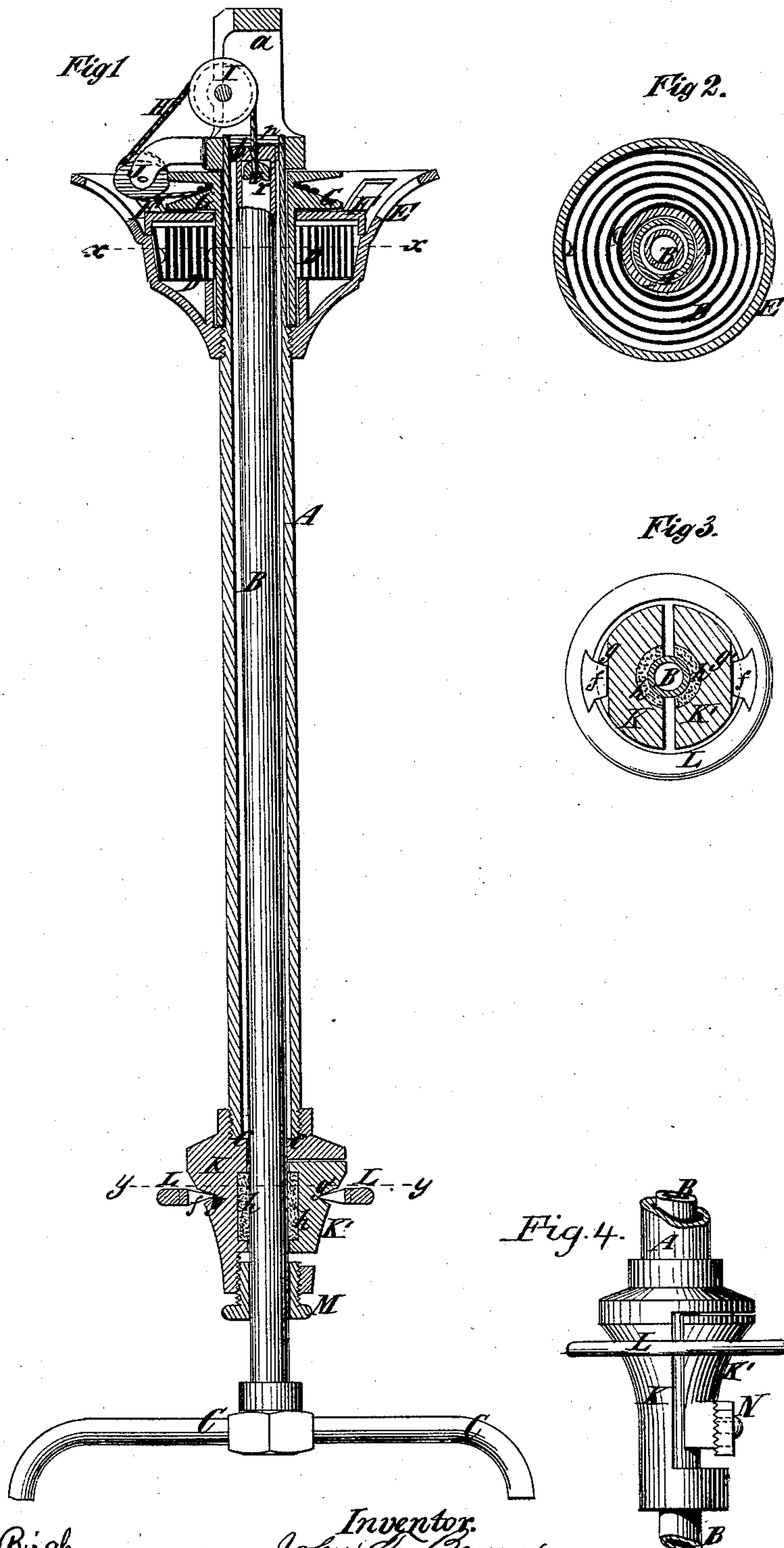


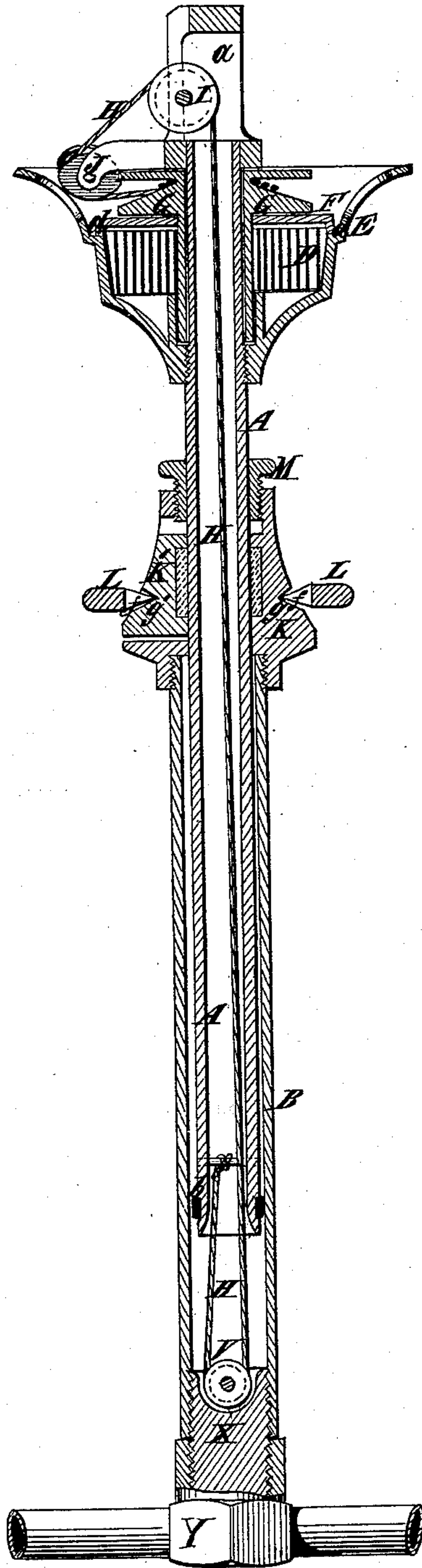
J. T. BRUEN.  
Drop-Light and Hanger.  
No. 218,924. Patented Aug. 26, 1879.



Witnesses:  
Thomas E Birch  
Chandler Hall

Inventor.  
John T. Bruen  
by his Attorney,  
Edwin H. Brown

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# UNITED STATES PATENT OFFICE.

JOHN T. BRUEN, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN DROP-LIGHT AND HANGER.

Specification forming part of Letters Patent No. **218,924**, dated August 26, 1879; application filed March 21, 1879.

*To all whom it may concern:*

Be it known that I, JOHN T. BRUEN, of Brooklyn, in Kings county, and State of New York, have invented certain new and useful Improvements in Drop-Lights and Extensible Chandeliers or Supports for other Purposes, of which the following is a specification.

One improvement consists in the combination of a stationary tube, an extensible part fitting within said stationary tube, a convolute spring surrounding the said stationary tube, and a flexible connection connected to the said spring, entering the stationary tube and fastened to the extensible part, whereby it is concealed from view, and whereby the extensible part may be counterbalanced, so as to be capable of being sustained in different positions. Preferably the convolute spring is arranged in a horizontal plane surrounding the stationary part, and the cord, metallic band, or other flexible connection passes over sheaves or pulleys set at angles, so as to be diverted from a horizontal to a vertical plane, whereby resistance offered to the extension of the extensible part is materially increased, and a light spring is susceptible of being used.

Another improvement consists in the combination, with a stationary part and an exterior part, of a device or jaw attached to one part and adapted to gripe upon the extension of the other part, and means, made separate from the two parts and the said device or jaw, for automatically causing the said device or jaw to gripe the part on which it acts when said device or jaw is moved downward, and to permit it to automatically release the part on which it acts when said device or jaw is moved upward. The gripping device or jaw has preferably combined with it an adjustable stop, whereby its operation is controlled.

In the accompanying drawings, Figure 1 represents a central longitudinal section of a drop-light embodying my invention. Fig. 2 is a transverse section of the spring and its appurtenances, whereby the extensible part is counterbalanced. Fig. 3 is a transverse section illustrative of the clutch, brake, or safety device thereof. Fig. 4 is a side view of a portion of a stationary and an extensible part, as also a modified form of clutch, brake, or safety device in connection therewith; and Fig. 5 is

a central vertical section of a chandelier embodying my improvements in a modified form.

Similar letters of reference designate corresponding parts in all the figures.

