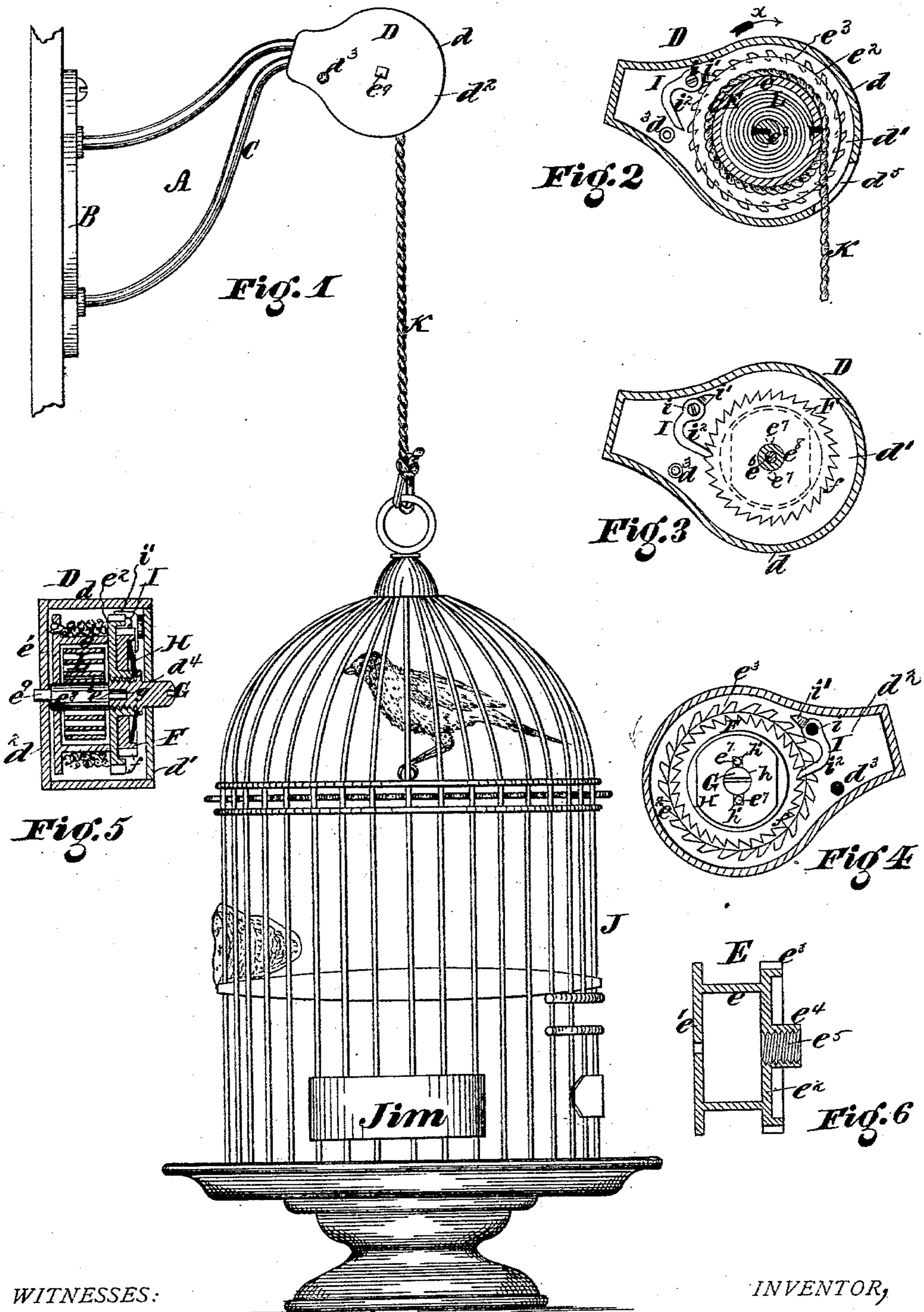


J. C. LAKE.  
Adjustable Suspension Bracket.

No. 210,697.

