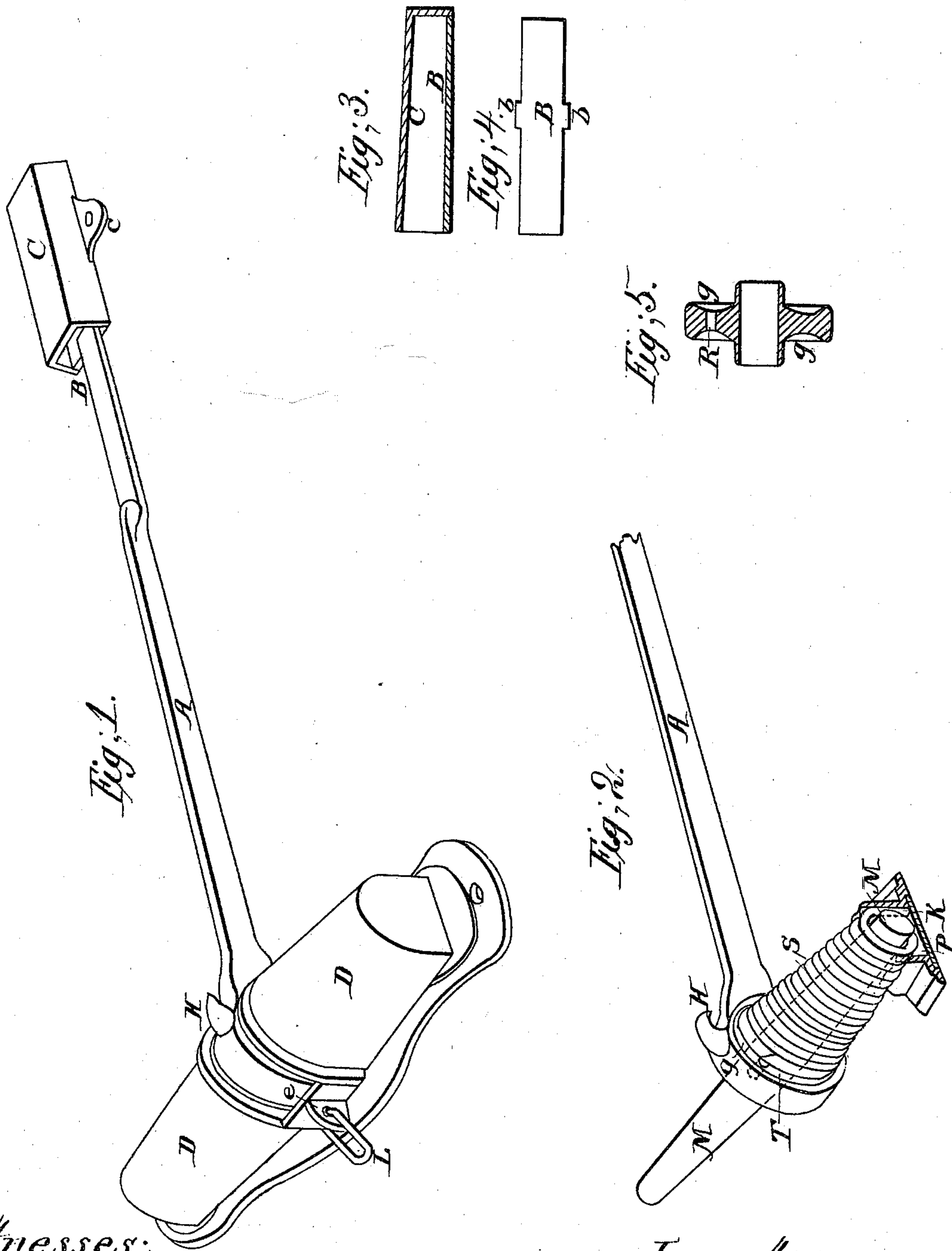


J. M. Connel,

Door Spring.

