J. Sargent,

Permutation Lock.

No. 62,446. Patented Feb. 26, 1867.

Fig. 1.

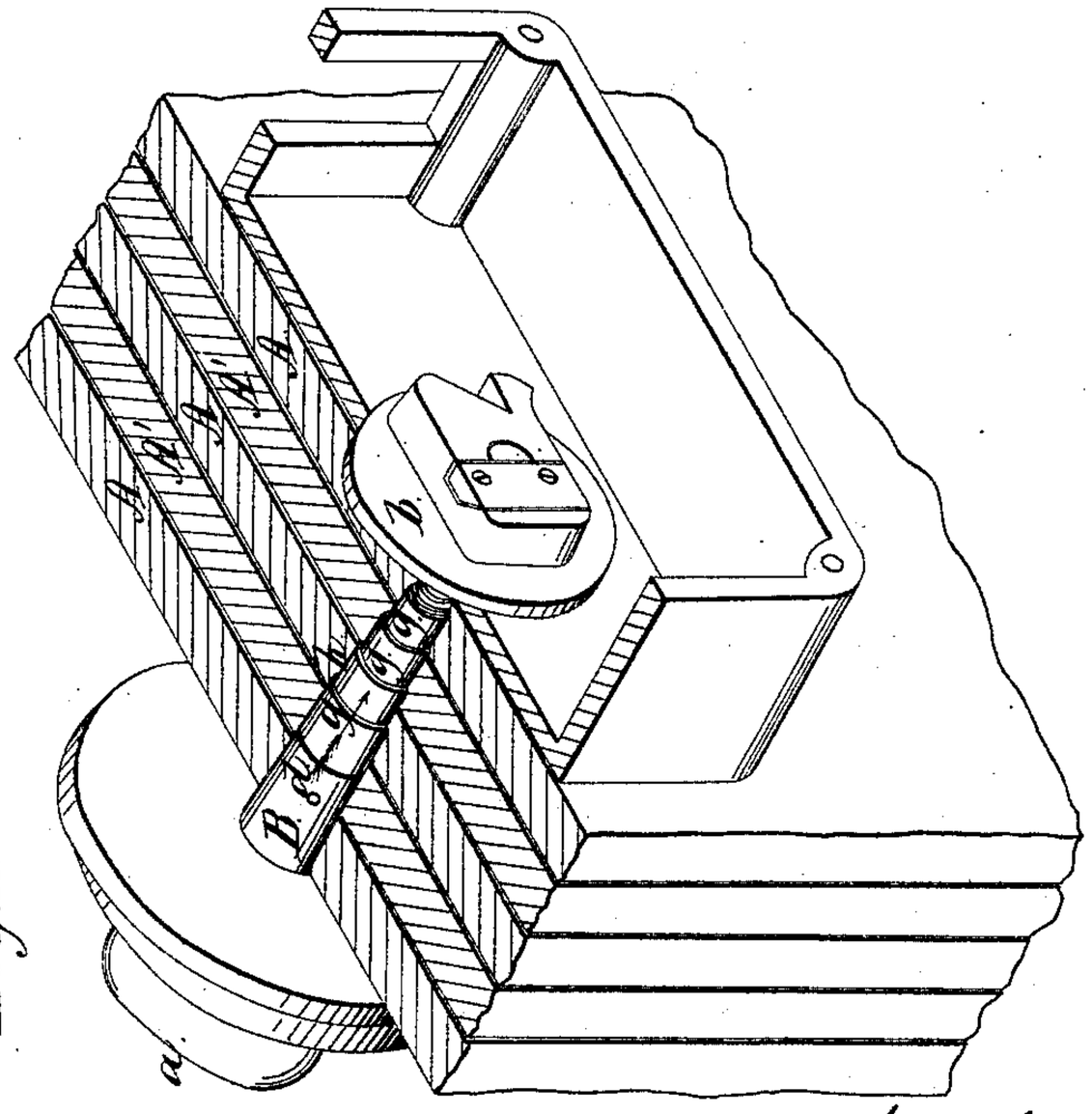
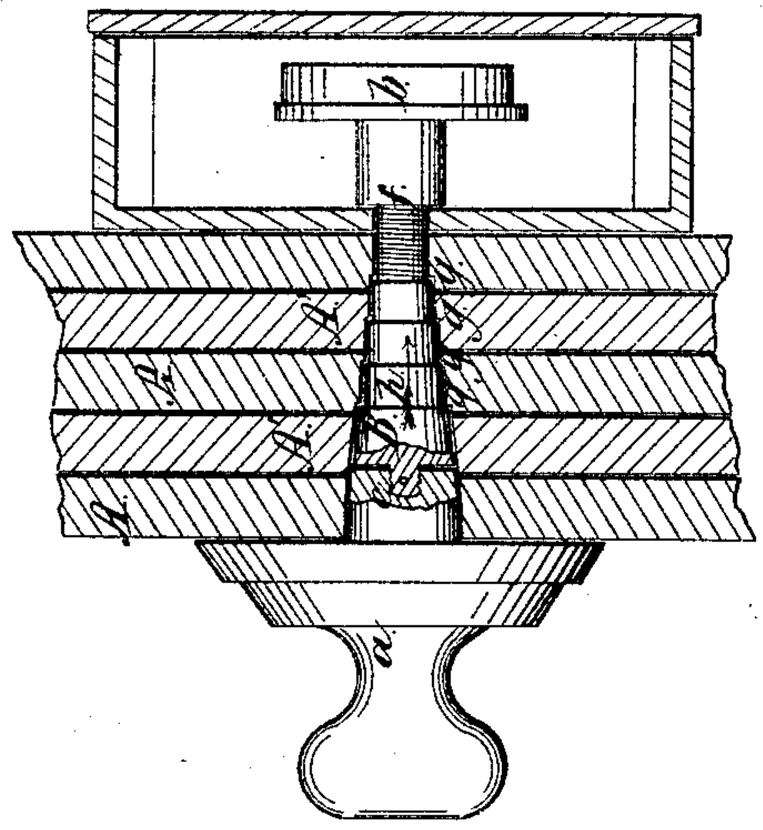