**Patented Dec. 10, 1878.**



*WITNESSES:*

INVENTOR,

Saml. J. Vanstavern  
Jes. B Connolly

J. C. Lake  
By Connolly Bros.,  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

J. CHRISTOPHER LAKE, OF CAMDEN, NEW JERSEY.

## IMPROVEMENT IN ADJUSTABLE SUSPENSION-BRACKETS.

Specification forming part of Letters Patent No. **210,697**, dated December 10, 1878; application filed August 27, 1878.

*To all whom it may concern:*

Be it known that I, J. CHRISTOPHER LAKE, of Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Balanced Brackets for Bird-Cages, &c.; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a side elevation of bracket. Figs. 2, 3, and 4 are vertical longitudinal sections of shell containing working parts. Fig. 5 is a transverse section of same. Fig. 6 is a transverse section of hollow drum.

My invention has for its object to provide a bracket or hook on which to hang bird-cages, flower-baskets, lamps, and other articles, said bracket being provided with a spring-drum, a friction-brake, and winding cord or chain, to which latter the article to be suspended is attached, whereby said article may be hung at any altitude, and raised and lowered at will.

My invention has for its further object to provide means for locking the spring-drum, so that when released from the weight of the suspended article the winding-cord may not run up out of reach.

My invention has for its still further object the provision of means for adjusting the tension of the brake or sustaining device according to the gravity of the article to be suspended, so that one hook or bracket may be adapted to the sustaining of bodies of different weights.

My improvements consist in the peculiar construction and combination of parts hereinafter fully set forth.

In carrying my invention into effect I provide a drum or pulley arranged to run loosely on its shaft, the latter having an angular bearing for one of its journals in a surrounding case or shell, whereby said shaft is prevented from revolving. Inside of the drum, and having its opposite ends attached thereto and to the shaft, is a coiled spring. One of the heads of the drum is serrated to form a ratchet, and is provided with a hub threaded

internally and having two projecting studs. A second ratchet-wheel, with teeth arranged in the direction contrary to those of the drum-ratchet, is loosely mounted on the hub of the latter. A screw passes from the outside into the threaded hub of the drum-ratchet, said screw having a socket in its inner end, which serves as a bearing for one of the journals of the drum-shaft. Said screw is also formed with a collar, between which and the loose ratchet is placed a friction-plate, said plate having a central opening for the passage of the screw and notches for engagement with the hub-studs already mentioned. Pivoted to one side or head of the shell or case is a double-ended pawl, the opposite ends of which engage with the ratchet under the circumstances hereinafter described.

Referring to the accompanying drawing, A indicates a hook or bracket, consisting of a base, B, with projecting rods C, or an equivalent arm. D represents a shell or case, composed of the walls  $d$  and heads  $d^1 d^2$ . The head  $d^2$  is made separate from the walls  $d$ , and is held in place by being riveted to a post,  $d^3$ , which projects from the opposite head,  $d^1$ .

E is a hollow drum or pulley, having a barrel,  $e$ , and heads  $e^1 e^2$ . The head  $e^2$  is serrated, as shown at  $e^3$ , forming a ratchet, and is formed with a hub or boss,  $e^4$ , threaded internally, as shown at  $e^5$ . F is another ratchet-wheel, loosely mounted on the hub  $e^4$ , and having teeth  $f$ , arranged reversely to the teeth  $e^3$  on the ratchet  $e^2$ .

G is a screw, which enters the threaded hub  $e^4$ , said screw having a socket,  $g$ , which receives the journal  $e^6$  of the shaft  $e^8$ . H is a concave spring-disk, arranged to clamp against the ratchet F, so as to produce friction or tension thereon, being located between said disk and a fixed collar on the screw G. Said disk has a central opening,  $h$ , for the passage of the screw G, and notches  $h' h'$  for the reception of studs  $e^7 e^7$ , the office of said studs being to carry around said disk H in frictional contact with the wheel F when the latter is prevented from turning therewith, as hereinafter set forth.

