

(No Model.)

2 Sheets—Sheet 1.

F. RHIND.
DEVICE FOR SUSPENDING LAMPS.

No. 530,459.

Patented Dec. 4, 1894.

Fig. 1.

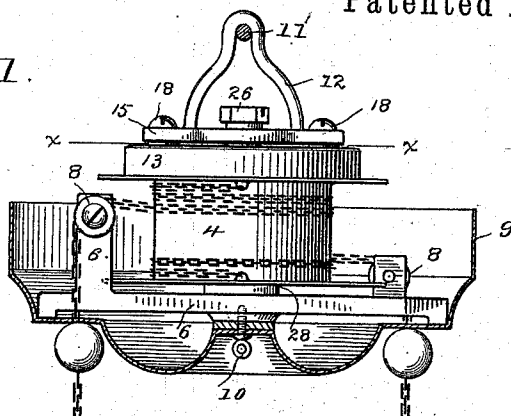


Fig. 3.

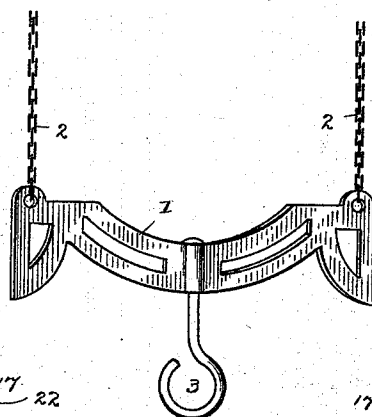


Fig. 4.

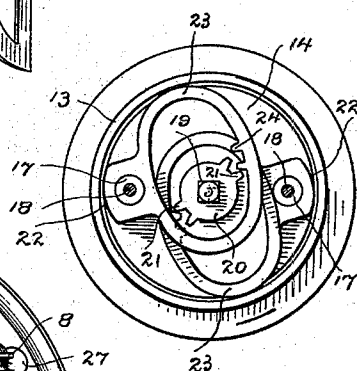
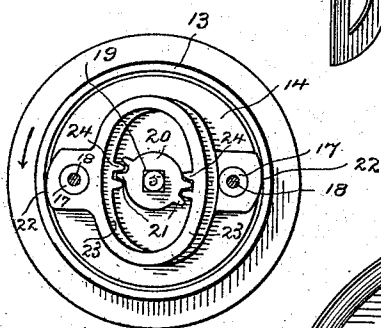
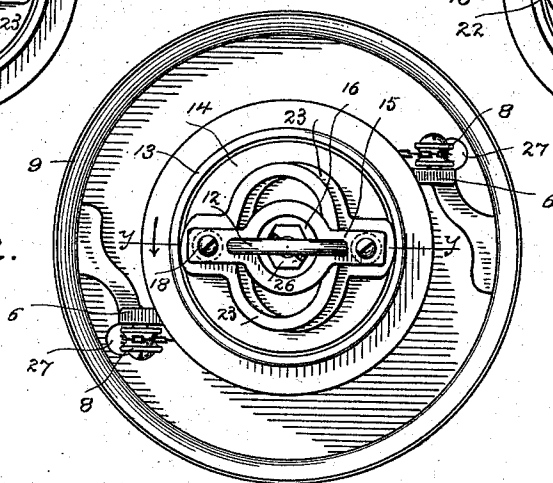


Fig. 2.



WITNESSES

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Att'y.

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Fig. 5.

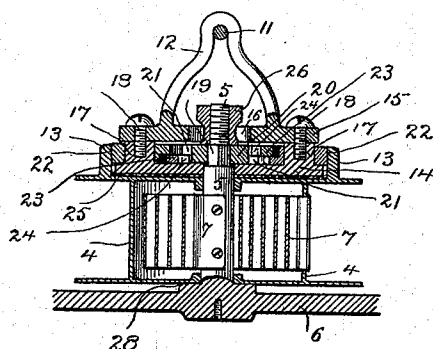


Fig. 6.

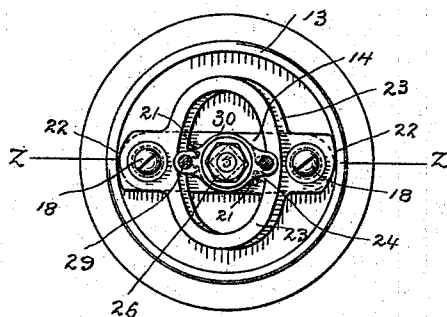


Fig. 7.

