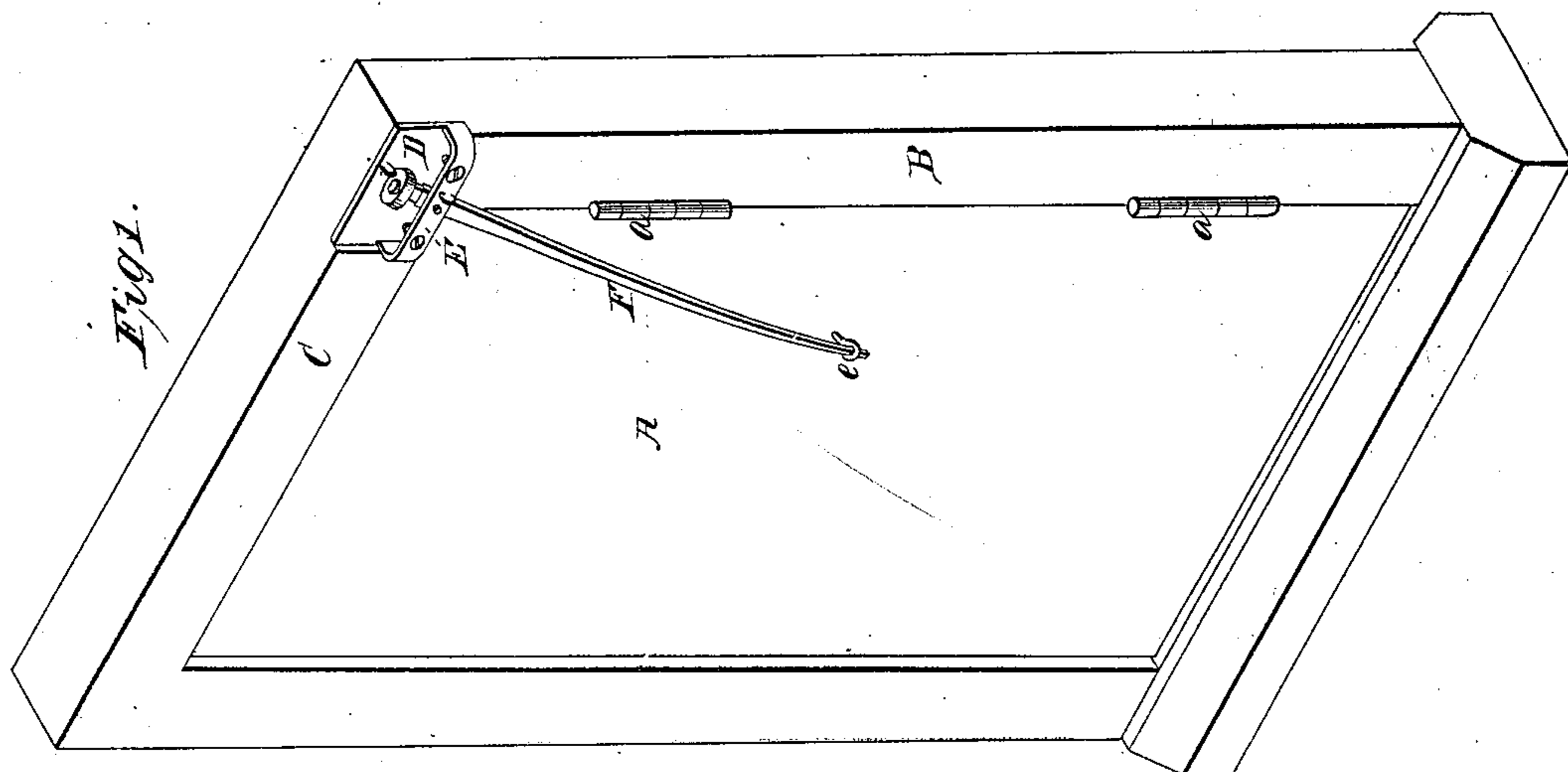
