

I. BUCKMAN, Jr.

Improvement in Door-Springs.

No. 132,710.

Patented Nov. 5, 1872.

Fig. 1.

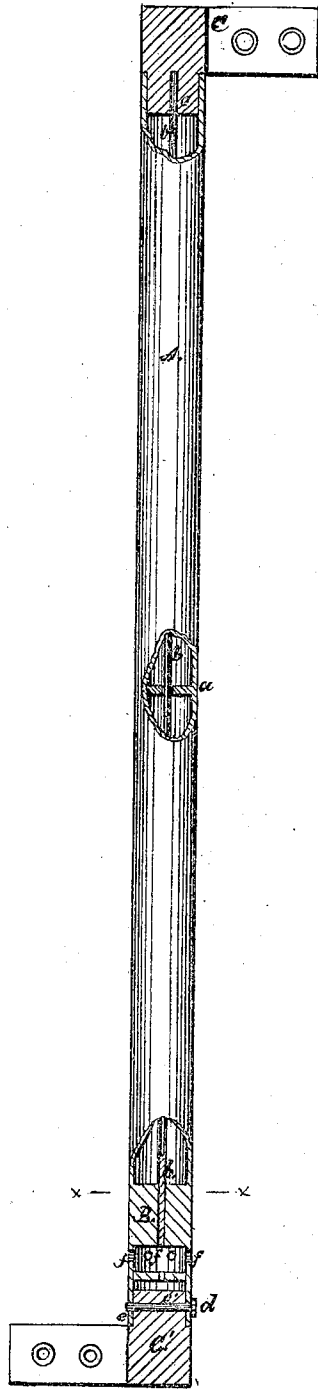


Fig. 2.

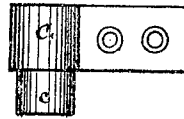


Fig. 3.

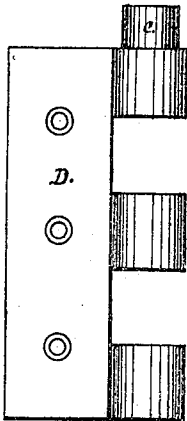


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

IRA BUCKMAN, JR., OF WILLIAMSBURG, NEW YORK.

## IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. 132,710, dated November 5, 1872.

*To all whom it may concern:*

Be it known that I, IRA BUCKMAN, JR., of Williamsburg, in the county of Kings and State of New York, have invented a certain new and useful Improvement in a System of Attaching Torsion Door-Springs, and securing the same within a tube or casing, to be adjusted by rotating the casing; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 represents a longitudinal view of the device, showing the top and bottom fastenings, the torsion-spring with its attachments, and the tube-casing with the means of adjusting the tension of the spring by rotating the case; Fig. 2 shows one of the stud-fastenings detached; Fig. 3 is a view of half of a butt-hinge, showing the stud projection on the knuckle on which the casing is fitted to operate; and Fig. 4 is an end view of a plug with its three-cornered aperture which is secured within the tube, and to which one end of the torsion-spring rod is attached.

My invention relates to torsion door-springs; and it consists in providing stud-brackets or projecting studs on one end of the knuckle of the hinge, on which a tube is fitted, which incases the torsion-rod, and has secured within its cavity a support and plug, in which one end of the spring is anchored, and is provided with two series of holes through it, and a pin, by which means the torsion of the spring is adjusted and held in position.

To enable others to make and use my invention I will describe it more in detail, referring to the drawing.

The tube A may be made of any suitable material and required size, and provided with a diaphragm, *a*, to guide and support the torsion-rod *b* in a central position within the tube; and also within the tube A is secured a plug, B, in which one end of the torsion-rod *b* is anchored. This plug may be located at any point within the tube to accommodate the length of the spring, one end of which is se-

cured in the projecting stud *c* of the bracket C, the tube A fitting on to the projecting stud *c* so that it will rotate freely as the door is opened or closed. At the opposite end of the tube A is a corresponding bracket, C', with projecting stud *c'* which has a hole through it in which to insert a pin, *d*, there being a series of holes, *e e*, through the tube corresponding with it; and also a second series of holes, *f f*, through the casing A in which to insert a lever to turn the tube to adjust the torsion of the spring *b*, which is securely held in position by the pin *d*.

In the spring as above described, when applied to doors already hung, the tube A should be placed centrally in a line with the pintles of the hinges; and when applied to hinges D constructed for the purpose, as shown in Fig. 3, the projecting stud *c* being made on the knuckle of the butt, the brackets C and C' are dispensed with, the tube or casing A extending the whole distance, filling all the space between the two hinges.

It will readily be seen that the advantage of my system of attaching torsion-springs to doors over the old method is, that the power applied and working of the spring is in a direct line, thus equalizing and distributing the strain upon every particle of the metal of the spring, the power being transmitted, without regard to the length of the spring, through the tube or casing from one butt or hinge to the other.

What I claim is—

The door-spring, consisting of the single inclosing-tube A and the torsion-spring *b*, inserted at one end in the stud *c* projecting from a butt or bracket, and at the other end in a plug, B, secured within the tube at any desired point, said tube fitting loosely at one end on said stud, and adjustable at the other end upon a similar stud by means of the pin *d* and holes *e* and *f*, for the purpose of giving the spring the required torsion, substantially as described.

Witnesses: IRA BUCKMAN, JR.

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