No. 86,815.

Patented Feb. 9. 1869.



Witnesses;
G. H. Smith.
E. R. Brown.

Inventor;

J. M. Connel

United States Patent Office.

JAMES M. CONNEL, OF NEWARK, OHIO.

Letters Patent No. 86,815, dated February 9, 1869.

IMPROVEMENT IN DOOR-SPRING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES M. CONNEL, of Newark, in the county of Licking, and State of Ohio, have invented a new and useful Door and Gate-Spring; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 represents a perspective view of my improved door and gate-spring.

Figure 2 represents the casing removed, showing the mandrel or core, and one of the spiral springs, which actuate the door-closing lever.

Figure 3 is a sectional view of the box, or cap, in which one end of the door-closing lever operates.

Figure 4 is a view of the sliding plate, hereinafter referred to.

The nature of my invention consists in the peculiar construction and operation of the door-closing lever, the peculiar manner of attaching the springs thereto, the peculiar construction of the springs themselves, and the peculiar arrangement of the device for holding the door or gate open when desired.

To enable those skilled in the art to which my invention appertains, to make and use the same, I will proceed to describe its construction and operation.

In the drawings—

A represents a lever, or arm, which may be made of either cast or malleable iron, the small end of which slides on a plate, B, inside of a box, or cap, C.

The cap C is screwed to the door, or gate, by means of lugs *c*, and prevents any displacement of the small end of the arm.

The sliding plate B is formed with projections, *b*, which fit in corresponding cavities in the lugs *c*, by which means the plate is held firmly in place.

The large end of the arm A terminates in a nearly circular form, with an annular groove, *g*, on each side, surrounding an opening, through which passes a core or mandrel, M, around which are spiral springs S.

The inner end of the wire composing the spring S, is bent at a right angle, so as to form a tenon, T, corresponding in form with a mortise, R, in the annular groove *g*.

Instead of the mortise R, there may be projections, with which the tenon T may engage.

The outer end of the wire composing the spring S projects tangentially from the coil, a sufficient length to engage with a base-plate, P, which furnishes a bearing-surface for said tangential end.

The base-plate P is riveted to the bottom of the

casing D, which is screwed to the side of the door-jamb or gate-post.

Near the large end of the arm A, is a hook, H, formed in one piece with the arm.

The casing D has cast on it a lug, *e*, to which is attached a link, L, which engages with the hook H, and holds the door or gate open when desired.

When in position for use, the springs S are arranged upon the core, or mandrel, M, one on each side of the large end of the arm A, the tenon T being inserted in the mortise R, the inner end of the spring S resting in the annular groove *g*, the tangential end K bearing on the base-plate P, and the outer end of the spring S resting against the outer end of the casing D.

This peculiar arrangement has a tendency to prevent any lateral or vibrating motion of the springs, and to force them securely to their seats in the annular grooves.

I do not confine myself to the use of wire in the construction of my springs, nor to the peculiar manner above described for attaching them to the arm. The large end of the arm may be formed with projections on each side, to which the inner ends of the springs may be attached, and the springs themselves may be volute springs, constructed of strap-steel.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The arm A, constructed of cast or malleable iron, with the annular recesses *g*, hook H, and mortises R, or their equivalents, for attaching the springs, substantially as shown and described.

2. The combination of the tangential end K, base-plate P, tenon T, and mortise R, on the arm A, substantially as shown and described.

3. The sliding plate B, in combination with the cap C, constructed and operating substantially as set forth, and for the purpose specified.

4. The combination of the link L and hook H, substantially as shown, and for the purpose specified.

5. The casing D, when constructed with the lug *e* cast thereon, in combination with the link L, hook H, and arm A, substantially as shown, and for the purpose specified.

6. The combination of the arm A, springs S, mandrel M, and casing D, constructed and operating as herein shown and described.

J. M. CONNEL.

Witnesses:

E. R. BROWN,
G. A. O. SMITH.