(No Model.)

C. H. LYMAN.

SUSPENSION DEVICE.

No. 323,051. Patented July 28, 1885.

Fig. 1.

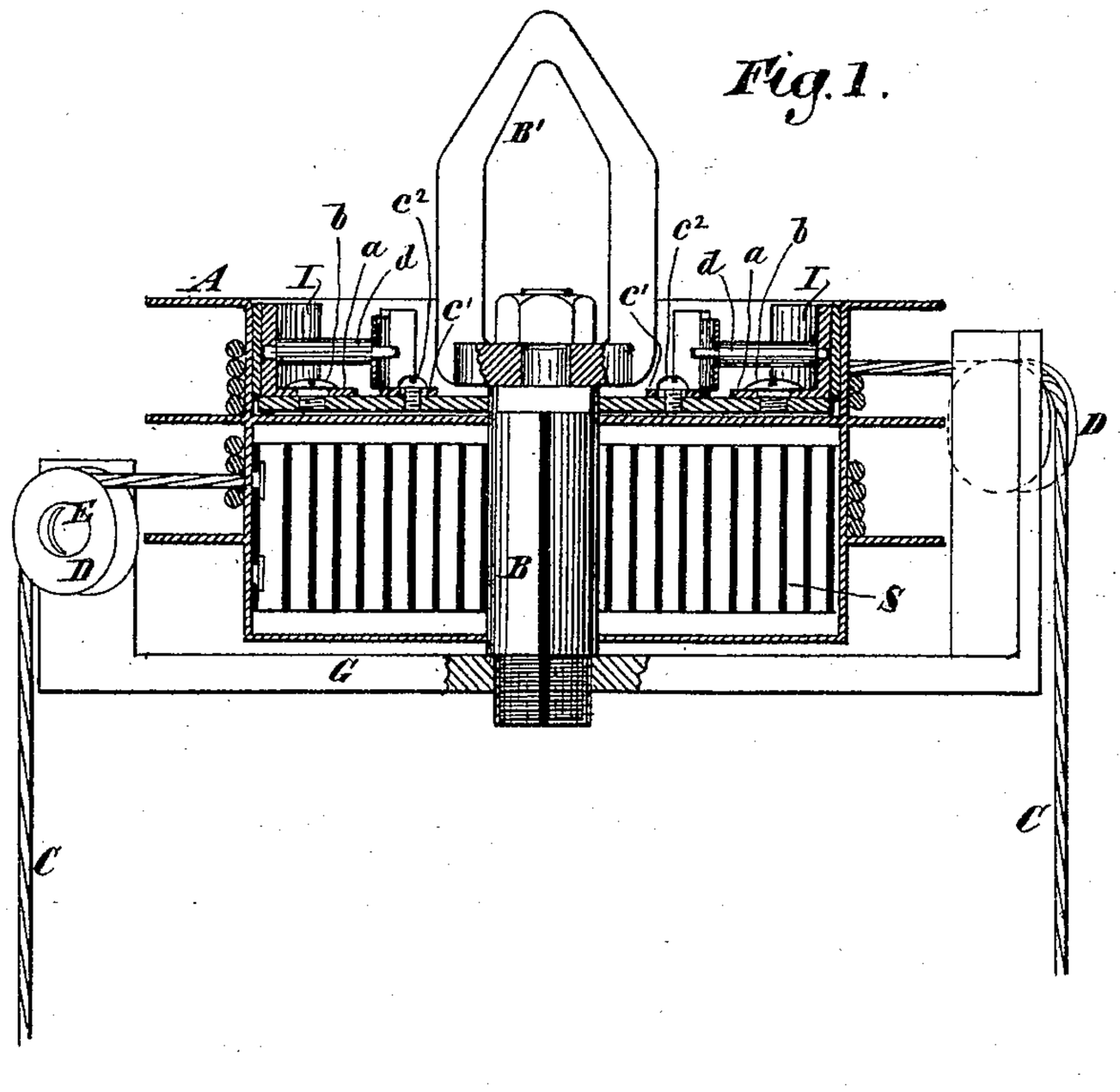
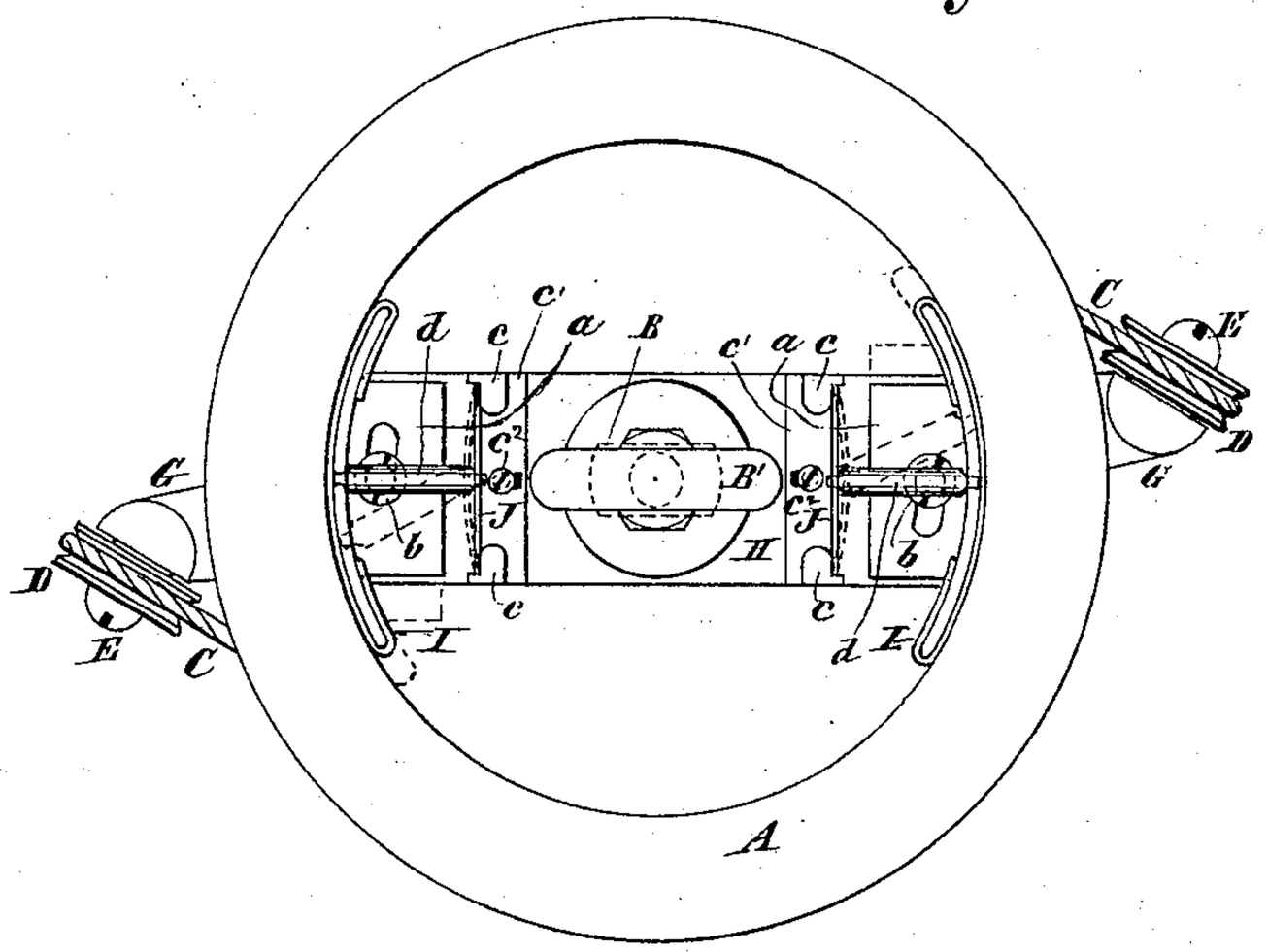


