Dec. 29, 1942. P. F. KOCH 2,306,992

LAMP STANDARD

Filed March 11, 1942

Fig. 1.

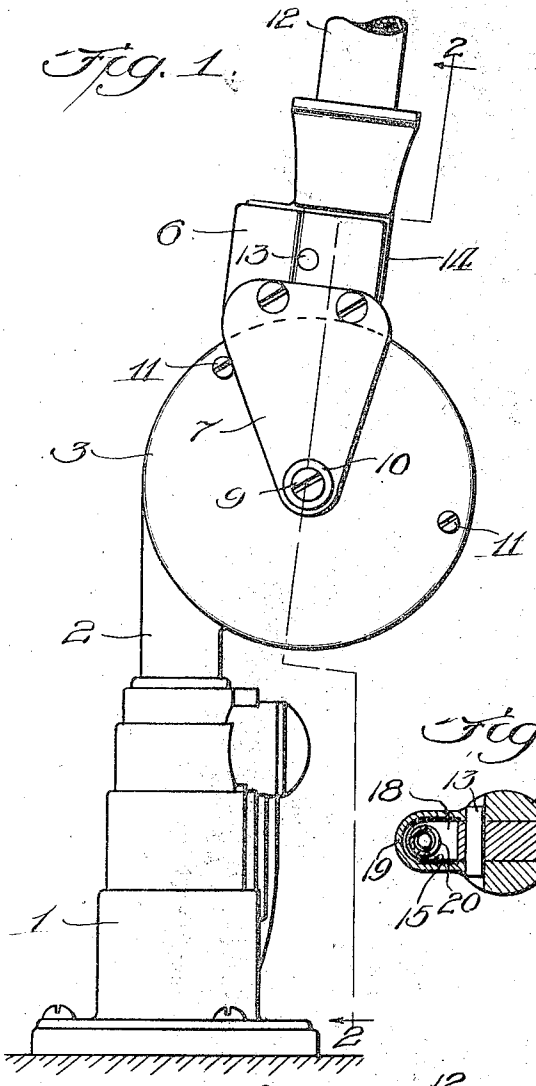


Fig. 2

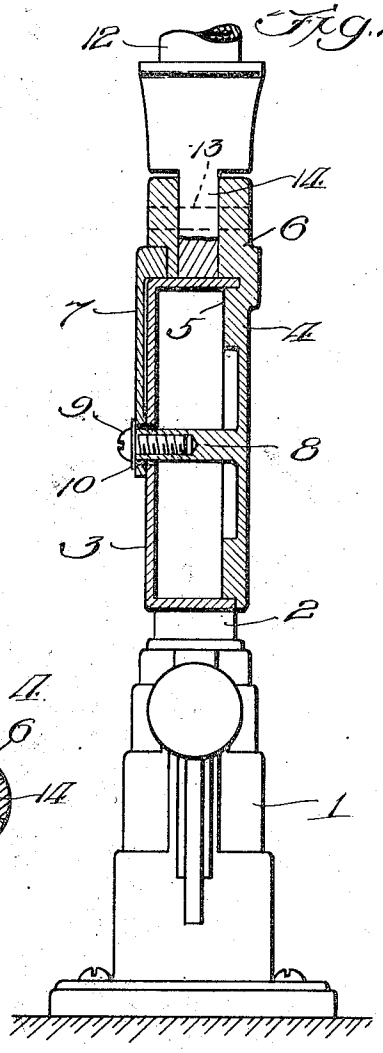
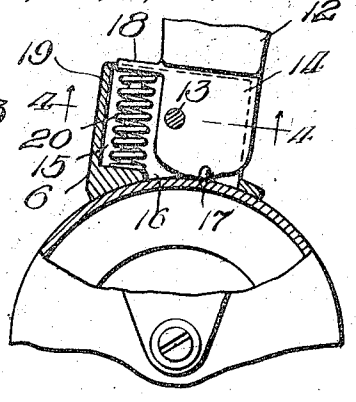


Fig. 4.

