

P. E. DOOLITTLE.
ADJUSTABLE HANGER.
APPLICATION FILED APR. 20, 1909.

1,063,149.

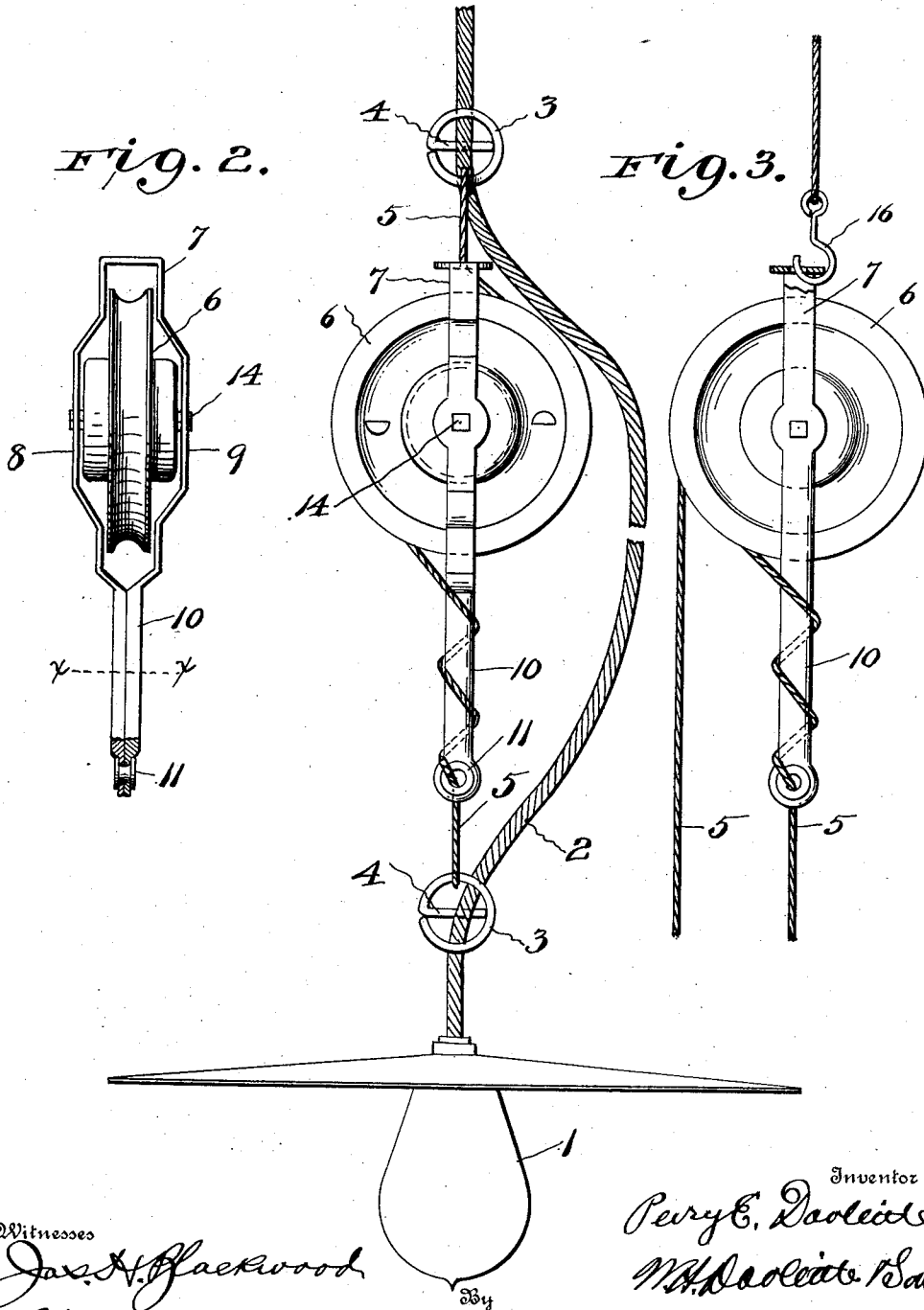
Patented May 27, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.

Fig. 3.



Witnesses
Jas. H. Blackwood
W. C. Blackwood

Inventor
Perry E. Doolittle
W. H. Doolittle, Secy.

Attorney

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2 SHEETS—SHEET 2.

Fig. 7.

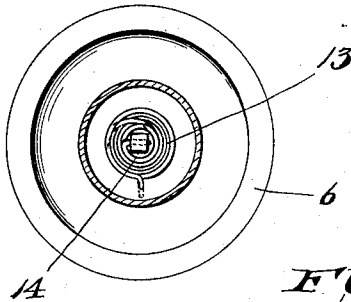


Fig. 8.

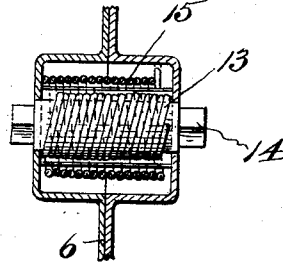


Fig. 6.



Fig. 9.

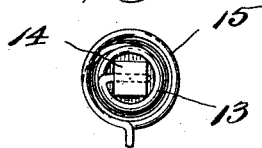


Fig. 10.