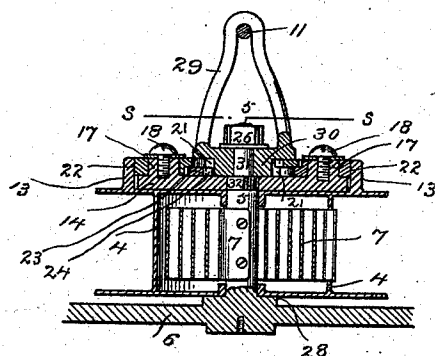
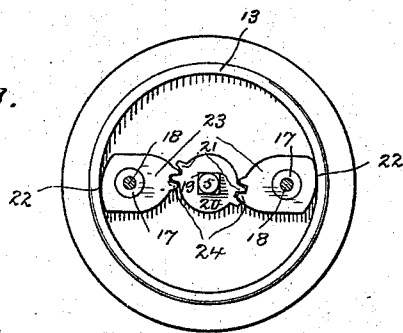


Fig. 8.



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UNITED STATES PATENT OFFICE.

FRANK RHIND, OF MERIDEN, ASSIGNOR TO THE BRIDGEPORT BRASS COMPANY, OF BRIDGEPORT, CONNECTICUT.

DEVICE FOR SUSPENDING LAMPS.

SPECIFICATION forming part of Letters Patent No. 530,459, dated December 4, 1894.

Application filed September 18, 1894. Serial No. 523,386. (No model.)

To all whom it may concern:

Be it known that I, FRANK RHIND, a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Devices for Suspending Lamps; 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.

My invention relates to the class of devices for suspending lamps in which the lamp is suspended from chains adapted to be wound around a spring drum, locking mechanism for the drum being provided by which the lamp is retained at any required elevation, and my invention has for its object to provide a device of this character which will permit the lamp to be readily pulled down by the application of sufficient power to overcome the spring which will automatically lock the drum against upward movement the instant the downward pull is relieved and which by a certain manipulation of the parts will permit the lamp to be drawn up by the spring, but will not permit the lamp to be drawn up except when the device is manipulated in the certain manner required.

With these ends in view I have devised the novel construction of which the following description in connection with the accompanying drawings is a specification, numbers being used to designate the several parts.

Figure 1 is an elevation of my novel device the shell being in section; Fig. 2, a plan view corresponding to Fig. 1; Fig. 3, a section on the line *x x* in Fig. 1 looking down and showing the locking cams in the locking position; Fig. 4, a similar view the locking cams being in the unlocked position; Fig. 5, a section on the line *y y* in Fig. 2; Fig. 6, a section on the line *s s* in Fig. 7 illustrating an obvious modification in the details of construction; Fig. 7, a section on the line *z z* in Fig. 6, and Fig. 8 is a view similar to Figs. 3 and 6 illustrating another modified construction.

1 denotes a cross bar suspended from chains 2 and provided with a hook 3 from which the lamp, not shown, is suspended. The other ends of the chains are attached to a drum 4

adapted to turn on a stud 5 extending upward from a suitable frame 6 upon which the drum bears as at 28.

7 denotes a strong winding spring one end of which is attached to the stud the other to the inner side of the drum by which the drum is rotated to wind the chains thereon and thereby to raise the lamp.

8 denotes bearing points on the frame, preferably rollers, over which the chains pass and which cause downward pull upon the chains to be transmitted to the winding drum in the horizontal plane.

9 denotes an ornamental shell which is secured to the frame by a screw 10 and is provided with holes 27 through which the chains pass. This shell conceals the frame, drum, &c., from view, the device as a whole being ordinarily suspended from a hook 11 in the ceiling or wall, said hook being shown only in section, which is engaged by a suitable eye or loop 12 upon the frame the eye or loop being held stationary or practically so by hook 11.

Upon the top of the drum is a flange 13 and lying within this flange is a plate 14.

In the form illustrated in Figs. 1 to 5 inclusive the eye or loop is provided with a cross piece 15 having a central opening 16 and the plate is provided with hubs or bosses 17, cross piece 15 being secured to the plate, in the present instance to the bosses thereon by screws 18. As already stated the plate turns freely on the shaft. Above the plate the shaft is made angular as at 19 so as to hold against turning a plate 20 which is provided on its opposite sides with lugs or teeth 21.

