A. H. KNAPP.

CURTAIN-FIXTURES.

No. 187,868. Patented Feb. 27, 1877.

Fig. 1.

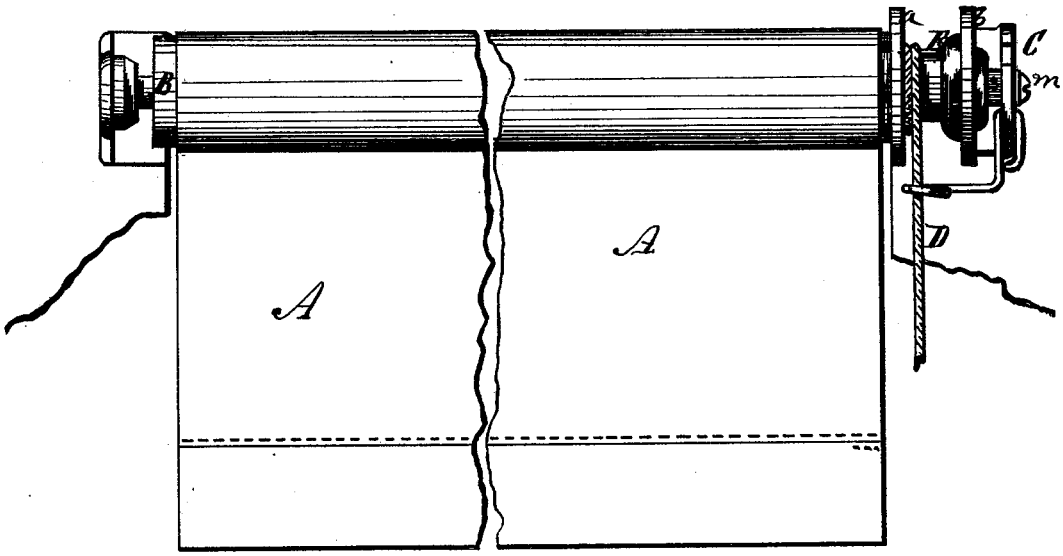


Fig. 2.

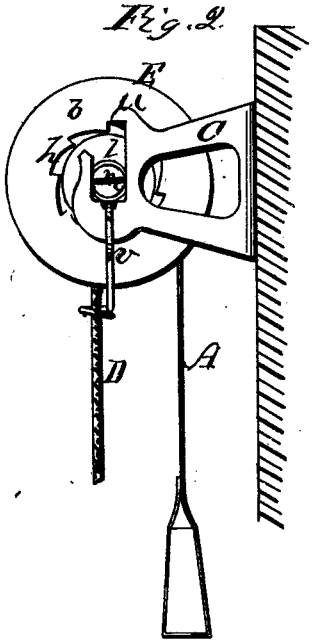


Fig. 3.

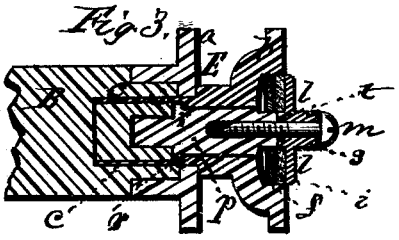
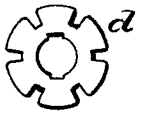


Fig. 4

Fig. 5.



WITNESSES

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A. HAYDN KNAPP, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CURTAIN-FIXTURES.

Specification forming part of Letters Patent No. **187,868**, dated February 27, 1877; application filed November 12, 1875.

To all whom it may concern:

Be it known that I, A. HAYDN KNAPP, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Curtain-Fixtures; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a front view of a curtain-fixture provided with my improvement; Fig. 2, an end view of the same; Fig. 3, a central longitudinal section of one end of the curtain-roller, and through the parts constituting my invention; Figs. 4 and 5, views of parts detached.

Like letters designate corresponding parts in all of the figures.

My improvement belongs to the class of curtain-fixtures in which the shade is sustained both by friction and by a positive catch, the friction yielding when drawing the curtain downward, and the catch yielding freely when drawing the curtain upward.

My improvement consists, first, in the improved construction of a friction curtain-sustainer with downward release, and ratchet-and-pawl curtain-sustainer with upward release; and, also, in several specific features auxiliary to the main feature, as herein specified.

In the drawings, A represents the shade or curtain; B, the roller, and C the bracket at the operative end of the roller. The shade is drawn down by direct action thereon, and is wound up by drawing down upon a counter cord, D, winding and unwinding on a spool, E, attached to the roller. For the friction curtain-sustainer I employ a disk-surface spring-brake with screw adjustment of the friction, substantially as described in Letters Patent for curtain-fixtures granted to me September 5, 1871; but as the present invention does not require a balance-spring to support the shade, and cannot employ such a spring for this special purpose, I here employ a special spring in its stead; and for friction-surface I employ felt, on the same principle as, and with advantages similar to, those attained in the Letters Patent for an improved curtain-fixture granted to me March 23, 1875.