Referring first to Figs. 1, 2, and 3, A designates a stationary part, shown as consisting of a tube provided at the top with a loop or hanger, *a*, whereby it and the devices combined with it may be suspended from a hook or other suitable support.

B designates an extensible part, which may consist of a rod or tube fitting within the stationary part, and having in this instance, near its upper end, an annular shoulder, *b*, which, by coming in contact with a stop, *c*, attached to the stationary part, will limit the downward motion of said extensible part. A stop-pin, *p*, attached to the fixed part above the movable part, limits the upward motion of the latter. At the lower end the extensible part may be provided with a support—such, for instance, as a harp, C, for the support of a lamp.

D designates a convolute spring, shown as arranged in a horizontal plane, and as surrounding the upper portion of the stationary part A. In this instance the spring is shown as arranged in a case formed of an ornamental canopy, E, such as is ordinarily used near the top of the main tube of a chandelier or drop-light, in connection with a cap-piece, F, fitting upon a ledge or shoulder, *d*. One end of the spring is connected to this case, and the other end is connected to a rotary barrel arranged within it fitted to rotate upon the stationary part. Mounted upon the said barrel, above the spring-case, is a drum or pulley, G, the lower face of which is represented as inclined downward toward the periphery.

H designates a flexible connection, consisting, in this instance, of a cord wound around the drum or pulley, passing over a sheave or pulley, I, arranged with its axis at an angle to a horizontal plane, and passing thence over a sheave or pulley, J, arranged at an angle to the former, the two serving to direct the cord from a horizontal to a vertical plane. The cord H thence passes through the stationary part, and its end is connected to the extensible part; hence as this part is extended the spring is wound up, and by its resilience serves to counterbalance it.



By the passage of the cord H around the sheaves or pulleys I and J, the force of the spring in resisting the outward movement of the extensible part D is greatly augmented, so that a light spring will suffice to counterbalance quite a heavy weight. Owing to the inclination of the face of the drum or pulley G, each coil of the cord passes around it, outside the former, and consequently prevents abrasure. When the extensible part is adjusted upward, the spring winds up by its resilience, and winds the cord coil after coil, one outside another, upon the downward-inclined lower face of the drum.

Of course, though I may advantageously employ cord of cat-gut, I may, in lieu thereof, employ metallic cord, a metal strip or band, or other flexible connection with good results, the drum and sheaves being suitably modified.

The end of the cord H is shown as attached to the extensible part B by being knotted under a button, r, through which it passes, said button having its edges chamfered off, and its upper part convex and bearing against the convex under side of the top plate of the extensible part, which also has its edges chamfered where the said cord passes through it.

Preferably I employ in connection with the counterbalancing device which I have described a clutch, brake, or safety device, whereby the extensible part may be supported positively in different positions. I have shown a clutch consisting of a part, K, which is attached to, and may be considered a portion of, the stationary part A, and a device or jaw, K'. The part K is shown as circular in form transversely, and tapering from top to bottom, with a portion of one side or half removed for the reception of the jaw K'. It is secured by a screw-threaded ring or socket to the lower end of the stationary part A, and surrounds the extensible part B. The jaw K' corresponds approximately to the removed portion of the part K, except that it is somewhat shorter and narrower, and it fits against the exterior of the extensible part B, so as to be adapted to gripe and hold the latter.

L designates a ring, forming, in this example of my invention, the means for causing the jaw K', in conjunction with the part K, to gripe the extensible part B. Such ring is provided at opposite points with knife-edge bearings f, which enter recesses g g' in the part K and jaw K'. When the extensible part is moved downward it draws the jaw K' in the same direction by reason of the friction exerted on it, and the ring L, being shifted into an inclined position, causes the said jaw, in conjunction with the part K, to hug or gripe the extensible part so tightly as to retain it in position. By pushing the extensible part upward the jaw K' is impelled in the same direction, and the ring L releases its pressure upon it, whereupon the said extensible part may be moved at pleasure to any desired point.

The part K and jaw K', to preclude their abrasure of the extensible part, may be fur-

nished with linings h, of cork, leather, or any other suitable material.

Instead of the ring L, any other convenient means for causing the part K and jaw K' to hug or gripe the extensible part may, of course, be employed; and, if desirable, a screw may be used in lieu of one of the aforesaid knife-edges on the ring L, and with material advantage, because it will provide for adjustment of the jaw K', so as to regulate its action on the said extensible part.

