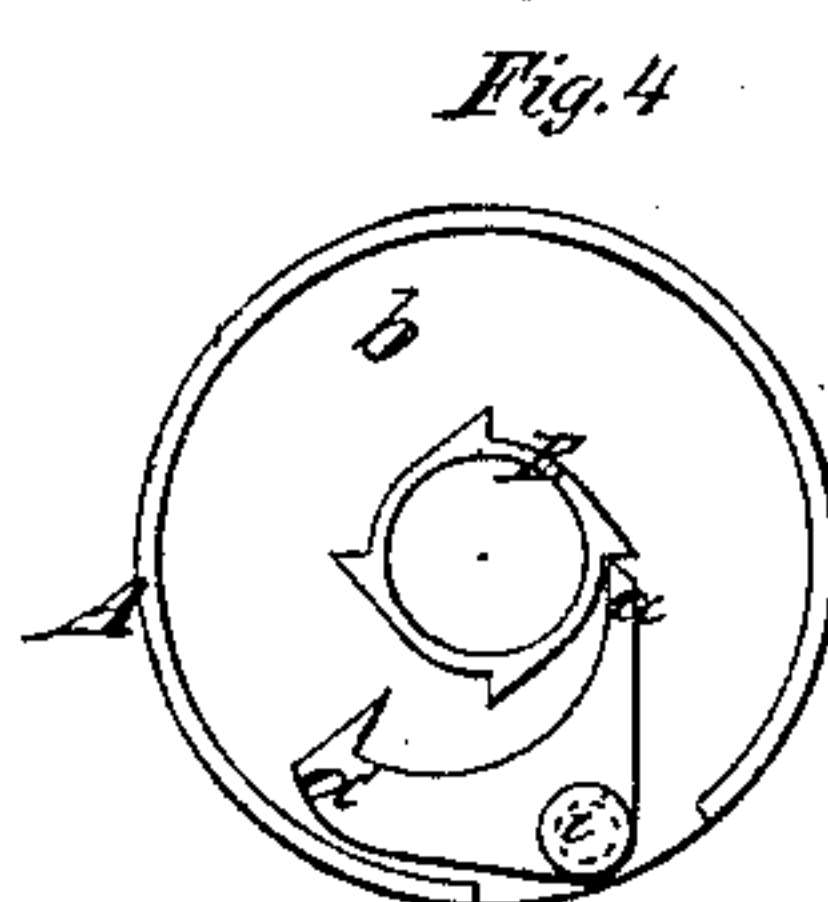
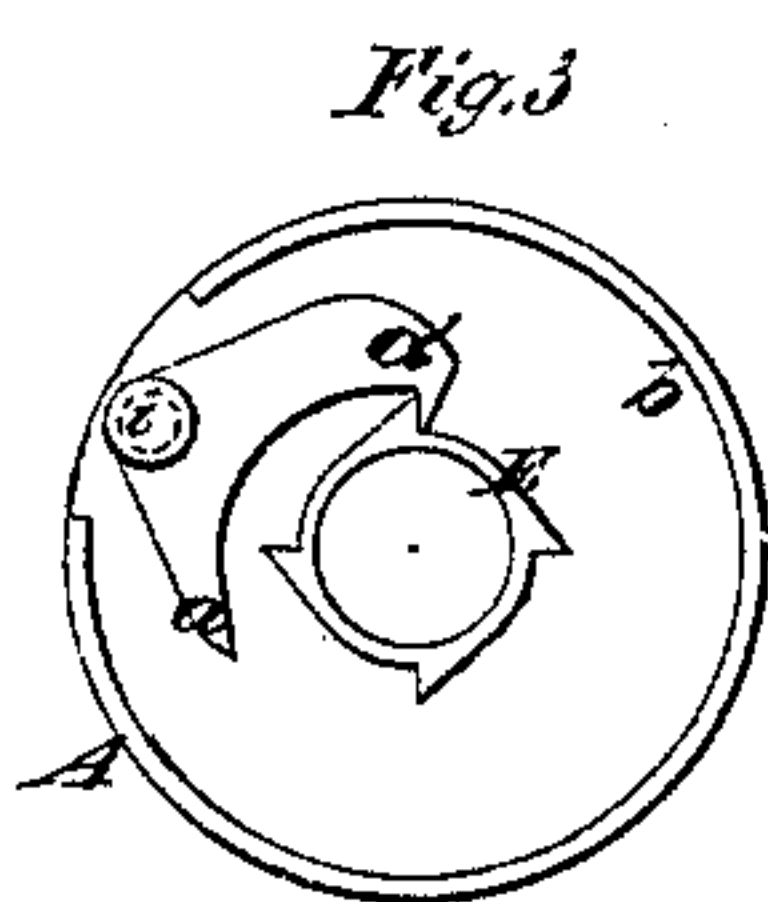