I is a pawl, pivoted at  $i$  to the head  $d^1$ , and having two ends,  $i^1$  and  $i^2$ , which engage, respectively, as hereinafter set forth, with the

teeth  $e^3$  and  $f$ , the end  $i^1$  being projected laterally to bring it in line with the teeth  $e^3$ . K is a cord or chain, which winds on the barrel  $e$ , and J is a bird-cage or similar article suspended thereon.  $e^9$  represents the angular end of the drum-shaft  $e^8$ , which rests in a corresponding opening in the head, and  $d^4$  is an opening in the opposite head, forming a bearing in which the screw G rests and turns, as hereinafter set forth. The wall of the shell D is cut away, as shown at  $d^5$ , for the passage of the cord K.

The operation is substantially as follows: The parts being relatively arranged as shown in the drawings, the end  $i^2$  of the pawl I engages with the teeth  $f$  of the ratchet F. Now, upon drawing down or pulling upon the cord K, the drum E will be caused to rotate in the direction of the arrow X, the disk H being also carried around and producing friction or tension on the ratchet F. To lower an article, therefore, suspended on the cord K, the pressure exerted by the spring or friction disk H against the ratchet F must be overcome by superior power or pulling-down action, the pressure or friction of said disk being superior to the gravity of the article suspended, and being regulated by turning the screw G, accordingly as the weight of the suspended article requires adjustment of such pressure or friction. To raise the suspended article, it is lifted by hand to the desired height at a moderate rate of speed, the spring L, which is made only strong enough to turn the drum and wind up the cord or chain, performing that function. While so winding up slowly or at a moderate rate of speed no engagement takes place between the pawl and either of the ratchets. Should, however, the suspended article be removed from the cord or chain, the spring starts, winding up the cord or chain rapidly; but the rapid motion thereby communicated to the ratchet F will cause it to strike the end  $i^2$  of the pawl I with such violence that the opposite end of said pawl will be brought into engagement with the teeth  $e^3$  of the ratchet  $e^2$ , thereby instantly arresting the revolution of

the pulley and winding up the cord, the lock so effected holding until disengagement of the pawl and ratchet is effected by a downward pull on the cord or chain K.

From the foregoing it will be noted that the suspension of the article (represented in the drawing by the bird-cage) depends, not upon a spring, but upon the friction, tension, or binding produced by a plate against a ratchet-wheel, and that the spring merely serves to wind up the cord; also, that the friction or pressure is adjustable according to the gravity of the article suspended, and that the sudden winding up of the cord or chain when the weight is removed is prevented by an automatic lock. It will also be noted that in the descent of the cage or other suspended article friction or tension is produced, while in the ascent of the article such tension or pressure is avoided, the pawl I not then blocking the ratchet F, and the latter revolving or turning with the ratchet  $e^2$  and disk H.

What I claim as my invention is—

1. The combination, with the spring-drum E, ratchet F, and a suitable pawl engaging with the teeth of said ratchet, of the friction-plate H, impinging against the ratchet, to control the freedom of motion of the drum, and the adjusting-screw G, whereby the tension of said plate is adjusted, substantially as and for the purpose set forth.

2. In combination with the pulley or drum E and the ratchets F and  $e^2$ , having teeth arranged in reverse directions, the double-ended pawl I, operating to engage its alternate ends with the teeth of said ratchet, as set forth.

3. The combination, with the spring-drum E, ratchet F, shaft  $e^8$ , and screw G, of the friction-brake H, ratchet  $e^2$ , and double-ended pawl I, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of July, 1878.

J. CHRISTOPHER LAKE.

Witnesses:

M. D. CONNOLLY,  
CHAS. F. VAN HORN.