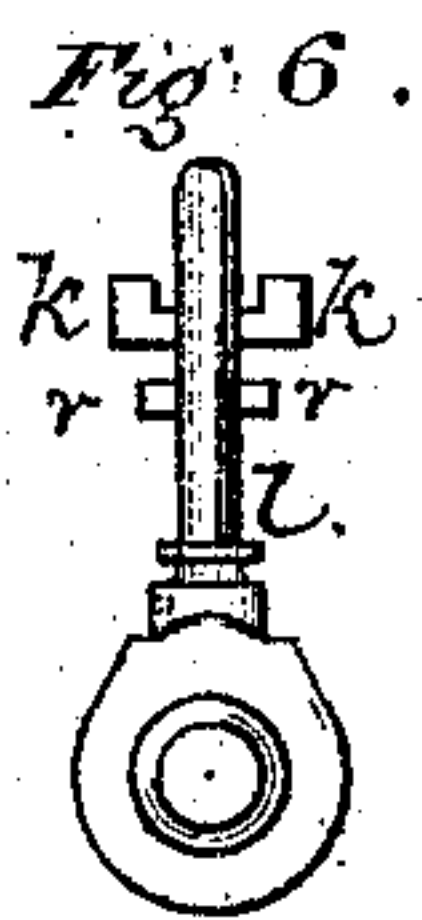
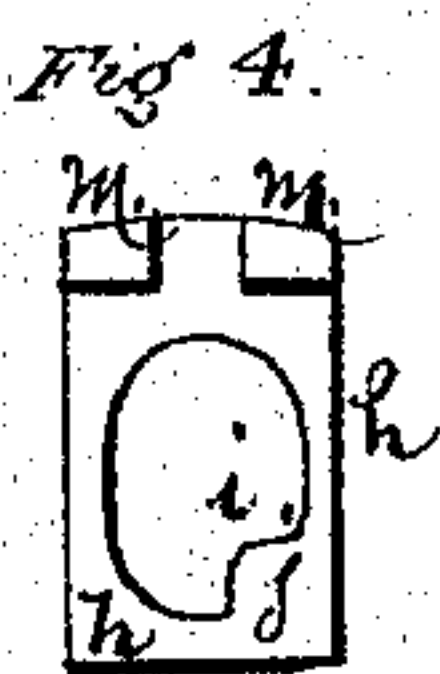