I have shown combined with the jaw K' an adjustable stop, M, for limiting its motion. It consists, in this instance, of an annular screw-threaded stud, fitting in the lower portion of the part K, and projecting up, so that the jaw K', on being drawn down, will come in contact with it. In lieu of this stop I may use a plate, N, (see Fig. 4,) fitted in a recess in the lower portion of the part K or the jaw K', so that it will come in contact with the other. Such plate may be serrated or roughened, so as not to easily slip out of position, and held in position by a screw passing through a slot in it.

Turning now to Fig. 5, A designates the stationary part, and B the extensible part, both parts in this example of my invention consisting of tubes, and the extensible part fitting outside the stationary part.

The loop a, the canopy E, spring D, drum G, and sheaves I J are attached to the inner stationary part, and the cord H passes through the latter to and around a pulley, V, connected to the outer extensible part, and ascending therefrom is fastened to the lower portion of the stationary part through a cross-pin therein, whereby the sustaining-power of the spring is much augmented.

The pulley V is shown as supported in a slot or notch in a screw-plug, X, inserted in the body Y of the chandelier, and serves to secure it to the extensible part B.

The clutch, brake, or safety device K K' L is shown as arranged at the upper end of the extensible part B, and acting on the stationary part A.

It will be seen that by my invention I produce a drop-light, extensible chandelier, or support adapted for other purposes comprising a very simple counter-balance, which does not at all mar the symmetry of the article, and a very simple and effective brake, clutch, or safety device, whereby an extensible part and its appurtenances may be supported in different positions.

I am aware that jaws have been attached to the stationary part of a chandelier, so as to gripe upon an extensible part upon a longitudinal movement of the latter.

I am also aware that two jaws have been attached to the stationary part of a chandelier, adapted to be forced together transversely to gripe an extensible part, and provided with a screw capable of adjustment to cause the said jaws to so gripe upon the extensible part; but such screw could not automatically effect the adjustment of said jaws.



I am also aware that two jaws have been attached to the stationary part of a chandelier, and a ring and lever employed for causing said jaws to gripe upon an extensible part upon the movement of the latter; but such ring has not been capable of automatically causing said jaws to gripe on the extensible part, a spring being necessary for such purpose.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a stationary tube, an extensible part fitting within said stationary tube, a convolute spring surrounding said stationary tube, and a flexible connection connected to the said spring, entering the stationary tube and fastened to the extensible part, whereby it is concealed from view, substantially as and for the purpose specified.

2. The combination of a stationary part, an extensible part, a convolute spring arranged round the stationary part, a drum or pulley attached to said spring, a flexible connection attached to said drum or pulley, and a sheave or pulley set with its axis at an angle to a horizontal plane, and around which the flexible connection passes, and thence is fastened to the extensible part, substantially as and for the purpose specified.

3. The combination, with a stationary part and an extensible part, of a device or jaw attached to one part, adapted to gripe upon the exterior of the other part, and means, made separate from said parts and the said device or jaw, for automatically causing the said device or jaw to gripe the part on which it acts when said device or jaw is moved downward, and to permit it to automatically release the part on which it acts when said device or jaw is moved upward, substantially as specified.

4. The combination, with a stationary part, an extensible part, a device or jaw, and a ring made separate from said parts, connected to said device or jaw and to the opposite portion of one of said parts, and causing said device or jaw, in connection with an opposite face of said part, to automatically gripe upon the exterior of the part on which it acts when said device or jaw is moved downward, and to permit it to automatically release the part on which it acts when said device or jaw is moved upward, of a stop for limiting the longitudinal movement of said device or jaw, substantially as specified.

5. The combination, with a stationary part, an extensible part, a device or jaw having a longitudinal movement, and a ring made separate from said parts, connected to said device or jaw and to the opposite portion of one of said parts, and causing said device or jaw, in connection with an opposite face of said part, to automatically gripe on the exterior of the part on which it acts when said device or jaw is moved downward, and to permit it to automatically release the part on which it acts when said device or jaw is moved upward, of an adjustable stop for limiting the longitudinal movement of said device or jaw, substantially as specified.

6. The combination, with the stationary part A and the extensible part B, of the part K, device or jaw K', and ring L, connected to the part K and device or jaw K', and capable of being shifted into an inclined position, substantially as and for the purpose specified.

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