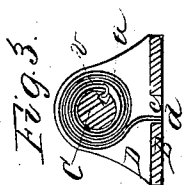
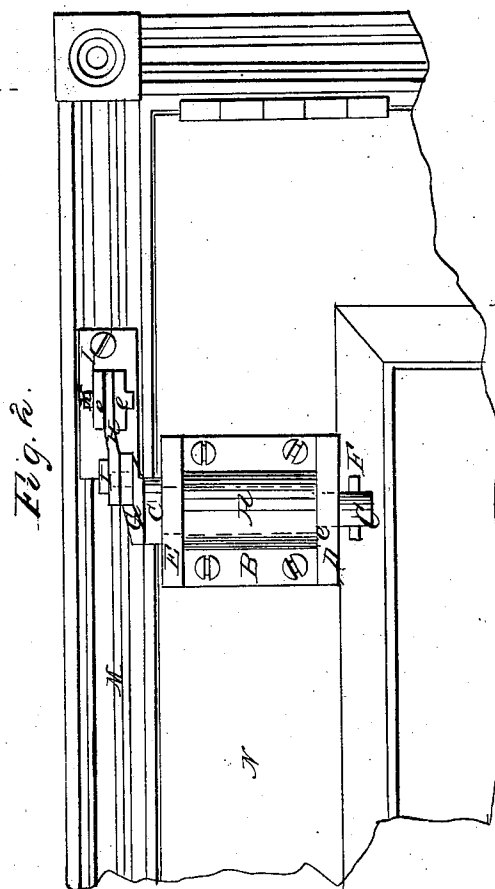
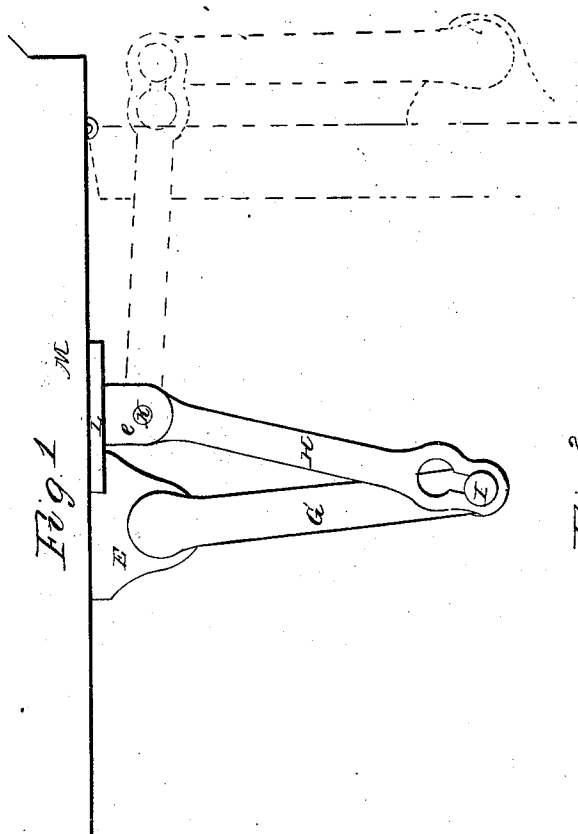


S. Sawyer,
Door Spring.
N^o 1938. Patented Jan. 21, 1841.



UNITED STATES PATENT OFFICE.

SAMUEL SAWYER, OF BOSTON, MASSACHUSETTS.

DOOR-SPRING.

Specification of Letters Patent No. 1,938, dated January 21, 1841.

To all whom it may concern:

Be it known that I, SAMUEL SAWYER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new, useful, and Improved Door-Spring, and that the following is a full and exact description of the same, which taken in connection with the accompanying drawings hereinafter referred to compose my specification, setting forth and exhibiting the principles of construction of my improvement by which it may be distinguished from other inventions of a like character, and such parts or combinations therein I claim and for which I solicit an exclusive property to be secured to me for fourteen years by Letters Patent.