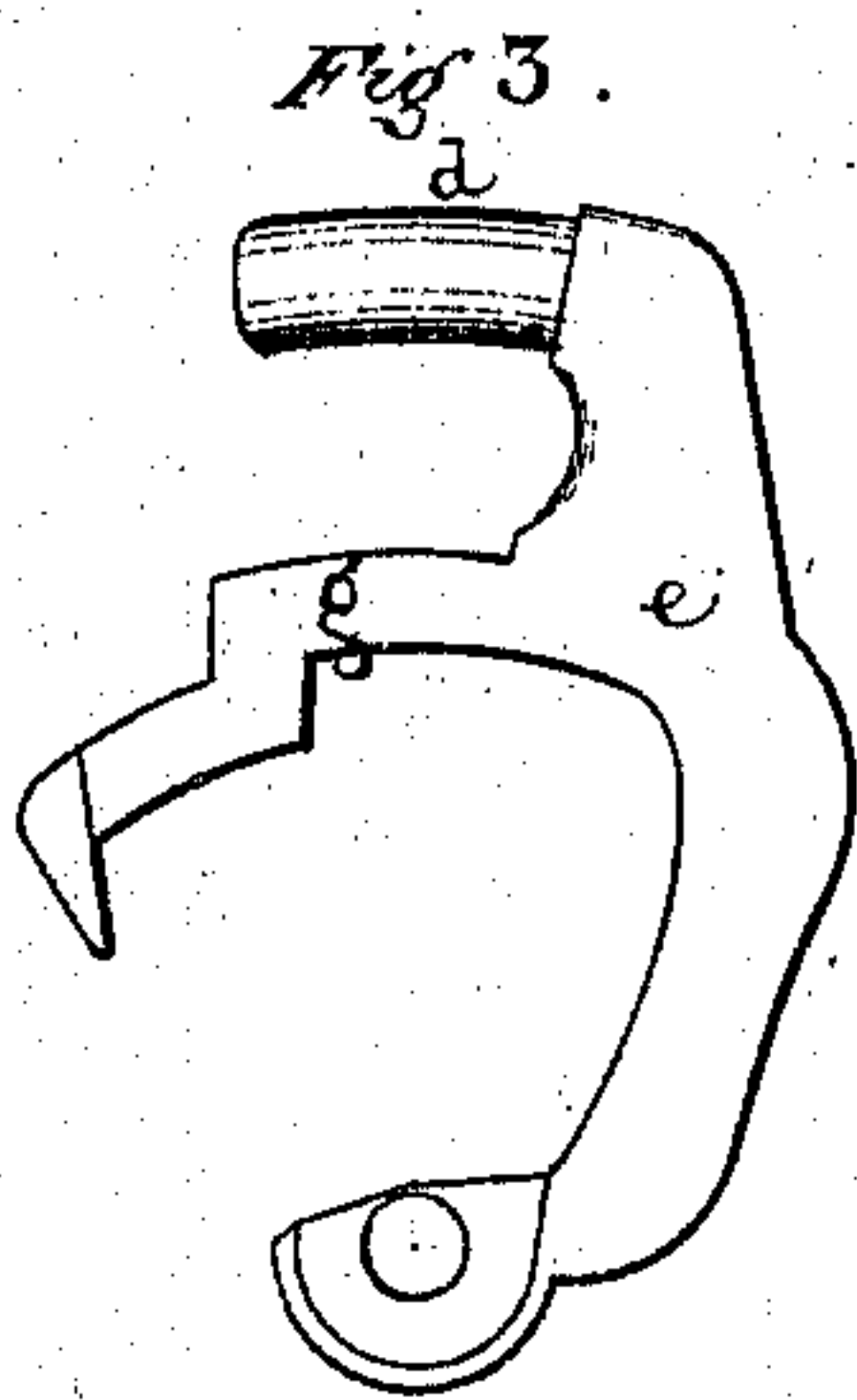
