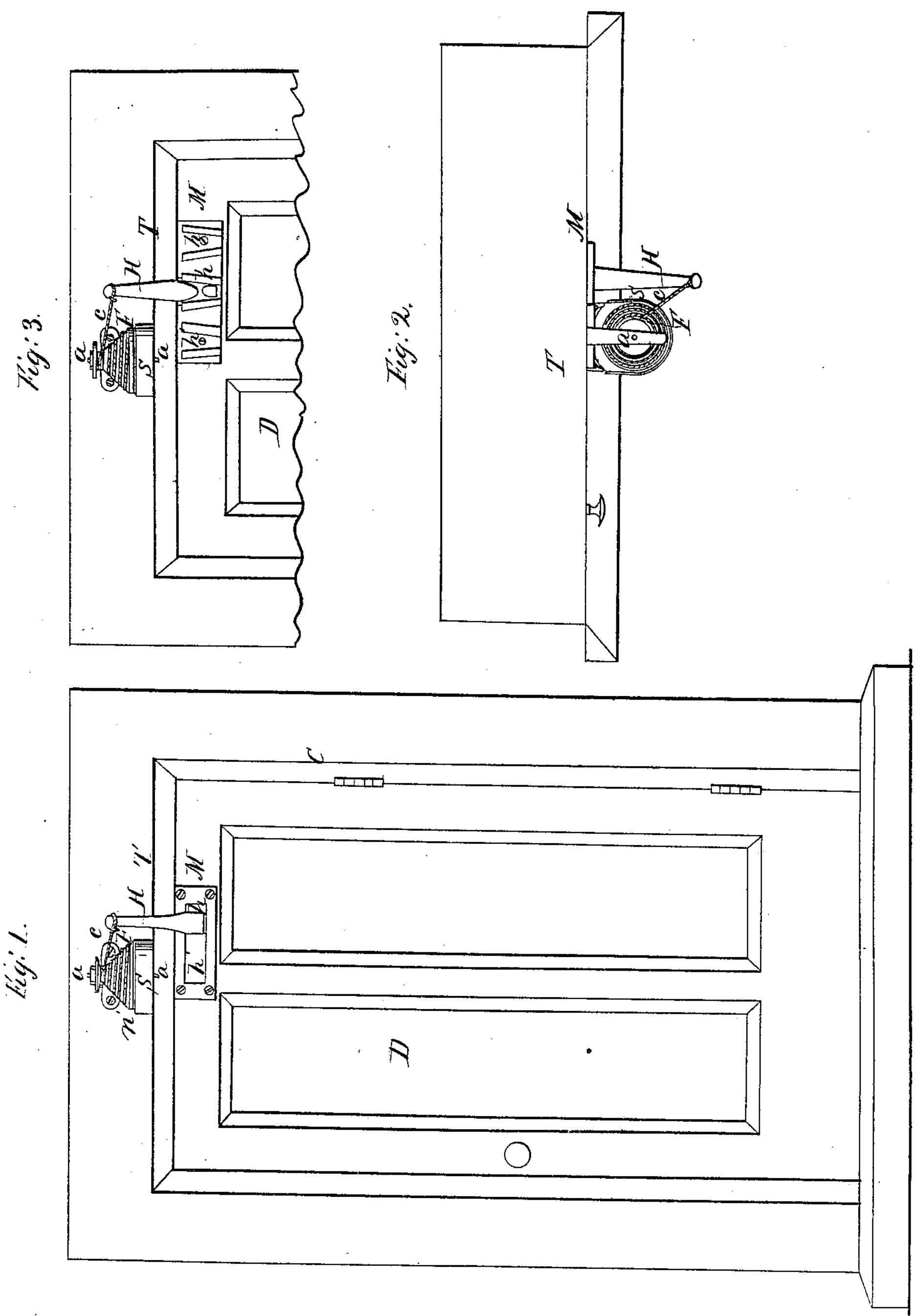
W. B. Barnard,

Door Spring.

No 7,132. Patented Mar. 5, 1850.