Figure 1 represents a top view, Fig. 2, a front elevation, and Fig. 3, a transverse horizontal section of my door spring.

The peculiar object of the same, is, by the arrangement of the several parts, to so apply the expansive force of the spring to the door, that it shall be exerted thereon with an increased force to close the same, as the door advances forward, from a position open at an angle of ninety degrees or more, to its situation when closed. Other door springs generally act on a principle exactly the reverse of the above, and usually fail, especially after being some time in use), to shut the door with a force sufficient to close the latch.

My spring, besides possessing the above advantages, has the merit of simplicity and cheapness, two very essential requisites. It is constructed as follows: A, Figs. 2, 3, represents a spring formed of a thin plate of steel or other suitable material, coiled around into a spiral shape, and having one of its ends, viz. *d*, (see Fig. 3) bent to about a right angle, and confined to the door N, by being inserted in a groove C cut in the rear of the plate B, which is screwed to the door at top and supports the spring during its operations. The other end of the spring, or *a*, is also similarly bent at right angles and inserted in a channel or groove *b* formed lengthwise in the surface of an upright turning pin C, seen in section in Fig. 3, and by dotted lines in Fig. 2. There may be several grooves or channels like *b*, scored or cut in the turning pin or shaft so as to adjust the power of the spring by inserting the end of the same in either at pleasure. The spring A is placed between two shelves D, E, projecting perpendicu-

larly from the plate B, and rests on the lower shelf D as seen in Fig. 2. The turning pin, or shaft C, passes through the shelf E and has a shoulder *e* formed on its lower end, by which it is supported on the upper surface of the shelf D. The pin also passes through the shelf D and is secured from rising upward by a pin F, inserted in a hole through the foot of the same, just below the lower face of the shelf D, or by any other suitable contrivance. An arm G, Figs. 1 and 2, is attached to the top of the pin C projecting therefrom at right angles. The other extremity of the arm G is jointed to a bar H, the end of the latter resting on the top of that of the former and being held down on the same, by and freely turning on a pin I. The other end of the bar H is inserted between two ears or projections *e*, *f* from a plate L (secured to the door frame M above the plate B and somewhat aside, or so that the arm G and bar H shall make an acute angle with each other when the door is closed as represented in Figs. 1, and 2), and turns on a pin K passing through the projections and the said bar.

The above constitutes the whole of the apparatus, the operation of which is as follows. Fig. 1, shows the position of the parts when the door N is closed; the dotted lines therein also representing the door open at an angle of ninety degrees. Now, as the door is opened the pin I, in the end of the arm G, bears laterally against the end of the bar H and presses the same around on the pin K, into the position denoted by the dotted lines in Fig. 1, the arm G at the same time, turning about the upright pin or shaft C and drawing up or contracting the spring A. When the force which opens the door is removed, the expansion of the spring A acting on the shaft C and arm G, will close the same with a force gradually increasing as the door proceeds toward the frame. Although the power of the spring decreases as it becomes more expanded—yet the peculiar arrangement of the arm G and bar H will cause the action or pressure thereof tending to close the door, to be continually increasing thereon as herein before mentioned.

Having thus described my improved door spring, I shall claim,

Constructing the same with a turning shaft or pin C connected to, and operated by a spring A, applied to the door in man-

ner above mentioned; said shaft C having
an arm G projecting therefrom, and jointed
at one end to the extremity of a bar H, the
said bar H at its other end being connected
5 to the door frame by a suitable joint or pin
K, on which it may turn, the whole being
arranged and operating substantially as
herein above set forth.

In testimony that the above is a true de-

scription of my said invention and improve- 10
ment I have hereto set my signature this
twenty eighth day of November in the year
of our Lord, eighteen hundred and forty.

SAMUEL SAWYER.

Witnesses:

R. H EDDY,
EZRA LINCOLN, Jr.