

(No Model.)

J. CARTLAND, Dec'd.

T. EMERY, Administrator.

DOOR SPRING.

No. 511,294.

Patented Dec. 19, 1893.

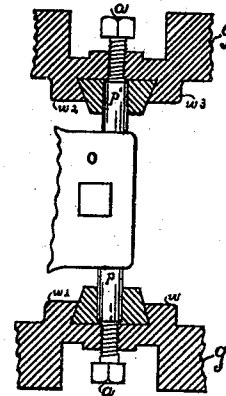
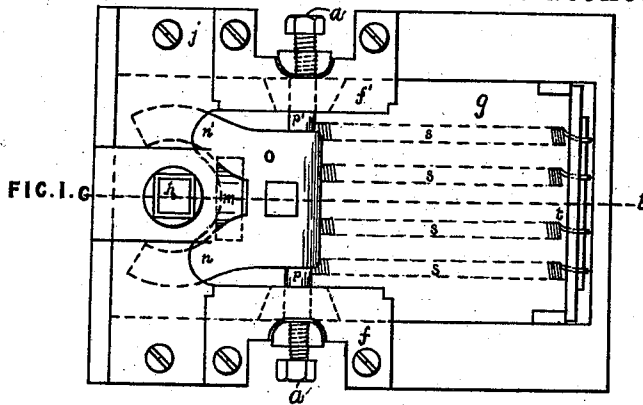


FIG. 4.

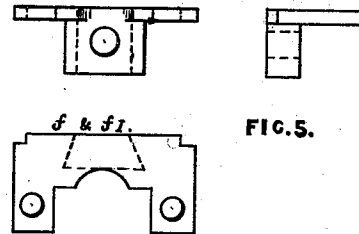
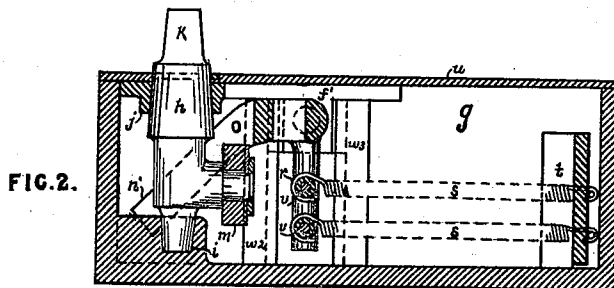


FIG. 5.

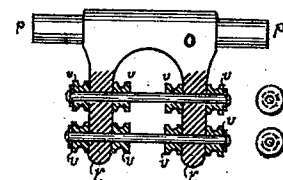
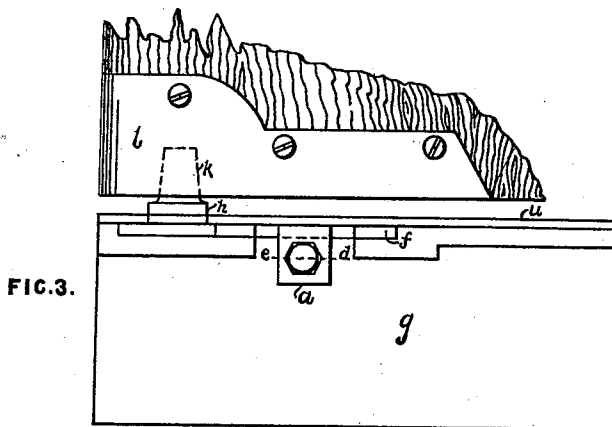


FIG. 6.

WITNESSES:

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BY
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UNITED STATES PATENT OFFICE.

THOMAS EMERY, OF SAGINAW, MICHIGAN, ADMINISTRATOR OF JOHN
CARTLAND, DECEASED.

DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 511,294, dated December 19, 1893.

Application filed August 5, 1893. Serial No. 482,461. (No model.) Patented in England August 12, 1885, No. 9,584.