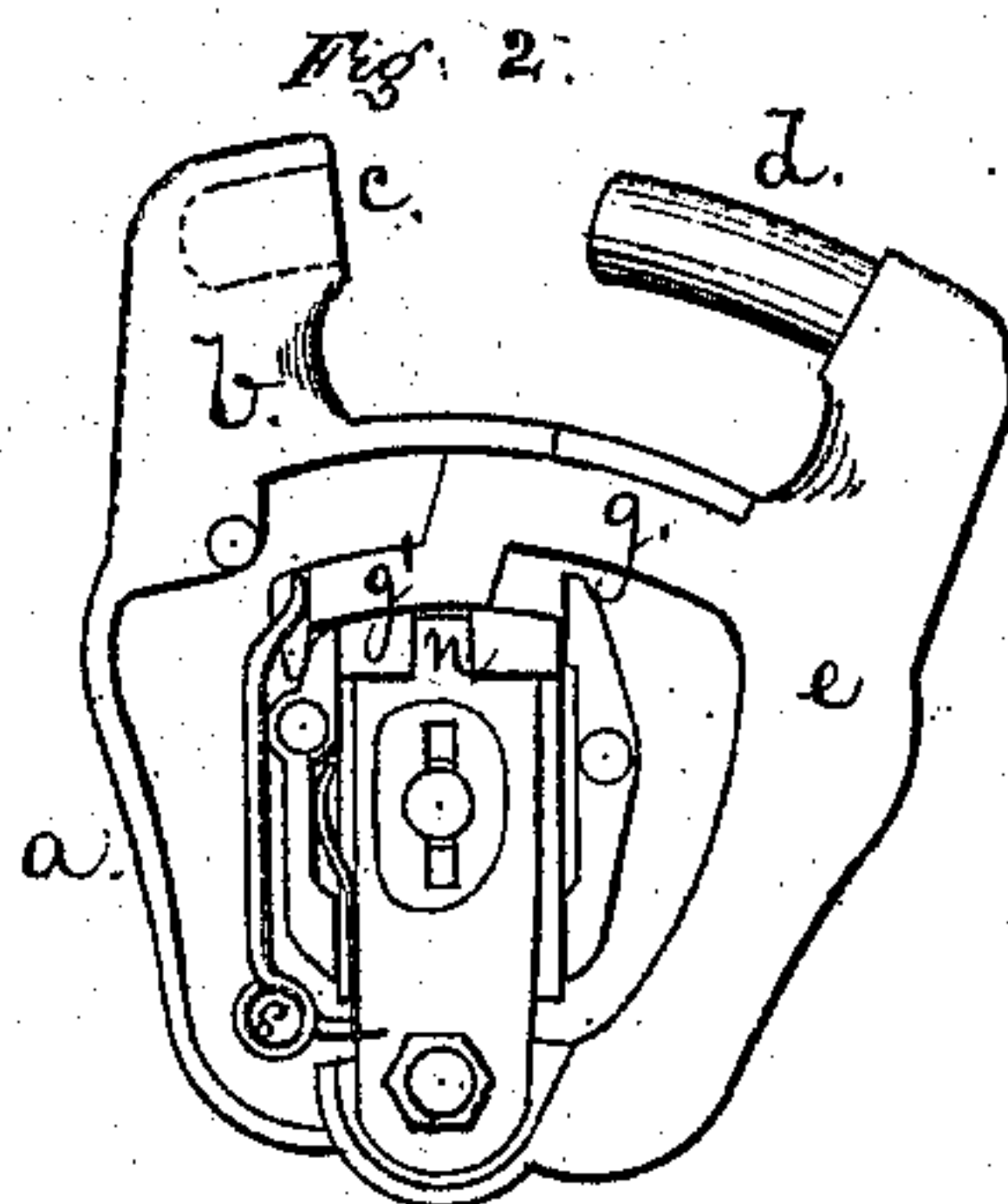
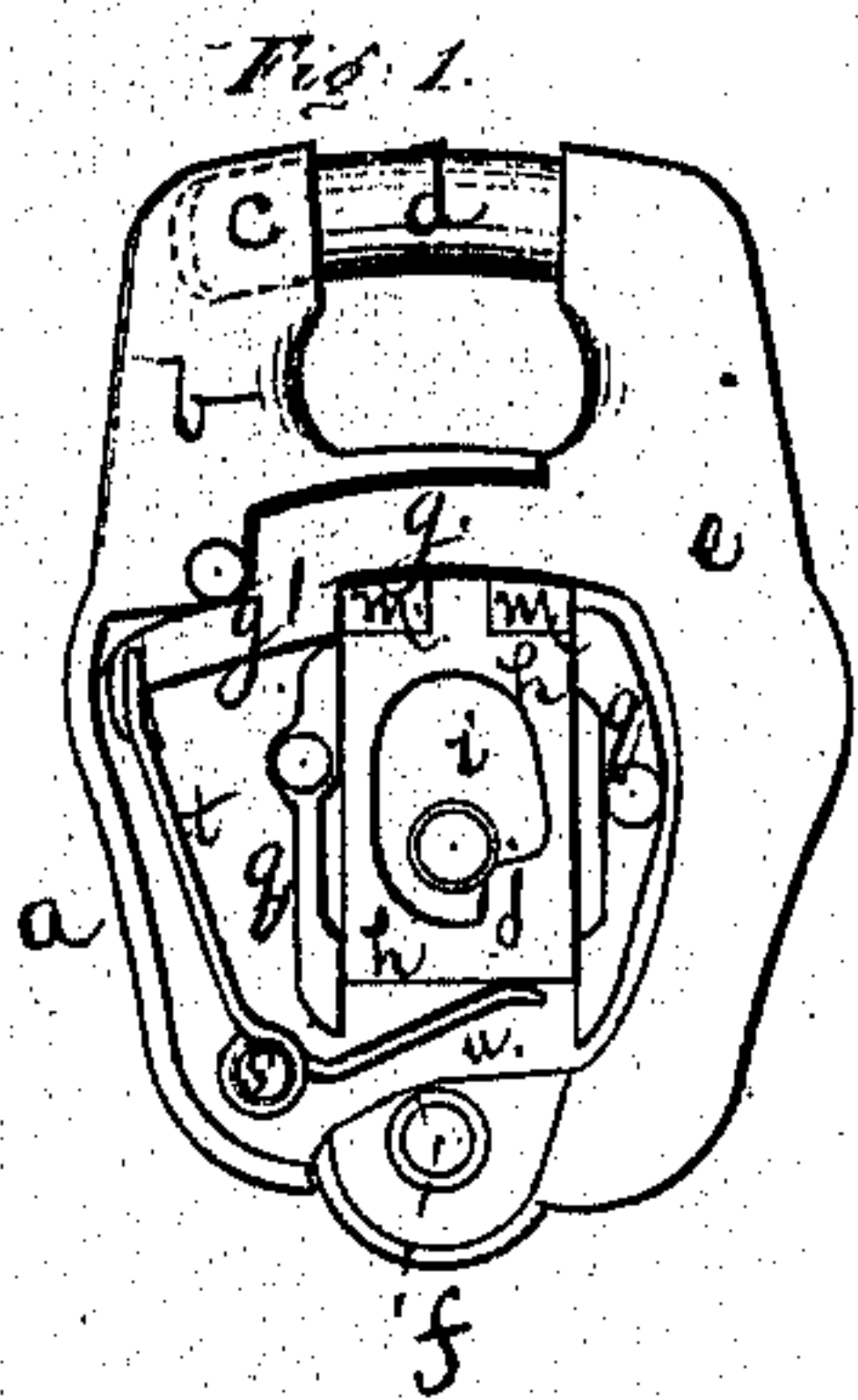


