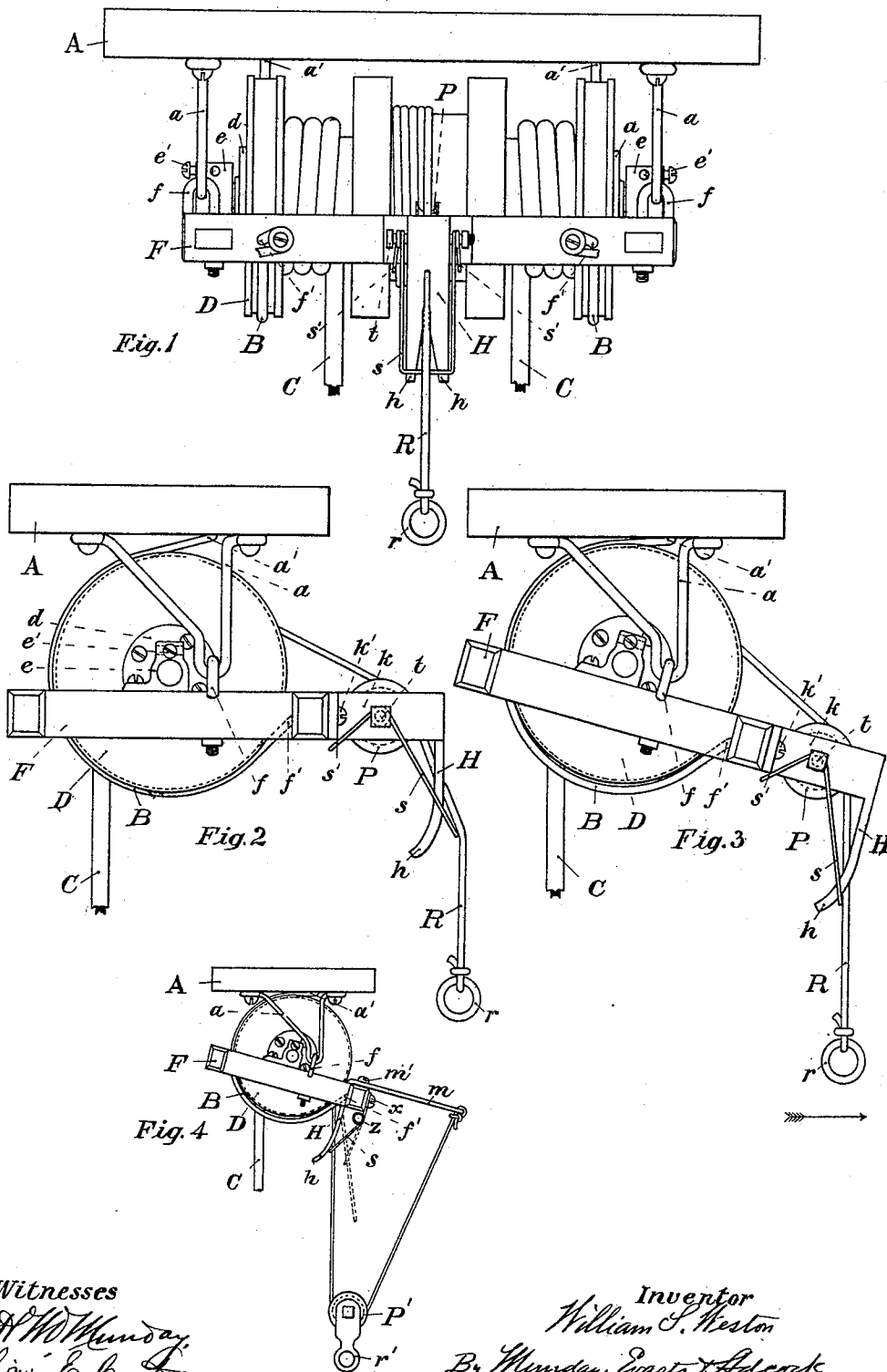


(No Model.)