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. LYMAN, OF ANSONIA, CONNECTICUT, ASSIGNOR TO THE ANSONIA BRASS AND COPPER COMPANY, OF SAME PLACE, AND WOLCOTT A. HULL, OF NEW YORK, N. Y.

SUSPENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 323,051, dated July 28, 1885.

Application filed May 8, 1885. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. LYMAN, of Ansonia, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Suspending Devices, of which the following is a specification.

I will describe a suspending device embodying my improvement, and then point out the various features in claims.

In the accompanying drawings, Figure 1 is a section of a suspending device embodying my improvement, taken in a plane parallel with the axis of a drum comprised in it. Fig. 2 is a top view of the same.

Similar letters of reference designate corresponding parts in both figures.

A designates a drum, which may be made of sheet metal. It is mounted loosely upon a non-rotary arbor, B, so that it may turn thereon. A convolute spring, S, is coiled around the arbor within the drum. One end of this spring is fastened to the arbor and the other end is secured to the drum. The arbor has a swivel connection with a loop, B′, which may be hung on a hook or other support.

Cords or chains C are attached to the drum and wound around the same between flanges, with which it is externally provided. They pass from the drum around guides D, preferably consisting of grooved pulleys or wheels mounted to turn on studs or screws E, which are inserted into arms forming part of a frame, G. This frame G is secured to the arbor B below the drum.

The spring S resists the rotation of the drum in the direction to unwind the cords or chains. It therefore constitutes a counterbalance for the weight of an article attached to the pendent ends of the cords or chains.

I employ, in conjunction with the drum, a friction-brake or friction-brakes, which will retard the rotation of the drum in the direction to unwind the cords or chains, but will not interfere with the rotation of the drum in the reverse direction. I have shown two of such brakes, and I will now describe them.

H designates a bar of metal affixed to the arbor B, over the spring S, and within the drum. As shown, a plate or disk, forming a part of the drum, is arranged between the spring and the bar H. The bar H cannot turn upon the arbor.

