J. M. CORNELL.

CONSTRUCTION OF ROLLING DOORS, SHUTTERS, AND CURTAINS.

APPLICATION FILED NOV. 8, 1919.

1,392,918. Patented Oct. 11, 1921.

Fig. 1.

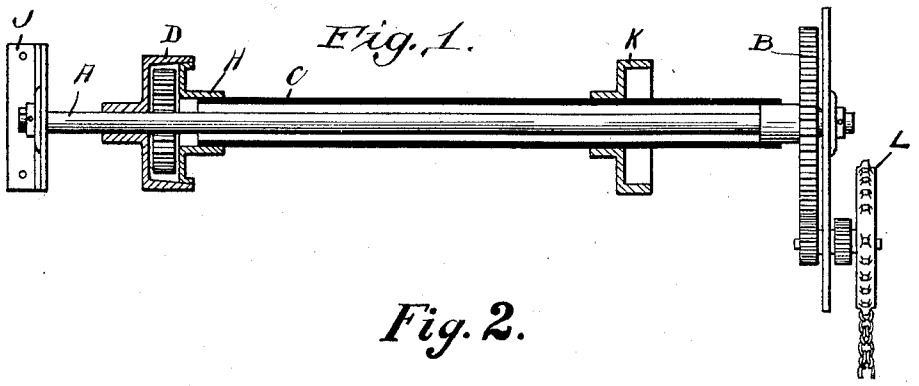


Fig. 2.

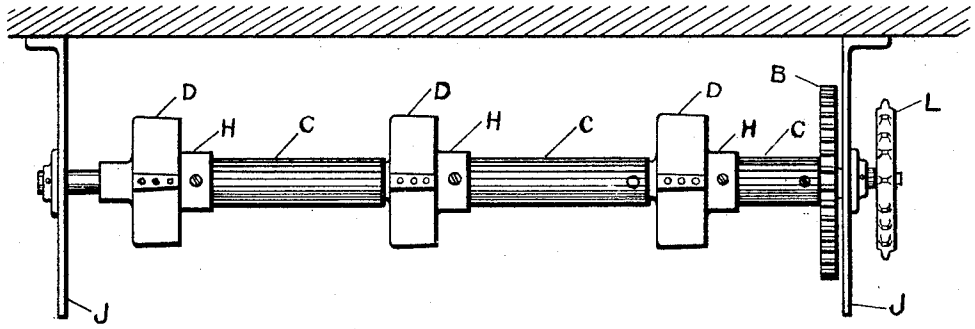
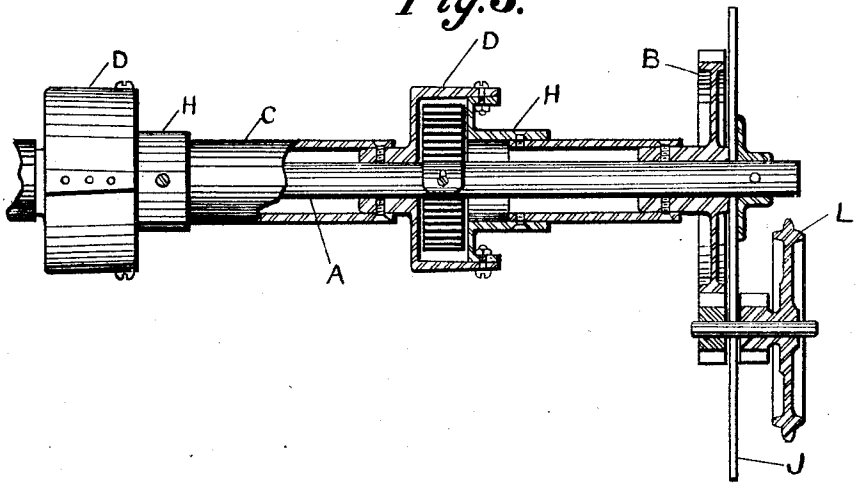


Fig. 3.



Witness
Jas Wagner
F. J. Wiener

INVENTOR
John M. Cornell

UNITED STATES PATENT OFFICE.

JOHN M. CORNELL, OF SEABRIGHT, NEW JERSEY.

CONSTRUCTION OF ROLLING DOORS, SHUTTERS, AND CURTAINS.

1,392,918. Specification of Letters Patent. Patented Oct. 11, 1921.

Application filed November 8, 1919. Serial No. 336,768.

To all whom it may concern:

Be it known that I, JOHN M. CORNELL, a citizen of the United States of America, and a resident of Seabright, Monmouth county, State of New Jersey, have invented a certain new and useful Improvement in the Construction of Rolling Doors, Shutters, and Curtains, of which the following is the specification.

This invention relates to an improved apparatus for operating rolling doors, curtains, shutters, or the like, and consists of certain improvements relative thereto which will be hereinafter more fully described.

The object of this invention is to successfully operate the hoisting of curtains of steel, iron, wood or fabric, and relates particularly to a construction whereby portions of the apparatus may be removed and replaced or repaired by a simple manipulation of the associated parts without wholly disassembling the mechanism.

In the accompanying drawings, Figure 1 illustrates the mechanism as used in connection with a light narrow door or curtain where only one spring is sufficient to counterbalance the curtain.