W. S. WESTON.
ELECTRIC LAMP HANGER.

No. 583,316.

Patented May 25, 1897.



UNITED STATES PATENT OFFICE.

WILLIAM S. WESTON, OF CHICAGO, ILLINOIS.

ELECTRIC-LAMP HANGER.

SPECIFICATION forming part of Letters Patent No. 583,316, dated May 25, 1897.

Application filed August 8, 1896. Serial No. 602,158. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. WESTON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric-Lamp Hangers, of which the following is a specification.

My invention relates to that class of electric-lamp hangers whereby the lamp is raised or lowered by the rotation of a drum, around which are wound the lamp-supporting cables and a hand-rope, and has for its object improved automatic devices for holding the lamp suspended after the hand-rope has been released.

My invention comprises, in connection with the lamp-supporting cables, the drum about which the cables are wound, and a hand-rope, an improved hook or clamp which acts automatically to hold the hand-rope after it has been released by the attendant.

It also comprises, in connection with the lamp-supporting cables and drum and a movable frame upon which the drum is journaled, a friction brake or strap attached at one end to the hanger-board and at the other to the movable frame and operating automatically to lock the drum from rotation by the weight of the drum and the lamp when the strain on the hand-rope is released.

It also consists in the novel construction and novel combinations of parts and devices herein shown and described, and particularly specified in the claims.

In the accompanying drawings, which form a part of this specification and in which similar letters of reference indicate like parts throughout all the views, Figure 1 is a front view of the hanger. Fig. 2 is an end or side view. Fig. 3 is a similar view after a strain has been put on the hand-rope sufficient to raise the lamp. Fig. 4 is an end view showing a modification of the means for operating the hanger.

In the drawings, A is a hanger-board or base by means of which the hanger is attached to the ceiling or other fixed support.

F is a frame on which is journaled the drum D by means of the journals *d d* on the ends of the drum and the journal-boxes *e e* on the frame. The frame F, carrying the drum D,

is pivotally swung or hinged to the hanger-board A by means of the hooks *f f* on the frame and the hangers or brackets *a a* on the hanger-board.

C C are lamp-supporting conductor-cables wound on the drum in one direction, while R is a hand-rope wound on the drum in the opposite direction. The lamp, suspended from the cables by its weight, rotates the drum one way, while a strain on the hand-rope to raise the lamp rotates the drum the other way.

The bearings of the hooks *f f* on the hangers *a a* are made to one side of the journal bearings or boxes *e e*, so that the drum may have a slight bodily movement with respect to the hanger-board A when the frame F is permitted to swing on the hooks *f f*. The weight of the drum and that of the suspended lamp, as hereinafter described, tend to swing the frame so that the journals *d d* and bearings *e e* will come below the points or bearings of the hooks *f f* on the hangers *a a*.

B B are friction brake bands or cables passed around and applied to the periphery of the drum, one to each end. One end of each band is fastened to the hanger-board at *a' a'* and the other to the frame at *f' f'*. The frame F in its normal position is approximately parallel to the hanger-board, with the friction-bands tight and with the journals of the drum to one side of the vertical line through the bearings of the hooks *f f*. In this position the drum tends to fall, swinging the frame F on one side of the hooks *f f* away from the hanger-board and on the other side, the side opposite the drum-journals, toward the hanger-board. This tendency operates to tighten the friction-bands B B. In the construction shown the ends of the bands are connected, one end each, respectively, to that side of the hanger-board and frame which are brought closer together by the downward movement of the drum. The bands may each have more than one loop around the drum, the downward movement of the drum operating in either case to bring the ends of the bands closer together in a direction to diminish the diameter of the loops or loop. The bands B B act by friction to hold the drum from rotating. A portion of the weight of the

lamp suspended from the drum is transmitted to the hanger-frame through the journals and is therefore added to the weight of the drum in producing a downward tendency, which in turn increases the friction of the bands B B. The downward movement of the drum is limited by the tension of the bands. In the construction shown I have used a flexible wire cable for a band.

