. Patented Oct. 29, 1889.

Fig. 1



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(No Model.) 2 Sheets—Sheet 2.

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SUSPENSION DEVICE FOR HANGING LAMPS.

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Fig. 2

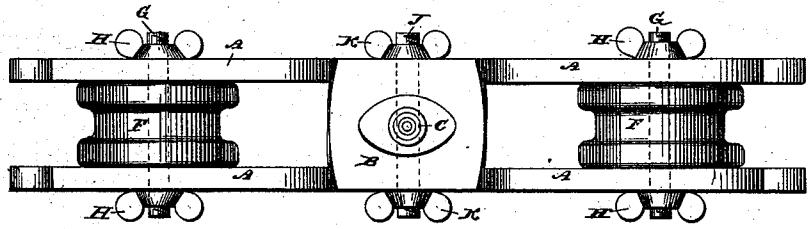


Fig. 3

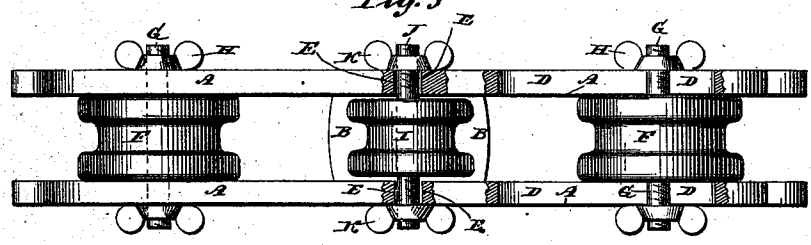


Fig. 4



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UNITED STATES PATENT OFFICE.

LEWIS F. GRISWOLD, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE CHARLES PARKER COMPANY, OF SAME PLACE.

SUSPENSION DEVICE FOR HANGING LAMPS.

SPECIFICATION forming part of Letters Patent No. 413,780, dated October 29, 1889.

Application filed May 9, 1889. Serial No. 310,119. (No model.)

To all whom it may concern:

Be it known that I, LEWIS F. GRISWOLD, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Suspension Devices for Hanging-Lamps; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in suspension devices for hanging lamps, the object being to provide means for frictionally engaging the suspension-chain to support the lamp-holder either with or without the lamp in any position of adjustment.

With these ends in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of one form which a friction device embodying my invention may assume. Fig. 2 is a plan view thereof with the chain removed. Fig. 3 is a similar reverse plan view thereof, and Fig. 4 is a detached view of a shouldered arbor such as may be employed in another form of my device.

As herein shown, the device consists in part of a frame cast in one piece and composed of two parallel horizontal spring-arms A A, centrally united at their upper edges by a web B, carrying a screw C, for securing the device to the ceiling. If desired, however, the screw may be replaced by a loop or eye. The opposite end of each arm is provided with an elongated horizontal slot D, while each arm is also furnished at a point below its longitudinal center and below the said slots with a perforation E. Two deeply-grooved rollers F F, forming the outer rollers and respectively located between the opposite ends of the arms A A, are supported upon short spindles G G, having their opposite ends threaded and inserted into the corresponding slots D, through which they project to receive thumb-nuts H, which are screwed against the arms, so as to spring the same together and firmly clamp the rollers in place. A small roller I, located between the arms and below the slots therein and forming the central roller, is mounted so as to freely rotate upon a spindle J, having its opposite ends threaded and inserted into the holes E, through which they project and receive the thumb-nuts K. By loosening the thumb-nuts H the rollers F F are relieved of the clamping action of the arms A A, and may then be horizontally adjusted within the range of the slots D to carry them toward or away from the rotatable roller I. The grooves of the friction-rollers F F are formed so that the suspension-chain L, which supports the lamp, will engage with their side walls as well as their bottom walls, whereby the friction surface or area of the fixed rollers is much increased. The said chain passes under the central rotatable roller, and then up on the inside of the fixed rollers and over and down on the outside of the same. One end of the said chain is attached to a suitable counter-balance M, and the other, which passes centrally through the said counter-balance, is connected with the holder (not shown) in which the lamp is supported, the said counter-balance being employed not so much to counterbalance the lamp as to cause the chain to hug the said rollers. Under the described construction and arrangement of parts and the disposition of the chain over the rollers the chain is deflected, so that there will be produced between it and the rollers sufficient friction to support the lamp-holder and lamp so long as the chain is held against the rollers by means of the counter-balance. The amount of friction produced depends in large part upon the angle in which the chain is deflected—the sharper the angle the more the friction, and vice versa. In the device chosen for illustration provision is made for varying this angle, and so adapting the device to be conformed to the requirements of lamps and lamp-holders of different weight by adjusting the outer rollers toward or away from the central roller, whereby the angle of deflection is respectively increased or decreased with the production of proportionally

more or less friction. The chief function of the counter-balance, it may be observed, is to take up the slack in the chain and to cause the same to hug the rollers. It plays, so to speak, a minor part in the device as compared with the function of the counter-balance in the suspension devices in general use, in which the counter-balance bears a direct relation to the weight of the lamp and lamp-holder and is very heavy and cumbersome.

