O. SEELY.
Door-Spring.

No. 204,382. Patented May 28, 1878.

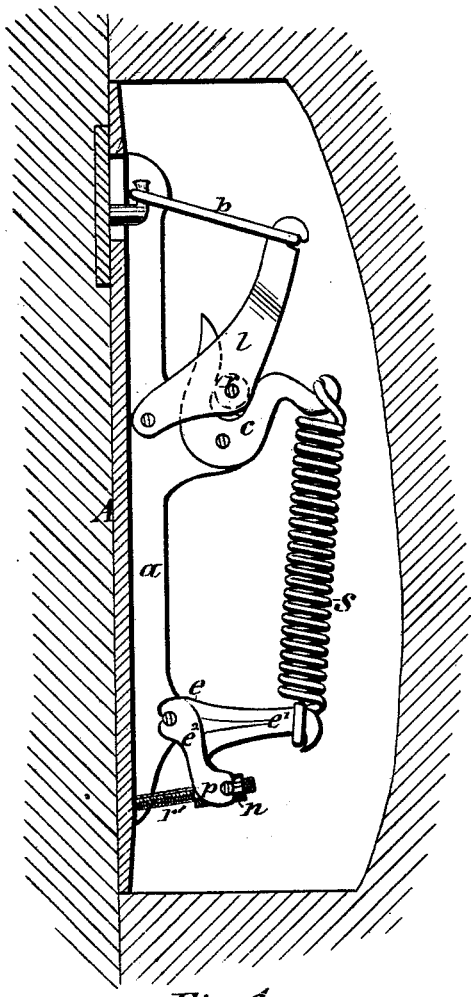

Fig. 1

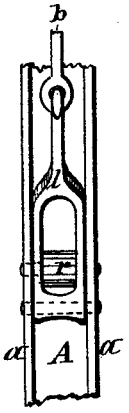

Fig. 2

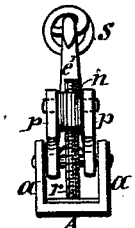

Fig. 3

WITNESSES:
J. C. A. de Lima
Wm Gilfillan

INVENTOR:
Obadiah Seely
per E. Laass Atty.

UNITED STATES PATENT OFFICE.

OBADIAH SEELY, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **204,382**, dated May 28, 1878; application filed April 24, 1877.

To all whom it may concern:

Be it known that I, OBADIAH SEELY, of Syracuse, in the county of Onondaga and State of New York, have invented new and useful Improvements in Door-Springs, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

This invention relates to improvements in that class of door-springs in which the two opposing parts of the mechanism are countersunk or boxed, respectively, in the hinged edge of the door and in the adjacent door-jamb, and which exert the greatest force when the door is closed, and are provided with means for adjusting the tension of the spring.

The object of this invention is to reduce friction of the integral parts of the mechanism and render the apparatus more durable and effective generally; and it consists in a novel construction and combination of a two-armed or V-shaped cam pivoted near its center to the hanger, and connected at the end of one arm with a spring, and bearing with the other arm or cam proper against a friction-roller pivoted to the main lever, which is connected with the opposing part of the apparatus, and pivoted at its lower extremity in such position relative to the cam as to receive the greatest force when the door is closed.

It also consists in a novel arrangement of the device for adjusting the tension of the spring, by which friction and liability of binding in its operation are obviated, and the object is accomplished more effectually and readily than by the usual means heretofore employed, all as hereinafter more fully described and claimed.

The accompanying drawings fully illustrate my invention.

Figure 1 is a sectional side view taken immediately back of one of the side ribs of the hanger or so-called "supporting-plate," and in front of the mechanism. Fig. 2 is a top view of the main lever detached, and Fig. 3 an end view of the device for adjusting the tension of the spring.

Similar letters of reference indicate corresponding parts.