To release the drum, so it may be rotated for the purpose of raising or lowering the lamp, I raise the drum and swing the frame F in a direction to separate the ends and increase the diameter of the friction-band loops, as shown in Figs. 3 and 4. I accomplish this by passing the hand-rope over a pulley P, placed on the frame F on the side of the pivot-hooks *ff* opposite the drum-journals, so that when a strain is put on the rope sufficient to raise the lamp the downward strain on the frame F on the side of the pulley P more than balances the combined weight of the lamp and drum on the drum side of the hooks *ff*. The frame is therefore swung into the position shown in Fig. 3, loosening the friction-bands. The lamp is now raised or lowered by a slight increase or decrease of the strain on the hand-rope.

To again lock the drum and have the lamp suspended in any desired position, I give the hand-rope a quick jerk. The drum then by its own weight falls, bringing the friction-bands into action, which in turn, by checking the rotation of the drum, add a portion of the weight of the lamp to that of the drum and increase the friction.

In Fig. 4 I have shown another method for releasing the drum, involving still the use of the hand-rope. In this method the hand-rope has its outer end attached to the frame by means of an arm *m* and has a loose sheave or pulley P', suspended in the bite of the rope formed between the arm *m* and the drum. When a strain sufficient to raise the lamp is put on the hand-rope through the medium of the pulley P', an equal downward strain is transmitted to the end of the arm *m*. The arm *m* is long enough so that the downward effect at its end more than balances the downward effect at the drum due to the weight of the lamp and drum and the strain on the drum end of the hand-rope. The lamp is raised or lowered or again locked in position, as described above. In either method the operator may use an extension rope or pole adapted to hook into the ring *r* on the end of the hand-rope or the ring *r'* of the pulley P'.

The friction-bands are automatic in their action and lock the drum in all cases when the hand-rope becomes stuck by accident or otherwise.

H is the hook for holding or clamping the hand-rope at any point to be used as the initial or primary means of suspension. This hook is mounted upon the outer end of the

tilting or movable frame F, and consists, essentially, of a fork having two arms *h h*, between which passes the rope R. These arms are made flaring, like those of a common clothes-pin, so that near the ends the space between them is larger than the diameter of the rope, while at their base the space is less than the diameter of the rope. In operating the hanger the rope is held so as to pass between the arms *h h* near their ends, where the space is wide and where in consequence the hook will offer little resistance to its up or down movement. When it is desired to have the rope engaged by the hook, the rope is held out in the direction indicated by the arrow in Fig. 3 until it comes into the narrower space and meets some resistance from the side of the arms. The rope is drawn upward by the lamp. The arms of the hook are pointed downward, so that as the rope is drawn upward the resistance which it meets from the converging arms will cause it to be drawn still deeper into the narrowing space until the contraction of the rope by the sides of the arms prevents its further movement upward. The operator may now let go of the rope, leaving the lamp suspended by means of the rope and hook.

To release the rope again from the hook, pull down with a strain sufficient to raise the lamp, pulling the rope out of the narrow into the wider space between the ends of the arms or prongs *h h*, where it is free to move up and down, as described above.

To prevent a failure of the hook to act, as in case the operator lets go the rope before he has guided it into the narrower space, or in case of accident whereby the rope may suddenly become slack, permitting the lamp to fall, I have provided means for the automatic guidance of the rope into the narrow or clamping space of the hook. As shown in the drawings, *s* is a wire loop over or through which passes the rope after it has passed down through the hook. The loop is of spring construction and in its normal position stands, with respect to the hook, as shown in Fig. 2 and the dotted lines in Fig. 4, holding the rope out so as to give it into the narrow space between the forks. When a strain is put on the hand-rope, the loop or spring *s* is sprung down near to the ends of the arms *h h*, against which it bears, Figs. 3 and 4, permitting the rope to pass freely between the ends of the arms and at the same time preventing the rope from coming entirely out of the hook. Should the rope for any reason become slack, the spring-loop recovers to the normal position, thereby throwing the rope out and guiding it into the clamping part of the hook.

