

(No Model.)

2 Sheets—Sheet 1.

H. F. NEWBURY.

SAFE LOCK.

No. 270,830.

Patented Jan. 16, 1883.

fig. 1.

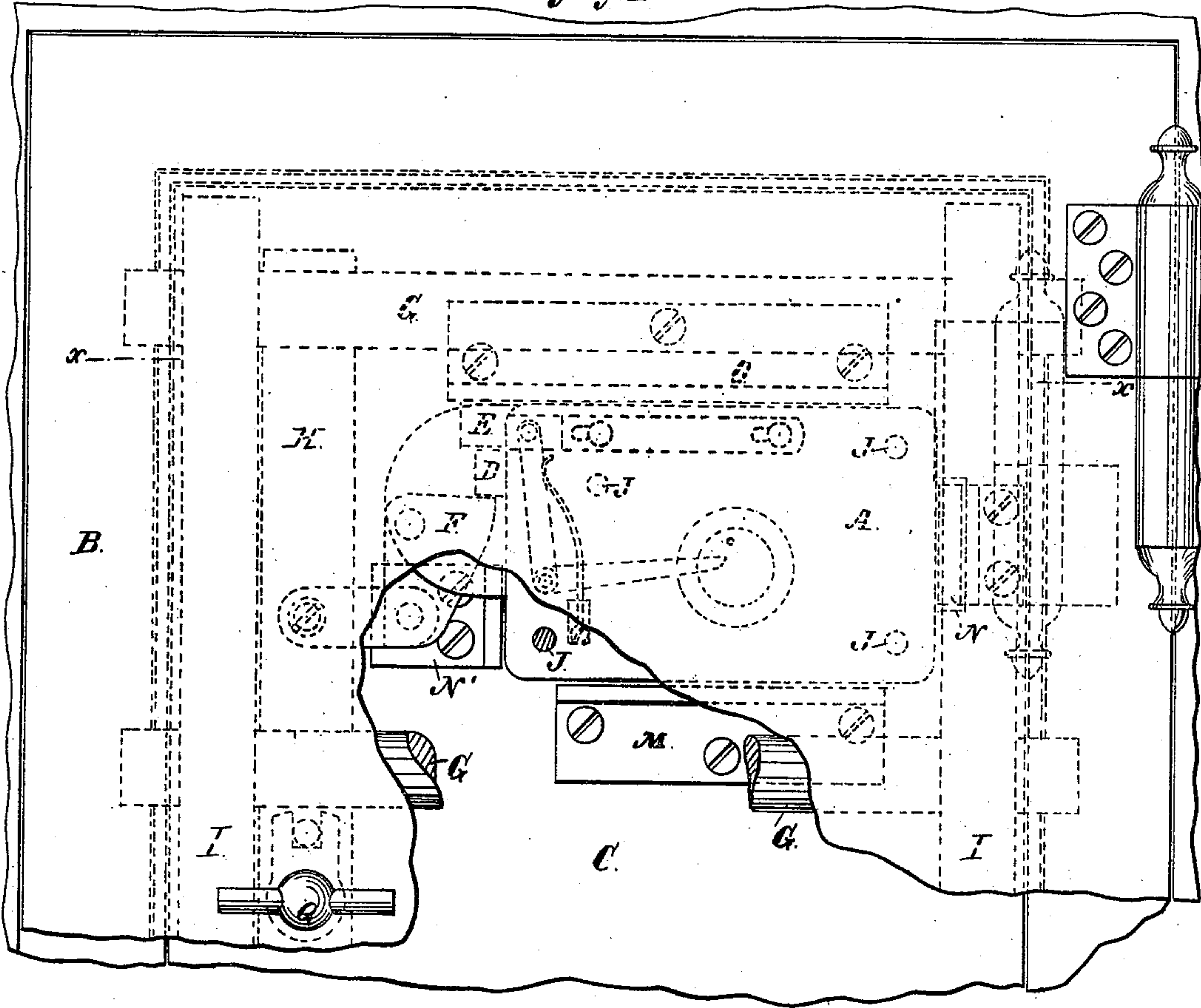
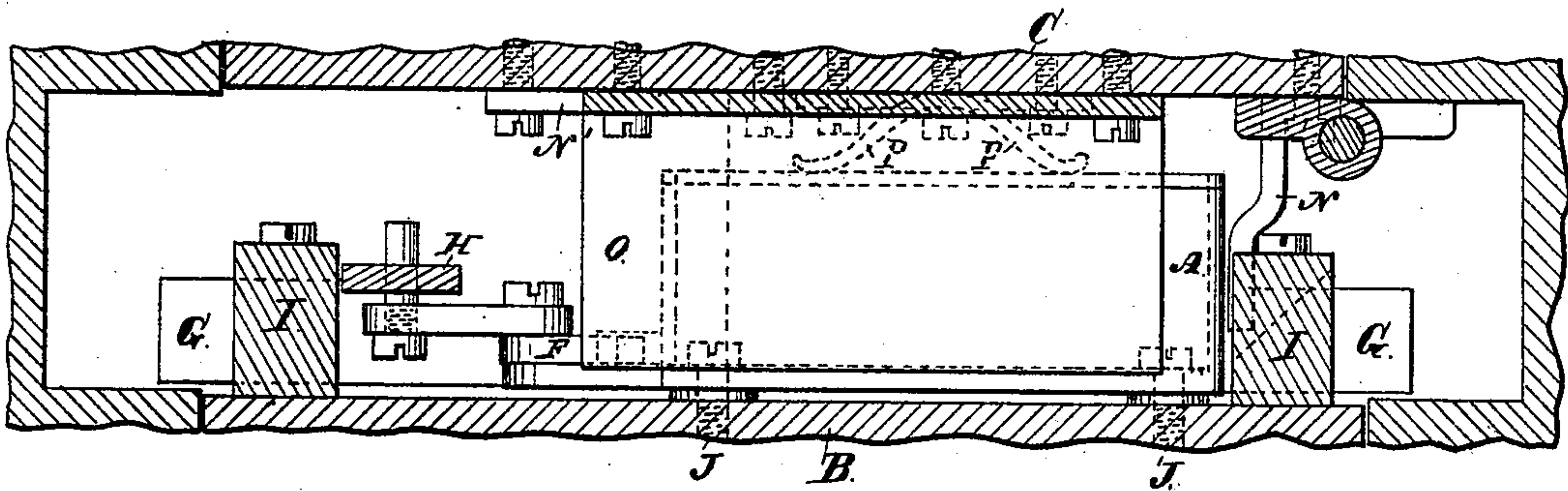


fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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fig. 3.

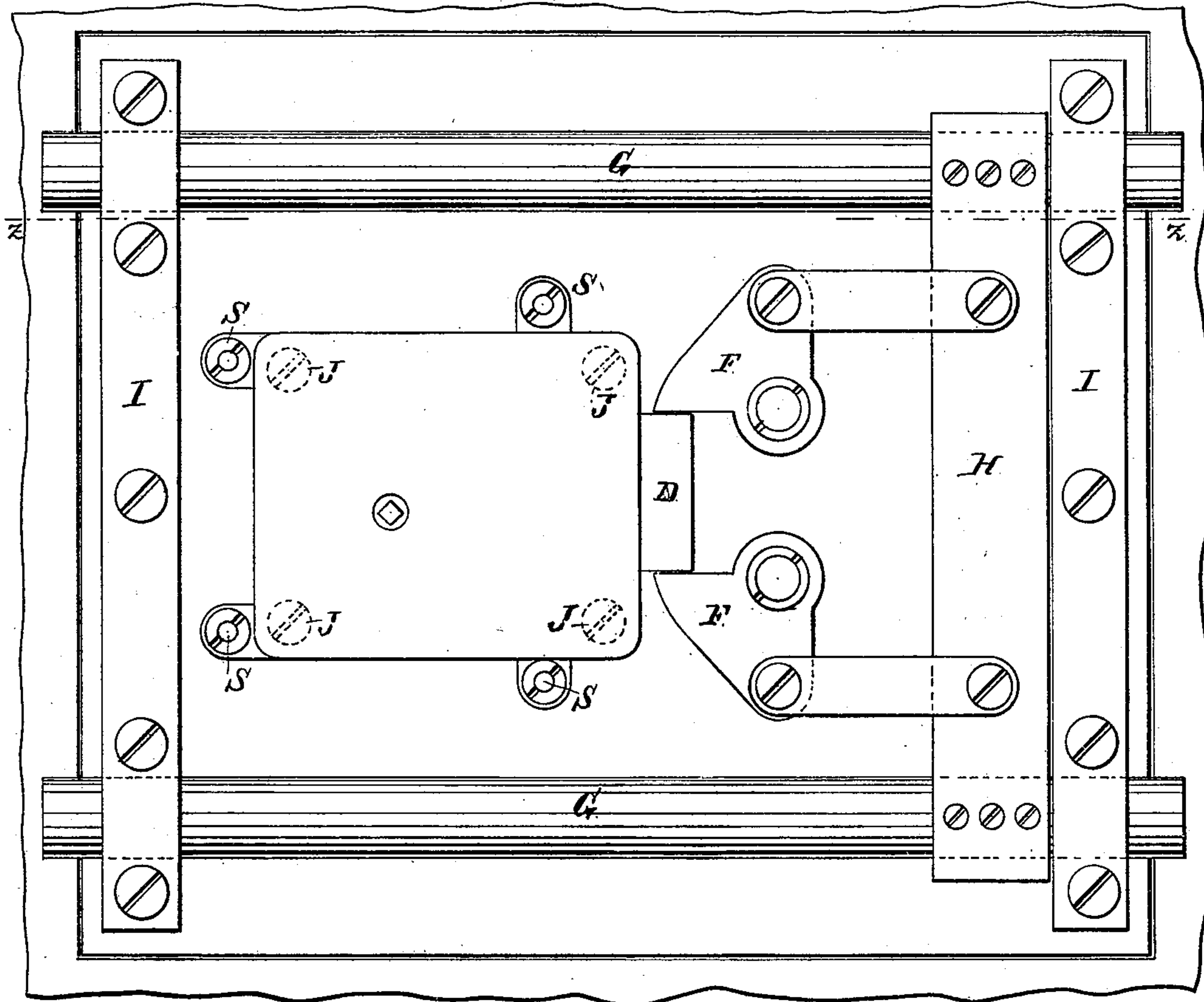
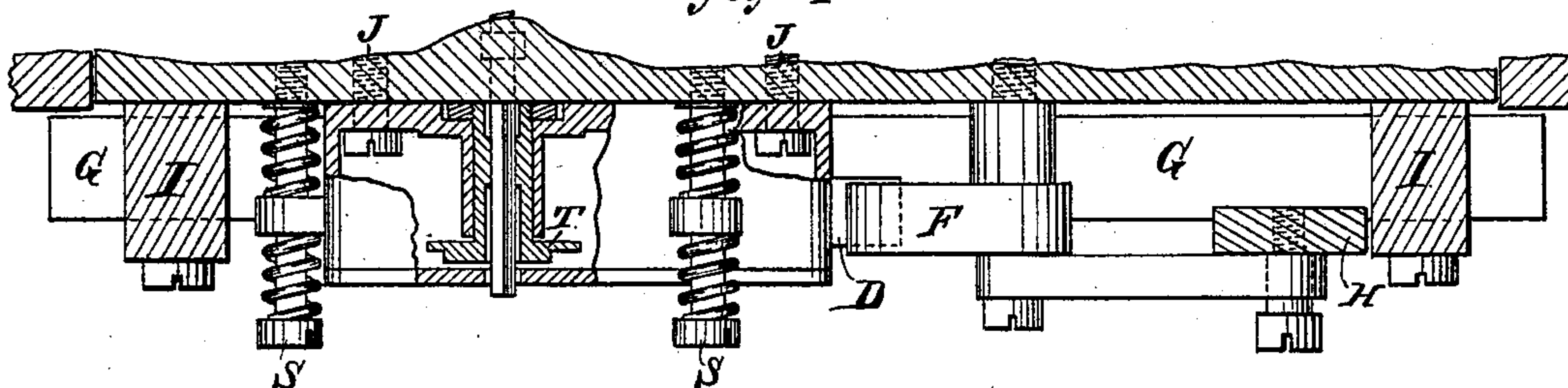


fig. 4



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UNITED STATES PATENT OFFICE.

HENRY F. NEWBURY, OF BROOKLYN, NEW YORK.

SAFE-LOCK.

SPECIFICATION forming part of Letters Patent No. 270,830, dated January 16, 1883.

Application filed September 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. NEWBURY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in the Mode of Mounting Locks; and I do hereby declare that the following is a clear and exact description of my invention.

The usual mode of securing locks, whether chronometric or combination, upon the inner
10 face of the door or wall of the safe, vault, or other structure which they are used to guard has been to bolt them directly thereto. I have discovered that when locks are thus mounted they can be unseated by a burglar without re-
15 sort to force to break or penetrate the walls of the safe or vault. This can readily be effected by the use of a small charge of dynamite, nitro-glycerine, or other quick explosive exploded against the outside of that portion of the door
20 or wall to which the lock is attached. The momentum which can be communicated to a lock through the walls of a safe by reason of the suddenness with which the so-called quick explosives act is such as to tear the lock away
25 from its fastenings if secured in the manner above indicated. When the fastening-bolts are thus broken the lock will be thrown off the door or will fall out of position, and thus its operative connection with the bolts of the safe
30 or vault door will be destroyed, leaving the door in condition to be at once opened upon the retraction of the door-bolts by means of the ordinary door-spindle.

The present invention provides a remedy for
35 this danger connected with the use of locks as ordinarily mounted; and it consists in providing a supplemental support so constructed and arranged relatively to the lock that if the ordinary lock-fastenings are destroyed the sup-
40 plemental support will sustain the lock in substantially its normal position, and thus preserve its operative connection with the door-bolts of the safe.