Fig. 3



Inventor:
Paul F. Koch,
By Wm. F. Frendenreich,
Atty.

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LAMP STANDARD

Paul F. Koch, Oak Park, Ill., assignor to Chicago Die Casting Manufacturing Company, a corporation of Illinois

Application March 11, 1942, Serial No. 434,181

6 Claims. (Cl. 287—100)

A common type of lamp is one in which the lamp, proper, is carried on the upper end of a stem that is hinged at its lower end to a suitable base that may be attached to a desk, table or bench, or to an upright wall; thereby permitting the lamp device to be swung up or down into any desired position. Sometimes the lamp is adapted to be held in any position to which it may be brought by frictional resistance between two contacting surfaces. This expedient is not entirely satisfactory, because the efficiency of the holding means decreases as wear occurs, and a slight jarring may cause the lamp to drop. In another form of lamp a pawl and ratchet device is employed for the purpose of positively holding the lamp against unintended downward movement. This latter expedient has an inherent disadvantage in that the pawl must be manually operated in order to release it from the ratchet wheel when it is desired to swing the lamp downward.

The primary object of the present invention is to produce a standard for a lamp which shall possess the desirable characteristics of the two forms just described, without retaining those which are objectionable. In other words, the present invention may be said to have for its object to produce a jointed standard for a lamp which will provide a positive lock against unintended downward movement of the lamp, while permitting the lamp to be swung up and down, when desired, without requiring the user to do more than grasp the stem or movable section of the standard and apply thereto a turning force.

Just as the pawl and ratchet device is one adapted for universal use, so, although my improved self-locking hinged connection has primarily been conceived as an element in lamp construction, its use, obviously is not limited to that particular field.

In carrying out my invention, I provide the base member of the standard with a curved bearing element which may be in the form of a short cylindrical drum or simply a segment thereof. The stem of the lamp is made in two sections, one of which is hinged or pivoted to the base for swinging movements about the axis of the curved bearing element. The lamp-carrying section of the stem is hinged to the other section for swinging movements about an axis parallel to the aforesaid axis and located a short distance outwardly from or above the curved bearing element. The lower stem section has a stop to limit the upward or rearward swinging movement of the upper section relatively thereto. On the lower end of the upper or outer section of the stem is a nose which may be referred to as a cam because it is adapted to exert a wedging action between the upper stem section and the bearing element when the lamp is swung down. Thus the curved bearing element serves as a stop to limit the downward or forward swinging movement of the upper stem section relatively to the other section, as well as a stop to hold the stem as a whole against downward or forward movement from any position into which it may have been brought. By this means the two stem sections are limited to relative rocking movements through only a small angle. These rocking movements are sufficient, however, to release the cam or wedge from the bearing element when the upper stem section is swung back as far as it will go relatively to the lower section; thereby leaving the stem free to swing up and down. However, when the upper stem section rocks forward on the lower section and the cam or wedge is held in contact with the bearing element, by the weight of the lamp or otherwise, the stem is locked against further downward movement. In order to insure that the cam or wedge takes hold quickly I prefer to employ a spring that tends constantly to force the upper section of the stem forwardly, relatively to the lower section, and thereby hold the cam or wedge against the curved bearing surface.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a side view of the lower portion of a lamp standard embodying the present invention; Fig. 2 is a section on line 2—2 of Fig. 1; Fig. 3 is a view similar to Fig. 1, showing a smaller fragment of the device, partly in section; and Fig. 4 is a section on line 4—4 of Fig. 3.

