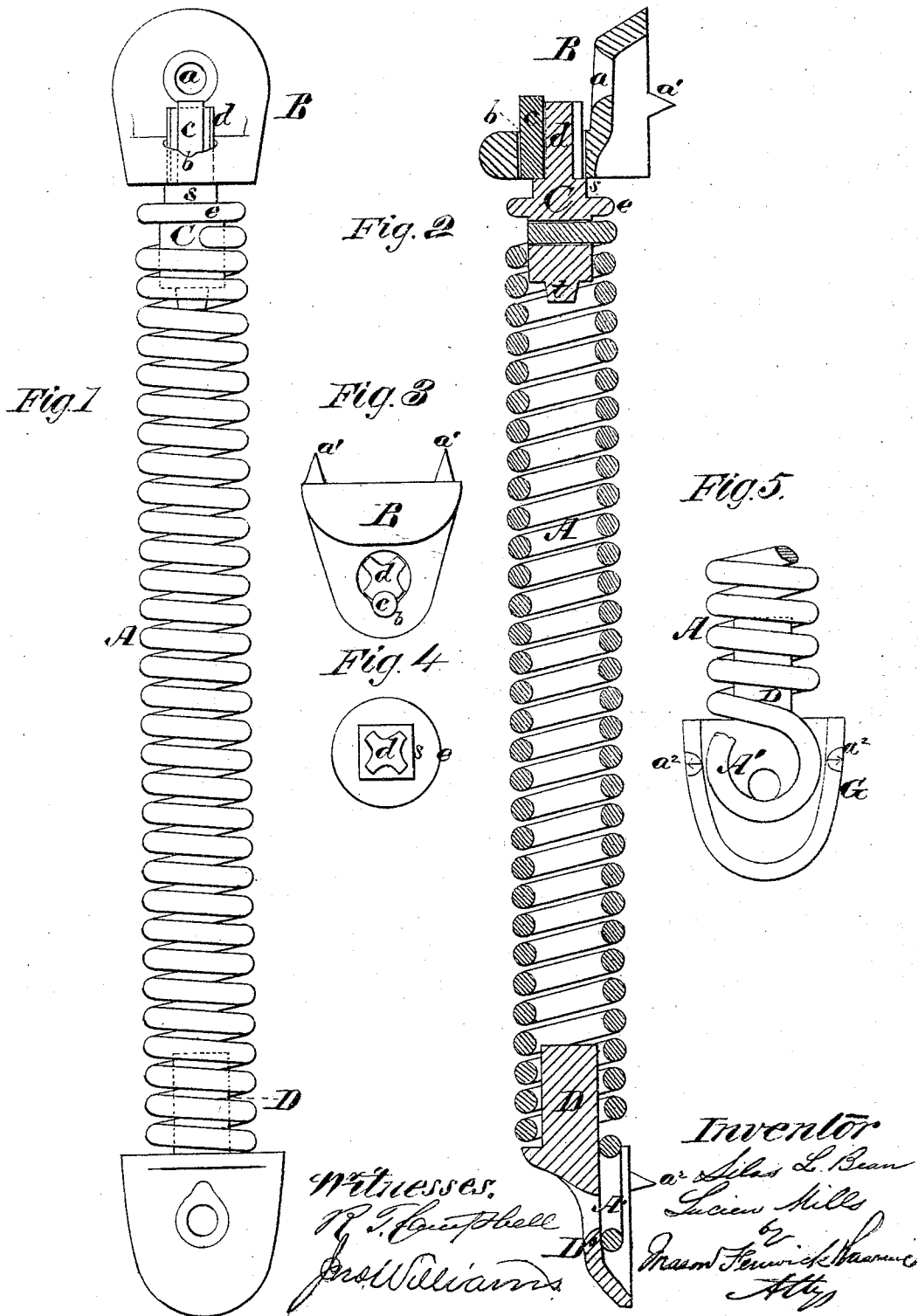


S. L. BEAN & L. MILLS.

Door and Gate Springs.

No. 136,482.

Patented March 4, 1873.



UNITED STATES PATENT OFFICE.

SILAS L. BEAN AND LUCIEN MILLS, OF GALESBURG, ILLINOIS, ASSIGNORS
TO BROWN, HARRIS & HOPKINS, OF NEW YORK, N. Y.

IMPROVEMENT IN DOOR AND GATE SPRINGS.

Specification forming part of Letters Patent No. 136,482, dated March 4, 1873.