L. Hillebrand,

Padlock.

No. 100402.

Patented Mar. 1. 1870.



Witnesses :

Chas Huber
Adrian Leib

Inventor:

Louis Hillebrand
by John A. Duderheim
Atty.

United States Patent Office.

LOUIS HILLEBRAND, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 100,402, dated March 1, 1870.

IMPROVEMENT IN PADLOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that J. LOUIS HILLEBRAND, of the city and county of Philadelphia, and State of Pennsylvania, have invented new and useful Improvements in Padlocks; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains, to fully understand and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a view of my improved padlock, when locked, the outer plate being removed, to show the position of the locking parts.

Figure 2 is a similar view when unlocked.

Figures 3, 4, 5, and 6 are detached views of parts of my improved padlock.

Like letters of reference indicate like parts in the several figures.

This invention consists in a shackle, pivoted centrally at the bottom of the casing, and moving between the plates comprising the casing, so as to leave it entire, and a solid arm cast or formed with the said shackle, which arm projects into the casing, and is the locking medium.

It also consists in tumblers, hinged to the same axis as the shackle.

In the drawings—

a represents the casing, from one side of which rises a stationary standard, *b*, having on its inner side a socket, *c*, into which enters the nose *d* of a shackle, *e*, which is hinged centrally at the bottom of the casing, having a pin, *f*, for its fulcrum or axis.

Between the nose *d* and the fulcrum of the shackle, is cast on the shackle an arm, *g*, in such a manner that when the shackle is forced back, on opening the lock, the arm *g* never leaves the casing, and thus prevents the bolt *h* from moving upwardly, while the nose of the shackle is out of the socket *c*.

The shackle, with its nose, arm, and fulcrum, is clearly shown in fig. 3.

The bolt *h*, shown in fig. 4, consists of a plate, provided with an elliptical opening, *i*, into which extends a projection, *j*, forming a shoulder, against which the lower bits *k*, of the key *l*, fig. 6, bear to depress the bolt in opening the lock.

At the upper end there are formed on the surface of the bolt-plate two projections, *m*, leaving a space between them, into which the point or points *n*, of one or more tumblers, *o*, passes, when the bolt is drawn down.

This tumbler *o* is pivoted on the axis of the shackle *e*, and is held in an inclined position toward the bolt,

when the lock is closed, by means of a spring, *p*, attached with one end to the tumbler, and bearing with the other against one of the walls *g*, between which the bolt *h* slides vertically, and which afford an additional security in the protection of the bolt.

Between the tumbler and the bolt is a stationary plate, of a thickness to correspond with the distance between the bits *k* and *r*, on the key *l*, the latter of which move the tumbler from an inclined to a vertical position, to allow the point *n* to enter between the projections *m*, and thus leave the bolt free to descend.

On the inside of the casing is formed a pin, *s*, which is the pivot of a spring, one arm, *t*, of which extends upwardly and bears against the inner end of shackle-arm *g*, while its other arm, *u*, bears against the under side of the bolt, keeping it in a raised position.

On the standard *b* of casing *a*, and on each wall *g*, are pins, which, with the pin *f*, form the rivets for the cover, which closes the lock and covers the working parts.

The operation of the lock is as follows:

The key *l*, being inserted in the key-hole in the covering-plate, passes through the tumbler, the plate between the tumbler and bolt, so that the bits *k* bear against the sides of the opening *i*, and the bits *r* against the sides of the opening in the tumbler.

On turning the key, the bit *k*, bearing against the shoulder *j*, depresses the bolt *h*, while at the same time the bit *r* moves the tumbler *o*, into a vertical position, so that the projections *m* on the bolt may pass on each side of point *n* of the tumbler.

The left projection *m*, while the bolt is raised, bears against the bent part *g'* of shackle-arm *g*, and thus holds the shackle in a closed position, by means of a resistance exerted at right angles to the line of the shackle; but when the bolt is withdrawn by the key, the projection *m* is removed from contact with the shackle-arm, the bent part *g'* of which can then pass over the projections *m*, being forced back by arm *t* of the spring, (the arm *u* being depressed at the same time, to allow the bolt to descend,) thus forcing the nose *d* out of the socket *c*, the shackle-arm being, during its entire motion, within the casing.

In locking the device, the shackle-arm *g* passes over the projections *m*, and forces back the spring *t*, which presses the spring-arm *u* against the under side of the bolt, which is, however, raised only after the nose *d* has entered the socket *c*, and after the bent part *g'* of the shackle-arm has passed over the projections *m*.

Having thus described my invention,

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

1. The shackle *e*, pivoted centrally at the bottom of the lock-casing, and moving between the plates of the casing independently thereof, so as to leave said casing entire, in connection with the solid arm *g*, projecting into the casing, substantially as and for the purpose described.

2. A padlock, the tumblers of which are hinged on

the same axis with the shackle, substantially as and for the purpose set forth.

The above signed by me this 4th day of February, 1870.

LOUIS HILLEBRAND.

Witnesses:

JOHN A. WIEDERSHEIM,
FRANCIS KEYSER.