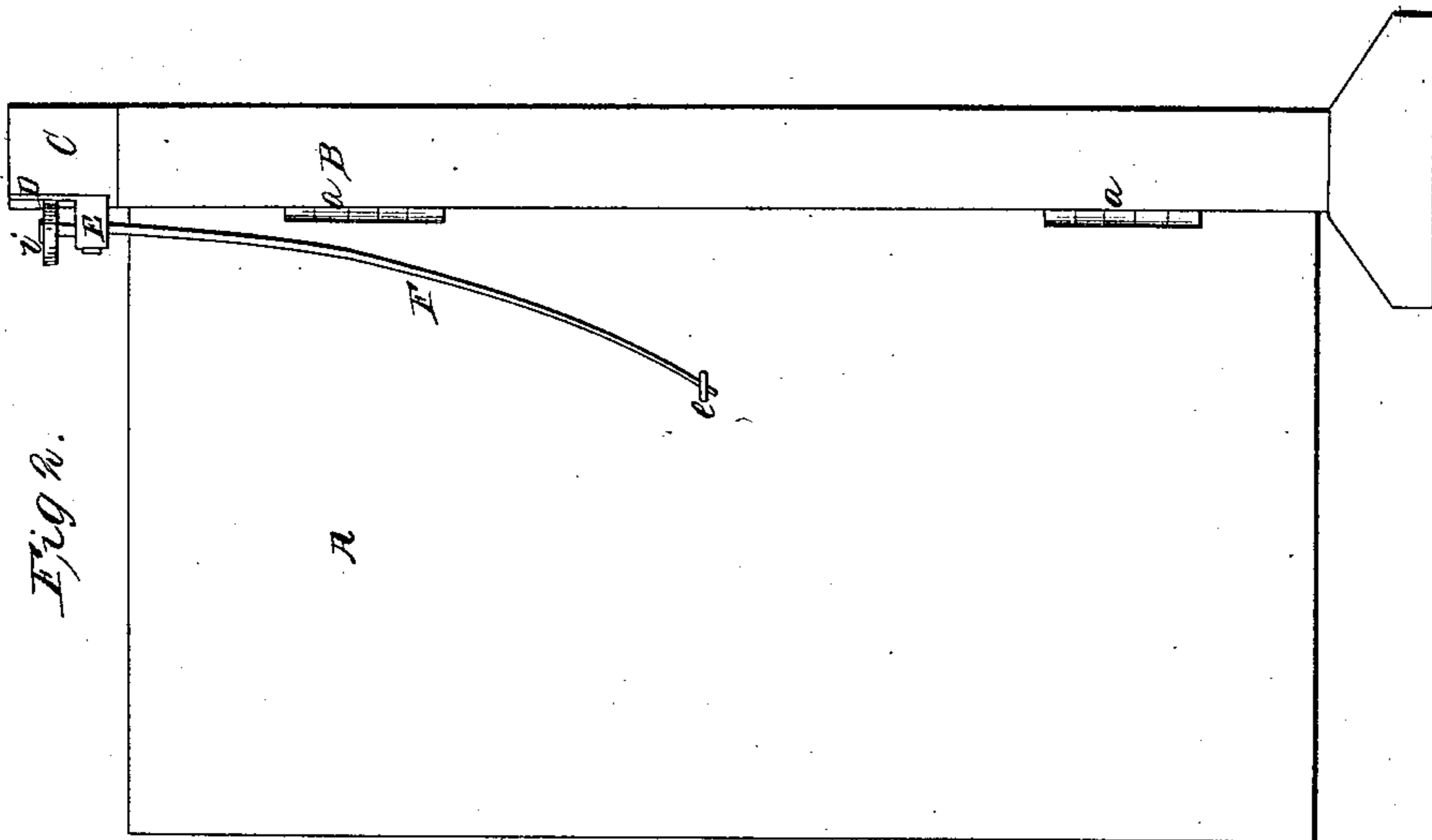


