

W. N. BUCKLEY.

CURTAIN FIXTURE.

No. 343,160.

Patented June 8, 1886.

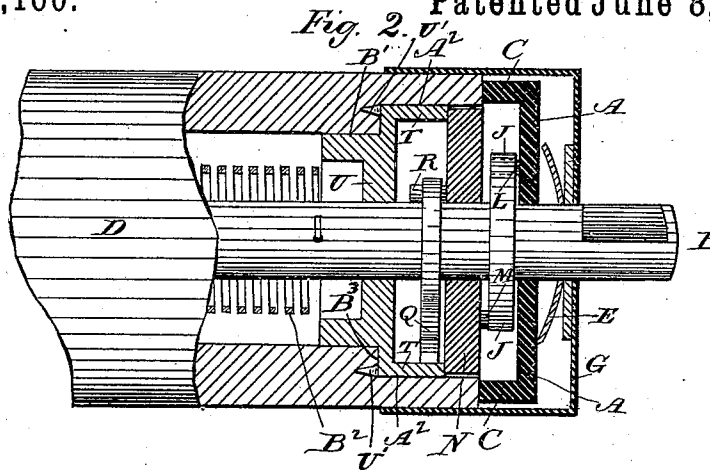


Fig. 1.

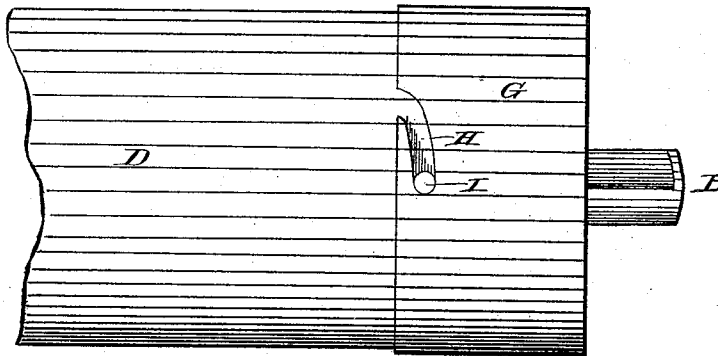


Fig. 3.

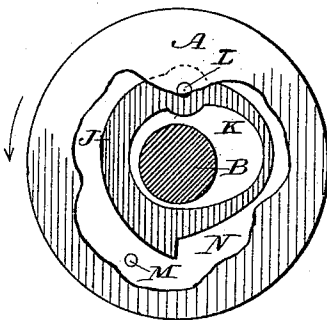
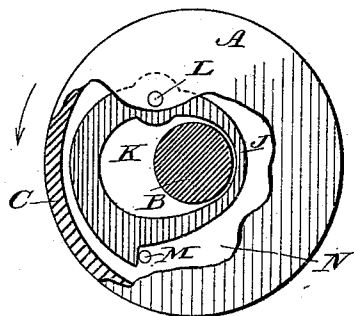


Fig. 4.



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Fig. 5

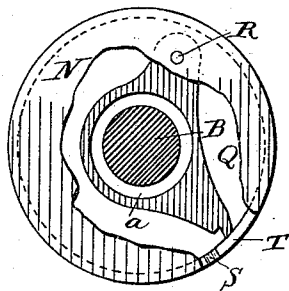


Fig. 6

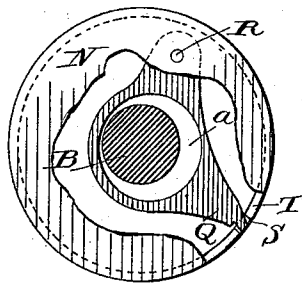


Fig. 7.

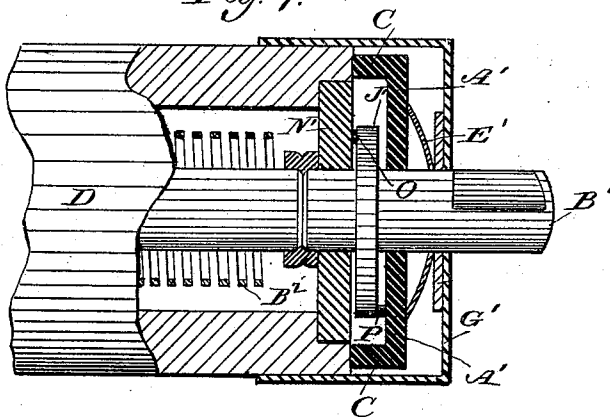


Fig. 8.