The hook or fork H, with its converging arms *h h* and the auxiliary spring *s*, I have designed as an automatic rope hook or clamp. It is to be observed in this connection that a chain could be used instead of a rope, and that by the term "hand-rope" I mean to in-

clude any style of rope, cord, cable, or chain which may be used for hoisting and to which the automatic hook or clamp may be adapted without changing the principle of its operation and construction.

In Figs. 1, 2, and 3 the hook H is shown to be attached to or made a part of the pulley-block *k* of the pulley P and is fastened to the frame F by screws *k' k'*. In Fig. 4 the hook is a continuation of the arm *m* and is fastened to the frame by a screw at *m'*. In Figs. 1, 2, and 3 each end of the spring-loop *s* is given a coil around the bolt *t* of the pulley P and then passed under the edge of the frame F at *s' s'*. The points *s' s'* and the bolt *t* act as fulcrums to hold the loop in the position shown in Fig. 2. In Fig. 4 the spring-loop is attached rigidly to the frame by screws at *x* and is coiled at *z* to give it sufficient range of elasticity. By observing Fig. 2 it will at once be seen that the automatic friction-brake and the automatic rope-clamp act jointly in holding the lamp suspended. As each device, however, is designed to be sufficient for the purpose, by combining the two it will reduce to a minimum the possibility of any accident whereby the lamp may be dropped. As seen in Fig. 2, the upward strain on the hook H is transmitted to the frame F and acts to bring that side of the frame closer to the hanger-board A, and that, as shown in the description of the friction-bands B B, increases the tightness of the bands. Should the rope break above the hook, the friction-brake would act, as described, and hold the lamp until the rope could be repaired. Should the friction-bands give way, the rope acting on the hook H would throw up the frame on that side until it came in contact with and rested against the hanger-board.

In the construction shown the external circuit is connected to the lamp through the medium of the journal-box *e*, journal *d*, and cable C, the wire of the external circuit being connected to box *e* by the screw *e'* and the cable C having a metallic connection with the journal *d*.

I do not herein claim the hanger for electric lamps shown and described in my Patent No. 561,184, of June 2, 1896. In my present improvement, as hereinbefore explained at length, the drum is mounted in a movable frame supported in such manner in connection with the friction-brake that the drum is automatically locked from rotation by the weight of the drum and lamp when the strain on the hand-rope is released. In my former patent, No. 561,184, the weight of the drum and lamp tended constantly to unlock the drum or to counteract the force of the spring which normally held the lock in engagement and thus the drum from rotation. By my present improvement the spring is dispensed with and all danger due to its uncertainty of action or weakening in tension removed.

I claim—

1. In an electric-lamp hanger, the combina-

tion with a hanger-board, conductor-cables, a rotary drum and hand-rope, of a movable frame upon which the drum is journaled, a flexible friction-brake, attached at one end to the hanger-board and at the other to the movable frame, and a forked hook or clamping device having tapering or wedging prongs or jaws between the prongs of which the hand-rope passes, substantially as specified.

2. In an electric-lamp hanger, the combination with a hanger-board, conductor-cables, a rotary drum and hand-rope, of a movable frame upon which the drum is journaled, a flexible friction-brake attached at one end to the hanger-board and at the other to the movable frame, a forked hook or clamping device having tapering or wedging prongs or jaws between the prongs of which the hand-rope passes, and a spring for pushing the hand-rope between the prongs of said hook when said rope is released, substantially as specified.

3. In an electric-lamp hanger, the combination with a hanger-board, drum and frame upon which the drum is journaled, of a hand-rope and a forked hook having tapering or wedging prongs or jaws between the prongs of which the hand-rope passes, and a spring for automatically pushing the hand-rope into engagement with the hook when the hand-rope is released, substantially as specified.