To all whom it may concern:

Be it known that we, SILAS L. BEAN and LUCIEN MILLS, of Galesburg, in the county of Knox and State of Illinois, have invented a new and Improved Door and Gate Spring; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a front view of the spring complete. Fig. 2 is a section taken centrally through the spring. Fig. 3 is a top view of the upper end of the spring. Fig. 4 is a top view of the same without the upper bracket. Fig. 5 is a back view of the lower end of the spring and its foot-bracket.

Similar letters of reference indicate corresponding parts in the several figures.

The object of our invention is, first, to provide a plug for coiled door and gate springs which will permit of the wire which forms the spring being coiled directly upon it, and the spring furnished to the trade with such plug as a part of it; second, to provide an upper and lower shoulder in such relation to the adjusting-nut of a spring-plug that a wrench may be used without liability of its slipping off the nut while the spring is being adjusted; third, to combine in a plug, which is adapted for use with springs which are held to their adjustment by a vertical pin set in vertical channels or grooves, the several features of construction hereinafter specified.

The following description of our invention will enable others skilled in the art to understand it.

In the accompanying drawing, A represents a helical spring, which may be made of any required length and strength. Into the upper end of this spring a plug, C, is inserted and connected permanently by passing a portion of the spring-wire through the plug, as shown in Fig. 2. This attachment of the spring to the plug C is made as follows: The plug is secured by its grooved end *d* into a rotary lathe-chuck, and a cylindrical rod, which serves as a core, is connected by one end to a prismatic tenon, *t*, on the inner end of the plug, which rod is properly centered and held at its opposite end. A wire of the proper gage and

length is then inserted through the plug C, and coiled upon the core-rod, thus forming the spring A with the plug attached permanently to it. In addition to the cylindrical portion of the plug which enters the upper end of the spring A, a collar, *e*, an adjusting-nut, *s*, and a longitudinally-grooved portion, *d*, are presented, all of which constitute our improved plug. B represents the top or head bracket of the spring, which is applied to the frame of a door or to the post of a gate, as the case may be, and which consists of a right-angular piece of metal, perforated for a screw at *a*, spurred at *a*¹, and also perforated and channeled through its overhanging part. This bracket is screwed fast to a door-frame or gate-post at the proper place for applying the spring, after which the grooved portion *d* of the plug C is inserted through its overhanging portion, and the lower end of the spring secured to the door or gate by a foot-piece, D'. The spring, when thus applied, will have a slight inclination or obliquity, and when the gate or door is opened the spring will be coiled about its longitudinal axis. The portion *d* of plug C has a number of grooves formed longitudinally into it, either one of which, when brought opposite a notch, *b*, in the channeled portion of the bracket, forms, with this notch, a receptacle for a key-pin, *c*, which stands vertically and prevents the plug C from turning in the bracket B. The foot-bracket D' has a plug or tenon, D, formed on it, which enters the lower end of the spring, as shown in Figs. 1 and 2. This bracket is also perforated and provided with spurs *a*², like the top bracket B. Its posterior side is recessed for receiving the lower looped end A' of the spring A, as shown in Figs. 2 and 5. By thus looping the spring it is prevented from turning around the plug D of the lower bracket.

It will be seen from the above description that the pin *c* prevents the plug C from turning in the bracket B, and that by removing this pin the plug C is free to turn, and can be adjusted by applying a wrench on the nut *s*.

We are aware that prior to our invention door-springs of the kind herein described have been used wherein movable pins and caps were employed for allowing the springs to be set up, or to be made weaker in their action.

These contrivances we do not claim, broadly. We have devised a way of constructing the plugs of such springs, and especially of those employing a vertical pin, which kind we prefer to adopt, as the pin will not be liable to jar out of place, owing to its position, and which, by being placed in one of the grooves cast in the plug C *d*, and the groove cast in the bracket B of the spring, is wholly relieved from any lateral strain having a tendency to cause it to bend or break. This plan greatly simplifies and cheapens the construction, and gives the spring advantages which are not possessed by any other spring. The portion *d* has four grooves in it; but it is obvious that any desired number of grooves may be made into it.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A coiled door or gate spring with its plug

constructed with a prismatic terminus, *t*, which permits it (the plug) to be attached to a removable mandrel during the coiling of the wire into a spring, substantially as described.

2. The collar *e*, in combination with the nut *s*, and the shoulder formed by the bracket B, whereby the spring described can be adjusted by a wrench without any liability of the wrench slipping off the nut by an upward or downward movement.

3. The plug C, inserted into the upper end of the spring, and made with a prismatic terminus, *t*, with a collar, *e*, a nut, *s*, and a channeled stem, *d*, all substantially as and for the purpose herein described.

SILAS L. BEAN.
LUCIEN MILLS.

Witnesses:

WM. APGAR,
WM. W. HARRIS.