22 denotes locking cams which are pivoted on hubs or bosses 17 and are adapted to engage the inner side of the flange to lock the drum by frictional contact. I preferably use two locking cams acting in opposite directions so as to equalize the train and thus keep the drum central on the stud. These locking cams are provided with rearwardly extending arms 23 one of which is cut away upon its upper side and the other upon its under side so that the arms will lie one above the other as clearly indicated in Fig. 4 which see in connection with Fig. 5. These rearwardly extending arms loosely inclose plate 20 and

are provided respectively with lugs or teeth 24 which engage the lugs or teeth on the opposite sides of plate 20 thereby acting as will be more fully explained, to throw the engaging surfaces of cams 22 into and out of engagement with the inner side of the flange on the drum

It will be noticed that the locking cams are in fact levers and that the locking action is effected by the short arms of the levers but that the unlocking action is effected through the long arms of the levers so that while the cams lock the drum firmly rendering it impossible to unlock by any power that can be applied to the drum the locking surfaces may be readily disengaged by movement of the long arms of the levers. Between plate 14 and the top of the drum I preferably place a disk 25 of felt or similar material. Above angular portion 19 the stud is screw threaded and is engaged by a nut 26.

The operation is as follows: It is of course contemplated that the automatic locking mechanism will ordinarily be used. Should the automatic locking mechanism not be required however, the operator simply loosens nut 26 on the stud so that the pressure of the drum on the frame, transmitted through plate 20, plate 14 and the washer, is relieved, and the drum is left free to rotate wholly independently of the frame—that is to say, by relieving the pressure of the drum on the frame I leave the drum so loose that when downward pull upon the chains is relieved and the drum is permitted to be turned in the opposite direction by the spring to wind the chains, the drum will not carry the frame with it, thus preventing the automatic lock and permitting the spring to wind the chains upon the drum and to raise the lamp. The normal action is secured by turning down nut 26 on the stud tightly enough so that the drum presses upon its bearing on the frame with sufficient frictional contact to carry the frame with it when the drum commences to rotate backward. It should be borne in mind that the eye, cross piece and plate 14 are stationary or practically so in use and that the frame and drum are capable of movement independently of each other and of the plate. Suppose now in ordinary use that the lamp is at the raised position and it is desired to lower it the locking cams are now in the position shown in Fig. 3—that is to say, in the locking position and acting to lock the drum against rotation and consequently locking the lamp against further upward movement. The first effect of the downward pull upon the lamp is to turn the frame slightly toward the front as seen in Fig. 2. This movement takes place owing to the fact that the chains pass over the bearing points 8 at an angle which in practice is approximately a right angle as clearly shown in Fig. 1 and the further fact that the locking engagement of the cams is effected by the short arms of the levers the locking action of the

cams upon the drum being very much stronger than the frictional contact between the drum and the frame. The first application of power therefore to pull the lamp downward will swing the frame toward the front slightly as already stated. This movement of the frame of course turns the stud and with it plate 20 from the position shown in Fig. 3 to approximately that shown in Fig. 4 the effect of which is to oscillate the locking cams and throw the engaging surfaces out of contact with the inner side of the flange on the drum thereby releasing the latter and allowing the chains to be unwound therefrom and the lamp to be drawn down readily. The instant however, that the pull upon the chains is relieved the spring will of course act to turn the drum backward to wind the chains thereon but as the other end of the spring is attached to the stud it will of course act to turn the stud and with it the frame in the opposite direction overcoming the frictional contact of the drum on the frame. This movement of the stud through the engagement of lugs or teeth 21 on plate 20 with similar lugs or teeth on the rearwardly extending arms of the locking cams, *i. e.*, the long arms of the levers, will act to throw said cams from the position shown in Fig. 4 back to that shown in Fig. 3 and will thus practically instantaneously lock the drum against backward movement. Suppose now that it is desired that the chains should be wound on the drum so as to raise the lamp to a higher position the operator is simply required to turn the lamp toward the front as in Fig. 2—that is, so that the right end of cross bar 1 will be moved toward the back as seen in Fig. 1 and the left end toward the front as seen in said figure. The effect of this movement will be to prevent the automatic movement of the frame and stud so that there will be no movement communicated to the rearwardly extending arms of the locking cams thus preventing said cams from engaging the flange on the drum and locking the latter against backward movement. It will be seen that if this locking movement is prevented the spring will be free to turn the drum and wind the chains, the operator holding the lamp or cross bar in this position until the lamp has been raised to the desired elevation. The lamp or cross bar is then turned back to its normal position and the hand of the operator removed therefrom. The instant this is done the automatic movement of the frame and stud will take place in the manner already described which will throw the locking cams into the engaging position and will rigidly lock the drum against further movement.