To all whom it may concern:

Be it known that I, THOMAS EMERY, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, administrator of the estate of JOHN CARTLAND, deceased, of Birmingham, England, who invented certain new and useful Improvements in Door-Springs, particularly applicable to Climax Door-Springs, (patented in England August 12, 1885, No. 9,584.) do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention consists in providing a ready, effectual, and easily accessible arrangement whereby the effect of the wear of the working parts of floor door springs (particularly that which is known as the "Climax" door spring) is compensated for. In swing doors either single or double, which are acted upon by springs, after the spring arrangement has been in operation for some time the working parts wear more or less and in proportion to this amount of wear, so that the door or doors do not come to "rest" in a central position, or, what may be said when there are double doors, they do not come to "rest" exactly and in line, opposite to each other. In order to remedy this defect, and at any time to adjust the "rest" position of swing doors acted upon by springs similarly as shown upon the drawings herewith appended, this invention has been devised and arranged.

The invention is more particularly described by the assistance of the accompanying drawings which have letters of reference thereon.

Upon the drawings like letters refer to the same identical thing throughout.

Figure 1, is a plan of the arrangement. Fig. 2, is a sectional elevation of Fig. 1, upon line *b-c*. Fig. 3, is an elevation of the spring box showing the adjusting screw *a*. Fig. 4, is a part sectional plan of Fig. 1, upon line *d-e*, of Fig. 3. Fig. 5, is a plan and two elevations of the screw down plates *f* and *f'*.

Fig. 6, is a detail elevation showing method of attaching springs to lever *o*.

The action of the spring arrangement will be understood to be as follows:—The box or case *g*, in which the details are arranged is let into the floor. A strong upright pivot *h*, rests in a foot step bearing at *i*, while its upper end is supported and held in position by the plate *j*, and also further shaped square or other suitable shape at *k*, to fit into the shoe *l*, of the door. A roller *m* is mounted upon the pivot *h* which acts upon the two inclined arms *n* and *n'*, of the lever *o*. This lever *o* is formed with trunnion bearings or center pins *p* and *p'*, which oscillate in and are carried by the dovetail screw down plates *f* and *f'*. This lever *o* is further provided with arm or arms *r*, to which are attached a spiral spring or springs *s*, the other ends of such springs being secured similarly as shown at *t*. When in action the shoe *l* of the door fits upon the upper end of the pivot *h*, and upon swinging the door it will be seen that the roller *m* lifts the inclined arms *n* and *n'* against the tension of the springs; and in so doing the trunnions or pins *p* and *p'* in course of time wear more or less in their bearings, and from any irregularity of such, or other wear in any of the parts it will be readily seen that the "rest" position of the door will be correspondingly affected. To compensate for this irregularity and bring the door into the correct position when at "rest" there is provided upon each side of the box or case *g* adjusting screw pins *a* and *a'*, which are placed in a coincident position with the trunnion bearings of the lever *o*.

It will now be readily seen that upon slackening one of the pins, and tightening the other pin, or, vice versa, the lever *o* will be thrown to one side or the other at will, and by acting upon the roller *m*, and thence to the upright pivot *h*, the position of the door will be adjusted perfectly as required.

The dovetail screw plates *f* and *f'*, I slide into corresponding dovetail slides *w*, *w'*, *w''*, *w'''*, by which means the structure is made very rigid and firm. Further, hitherto the springs *s* have been attached direct on to the lever *o*, by means of hooks or other projection

formed thereon, but it is found that when the springs break, they generally break at this point, owing to the rubbing action of the hook upon the spring. To obviate this are mounted
5 in any suitable manner, rollers, similar to those shown at *v*, so that the friction is transferred from the spring to the roller instead, and, hence no motion between the roller and the spring.

10 Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, what is claimed is—

1. In a door spring of the class described
15 the combination with a door and its shoe of a casing adapted to be seated in the floor, an upright pivot stepped in the said casing and adapted to engage said shoe, and also having an arm at right angles thereto, a roller
20 mounted on said arm and a lever having in-

clined arms to engage said roller and provided with trunnions whereby it is mounted in said casing, and set screws to engage the projecting trunnions *p*, *p'* of the lever whereby the central portion of the door is adjusted
25 to take up the wear, substantially as set forth.

2. In a door spring of the class described, the combination of the lever *o* provided with arms *r* and the rollers *v* mounted thereon, of the springs *s* in engagement with said rollers,
30 substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS EMERY,
Administrator of the estate of John Cartland, deceased.

Witnesses:

A. H. SWARTHOUT,
FANNIE ROBBINS.