Although the device chosen for illustration is adapted to be adjusted to conform it for use with lamp-holders and lamps of different weight, it is apparent that, if desired, the deflection of the chain required for supporting a lamp and lamp-holder of certain weight may be predetermined and the device constructed to produce that deflection, but not to vary it to any extent.

In using the device the lamp-holder and lamp are pulled down by overcoming the friction of the chain. Then when the lamp is removed, and although it may be very heavy, the lamp-holder will not be lifted back to its normal or elevated position because the counter-balance keeps the chain hugging the rollers and so sustaining the frictional contact between the same. When, however, the lamp-holder is lifted enough to relieve the chain of its weight and that of the lamp which it carries, the chain slips over the rollers and permits the frame and lamp to be readily elevated. My improved device virtually constitutes, then, a friction-clutch applied when the weight or power of the counter-balance is thrown upon it and released when it is relieved of such weight or power.

My invention is simple and cheap to make and assemble, will not get out of order, and is easy and convenient to operate.

I would have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention. Thus the device might be adapted for the adjustment of the central roller instead of the outer rollers and for the use of more than three rollers. The shape of the frame may be varied and different means employed for mounting and adjusting the outer rollers.

As herein shown, the device is adapted for a very heavy lamp and lamp-holder. For lighter lamps and lamp-holders less friction will be required and thereto more of the rollers may be allowed to rotate by mounting them on arbors having shoulders preventing the frame from being sprung inward to clamp the rollers when the thumb-nuts are turned up against the frame to bind the arbors in place. Such an arbor is shown by Fig. 4 of the drawings. If desired, also, the weight herein shown may be replaced by any equivalent counter-balance.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a suspension device for hanging lamps, the combination, with a frame, of three or more rollers mounted therein, a suspension-chain passing over the rollers, so as to be deflected between them, and a counter-balance attached to the chain, substantially as set forth.

2. In a suspension device for hanging lamps, the combination, with a frame, of three or more rollers mounted therein, a suspension-chain passing over them, so as to be deflected between them, and a counter-balance attached to one end of the chain, one or more of the rollers being adjustable to change the angle in which the chain is deflected, substantially as set forth.

3. In a suspension device for hanging lamps, the combination, with a frame, of a roller mounted therein, two rollers located outside of the said roller and adjustable in their relations thereto, a suspension-chain passing over the rollers and changed in its deflections by the adjustment of the adjustable rollers, and a counter-balance attached to one end of the chain, substantially as set forth.

4. In a suspension device for hanging lamps, the combination, with a frame, of three or more rollers mounted therein, a suspension-chain passing over the rollers, so as to be deflected between them, and a counter-balance, one or more of the rollers being adapted to be clamped against rotation to increase the friction between them and the chain, substantially as set forth.

5. In a suspension device for hanging lamps, the combination, with a slotted frame, of three or more rollers mounted therein, a suspension-chain passing over the rollers, so as to be deflected thereby, and a counter-balance attached to the chain, one or more of the rollers being adjustable in the slotted frame to change the deflections of the chain, and hence vary the amount of friction developed, substantially as set forth.

6. In a suspension device for hanging lamps, the combination, with a frame having two slotted arms, of a roller mounted in the said frame, two rollers respectively mounted in the slotted arms thereof and adjustable within the limits of the slots, a suspension-chain passing over the rollers, so as to be deflected thereby, and a counter-balance attached to the chain, substantially as set forth.

7. In a suspension device for hanging lamps, the combination, with a frame, of three or more rollers mounted therein, a suspension-chain passing over the rollers by which it is deflected, and a counter-balance attached to one end of the chain, the said frame being adapted to be sprung to clamp one or more of the rollers against rotation, substantially as set forth.

8. In a suspension device for hanging lamps, the combination, with a frame having two

slotted horizontal arms, of two rollers respectively mounted in the said arms and adapted to be adjusted in the limits of the slots therein, a roller mounted in the frame between the said adjustable rollers, a suspension-chain passing over the rollers and changed in its deflections by adjusting the outer rollers, and a counter-balance attached to the chain, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEWIS F. GRISWOLD.

Witnesses:
CHAS. B. SHUMWAY,
HARRY A. HALL.