A is the ordinary metal hanger or so-called "supporting-plate," provided with vertical flanges or ribs *a a*, to which the mechanism is connected. *c* is a two-armed or V-shaped cam, pivoted at or near its center to the ribs *a*. One of its arms is connected at its extremity with the spiral spring *s*, and the other arm, constituting the cam proper, bears with its inner face against a friction-roller, *r*, which is pivoted to the lever *l*. The latter is connected at the upper end with the usual coupling-bar *b*, and pivoted at its lower extremity to the ribs *a a* aforesaid in such relative position as to bring its friction-roller *r* nearest the fulcrum of the cam *c* when the door is closed and the spring at rest, as represented in Fig. 1 of the drawings, thus obtaining the greatest purchase upon the lever when the door is closed.

In swinging the door on its hinges in either direction the free end of the lever *l* is drawn toward the face or bed of the hanger, and its friction-roller *r* simultaneously caused to traverse toward the free end of the cam, thereby increasing its distance from the fulcrum of the latter and diminishing the purchase of the cam upon the lever.

Although the aforesaid devices are very effectual in conjunction with the spiral spring *s*, I do not wish to confine myself to such exact combination and arrangement, as it is applicable to springs of other construction, and admits of certain variations and modifications in that respect. The same object has been partially attained by a friction-roller connected with the end of an arm extended from a coil-spring and traversing in a slot in the lever; but, since the lever in this case must necessarily form an angle of less than ninety degrees with the arm of the spring in order to allow the lever to be drawn toward the face of the hanger, the length of the arm is greater than the distance from its fulcrum to the pivot of the lever. Consequently the spring is deprived of its force too rapidly when the door is opened. Neither does such construction afford the same amount of power when the door is closed.

e is the adjustable spring-confining hook, in the form of a knee or elbow lever, pivoted at the junction of its two limbs to the ribs *a a* of the hanger, in such relative position as to cause one limb, e^1, to stand nearly horizontal, and the other, e^2, in a downward direction. To the free end of the limb e^1 is confined the end

of the spring *s*. The downward-projecting limb e^2 is furcated at the end to form two prongs, *p p*, in which is supported a nut, *n*, by trunnions on the sides of the latter.

r' is a set-screw passing through the face of the hanger, and having a suitable head for manipulation on the exterior end, and engaging with its inner extremity the nut *n*. By turning the screw in one direction the limb e^2 of the elbow-lever *e* is drawn toward the face of the hanger A, causing the limb e^1 to draw upon and tighten the spring *s*, and a reversed movement of the screw relieves the spring *s* of the aforesaid strain and reduces its operative power.

The superiority of the construction of this adjusting device over those usually employed is obvious, since the elbow-lever affords greater effective power than a direct application of the set-screw to the spring-confining hook or plate, and by pivoting the said lever in the manner described the friction resultant from sliding bearings and liability of binding and jamming is obviated.

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

1. The two-armed or V-shaped cam *c*, pivoted at or near its center to the hanger A, and having one arm connected with the spring and the other arm or cam proper engaging the coupling-lever *l*, constructed substantially as described and shown, for the purpose set forth.

2. The combination and arrangement of the two-armed or V-shaped cam *c*, pivoted at or near its center to the hanger A and having one arm connected with the spring, and the lever *l*, having pivoted to its body the friction-roller *r*, and pivoted at its lower extremity to the hanger A in such relative position as to bring the said friction-roller, when the spring is at rest, to its nearest position to the fulcrum of the cam, constructed and arranged substantially in the manner and for the purpose specified.

3. The knee or elbow lever *e*, pivoted at the junction of its two limbs e^1 e^2 to the hanger A, connected at the end of limb e^1 with the end of spring *s*, and by limb e^2 with a set-screw, *r'*, as and for the purpose set forth and described.

4. The knee *e*, having the limb e^2, provided with prongs *p p*, and the nut *n*, having trunnions on its sides, and supported thereby in the said prongs, constructed substantially in the manner and for the purpose specified and shown.

In witness whereof I have signed my name and affixed my seal in the presence of two attesting witnesses at Syracuse, in the county of Onondaga and State of New York.

OBADIAH SEELY. [L. S.]

Witnesses:
WM. GILFILLAN,
E. LAASS.