In the modified form illustrated in Figs. 6 and 7 the principal of operation is precisely the same the changes being simply in details of construction. In this form the plate having the lugs engaging the locking cams instead of being fixed to the stud as in the other form is made integral with the eye or

loop. In this form the eye or loop for convenience is designated as 29 and the plate which is made integral therewith as 30. The stud is made round as at 31 to receive the plate and to turn freely thereon. In this form the stud is made angular as at 32 and plate 14 is provided with a correspondingly shaped opening to receive the angular portion of the stud so that the stud and plate 14 will move together with the locking cams. The rearwardly extending arms are constructed in this form precisely as in the other form.

The form illustrated in Fig. 8 is the same as in Figs. 1 to 5 inclusive with the exception that the rearwardly extending arms of the locking cams are dispensed with thus shortening the long arms of the levers. It will be noticed that in this form the long arms of the levers engage the plate upon the stud on the side of the plate toward the pivotal point of the levers instead of on the opposite side as in the other form.

Having thus described my invention, I claim—

1. In a device of the character described the combination with a frame carrying a stud and having bearing points 8, a drum journaled on the stud and bearing on the frame and provided with a flange 13, a spring the ends of which are attached to the drum and to the stud and chains connected to the drum from which the lamp is suspended, of a plate 14, locking cams pivoted thereon and bearing against the flange and adapted to lock the drum against rotation by the spring, said cams having rearwardly extending arms provided with lugs 24, and a plate 20 having lugs engaging the lugs on the rearwardly extending arms one of said plates being fixed to the stud and the other turning thereon so that downward pull upon the chains will oscillate the frame and stud and disengage the locking cams from the flange permitting the chains to be drawn downward, and when the pressure is relieved backward movement of the frame and stud will act to throw the locking cams into engaging position unless the chains are oscillated in such a manner as to prevent oscillation of the frame and stud in which position locking movement of the cams is prevented and the spring is left free to rotate the drum and wind the chains.

2. The combination with a frame having bearing points 8 and a stud, a drum journaled on the stud and bearing on the frame, a spring connected to the drum and to the stud, and chains connected to the drum and passing over the bearing points, of a plate 14 through which the stud passes freely, locking cams on said plate by which the drum is locked against backward movement and which are provided with rearwardly extending arms having lugs 24 and a plate 20 fixed to the stud and having lugs 21 which engage lugs

24 so that oscillation of the stud in one direction will release the locking cams and oscillation in the other direction will cause them to engage the drum.

3. In a device of the character described the combination with a stud, a spring drum journaled thereon and having a flange 13, a plate 14 through which the stud passes, locking cams pivoted to said plate which are adapted to engage the flange and are provided with rearwardly extending arms having lugs, and a plate 20 carried by the stud and having lugs engaging the lugs on the arms as and for the purpose set forth.

4. The combination with a frame having a stud extending therefrom and suitable bearing points, a drum journaled on the stud, a spring connected to the drum and to the stud and chains connected to the frame and extending over the bearing points, of plate 14 through which the stud passes, locking cams pivoted to said plate, a plate 20 fixed to the stud and engaging the locking cams and a tension nut upon the stud whereby the frictional contact of the drum with the frame may be regulated.

5. In a device of the character described the combination with a suitable stud, and a spring drum provided with a flange and journaled on the stud, of a plate through which said stud passes freely and a plate fixed to said stud one of said plates having pivoted thereto locking cams which engage the flange and are provided with lugs 24 and the other plate having lugs 21 which engage the lugs on the locking cams so that oscillation of the stud will cause the locking cams to engage or release the flange.

6. In combination in a device of the character described, a central stud, a drum journaled thereon, plate 14, locking cams carried by said plate and provided with engaging lugs, and plate 20 having lugs engaging the lugs on the locking cams so that rotation of either of said plates in one direction causes the cams to lock the drum against rotation and the reverse movement releases the drum.

7. The combination with a central stud and a drum journaled thereon and provided with a flange 13, of a plate 14 through which said stud passes, locking cams adapted to engage said flange which are pivoted to plate 14 and are provided with engaging lugs and plate 20 carried by the stud and having lugs engaging the lugs on the locking cams whereby said cams may be caused to engage or disengage the flange to lock or release the drum.

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

FRANK RHIND.

Witnesses:

A. M. WOOSTER,
S. V. RICHARDSON.