Fig. 4.

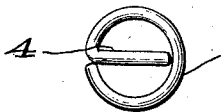
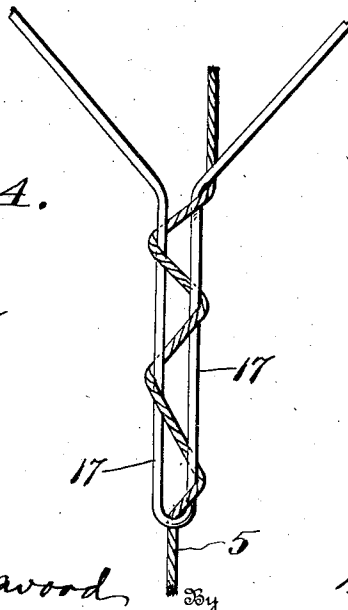
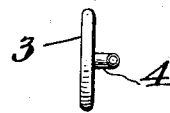


Fig. 5.



Witnesses

Jas. A. Blackwood
W. C. Blackwood

Inventor

Perry E. Doolittle
M. A. Doolittle Son

Attorneys

UNITED STATES PATENT OFFICE.

PERRY ERNEST DOOLITTLE, OF TORONTO, ONTARIO, CANADA.

ADJUSTABLE HANGER.

1,063,149.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed April 20, 1909. Serial No. 491,106.

To all whom it may concern:

Be it known that I, PERRY E. DOOLITTLE, a subject of the King of Great Britain, residing at Toronto, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Adjustable Hangers, of which the following is a specification.

My invention relates to adjustable hangers and its object is to provide a braking device which acting in conjunction with a spring of sufficient strength to lift a load of predetermined weight is actuated by the weight of the load to hold the latter in any desired position, may be readily adjusted within predetermined limits to variations in the load and is capable of forming a positive lock against unwinding of the spring and downward movement of the load upon suitable adjustment of the brake connections, and other objects of the invention are to provide an adjusting device of this class of very simple construction, having few parts and requiring no fixtures attached to the wall or ceiling, other than those employed for the suspending member of the load, of cheap cost to manufacture, and capable of utilization to effect adjustments up and down of the suspended device in different vertical planes.

To these ends my invention consists of a flexible member having frictional contact against a braking surface and of a spring-pressed rotatable member around which the flexible member is wound, the lower end of the flexible member being connected to the load suspending means whereby a braking action is exerted by the weight of the load against the winding action of the spring, and the upper end of the flexible member being extended around the rotatable device and adapted to be unwound to turn the device against the force of the spring either automatically by increasing the load beyond the resistance of the spring and brake or by pulling the end of the member by hand when it is desired to lower the load.

My invention is illustrated in the accompanying drawings in which—

Figure 1 is a side view in elevation of the device showing an electric lamp attached to the suspending device; Fig. 2, an edge view; Fig. 3, a detail elevation of upper part of device showing the same when the flexible member is employed as a positive lock; Fig. 4 a detail of connecting and clamping de-

vice; Fig. 5, a cross-section on line $x-x$ of Fig. 2; Fig. 6, an edge view of clamp device with cross-bar bent outwardly to admit the conducting wires; Fig. 7, an end view of pulley partly broken away; Fig. 8, a detail enlarged elevation partly in section of the winding spring; Fig. 9, an end view of the spring and Fig. 10, is a detail of modified form of friction member for the supporting cord.

Referring to the drawings, 1 represents the suspended load, the particular example to which the improvement is applied, being shown in the drawings as an electric lamp. This article is carried by a suspending member 2, consisting in the case of the electric lamp of the usual flexible conducting cord, running from a suitable point of attachment to the wall or ceiling, not shown. This flexible load suspending member is adapted to engage at separated points the two upper and lower insulated clamp members 3. Each of these clamp members is preferably of such construction as to be slipped sideways over a flexible cord and to cooperate with a cord of sufficient stiffness as, for instance, one containing conducting wires as to be firmly clamped against movement thereon, and to this end the clasp comprises a split ring of either spring or ductile metal provided with a cross-bar 4, formed by bending inwardly one end of the ring. To attach the clasps to the cord, the cross-bar is bent out from the plane of the ring as shown in Fig. 5, the cord slipped in between the bar and end of the ring and under the bar, so as to be held from slipping out by the bar and so as to pass over the ring at one end and under it at the opposite end thereby giving on a cord of sufficient stiffness a frictional binding grip across the bar which will hold the clasps firmly under the strain of any ordinary weight at any desired position to which the clasps may be adjusted.