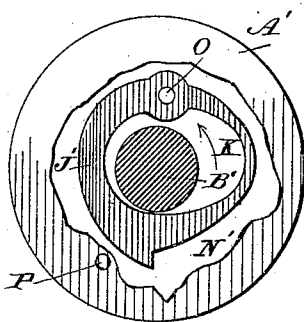
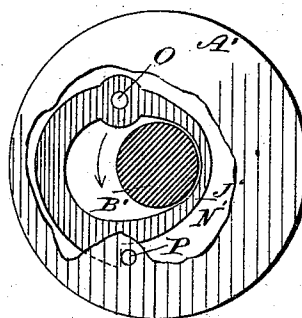


Fig. 9.



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UNITED STATES PATENT OFFICE.

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CURTAIN-FIXTURE.

SPECIFICATION forming part of Letters Patent No. 343,160, dated June 8, 1886.

Application filed April 5, 1882. Serial No. 57,370. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. BUCKLEY, of Meriden, in the county of New Haven and State of Connecticut, have invented new Improvements in Curtain-Fixtures; and I do hereby declare the following, when taken in connection with accompanying drawings and letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification.

My invention relates to an improvement in curtain-fixtures; and it consists in an automatically applied and relieved friction device for controlling the unwinding of their actuating-springs, and in an improved gravity or positive stop.

In the accompanying drawings, Figure 1 is a broken view, in elevation, of a curtain-fixture embodying my invention. Fig. 2 is a view, partly in elevation and partly in central longitudinal section, of a spring-stop fixture to which my invention has been applied. Fig. 3 is an outside view of the friction-plate thereof, such plate being in part broken away to show the centrifugal pawl pivoted to its inner face, the disk fixed to the spindle, and the stud located upon the outer face of the disk. Fig. 4 is a similar view showing the pawl as thrown out by centrifugal action and engaged with the said stud. Fig. 5 is a view in outside elevation of the disk fixed to the spindle, such disk being in part broken away to show the gravity-pawl pivoted to its inner face, and the edge of the flange of the head fixed to the roll of the fixture. Fig. 6 is a similar view showing the pawl in engagement with the said flange. Fig. 7 is a view, partly in section and partly in elevation, of a spring-balance fixture to which my improved friction device has been applied. Fig. 8 is a view in outside elevation of the friction-plate thereof, such plate being in part broken away to show the disk fixed to the spindle and the centrifugal pawl pivoted to the inner face of the disk; and Fig. 9 is a similar view showing the engagement of the said pawl with a stud projecting inwardly from the friction-plate.

Figs. 1 to 6, inclusive, of the drawings show my improved friction device as applied to a spring-stop fixture of ordinary construction, having a roll, D, a spindle, B, an actuating-

spring, B², a head, U, fixed to the roll and located entirely within the same, and having a flange, T, provided with slots S, and a disk, N, fixed to the spindle. My improved friction device, as shown in such figures of the drawings, consists of a friction-plate, A, an adjustable cap, G, a disk-spring, E, a centrifugal pawl, J, and certain other features, as will be described. The said plate A is of annular form, and journaled upon the spindle of the fixture, and provided with an inwardly-projecting flange, C, engaging frictionally with the end of the roll of the fixture, with which the plate normally rotates in consequence of such engagement, which is made possible by the location of the head fixed to the roll entirely within the same. The cap G fits over the end of the roll, and is provided with slots H, inclined to and opening at its edge, and receiving studs I, located in the periphery of the roll, whereby the cap, when rotated, is adjusted toward and away from the end of the roll. The disk-spring E is interposed between the cap and friction-plate, and serves to press the latter against the end of the roll, such pressure being regulated by the adjustment of the cap which controls the tension of the spring. The centrifugal pawl J is hung by a stud, L, upon the inner face of the friction-plate, and is adapted to be thrown out by centrifugal action, when the rotation of the roll and the unwinding of the spring is too rapid, to engage with a stud, M, located in the outer face of the disk N, which is fixed to the spindle. The pawl J is provided with an elongated central aperture, K, through which the spindle passes, and which confines the vibration of the pawl within the required limits. The fixture under consideration also includes a gravity or positive stop, forming a feature of my invention, and to be described hereinafter.