Referring to the drawing, 1 represents a suitable base adapted to be fastened to a horizontal or a vertical supporting surface, as is common in lamp construction. Cooperating with the base is a member 2, adapted to be inserted through either the top or the side of the base and be connected to the latter for turning movements about a vertical axis; this being also common construction. On the upper end of the part 2 is a member which is adapted to provide a curved bearing surface which may be either a cylinder whose axis is horizontal or a segment of such a cylinder. In

the arrangement shown, this member is in the form of a shallow cylindrical cup 3. Closing the open side of the cup is a disk 4 having a boss 5 which fits into and has a bearing in the open end of the cup. The disk has formed integral therewith a block-like piece 6 that rides on the periphery of the drum. Fastened to the part 6 is a plate 7 which extends down outside of the bottom wall of the cup to a point somewhat past the center. The disk 4 has a central post 8 which extends loosely through a central hole in the bottom wall of the cup and through the free end of the plate 7. A screw 9, that extends into the free end of the post 8, and which is provided with a washer 10, engaged with the outer face of this plate, ties the plate and the disk together so that the unit, comprising the parts 4, 6, 7 can turn freely around the cup shaped drum. In order to limit the turning movements of this unit the drum is provided with two stops 11 projecting outwardly from the wall forming the bottom of the cup. The parts 4, 6 and 7 may be said to constitute the lower or inner section of a two-section stem. The other section may be a tube or bar 12 of any desired length having at the lower end a flattened part 14 that lies within a deep narrow pocket 15 in the part 6; this pocket being open at the top and at the front side. The members 6 and 14 are connected together by a pin 13 extending through both of them near the rear edge of the flattened piece 14 and paralleling the axis of the drum. The pocket is of greater depth from front to rear than the width of the part 14 which lies in the front end of the pockete just above an opening 16 which exposes the periphery of the drum. The lower end of the part 14 is so shaped that when the outer section 12 of the stem is substantially radial to the drum, a nose-like portion presses against the periphery of the drum well forward of the hinge pin 13 and, under a pull tending to swing the stem section forward, produces a binding or wedging section that locks the stem to the drum. However, when a backward force is applied to the upper stem section, in a direction to raise it, the cam nose is lifted away from the drum and the stem can be swung back freely.

The stem section 12 has a rearwardly projecting finger 18 that lies in the upper end of the pocket 15. The rear end of this finger engages with the wall 19, which closes the pocket at the rear, when the upper stem section is rocked backward relatively to the lower stem section, so that thereafter the two sections move back together as though they constituted a single rigid bar.

In the pocket, behind the part 14, is a compression spring 20 that rests on the wall bounding the pocket at the bottom and engages at its upper end with the under side of the finger 18. This spring is under an initial compression, so that it constantly holds the cam or wedge in contact with the surface of the drum; thus insuring that a wedging action will take place immediately when the stem is released after having been swung down in the act of adjusting the lamp. With the parts in the positions indicated in Figs. 1 and 2, it is first necessary to rock the upper stem section backward, or in the counterclockwise direction relative to the lower section. It is then a simple matter to retain these relative positions of the stem sections while the stem is being swung down to bring the lamp into the desired position.

It is believed that the operation of the device has been fully explained in connection with the foregoing description. It should be noted, however, that when the parts are at rest, the stem has the characteristics of a single member; the spring being strong enough to resist backward rocking movement of the upper stem section relatively to the lower section unless considerable force is applied. Actually, when the stem is swung upwardly or in the counterclockwise direction, as viewed in Figs. 1 and 3, the cam may simply slide over the bearing surface of the drum, without being raised and without any relative movements between the two stem sections taking place. Furthermore, because there is only a very slight gap between the end of the finger 18 and the wall 19 at any time, the possible relative movements between the stem sections is so small as to be almost unnoticeable at the time of manipulating the stem to release the grip of the cam.

It will thus be seen that I have produced a simple, quick-acting means to insure an instant and secure hold on a member to prevent swinging movement in one direction, usually downward, while permitting freedom of movement in the opposite direction and the easy breaking of the hold when movement in the first direction is desired.

While I have illustrated and described with particularity only a single preferred form of my invention adapted for a particular use, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the definitions of my invention constituting the appended claims.

