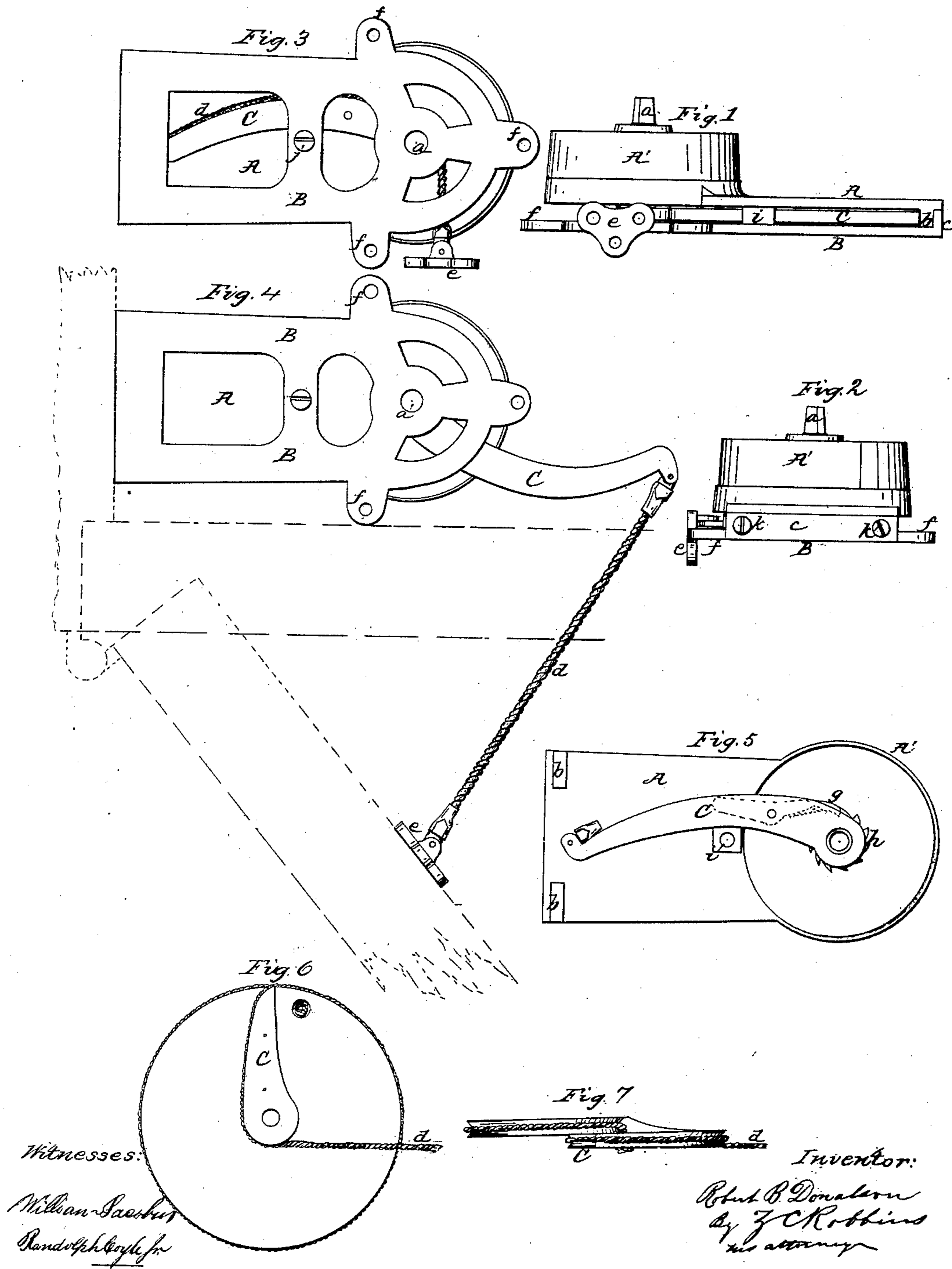


R. B. Donaldson,

Door Spring.

N^o 30,531.

Patented Oct. 30, 1860.



UNITED STATES PATENT OFFICE.

ROBERT B. DONALDSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVED DOOR-SPRING.

Specification forming part of Letters Patent No. 30,591, dated October 30, 1860.

To all whom it may concern:

Be it known that I, ROBERT B. DONALDSON, of Washington, in the District of Columbia, have invented a new and Improved Apparatus for Shutting Doors and Stiffly Retaining the Same when Shut; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a portion of this specification.

The operative parts of my said improved apparatus for shutting doors and holding the same when shut are a spring-actuated axle *a*, a lever *C*, and a cord or chain *d*, and these parts are so combined with each other and with a suitable casing that when the said apparatus is combined with a door and with the casing of the same the entire force of the spring-actuated axle *a* will exert itself upon the door when it is in a closed position through the medium of the heel of the lever *C* and the cord *d*, as shown in Figure 3, and when but slightly moved from its closed position the outward movement of the door will overcome the action of the said spring-actuated axle through the medium of the cord *d* and the entire length of the lever *C*, as shown by Fig. 4 of the drawings. Consequently it will be perceived that when the door with which my said improved door-closing apparatus is combined is in a closed position it will be held so stiffly that no ordinary gust of wind will vibrate the same upon its hinges, and yet as soon as the said door has been started from its closed position it can be opened with ease, and when it is allowed to swing inward again the said apparatus will draw the door back to its closed position so gradually as to prevent any violent slamming of the same.

The accompanying drawings represent the casing of my improved door-shutting apparatus as being composed of the face-plate *A A'* and the back plate *B*, which plates may be combined with each other by means of the lug *i*, the flanges *b c*, and the screws *j k l*, as represented in the drawings, or in any other manner that may be preferred. The spring which actuates the axle *a* is located within the cup-shaped head *A'* of the face-plate of the casing of the apparatus, while the perforation in the center of the said cup-shaped head and an opposite perforation in the cas-

ing-plate *B* receive the journals of the said spring-actuated axle.

The lever *C*, whose short and narrow heel is combined with the axle *a*, works between the casing-plates *A* and *B*, and the inward movement of said lever is arrested by the central lug *i*.

The ratchet-wheel *h* upon the axle *a*, and the pawl *g*, which is pivoted to the inner surface of the lever *C*, retain the spring which actuates the said axle in any desired state of compression.

In constructing my said improved apparatus for shutting doors, &c., I shall sometimes place the lever *C* at the side of a grooved wheel, (or sector,) as represented in Figs. 6 and 7 of the drawings, for the purpose of enabling the cord or chain *d* to pass from the extremity of said lever onto the periphery of the said disk, (or sector,) and vice versa, whenever it may be necessary to do so, and by that means enabling a longer cord or chain to be used with this modified form of apparatus than can be used in the apparatus represented by Figs. 1, 2, 3, 4, and 5 of the drawings. This modified form of my improved door-closing apparatus I shall place within a round casing of suitable proportions.

My said improved apparatus for shutting doors, &c., may be combined with the casing of a fly-door in such a manner that by the aid of a suitable number of guiding-pulleys for the cord or chain *d* the said apparatus will draw the door from either side to its closed position and then hold it in that position with the desired degree of force.

Having thus fully described my improved apparatus for shutting doors and stiffly holding the same when shut, what I claim therein as my invention, and desire to secure by Letters Patent, is—

The arrangement of the respective parts of said apparatus, which enables its actuating-spring to exert its power upon a door through the medium of the axle *a*, the lever *C*, and the cord or chain *d*, substantially in the manner herein set forth.

ROBERT B. DONALDSON.

Witnesses:

Z. C. ROBBINS,
RANDOLPH COYLE, Jr.