Having described in detail the construction of my improved friction device in its application to spring-stop fixtures, I will now set forth the mode of its use, its operation, and its function in such relation. The adjustable cap is first set to compress the disk-spring, so as to hold the friction-plate against the end of the roll with a force proportional to the power of the actuating-spring. Then, when the fixture is operated, the friction-plate will be normally rotated by and with the

roll so long as the same is rotated at that medium rate of speed, favoring a convenient and safe winding of the shade; but when during the winding of the shade the roll reaches a too rapid rate of rotation, the centrifugal pawl is thrown out by the action of centrifugal force and engages with the stud carried by the disk fixed to the spindle, and thus automatically couples the friction-plate and the spindle, after which the roll rotates against the plate with the development of sufficient friction to control the unwinding of the actuating-spring of the fixture which unwinds for winding the shade, and hence the rotation of the roll. As the tension of such spring declines and it becomes more and more equalized in power with the power represented by the friction, which is itself determined by the position of the adjustable cap, the roll rotates slower and slower until the gravity or positive stop of the fixture acts and stops it. Then, when the rotation of the roll is reversed, as in drawing down the shade, the centrifugal pawl is automatically disengaged by the action of gravity from the stud carried by the disk fixed to the spindle, and so remains until the roll again acquires a too rapid rate of rotation during the winding of the shade. It will thus be seen that a medium rate of rotation in the roll permits a safe and convenient winding of the shade, that an excessively rapid rate of rotation in it calls the friction device into play, and is thereby corrected, and that a slow rate of rotation calls the positive or gravity stop into action for stopping the roll. It will be noted, also, that the action of the friction device is entirely automatic, both as to its application and relief. By controlling the unwinding of the actuating-spring, as described, the concussion ensuing upon suddenly stopping the roll is not only avoided and a frequent cause of damage to the fixture done away with, but also the fixture is made, obviously, more convenient to manage.

Figs. 7 to 9, inclusive, of the drawings show my improved friction device as applied to a spring-balance fixture of ordinary construction, and having a roll, C', a spindle, D', an actuating-spring, F', and a disk, N', fixed to the spindle. As shown in such figures of the drawings, my improved friction device consists of a friction-plate, A', an adjustable cap, G', a disk-spring, E', and a centrifugal pawl, J', these parts being the same in construction and arrangement as those shown and described for the spring-stop fixture, with the exception that the centrifugal pawl is hung by a stud, O', upon the outer face of the disk fixed to the spindle instead of upon the inner face of the friction-plate, as in the spring-stop fixture, and that the stud P, with which the pawl engages, is located upon the inner face of the friction-plate instead of upon the outer face of the disk fixed to the spindle, as in the said spring-stop fixture.

The function of my improved friction device, as applied to spring-balance fixtures, is

to set their actuating-springs to the required tension, and to prevent them from unwinding when the spindle is disengaged from the bracket and not restrained from rotating. To set the spring, the cap is adjusted to develop sufficient friction between the roll and plate to hold the spring at its operating or ultimate tension. After the cap has been so adjusted the spring is wound to a high or excessive tension and then released for unwinding, when it rotates the spindle and throws out the centrifugal pawl, which engages with the stud carried by the friction-plate, and thus automatically couples the same with the spindle for rotation therewith and against the roll, which is prevented from rotating. The friction thus developed by the rotation of the friction-plate against the end of the roll will control the unwinding of the spring, and, when the same is reduced to its operating or ultimate tension, stop and hold it against further unwinding. The operation of the fixture after being mounted effects an automatic uncoupling of the friction-plate and spindle; but they are automatically recoupled when the fixture is dismounted, whereby the actuating-spring is prevented from unwinding farther than the recoil required to rotate the spindle and throw out the centrifugal pawl for engagement with the stud carried by the disk fixed to the spindle. It will thus be seen that as applied to spring-balance fixtures my improved friction device is employed to set the actuating-spring and to hold the same against unwinding when the fixture is dismounted, and that the action of the device is entirely automatic, both as to its action and relief.

My improved gravity or positive stop consists in an eccentrically-pivoted pawl provided with an opening through which the spindle passes, and constructed and arranged to act by gravity and arrest the unwinding of the spring of a spring-stop fixture, and hence the winding of the shade thereof.

In Figs. 2, 5, and 6 of the drawings my improved stop is shown as located entirely within the roll of a fixture and hung by a stud, R, upon the inner face of the disk fixed to the spindle thereof, and adapted to engage with the head U, fixed to the said roll through slots S, formed in the flange T of the said head, whereby the spindle is coupled with the roll.

I would have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the roll and actuating-spring of a curtain-fixture, of an automatically applied and relieved friction device for controlling the unwinding of the spring, substantially as set forth.