For convenience and compactness of construction I locate both the friction and the ratchet-and-pawl devices in the outer end of the spool E; and this spool, for convenience, I make in two parts, as shown in Fig. 3—the inner part *a*, fitted immediately against and upon the roller, to form one head, and the outer part *b* forming the outer head and the barrel of the spool, and having a tubular extension, *c*, which enters the end of the roller through the part *a*, and thereby is attached to the roller. In the outer end of the part *b* of the spool is formed a cavity, in which both the friction and the ratchet-and-pawl devices are located.

In the bottom of the cavity is placed the spring of the friction device. It consists of a spring-disk, *d*, (shown separate in Fig. 5,) made somewhat concave, and notched or slit radially in several places, so that by being compressed between two surfaces it yields, and has an elastic resistance thereto. Against the outer side of this spring a plain disk (preferably of thin sheet metal) bears. Next to this plate is located what I term a "pawl-disk," *f*, it bearing a number of small pawls or detents, *g g*, as shown in Fig. 4. These detents are cheaply stamped from sheet metal, and notches are formed in the periphery of the disk, as shown, being of such a form that they furnish pivot-bearings for the detents, and limit the extent which the said detents can move laterally. The outer points of the detents take into ratchet-notches *h h* in the inner periphery of the spool, surrounding the cavity which holds the points just described. One or two of the detents at or near the lower edge of the pawl-disk fall by their gravity, so as to take into the said ratchet-notches, which are abrupt in the proper direction, to sustain the curtain or window-shade, and to allow it to be run up without obstruction. Outside of the pawl-disk is another thin washer-plate; and against this is located a disk, *i*, of soft elastic material, felt being much preferred, on account of its friction and elastic properties, its durability, and because of its absorbing very little moisture, and being little affected thereby. Against this disk of felt another inelastic disk, *l*, bears, and is pressed by a set-screw, *m*, by which the friction between it and the adjacent metallic disk, and the power of sus-

taining the curtain or shade, are adjusted at pleasure. The set-screw screws into the end of a short spindle, *p*, located in the spool E, and prevented from being drawn out therefrom, or therein, by a shoulder, *r*, or equivalent means. There is also a central outward projection, *s*, on the adjusting-disk *l*, which rests in the bracket, being flat-sided to fit in the notch of the bracket without turning. Also, it has a short inward projection, *t*, flat-sided or angular, to receive the felt disk fitting thereon, to prevent its turning with the curtain-roller.

The bracket has a projection, *u*, reaching partly over the spindle-notch, as shown in Fig. 2, to prevent the accidental throwing out of the spindle from the notch, while the mouth of the notch is left wide enough to allow the purposed detachment of the spindle by turning it a little.

I construct a cord-guide, *v*, which is peculiarly mounted. It may be made of wire, as shown, and the upper end is formed with a loop, which hangs from the spindle-notch of the bracket, there being a smaller notch at the bottom of the spindle-notch, to hold the guide-loop below the spindle. Not only is this construction very cheap, but, since it may be easily swung up and slipped from the bracket, it enables one to use the guide or not, as may be preferred, the guide not being absolutely necessary, but desirable in many cases. The guide-loop at the lower end of the guide is formed by coiling the wire loosely, so that the cord may be inserted into and withdrawn from the loop without drawing the end through, which could not be done without removing the tassel ordinarily used at the lower end of the cord.

The felt disk *i* furnishes a noiseless friction, and it is not affected by changes in the temperature or moisture of the air, and by making the spindle *p* of metal or alloy that can be readily cast in a metallic mold, it can be made quite smooth without turning, and the whole fixture works smoothly.

All the metallic parts composing the frictional device, except the outer spindle-disk *l*, may be cut from sheet metal, and require no finishing to make them smooth; and they do not come in contact with the interior of the spool to make unnecessary and uncontrolled friction.

I disclaim the cord-guide patented by Tripp and Boyd in their Letters Patent for curtain-fixtures bearing date January 19, 1869.

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

1. In a curtain-fixture, a spool, E, constructed with an inner head, *a*, and an outer head, *b*, the latter having formed therewith the barrel of the spool, and an extension-tube, *c*, to enter the curtain-roller, substantially as and for the purpose herein specified.

2. The combination of the spool-head *b* and friction and ratchet disks *d f i*, the said spool-head having a cavity in which the said disks are located, and ratchet-teeth *h h* on the periphery of the said cavity, to receive the detents of the ratchet-disk, substantially as and for the purpose herein specified.

3. The ratchet *f*, formed from a plate of sheet metal, with detent-bearings and receiving-notches in its periphery, and detents *g g*, also cut from sheet metal, to fit in the bearings of the said disk *f*, substantially as and for the purpose herein specified.

4. The spindle *p*, located in the spool E, and retained therein by an outer shoulder or flange, *r*, abutting outward against a shoulder of the spool, substantially as herein specified.

5. The pressure-disk *l*, constructed with a flat or angular outward projection, *s*, and an inwardly-projecting flat or angular part, *t*, substantially as and for the purposes herein specified.

6. The combination of the looped cord-guide *v* and the spindle-bracket C, having a receiving-notch beneath the spindle-notch, substantially as and for the purpose herein specified.

Specification of my improved curtain-fixture signed by me this 11th day of October, 1875.

A. H. KNAPP.

Witnesses:

FRANK KITTREDGE,

H. W. KITTREDGE.