4. In an electric-lamp hanger, the combination with the hanger-board, conductor-cables and rotating drum upon which the conductor-cables are wound, of a movable frame upon which the drum is journaled, and a flexible friction brake or strap attached at one end to the hanger-board and at the other end to the movable frame and engaging the drum, so that the weight of the lamp and drum will automatically lock the drum from rotation, substantially as specified.

5. In an electric-lamp hanger, the combination with the hanger-board, conductor-cables and rotating drum upon which the conductor-cables are wound, of a movable frame upon which the drum is journaled, and a flexible friction brake or strap attached at one end to the hanger-board and at the other end to the movable frame and engaging the drum, and a hand-rope, whereby the weight of the drum and lamp locks the drum from rotation when the hand-rope is released, substantially as specified.

6. In an electric-lamp hanger, the combination with hanger-board, of a tilting hanger-frame pivotally connected to said hanger-board, a drum journaled upon said frame at one side of its pivotal connection to the hanger-board so that the weight of the drum will tend to tilt the hanger-frame and a friction-brake into engagement with which the drum is thrown by the tilting movement of said frame, substantially as specified.

7. In an electric-lamp hanger, the combination with hanger-board, of a tilting hanger-frame pivotally connected to said hanger-

board, a drum journaled upon said frame at one side of its pivotal connection to the hanger-board so that the weight of the drum will tend to tilt the hanger-frame and a friction-brake into engagement with which the drum is thrown by the tilting movement of said frame, and a hand-rope wound upon the drum and engaging said frame so that a strain upon the hand-rope will tilt the frame and release the friction-brake, substantially as specified.

8. In an electric-lamp hanger, the combination with hanger-board, of a tilting hanger-frame pivotally connected to said hanger-board, a drum journaled upon said frame at one side of its pivotal connection to the hanger-board so that the weight of the drum will tend to tilt the hanger-frame and a friction-brake into engagement with which the drum is thrown by the tilting movement of said frame, a hand-rope wound upon the drum and engaging said frame so that a strain upon the hand-rope will tilt the frame and release the friction-brake, and a friction-hook for engaging the hand-rope, substantially as specified.

9. In an electric-lamp hanger, the combination with hanger-board, of a tilting hanger-frame pivotally connected to said hanger-board, a drum journaled upon said frame at one side of its pivotal connection to the hanger-board so that the weight of the drum will tend to tilt the hanger-frame and a friction-brake into engagement with which the drum is thrown by the tilting movement of said frame, a hand-rope wound upon the drum and engaging said frame so that a strain upon the hand-rope will tilt the frame and release the friction-brake, a friction-hook for engaging the hand-rope, and a spring for pushing the hand-rope into engagement with said friction-hook when the hand-rope is released, substantially as specified.

substantially as specified.

10. The combination with hanger-board A, having brackets *a*, of hanger-frame F furnished with hooks *ff* engaging said brackets *a*, drum D journaled upon said frame, flexible friction-brakes B B engaging said drum and secured at one end to the hanger-board and at the other end to the frame, a hand-rope R wound around said drum D and a pulley P on the frame F over which the hand-rope passes for tilting the frame, substantially as specified.

11. The combination with hanger-board A, having brackets *a*, of hanger-frame F furnished with hooks *ff* engaging said brackets *a*, drum D journaled upon said frame, flexible friction-brakes B B engaging said drum and secured at one end to the hanger-board and at the other end to the frame, a hand-rope R, a pulley P on the frame F over which the hand-rope passes, and a hook H having tapering prongs *h*, substantially as specified.

12. The combination with hanger-board A, having brackets *a*, of hanger-frame F furnished with hooks *ff* engaging said brackets *a*, drum D journaled upon said frame, flexible friction-brakes B B engaging said drum and secured at one end to the hanger-board and at the other end to the frame, a hand-rope R, a pulley P on the frame F over which the hand-rope passes, a hook H having tapering prongs *h*, and a spring *s* for pushing the hand-rope into the bite of said forked hook H, substantially as specified.

WILLIAM S. WESTON.

Witnesses:

H. M. MUNDAY,
EDMUND ADCOCK.