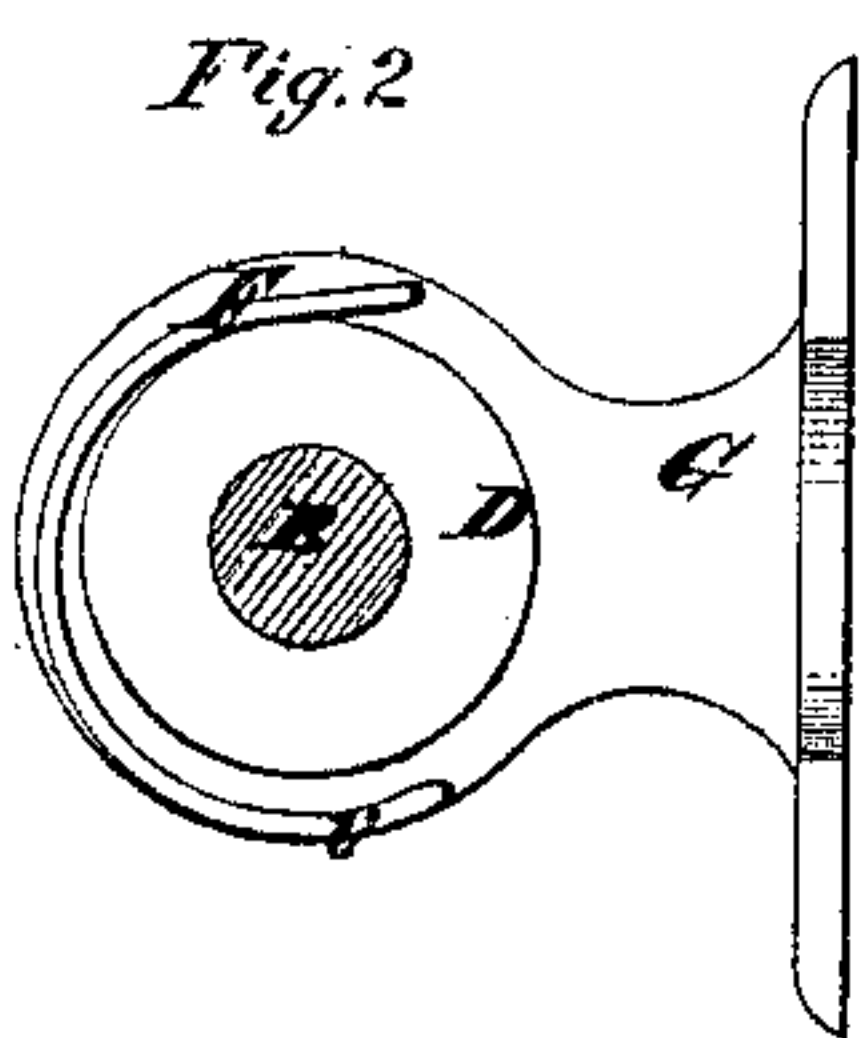
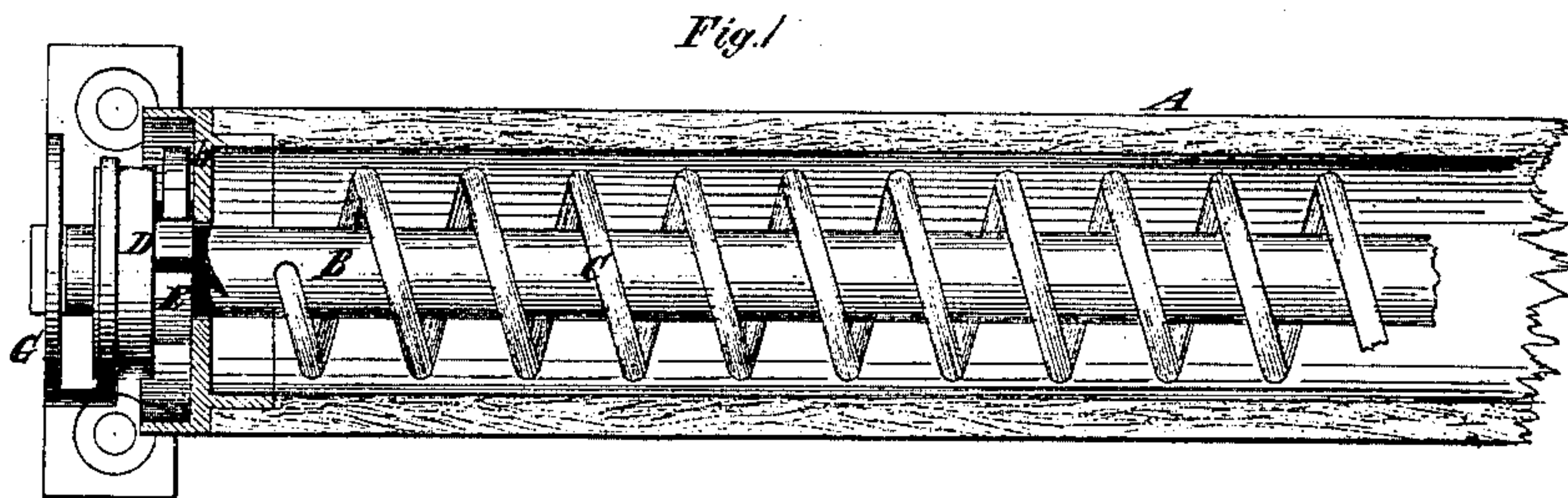


