

A. ACKER.
 SPRING BUTT HINGE.

No. 29,212.

Patented July 17, 1860

Fig:1.

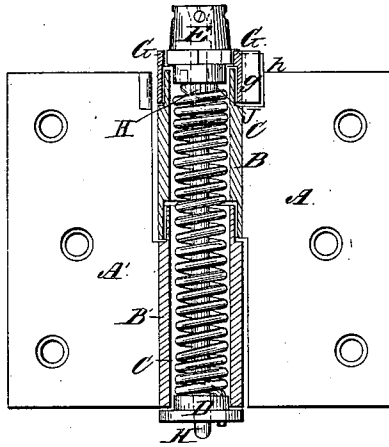


Fig:2.

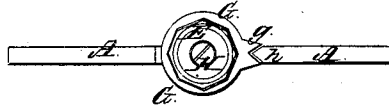


Fig:3.



Fig:4.

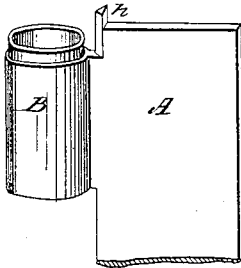


Fig:5.



Witnesses:

Edward H. Hays
 Aug. 3, 1860

Inventor:

Alvin J. Hays

UNITED STATES PATENT OFFICE.

ABRAM ACKER, OF RAMAPO, NEW YORK, ASSIGNOR TO J. S. WANNMAKER & CO., OF
SAME PLACE.

SPRING-HINGE.

Specification forming part of Letters Patent No. 29,212, dated July 17, 1860; Reissued June 23,
1874, No. 5,932.

To all whom it may concern:

Be it known that I, ABRAM ACKER, of Ramapo, in the county of Rockland and State of New York, have invented a new and
5 Improved Spring Butt-Hinge; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification,
10 in which—

Figure 1 represents a diametrical section through the eyes of the hinge, showing the parts contained therein, and the connection of the spring with the head and foot caps.
15 Fig. 2 is a top view of a complete hinge. Fig. 3 shows the helical spring and the head and foot caps in detail. Fig. 4 is a perspective view of one of the leaves and eye of the hinge, and that portion to which the head cap is attached by a peculiar shaped ring shown in Fig. 5 in a perspective view.
20 Similar letters of reference indicate corresponding parts in all the figures.

This invention is an improvement in that
25 class of hinges commonly called butt hinges, whereby the leaves of the hinge and consequently the door, shutter or gate to which they are applied, are acted upon by a spring that is inclosed within the eyes of the hinge,
30 and the spring is capable of being adjusted so as to act with greater or less force upon the leaves either to keep them closed by its recoil. The hinge is so constructed with a view to these objects that the adjustments
35 may be effected with the hinge attached to a door, gate or shutter with very little labor or loss of time, while at the same time the parts can be made durable and not liable to get deranged under very hard usage.

To effect these ends my invention and improvement consists in constructing the eyes of a butt hinge somewhat larger than they are at present made for ordinary hinges, and with a sleeve joint to keep them in their
45 proper place; and in introducing within these tubular eyes, when the two leaves forming the hinge are brought together a helical spring, which is connected at the bottom end to a cap that interlocks with the
50 eye of one leaf, and at the top, and to a hexagonal or octagonal nut on which is placed a movable ring of a novel construction, that is connected by a V-groove and tenon to the

other leaf, or that leaf which is screwed to the swinging door, gate or shutter; the
55 whole are then secured in place by a pintle that passes through the axis of the hinge: all in the manner and for the purposes hereinafter described.

To enable those skilled in the art to fully
60 understand my invention I will proceed to describe its construction and operation.

In the drawings A A', represent the eaves of the hinge, and B, B', are the eyes of the same, cast quite large in diameter with male
65 and female portions on their abutting ends,—as shown in Fig. 1,—which serve to keep their ends in their proper place during the movements of the portions A, B. The bore of the tubular eyes B, B', is made of
70 sufficient diameter to admit a strong helical spring C, the ends of the wire of which are bent out straight and pass into holes in the top and bottom portions D, E, respectively, and connect the spring C, with each of these
75 portions D, E. The cap D, is cast with a short neck and two lugs *a, a*, which latter fit into corresponding recesses cast in the bottom of the eye B', and prevent the cap D, and consequently the spring C, from turning
80 at this point. The top portion E, is intended to turn, it being furnished only with a short neck that fits into the end of eye B, for the purpose of keeping it steady and in place on the eye. This upper cap E, is cast
85 with a nut and cylindrical head, that is perforated for the purpose hereinafter to be described, and over this head, and on the nut portion fits a ring G,—shown in Figs. 1 and
90 5,—from the periphery of which extends a projection *g*, with a V-groove cut vertically in it, as clearly represented in Fig. 5, into which fits a V-shaped tenon *h*, that projects up from the top of the leaf. Thus the spring is attached to the portion E, which
95 itself is attached to the swinging leaf B, by the removable ring G.

H is the pintle that passes down through the center of portion E, through the helical spring C, and screws into the cap D, and
100 secures the two parts A, A', together and the caps D, E, to the top and bottom of the eyes.

J, J, are lugs that project respectively from the inner ends of two caps D, E, a suitable distance into the ends of the spring C,
105 and they serve a very important purpose, in

that they give increased stiffness to the entire spring by preventing the ends from collapsing and by distributing the applied power over its whole length. The use of
 5 these lugs are therefore deemed very important as it is desirable to have the eyes of the hinge as small in diameter as possible.

From this description it will be seen that
 10 by removing the ring piece G, or detaching it from the leaf A, the hinge will move freely and operate like any ordinary hinge, the bearings hung upon the necks of the portions D, E. Now by introducing into
 15 one of the perforations in the cylindrical portion of the cap E, a pin which will serve for a lever, and turning it around as many times as may be desired, thus winding up the spring C, and while the spring is held
 20 in this state dropping the ring G, on the nut and passing the tenon h, into the V-groove, a lock will then be formed between the spring and swinging leaf of the hinge and the spring may thus be made to act directly
 25 on this leaf to close the door, gate or shutter to which the hinges may be applied. Then by raising the ring G, from the nut portion and reversing the movement of the cap E, and then dropping the ring in place again,
 30 the spring may be made to operate to keep the door in an open state. Or by disengaging the V-groove from its tenon it will be

seen that the door will swing open or shut as freely as with the ordinary butt hinge.

The top end of the eye B, is made to receive a portion of the ring G, so that said
 35 ring will rest snugly and keep in its proper place when in use. The nut on cap E, is octagonal and the inside of the ring is made to fit this angular portion, thus at every
 40 eighth turn of the cap E, the ring may be set in place, giving a gradually increased force of the spring upon the leaf A, and enabling any one to increase or diminish this
 45 force at pleasure with great facility, and while the hinges are in use and applied to a door, gate or anything else.

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

1. The combination of fixed cap D, spring
 50 C, and the cylindrical cap E, with the tubular eyes B, B', arranged and operating as set forth, in combination with a locking ring G, or any such equivalent device possessing
 55 the advantages herein set forth.

2. The projecting lugs, on the caps D, E, as and for the purposes herein set forth.

ABRAM ACKER.

Witnesses:

M. M. LIVINGSTON,
 Jno. H. SCOTT.