UNITED STATES PATENT OFFICE.

WM. B. BARNARD, OF BRISTOL, CONNECTICUT.

ADJUSTABLE CORD-HOOK FOR DOOR-SPRINGS.

Specification of Letters Patent No. 7,132, dated March 5, 1850.

To all whom it may concern:

Be it known that I, WILLIAM B. BARNARD, of Bristol, in the county of Hartford and State of Connecticut, have invented a new and useful Door-Spring; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which make part of this specification.

The principle of my door spring is to combine with a coiled spring acting on a fuse, an adjustable sliding or movable cord-hook which shall act to close the door with more or less energy according to the requirements of the season, the state of the wind, or other circumstances. The door is also, so acted on by my spring alone, as to be held to its place when closed, with more force than is exerted to commence closing it when wide open.

The action of my sliding cord-hook is such, that it coöperates with the form of the fuse, to diminish or increase the power of the spring to close the door according as it is placed in one or another position to which it may be transferred.

In the drawings Figure 1 is an elevation, Fig. 2 is a top view, and Fig. 3, a partial elevation, exhibiting a modification of the adjustable cord-hook support.

In the several figures S is the spring-box containing a coiled spring attached at one end to the box and at the other to the axis *a a* of the fuse F. The spring-box is attached by screws or otherwise to the door-frame T, and the cord hook H is mounted in a dovetailed or other suitable support M (Figs. 1 and 2) so that when removed to the greatest distance from the hinged side *l* of the door it shall stand as at *h′*, directly opposite to the axis of the fuse when the door is closed; and then the cord *c* will be drawn in a direction at right angles to the plane of the door. Its effort to keep the door closed will then, for two reasons be at a maximum. The first reason is, that my fuse is so formed that its taper is more rapid than the rate of diminution of elasticity of the coiled spring by its uncoiling; consequently when the cord is wound up close to the neck *n* of the fuse the tension on the cord is greater than when it has been unwound to the part *n′* where the cord will act with a greater leverage to keep the spring wound up, this leverage increasing faster than the tension of the spring is augmented by the winding. The second reason is that when the hook H is at *h′* the whole force of the spring is exerted to keep the door closed while if it stands at *h*, only one component of an oblique force tends to keep the door closed and the other tends to draw it from the hinged side toward the opposite. In sliding the hook H from *h′* toward *h*, some portion of the cord is drawn off from the fuse and the tension of the cord is thereby diminished. Instead of a slot to slide the hook H in as in Fig. 1, I shall in some cases, especially for heavy doors make the support M with distinct dovetailed steps (*h*, *h*, *h′*,) as seen in Fig. 2, and shall make the number of them and the extent of motion of H greater or less according to the total difference of intensity with which I wish the spring to act at different times & seasons.

While most door springs when allowed to act at all, are compelled to act, always with equal energy, and in many cases become an annoyance instead of a convenience especially in mild weather, closing the door with more violence than is then necessary or desirable, my springs will be capable by a simple adjustment of the position of the hook to give a gentle action barely sufficient to turn the door on its hinges, or by a counter movement to render the spring all that is desired for prompt action in the severest weather. This benefit of adjusting the position of the cord hook nearer to or farther from the hinged side of the door is not confined to fuses of the peculiar form employed by me, but may be applied in connection with other door springs.

The attaching of the spring box may be made to the door and of the hook H to the frame T instead of the arrangement of parts exhibited in the drawings, without altering the principle of the machine.

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

1. The use of the adjustable cord-hook or attachment (H) for the cord, whereby the tendency of the spring to close the door is made to vary at pleasure, as herein set forth.

2. I also claim in combination with a

spring and fuse having the diminution of the diameter of the coils on the fuse more rapid than the decrease of elasticity in the spring by uncoiling, the movable cord attachment (H) whereby the tendency of the spring to close the door is varied more rapidly than would be due to the simple change of position of the hook alone, in the manner and for the purposes herein set forth.

WM. B. BARNARD.

Witnesses:
J. A. WELLS,
ANNA K. WALL.