I claim:

1. In combination, a support having thereon a shallow cup-shaped drum whose axis is horizontal; a rocking member including a head forming a closure for the open end of the drum and having a hub-like part fitting rotatably into the open end of the drum, a neck portion overlying the periphery of the drum and integral with the head, and an arm fastened to the neck portion and extending inwardly over the closed end of the drum, and a connection extending loosely through the closed end of the drum between said arm and said head; a second member extending into said neck portion through the outer end and having a limited rocking movement relatively to the said rocking member about an axis parallel to the aforesaid axis; a cam on the inner end of the second member adapted to bind on the periphery of the drum when the second member is drawn forward and to be carried clear of the drum when the second member is drawn in the opposite direction; and a spring tending constantly to rock said second member forwardly relatively to said neck portion.

2. In combination, a support having a bearing surface which constitutes at least part of the surface of a horizontal cylinder, a two-section stem pivoted at one end to the support for turning movements above the axis of said cylinder, the two sections of the stem being connected, a short distance outwardly from said surface, by a hinge whose axis is parallel to the aforesaid axis, a cam element on the inner end of the outer section of the stem adapted to wedge against said surface when the outer section rocks in the forward and downward direction relatively to the inner section and which clears said surface when the relative rocking movement is in the rearward and upward direction, a finger extending rearwardly from the lower end of the outer stem section, and a compression spring resting on the inner stem section and engaged at its upper end with said finger and tending

constantly to rock the outer section forwardly relatively to the inner section.

3. In combination, a support having thereon a shallow cup-shaped drum whose axis is horizontal; a rocking member including a head forming a closure for the open end of the drum and having a hub-like part fitting rotatably into the open end of the drum, and a neck portion overlying the periphery of the drum and integral with the head; means to secure the drum and the aforesaid member together for relative rotary movements about the axis of the drum; a second member extending into said neck portion through the outer end and having a limited rocking movement relatively to the said rocking member about an axis parallel to the aforesaid axis; a cam on the inner end of the second member adapted to bind on the periphery of the drum when the second member is drawn forward and to be carried clear of the drum when the second member is drawn in the opposite direction; and a spring tending constantly to rock said second member forward relatively to said neck portion.

4. In combination, a stationary base for an object to be movably supported, said base having a bearing surface which constitutes at least a segment of a horizontal cylinder, a two-section stem for supporting such object and pivoted at one end to the base for swinging movements about the axis of said cylinder, a hinge connection between the stem sections to permit slight relative rocking movements between them about an axis near said surface and parallel to the aforesaid axis, stops on the base to limit the angular movements of the stem, and a cam on the lower end of the upper stem section that rides freely over said surface when the stem is swung up and which binds on said surface and automatically locks the stem against downward movement under a downward pull on the stem.

5. In combination, a stationary support having a cylindrical bearing surface, a member connected to the said support for angular movements about the axis of said bearing surface, a second object-supporting member hinged to the first member and having a cam in contact with the bearing surface; means to limit the angular movements of the first member relative to said support to those that are either forward and downward or upward and rearward; the parts being so proportioned that when a force is applied to said second member tending to swing it in a forward and downward direction the cam binds against said bearing surface and locks said members whereas, when a force is applied to the second member tending to swing it in the upward and rearward direction, the cam slides over said surface and leaves both members free to swing in that direction.

6. In combination, a stationary base for an object to be movably supported, said base having a bearing surface which constitutes at least part of the surface of a horizontal cylinder, a two-section stem pivoted at one end to the support for turning movements about the axis of said cylinder, means to limit the swinging movements to those that are either forward and downward or upward and rearward, the two sections of the stem being connected, a short distance outwardly from said surface, by a hinge whose axis is parallel to the aforesaid axis, and a cam element on the inner end of the outer section of the stem adapted to wedge against said surface when the outer section rocks in the forward direction relatively to the inner section and which clears said surface when the relative rocking movement is in the rearward direction.

PAUL F. KOCH.