G. W. Griswold,

Door Spring.

N^o 14,691.

Patented Apr. 15, 1856.



UNITED STATES PATENT OFFICE.

GEORGE W. GRISWOLD, OF CARBONDALE, PENNSYLVANIA.

DOOR-SPRING.

Specification of Letters Patent No. 14,691, dated April 15, 1856.

To all whom it may concern:

Be it known that I, GEORGE W. GRISWOLD, of Carbondale, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Door-Springs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, which represents in perspective the spring as applied to a door.

There are two kinds of door springs in common use. In one kind, a coiled spring, or springs, is made to wind up on a barrel as the door is opened, and the recoil closes the door again; and as a modification of this plan, the spring or springs, instead of winding around a barrel or drum, is simply elongated in opening the door, and its contraction closes it. The second kind, may be classed with those, wherein rods or bars are used, one end of which is fastened to the door, and the other end to the door frame, so that when the door is opened there is a twist or torsion given to the rod or bar, and the recoil or untwisting of the rod or bar closes it again. Of the first kind, the expense of their construction, and the constantly weakening of the spring added to their liability to break, may be urged against their use. And of the latter kind, the torsion of the metal very soon converts the fiber of the metal into a crystallized state, or "fatigues" it, as it is termed, and causes it to soon break, and become useless.

While I have overcome the expense of the first kind of spring mentioned, and entirely obviated the injurious properties of the latter kind, I still preserve the desirable good qualities of each of the kinds, and at a greatly reduced expense, the simplicity of the construction, and the few pieces used very much lessening its liability to become disarranged.

The nature of my invention consists in making the arm, rod, or bar itself, which bears against the door, the spring, and so pivoting it, at a small distance from one end thereof, which end may be furnished with a friction roller, as that said arm, rod or bar, may turn on its pivot, aided by the friction roll, and thus prevent torsion of the metal, and its injurious consequences.

To enable others skilled in the art to make and use my invention, I will proceed to

describe the same with reference to the drawings.

A, represents a door, hung by ordinary butt hinges *a, a*, to the door frame B. On the top piece C, of the frame, and near a vertical line drawn through the axes of the hinges, is a metallic plate D, firmly secured to the top piece C. This plate D, has a staple or loop E, attached to, or held against it, by screws or otherwise; or, these two pieces may be made in one, if found desirable.

F, is an arm or flat bar, pivoted to the staple and plate at *c*, said arm passing through underneath the staple, and over the plate, so as to have metallic surfaces to move against, and be guided by. This arm F, is drawn out tapering, and should be made of steel, so as to embrace within itself, the spring against which the door is opening, and by which it is again closed; and said spring instead of being entirely straight, may bow outward slightly. The point of the arm F, passes into an eye *e*, fastened to the door, and should have some play in said eye; and the heel of the arm F, viz: that part of it projecting above or beyond the pivot *c*, may be furnished with a friction roll *i*, which bears upon the plate D, and runs on said plate, as the door is opened and closed. The arm F, also, to a certain extent, performs the function of a lever, as well as a spring—the lower part being the long arm, and the upper part the short arm thereof, while the pivot *c*, is the fulcrum, as will be explained.

When the door is closed as seen in Figure 1, the arm F is nearly straight. When it has swung around a quarter of a circle, the arm is curved as seen in Fig. 2, for the reason that the points of contact of the said arm, to the door, and frame, viz: the points *c*, and *e*, have slightly approached each other. In this position the arm F, is both a lever and spring—as a lever, holding the door in this position, and as a spring, ready the moment the door passes either way or side of the line drawn through its hinges, to close it, or throw it entirely open as the case may be. I have intimated that there is no torsion of the metal in my spring. I do not mean that, it is entirely exempt from torsion, but that there is no injurious twisting of the metal, and what does take place is at

intermediate points between those at which the door rests, so that when the door is at rest, either closed, half, or entirely open, at which points only the door would stand still, there is no torsion, and consequently no injury from it, to the arm.

I thus make a door spring, in every respect, as effective as the best ones in use, while its simplicity, and great cheapness, together with its entire freedom from the liability to break, must render its introduction into general use, entirely certain.

To relieve the spring F, from undue strain or tension when the door stands open, that portion of the plate D, upon which the roller $\frac{1}{2}$, presses under such circumstances, may be depressed or sunk, and the roller, as it runs

either way from that point, may run over slightly inclined planes, making each extremity of its path higher than in the center. 20

Having thus fully described the nature of my invention, and shown wherein it differs from those door springs, most like it in action—what I claim therein as new and desire to secure by Letters Patent is— 25

The arm F, with its attachments to the door and frame, when said arm serves the purpose of spring and lever, for closing, holding, or opening the door, substantially as herein described.

GEO. W. GRISWOLD.

Witnesses:

D. R. NORTON,
E. L. L. TRUEX.