Attached at either end to each of the clasp members according to the arrangement ordinarily employed as shown in Fig. 1 is a flexible member 5, which may be a cord, or may be made of metal and which constitutes the connecting member for the article suspending cord and also one of the braking members. This flexible connector 5 passes over a drum or wheel 6, which is mounted rotatably in a frame 7, formed of two separated spindle receiving arms 8 and 9,

joined together to form a lower arm 10. The arm 10 is of the form in cross-section shown in Fig. 6, that is, rounded off at the sides. This arm at its lower end is provided with an eyelet 11. The flexible member after passing down over the wheel is given one or more turns around the arm 10 and then passed through the eyelet 11 and connected to the lower clasp. By taking one or more turns of the flexible member around the arm 10 an effective braking action between the downwardly pulled flexible member and the brake surface arm 10 is obtained. The braking power may be increased by increasing the number of turns of the flexible member around the fixed vertical member. The braking action obtained is similar to the action of a rope upon a capstan, the spring of the wheel serving to keep the flexible member taut at one end and the load keeping it taut at the other end.

Within the rotatable device is mounted a winding spring 13 surrounding a spindle 14. One end of the spring is secured to the spindle and the other end to the rotatable wheel. The wheel is preferably made in two parts having interlocking struck out lugs and recesses. For the purpose of obtaining sufficient strength to give the proper winding action to the suspending member and at the same time to obtain a spring that can be compactly fitted within a wheel of slight thickness, the spring 13 is wound with its coils in two layers or series of which the outer series 15 is adapted to receive mainly the initial compression exerted by the rotation of the wheel which compression, however, is imparted simultaneously although in less degree to the inner layer or winding of the spring. As the compression is increased the outer layer will be tightened down upon the inner layer of the coils and the latter will then receive the compressive action of the rotating wheel. A strip of fibrous material 18 is placed between the series. This arrangement gives a powerful winding spring and yet one of very cheap construction as the spring may be made of ordinary tempered spring wire. With a device of this kind the spring employed being of a force equal or nearly equal to or greater than the load to be suspended it is merely necessary to pass the flexible member 5 around the braking member 10 one or more times in order to obtain the proper braking action and thereupon the load will be suspended by the conjunctive action of the spring and brake, the spring serving to hold the flexible member taut on the braking surface 10. In order to provide for the vertical adjustment of the load up or down the suspending cord 2 is looped between the two clasps 3. Upon pulling the suspending cord and load downward by force exerted thereon below the lower clasp the downward force

will be exerted primarily to move the wheel and its frame downward and rotation of the wheel being produced by such downward movement through the medium of the flexible member such flexible member will unwind at the upper end permitting the free turning of the wheel and the consequent unwinding of the flexible member at the lower end of the wheel so as to permit the movement of the flexible member over the brake surfaces. Upon releasing the load from the excessive pulling force the counter-acting force of the spring and load will hold the flexible member in frictional gripping contact against the braking surfaces 12 so as to hold the load in any position to which it may be adjusted. Upon releasing the weight of the load from the suspending members, as by slightly lifting it, the grip of the flexible member on the braking surface will be released and the winding spring will wind up the flexible member and the wheel and thus lift the suspending member and its load until the load is again released.

In order to employ the flexible member and its co-acting brake surface as a positive lock against the downward movement of a very heavy load, as for instance, where the device might be used in connection with heavy flower pots, the wheel frame is adapted to be engaged at its upper end with a hook 16 either fixed or flexibly suspended from the ceiling, wall or other support. In this position the end of the flexible member that is normally connected at its upper end and the clasp so as to be capable of exerting a winding action on the wheel is permitted to hang down loosely over the wheel so as to be pulled by hand in order to rotate the wheel when it is desired to overcome the force of the brake and permit the load to be moved downward. With this arrangement the flexible brake member exerts a positive lock against its rigid brake surface which lock as above described can only be released by pulling down the free end of the flexible member.

My invention is capable of employment in connection with electric lamps, oil lamps, hanging flower baskets and pots, twine holders and any similar device adapted to be suspended and in which it is desired to obtain a quick vertical adjustment. It will be seen that by the employment of this device no additional fixtures to be attached to the wall are necessary except that in the case where the brake is employed as a positive lock for very heavy articles a hook engaging the wheel frame must be used, but in the form shown in Fig. 1 the device can be merely clamped to the suspending and conducting cord of an ordinary electric lamp.

It is frequently desirable in factories to not only adjust the electric lamp vertically but also to shift the lamp from one position

to another substantially horizontally and to maintain the lamp in such adjusted position. By employing two or more of my devices for a single lamp and hanging the devices at the points between which the lamp is to be shifted horizontally, the horizontal adjustment may be obtained by moving the lamp and its cord nearer to one or the other of the devices and clamping it in position by such device.

In Fig. 10 there is shown a modified form of the fixed brake the member with which the flexible member is adapted to coöperate. In this device instead of employing a depending frame with an eyelet, a loop formed of two arms 17 is provided and the flexible member passed in and out between the arms of the brake member thus formed.

Having thus described my invention, what I claim is:—

In adjustable hangers, in combination with

a load suspending member, a flexible friction exerting member, a rigid load resisting frictional member around which the flexible friction member freely passes, said flexible member having one end connected to said load suspending member above the rigid friction member and having its other end connected to the load suspending member below the rigid friction member and a rotatable spring winding member around which said flexible member passes and operable merely to exert a tension on said flexible member to keep the same taut, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses.

PERRY ERNEST DOOLITTLE.

Witnesses:

JAS. H. BLACKWOOD,
H. P. DOOLITTLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."