2. The combination, with the roll and actu-

ating-spring of a curtain-fixture, of a friction device for controlling the unwinding of the actuating-spring of the fixture automatically applied and relieved by the rotation of the roll, substantially as set forth.

3. The combination, with the roll and actuating-spring of a curtain-fixture, of an automatically applied and relieved friction device for controlling the unwinding of the actuating-spring normally rotating with the roll, substantially as set forth.

4. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the actuating-spring, and means for coupling the friction device with the spindle, substantially as set forth.

5. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the actuating-spring, and a centrifugal pawl for coupling the friction device with the spindle, substantially as set forth.

6. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the actuating-spring, and a centrifugal pawl for coupling the friction device with the spindle, having an opening through which the spindle passes, substantially as set forth.

7. The combination, with the roll and the actuating-spring of a curtain-fixture, of an automatically applied and relieved friction device for controlling the unwinding of the actuating-spring, and means for varying the amount of friction developed by the friction device, substantially as set forth.

8. The combination, with the roll and the actuating-spring of a curtain-fixture, of a friction device for controlling the unwinding of the spring, and an adjustable cap fitting over the end of the roll for varying the amount of friction developed by the device, substantially as set forth.

9. The combination, with the roll and the actuating-spring of a curtain-fixture, of a friction device for controlling the unwinding of the spring, and a cap fitting over the end of the roll operating upon the friction device for varying the amount of friction developed by the same, and provided with slots, as shown and described, through which it is engaged with studs located in the roll, substantially as set forth.

10. The combination, with the roll and the actuating-spring of a curtain-fixture, of a friction device for controlling the unwinding of the spring, an adjustable cap fitting over the end of the roll, and a spring interposed between the cap and the friction device, substantially as set forth.

11. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the spring, and having direct frictional contact with the roll, with which it

normally rotates, and means for coupling the said device with the spindle, substantially as set forth.

12. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the spring, consisting of a flanged plate journaled upon the spindle, and having direct frictional contact with the roll, with which it normally rotates, and means for coupling the said device with the spindle, substantially as set forth.

13. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the spring, and means carried by the said device for coupling it with the spindle, substantially as set forth.

14. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the spring, and devices operated by the rotation of the roll for coupling the friction device with the spindle, substantially as set forth.

15. The combination, with the roll, the actuating-spring, and the spindle of a curtain-fixture, of a friction device for controlling the unwinding of the spring and normally rotating with the roll, and a centrifugal pawl carried by the said device for coupling it with the spindle, substantially as set forth.

16. The combination, with the roll and actuating-spring of a curtain-fixture, of a head fixed to the roll and located entirely within the same, and a friction device for controlling the unwinding of the actuating-spring engaging with the end of the roll, substantially as set forth.

17. In a curtain-fixture, a flanged friction-plate journaled upon the spindle of the fixture, and having its flange in frictional engagement with the end of the roll, with which the plate normally rotates, a centrifugal pawl for coupling the said plate with the spindle, an adjustable cap fitting over the end of the roll, and a spring interposed between the cap and friction-plate, substantially as set forth.

18. The combination, with the roll and the actuating-spring of a curtain-fixture, of a friction device for controlling the unwinding of the actuating-spring, and a gravity-stop for stopping the roll, substantially as set forth.

19. In a spring curtain-fixture, a pawl eccentrically pivoted or hung, provided with an opening through which the spindle of the fixture passes, and constructed and arranged to act by gravity and arrest the unwinding of the spring of the fixture, and hence the winding of the shade thereof, substantially as set forth.

20. A gravity-pawl eccentrically pivoted to the spindle of a spring-actuated curtain-fixture, and provided with an opening through which the said spindle passes, and constructed and adapted to engage with the roll of the fixture, substantially as set forth.

21. In a spring curtain-fixture, a roll, a spindle, and an actuating-spring, in combination with a gravity-pawl located in the roll, adapted to engage therewith, and having an opening to receive the spindle and eccentrically pivoted to the same, substantially as set forth.

22. The combination, with a roll, of a spring for actuating it, and friction devices for controlling the unwinding of the spring and the winding of the roll, and applied and relieved, respectively, by the rotation of the roll in opposite directions, substantially as set forth.

23. The combination, with a roll, of a spring for actuating it, friction devices for controlling the spring and roll, and applied and relieved, respectively, by the rotation of the roll in opposite directions, and adjusting devices carried by the roll for varying the amount of friction developed by the friction devices, substantially as set forth.

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Witnesses:

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