S. HARTSHORN.
 SPRING ROLLER SHADE.

No. 113,879.

Patented Apr. 18, 1871.



Witnesses.
Frederick Hagner
J. W. County

Stewart Hartshorn

United States Patent Office.

STEWART HARTSHORN, OF NEW YORK, N. Y.

Letters Patent No. 113,879, dated April 18, 1871.

IMPROVEMENT IN SPRING-ROLLER SHADES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, STEWART HARTSHORN, of the city, county, and State of New York, have invented a new and useful Improvement in Spring-Roller Shades; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification.

This invention relates to that class of shades which is raised by a spring contained in the roller.

It consists in a novel combination with the spring roller and with a weight provided in or attached to the suspended portion of the shade, of a friction-wheel, a friction-brake, a ratchet-wheel, and pawls, whereby the friction of the brake will operate to prevent the shade from being drawn down by its own weight, or by any weight that may be suspended by or from it, but the roller will be liberated from such friction, and the force of the spring will thereby be allowed to turn the roller and draw up the shade when the weight of the suspended portion of the shade is lifted by hand, such combination dispensing with all side arrangements, such as cords, for manipulating the shade.

In the accompanying drawing—

Figure 1 is a longitudinal section of a portion of a shade-roller made according to my invention;

Figure 2 represents an inner side view of one of the bearings of the axle of the roller and of the friction-wheel and brake;

Figure 3 is an end view of the roller showing the pawls and ratchet-wheel;

Figure 4 is a similar view showing the pawls in a different position; and

Figure 5 is an end view of the roller showing the friction-wheel brake, pawls, and ratchet-wheel, and also showing the shade.

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

A is the roller, which is hollow, and has secured within one end of it a metal socket, *b*, which projects slightly beyond it, and is provided in its end with a hole for the reception of the axle B of the roller, to which one end of the spring C, by which the shade is operated, is attached, the outer end of the said axle being secured from turning in the stationary hanger or bearing G.

D is a friction-wheel, which fits loosely on that portion of the axle outside of the roller and between it and the hanger G.

This wheel has formed on it, or rigidly secured to its side which is nearest the roller, a ratchet-wheel, E, whose teeth face in the direction in which the roller turns to wind up the shade, as shown by the arrow in fig. 5.

F is the brake, consisting of a curved spring, which is secured by one end at *v*, fig. 2, to the bearing G, and arranged so that it shall overlap and bear against the friction-wheel D.

a a' are two pawls, both of which are formed on one piece of metal, which is pivoted to the end of the case *b* of the roller by a screw, *i*, or pivot *i*.

One of these pawls, *a'*, is of hook-like form, and gears with the ratchet-wheel E only when the roller is in such position that the pivot *i* is above the ratchet-wheel.

The other pawl, *a*, has a direct tooth, which gears with the ratchet-wheel when the roller is in the reverse position, one or other pawl being always kept in gear by the superior weight of the pawl *a'*, and one always coming into gear before the other falls out as the roller turns.

The shade is loaded at its lower or outer edge, either by a metal strip within its hem, or by a weight otherwise suspended from or by it, sufficiently to overcome the tension of the spring in the roller and keep one of the pawls always pressing against the ratchet-wheel, so that but for the action of the brake on the friction-wheel attached to the ratchet the shade would be drawn down by the weight; but the brake must be arranged to produce friction enough on the wheel to overcome the action of the weight, and this friction is what holds the roller and shade in any desired position.

To draw down the shade, it is only necessary to apply by the hand sufficient force in a downward direction to the suspended portion to aid the weight to overcome the friction of the brake and permit the friction-wheel to be turned with the roller by the pawls and ratchet-wheel, and when the shade is let go by the hand the friction of the brake holds it at once in position.

To raise the shade it is only necessary to apply by the hand sufficient force in an upward direction to relieve the spring G in the roller of the effect of a portion of the suspended weight of the shade, when the spring C winds up the shade, the pawls then running back over the teeth of the ratchet-wheel and disengaging the roller from the friction-wheel, which then remains stationary.

When the shade has been thus rolled up to any desired position, the weight or lower edge of the shade is let go, and one of the pawls immediately engages with the ratchet-wheel and locks the roller and friction-wheel together again.

The weight need not necessarily be secured within or attached immediately to the end of the shade, but may be suspended therefrom by a cord.

It will be seen that by this combination of brake,

friction-wheel, ratchet-wheel, and pawls the shade is enabled to be moved up and down without requiring any side attachments whatever for its manipulation.

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

The combination with the spring roller and with weight provided in or attached to the suspended por-

tion of the shade, of a friction-wheel, brake, ratchet-wheel, and pawls, arranged and operating substantially as herein described for the purpose set forth.

STEWART HARTSHORN.

Witnesses:

FRED. HAYNES,
J. W. COOMBS.