Fig. 2.



Witnesses.

Chas. F. Spencer

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Inventor:

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By J. Fraser & Co., Attys.

United States Patent Office.

JAMES SARGENT, OF ROCHESTER, NEW YORK.

Letters Patent No. 62,446, *dated February* 26, 1867.

IMPROVEMENT IN THE SPINDLES OF SAFE-LOCKS.

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 SARGENT, of Rochester, in the county of Monroe, and State of New York, have invented a certain new and useful Improvement in Spindles or Shafts for Operating the Locks and Bolt-Works in Safe-Doors; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a perspective view of a fragment of a safe-door, with my improved spindle applied thereto.

Figure 2, a vertical section of the same.

Like letters of reference indicate corresponding parts in both figures.

My invention consists in a conical spindle, having a series of steps or offsets forming cutting edges, situated in the door of a safe, and so arranged that, while a single abrupt shoulder is avoided, the aggregate of steps will afford the resistance of such shoulder, while they are so graduated and distributed that the spindle will adhere and hold firmly under concussion without rebounding, as hereinafter set forth.

As represented in the drawing, A A′ are the alternate plates of iron and steel constituting the thickness of a burglar-proof safe-door. The spindle B is inserted in this plating, having a knob, *a*, outside, by which it is operated, and a cam, *b*, inside the lock, for operating the lock mechanism. The knob is connected with the spindle, a little distance within the plating, by a small screw, *c*, having a rivet, *d;* but this connection is made of less strength than at the shoulder *f* within, so that if great strain is applied at the knob it will separate from the spindle below the surface of the plating, so that no firm hold can be obtained on the spindle to draw it out. Inside the joint *e* the spindle is made of conical or tapering form inward, as shown at *h*, and this cone is formed into a series of steps or offsets, *g g*, of gradually decreasing diameter, as shown. This taper rests closely in a socket in the plating made to fit. A spindle, having a square or abrupt shoulder to prevent being driven in, has been in use, situated in a conical plug inserted in a socket in the door. A simple, plain, conical or tapered spindle has also before been employed by myself, but by no other to my knowledge. Both these forms have objections. Where the square or abrupt shoulder is employed the blows of a sledge applied thereto cannot drive it in; but since it cannot bind or adhere in its socket under the concussion, the rebound is very intense, and the tendency is to break the spindle just back of the shoulder, when it can be withdrawn, and the remaining part can be easily driven in; or if this is not the case, the rebound will strain upon the mechanism of the lock and disarrange it. The blows from the sledge also come upon the spindle angularly, so as to increase the liability of breakage. Where the plain, cone, or taper is employed, no positive shoulder is presented; but the incline is so smooth and gradual, that the powerful blows of the sledge will finally drive it through by expanding the socket in which it rests. By the employment of the steps or offsets *g g*, in connection with the cone *h*, I am enabled to obviate these difficulties; for while the aggregate of the small shoulders presented by the steps amount to the full abrupt shoulder, their separation and arrangement in the conical form enable them to hold or bind in the socket without rebound, and at the same time each offset forms a cutting edge that strikes into the metal and produces a positive resistance. In this manner I combine the advantage of the resistance of the shoulder with the binding or adhering of the cone, which effect I am not aware has ever before been produced.

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

The combination of the series of steps or offsets *g g* with the conical spindle B, when applied in safes, substantially as and for the purpose herein set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAS. SARGENT.

Witnesses:

R. F. OSGOOD,

J. A. DAVIS.