I designates arc-shaped brakes or brake-shoes, made preferably of metal and faced with leather, india-rubber, or analogous material. They are arranged to maintain contact with the interior of the drum. They have secured to them or formed with them plates *a*, which rest on the outer side of the bar H. These plates *a* are secured to the bar H by means of screws *b* passing through slots, with which they are provided, and entering the bar. The slots of the plates are made so large, relatively to the shanks of the screws *b*, that the plates and the brakes may move along the interior of the drum a short distance in the direction of the circumference of the drum, and at the same time farther from or nearer to the arbor B.

J designates springs, whereby the brakes are held in contact with the interior of the drum. As shown, these springs consist of metal plates or strips impinging at the ends against posts *c*, and acting between the ends against rods *d*, extending between them and the brakes. As shown, these rods have their ends inserted loosely in holes in the brakes and springs. They will not interfere with the adjustment of the brakes, but when the brakes are adjusted will change the angles at which they extend relatively to the brakes and springs. The posts *c* are affixed to plates *c′*, which are secured to the bar H by means of screws c^2, whose shanks pass through slots extending through the plates in the direction of the length of the bar H. The screws c^2 enter tapped holes in the bar H. Their heads serve to clamp the plates in any position into which they may be adjusted. By adjusting the plates *c′* nearer to or farther from the arbor B the pressure with which the springs J act on the brakes I may be reduced or increased.

As before remarked, the brakes are normally in contact with the interior of the drum. When the drum is rotated in the direction to unwind the cords or chains, the brake-pieces will be moved or dragged by the interior of

the drum into such positions that the rods will assume positions approximately at right angles to the brakes and the springs J. Then the brakes exert their maximum pressure on the drum and retard it. They cannot move past this position, because the ends of the slots in the plates *a*, coming in contact with the screws *b*, will preclude further movement.

When the drum moves in the direction to wind up the cords or chains, the brakes will be dragged along with the drum until they arrive at such position that they will exert but little pressure on the drum. They will therefore not materially retard the rotation of the drum in this direction.

On October 30, 1884, I filed an application for Letters Patent numbered 146,832. On the 12th day of December, 1884, I filed an application for Letters Patent numbered 150,165, and on the 27th day of January, 1885, I filed an application for Letters Patent numbered 154,174, for suspending devices severally, having an arbor, a drum adapted to rotate upon the arbor, cords or chains wound upon the drum, passing thence over guides to the article which they are to suspend, a convolute spring coiled within the drum and serving to counterbalance the weight of an article suspended by the cords or chains, and a brake which is rendered effective when the drum is rotated in such direction as to unwind the cords or chains. Thus, generally considered, these suspending devices, and the one which is the subject of my present application, bear a resemblance.

The suspending device which is the subject of my application No. 146,832 has the guides for the cords or chains arranged upon a frame which is capable of sliding toward and from the drum, and when slid toward the drum by a force acting upon the cords or chains renders the friction-brake effective. In that suspending device a spring was employed for moving the frame away from the drum whenever the cords or chains were relieved of strain. I do not in my present application lay claim to any of these features.

The suspending-device which is the subject of my application No. 150,165 has the guide for the cords or chains arranged upon levers fulcrumed upon upright standards, so as to be capable of swinging toward and from the drum, and provided with brakes for acting upon the periphery of the drum. A feature of some importance in that suspending device consists in forming sheet-metal flanges on the drum, and providing them with broadened rims at the periphery. Another feature of that suspending device consists in providing levers which are combined with the drum with brake-pieces movable lengthwise of the levers, so that the retardation of the drum produced by the brakes may be regulated to a nicety. I do not in my present application lay claim to any of these features.

The suspending device forming the subject of my application No. 154,174 has the guides supported upon a frame that is mounted upon the arbor of the drum. The weight of the article suspended by the cords or chains is not in that suspending device directly a factor in effecting the operation of the brake, but the brake is so combined with the drum that it will be applied when the drum is rotated, and also when anything tends to rotate it in such direction that the cords or chains will be unwound, and so that under other circumstances it will be relaxed. I do not in my present application lay claim to any of these features.

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

1. In a suspending device, the combination of a drum, a non-rotary arbor upon which the drum is mounted, a counter-balance acting in conjunction with the drum, a cord or chain wound thereon, a brake or brake-shoe in contact with the interior of the drum, and a swinging rod or arm extending between the brake or brake-shoe, and an abutment supported by the arbor, substantially as specified.

2. In a suspending device, the combination of a drum, a non-rotary arbor upon which the drum is mounted, a counter-balance acting in conjunction with the drum, a cord or chain wound thereon, a brake or brake-shoe in contact with the interior of the drum, a swinging rod or arm extending between the brake or brake-shoe, and an abutment supported by the arbor and consisting of a spring and a stop for limiting the movement of the brake or brake-shoe in the direction of the rotation of the drum, substantially as specified.

3. In a suspending device, the combination of a drum, a non-rotary arbor upon which the drum is mounted, a counter-balance acting in conjunction with the drum, a cord or chain wound thereon, a brake or brake-shoe in contact with the interior of the drum, a swinging rod or arm extending between the brake or brake-shoe and an abutment therefor, and a support for said abutment sustained by the arbor and adjustably secured in place, substantially as specified.

CHAS. H. LYMAN.

Witnesses:
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