Fig. 2 shows a construction where it is not necessary to use more than one spring to balance the curtain, and

Fig. 3 is an enlarged detail view, partly in section, illustrating the means of connecting the various parts for driving a series of spring boxes from one end of the shaft.

Briefly stated, the invention comprises a stationary shaft suitably supported, having mounted on one end thereof a housing or box containing a steel spring, said spring having one end secured to the shaft and its other end to the periphery of the box. The other end of the shaft is provided with a gear wheel meshing with a pinion, preferably connected to a sprocket wheel provided with an endless operating chain, or in place of said chain and sprocket, an arrangement of gears and operating shaft may be substituted, as preferred.

The transmission of the power is applied through the gear wheel by a pipe or sleeve connected at one end to said gear wheel, and having its other end secured to the spring box or housing in a manner to be hereinafter more fully described. This sleeve also supports a collar of the same diameter as the spring box, which collar is suitably spaced from the spring box, the collar and spring box carrying the curtain as it is raised up or lowered by the power applied to the operating wheel.

This construction is used when one spring is sufficient to balance the weight of the curtain, but if it is desired to employ additional springs, the housings for the additional springs will replace the collar above referred to in supporting the curtain.

Referring to the drawings in detail, the stationary shaft A is supported at its ends in stationary brackets J or the like, which are attached at the sides of the opening to be covered by the curtain. In the construction as illustrated in Fig. 1, this shaft has mounted thereon at one end a spring box or housing D having inclosed therein a spring, said spring having one end thereof attached to the stationary shaft A and its other end to the periphery of the spring box D.

I am aware that, so far, there is nothing novel in this, as spring box D is very old and has been used for many years for self-rolling doors. In my invention, the spring box D has an elongated hub to which is secured a pipe or sleeve C, as shown, the other end of said pipe being secured to the hub of an operating gear wheel B rotatably mounted upon the stationary shaft A. Thus when the sprocket wheel L or a bevel wheel connected with the shaft is revolved, the curtain which is attached to spring boxes D or to a single spring box D and collar K, is rolled up or down by the operating mechanism, as required.

As illustrated in Fig. 2, when two or more spring boxes D are necessary to counterbalance larger curtains, there is provided a novel arrangement by which the spring boxes D are caused to turn upon the rotation of the gear wheel B, by a series of short pipes or sleeves C, attached at one end to a flanged collar H and at the other end to an elongated hub of the spring boxes D by bolts or screws in such a manner that in case a spring should break or lose its power, it may be removed and a new spring substituted without removing the outer pipe or sleeve C, or otherwise disassembling the apparatus. This is accomplished by disconnecting the proper sleeve at its ends and moving it to one side and sliding flanged collar H away from the spring box D, similar to a telescoping operation, thus allowing ample space to change the spring.

In Fig. 3 is shown more clearly the differ-

ent arrangements in detail. The flanged collar H, which in reality forms another elongated hub for the housing D, is secured to said housing by bolts or screws. The sleeve C is secured to the hub of the flanged collar H by set screws or other appropriate removable fastenings, and the elongated hub of the other side of the housing D is likewise secured to the next sleeve section C, and so on throughout the series.

It is to be here noted that the various sleeves C are of such length as to extend just beyond the outer ends of said hubs in operative position, so that when desired, the various parts may be disconnected, and by a telescopic or sliding action of the desired sleeve and associated hubs, any one of the springs can be removed for repairs or be replaced by a new spring.

The gear wheel B is secured to its adjoining sleeve in a manner similar to that in which the other sleeves are secured, so that when said wheel revolves, the various spring boxes, through their sleeve connections, revolve simultaneously for raising or lowering the curtain supported thereon.

What I claim is:

1. The combination with a rolling curtain or the like, of a stationary shaft and supporting means, a spring housing loosely mounted on said shaft partly inclosing a counterbalancing spring for said curtain, a removable head or disk for said housing having an annular collar surrounding said shaft forming substantially an elongated hub for one side of said housing, operating means for rotating said housing, an elongated hub associated with said operating means, a tubular sleeve surrounding said shaft for connecting the elongated hubs of the housing and operating means, said sleeve being of such length as to extend just beyond the outer ends of said hubs in operative position and to permit access to the spring housing by a telescopic action of the sleeve and associated hubs after said parts are disconnected.

2. The combination with a rolling curtain or the like, of a stationary shaft and means for supporting said shaft, a series of spring housings loosely mounted on said shaft, each partly inclosing a counterbalancing spring for said curtain, the curtain adapted to be supported from said housings, an elongated hub for each housing, a removable head or disk for each housing having an annular collar surrounding said shaft forming substantially an elongated hub for that side of said housing, operating means for rotating said housing, an elongated hub associated with said operating means, a series of tubular sleeves surrounding said shaft for detachably connecting the elongated hubs of the housings and operating means, said sleeves being of such length as to extend just beyond the outer ends of said hubs in operative position, and to permit access to the desired spring housing by a telescoping action of the necessary sleeve and associated hubs after said parts are disconnected.

JOHN M. CORNELL.

Witnesses:
J. A. WAGNER,
F. J. WIESNER.