The invention is illustrated in the accom-
45 panying drawings, in which Figure 1 is an elevation of the door and part of the jambs of an ordinary safe provided with an inner door, a portion of the outer door being broken away so as to show in full lines a portion of the lock,
50 which is attached to the inner face of such door, as well as a portion of the supplemental

supports, which, in this case, are attached to the inner door. The remaining parts of the lock and the supplemental supports are shown in this figure in dotted lines. Fig. 2 is a hori-
55 zontal section on the line *xx* of Fig. 1.

Referring to these figures more in detail, A is a time-lock, that here shown being the well-known Holmes lock, although the invention is
60 equally applicable to any other form of time-lock. B is the outer door, and C the inner door, of the safe. D is the lock-bolt, which works between the stud E and the angle-lever or jaw F, which in turn is connected with the
65 carrying or tie bar H, which is bolted to the door-bolts G G, working in the bolt-bars I I. When the end of the bolt D is interposed between the abutment E and the head of the angle-lever F, the door-bolts are locked. When
70 the lock-bolt is retracted, the door-bolts can be thrown back and the door opened. As here shown, the lock is bolted rigidly to the door by short screw-bolts J J passing through the back
75 of the lock-case in the ordinary manner. If, when the lock is thus secured to the door, a properly-regulated charge of dynamite or similar material be exploded against the exterior
80 of the door at a point opposite the lock, the momentum transmitted to the lock through the door will break these fastening-bolts, and thus unseat the lock. To prevent the lock
85 from being thrown off the door or falling out of position when its fastening-bolts are thus destroyed, and thereby releasing the bolt-work, the present invention, as above indicated, pro-
90 vides supplemental supports so arranged that, although all of the ordinary fastening-bolts of the lock be broken, the lock itself will still be held in working position by such supplemental supports.

One form of such supplemental support is shown in Figs. 1 and 2. In these figures, M is a shelf bolted to the inner door of the safe at a height a trifle lower than the bottom of the
95 lock, and extending forward under the lock when the outer door is closed. N N' are two end abutments to prevent lateral movement of the lock, and O is an upper abutment, designed to prevent the lock from being lifted
100 upward. P P are stiff springs arranged to press against the face of the lock and crowd it against the door in opposition to its tend-

ency to be thrown inward away from the door by the force which breaks the fastening-bolts. These springs would be unnecessary if the space between the two doors were but a trifle in excess of the thickness of the lock. The special function of the rear lateral abutment, N, and of the top abutment, O, is to prevent the lock from being forced out of place by pressure brought against it from the outside through the medium of the spindle Q after its fastening-bolts may have been destroyed. A lock constructed like the Holmes lock (shown in Fig. 1) would require both of these abutments; but in using locks in which a backward pressure on the carrying-bar would not tend to lift the lock, as in the case of the Yale or Sargent time-lock, the top abutment would not ordinarily be necessary. On small safes, however, the top abutment, as well as the two lateral ones, should be used, as it would prevent the lock from being displaced by the overturning of the safe.

Another form of supplemental support equally applicable to time-locks, but illustrated in the drawings in connection with an ordinary combination-lock, is shown in Figs. 3 and 4, Fig. 3 being an elevation of the inside of a safe-door and the surrounding jambs, and Fig. 4 being a horizontal section of the same on the line *z z*. In this case the sliding lock-bolt D is shown as working between the two angle-lever jaws F, which are connected with the carrying-bar H by links in the well-known way. The lock itself, as in the case of the lock shown in Figs. 1 and 2, is secured to the door primarily by the use of short screw-bolts J J, which confine it rigidly to the door. In addition to this, however, other bolts, S S, are provided, which pass through ears on the lock-case and are seated in the safe-door. These bolts are of much greater length than the others, and carry spiral springs in the manner shown. If the main bolts should be broken by the force of a shock, these supplemental bolts, with their springs, could be relied upon to sustain the lock and keep it from being thrown out of operative connection with the bolt-work of the door, the springs being useful also to graduate the shock so as to relieve the bolts from the danger of being broken. It will be seen that the operation is substantially the same as in Figs. 1 and 2; but in one respect the latter construction is superior. When the supplemental support is attached to the inner door, it is far less likely to be affected by an explosion or other heavy shock directed against the door which carries the lock.

Both of the above forms of supplemental support, but particularly the first one, (shown in Figs. 1 and 2,) will be found advantageous when the interior space immediately adjacent to the door is too limited to permit much play to the lock. Where a wider space is available the lock may be mounted on flexible supports, so as to have a capacity of movement backward and forward relatively to the door. Such

mode of mounting, however, forms no part of the present invention, having already been patented by me in its application to time-locks in Letters Patent Nos. 262,097 and 262,100, both dated August 1, 1882, and in its special application to combination and other permutation locks being the subject of a pending application heretofore filed by me, and designated as "Case Q."

When time-locks are provided with supplemental supports in addition to the ordinary fastening device, as above described, it will, it is believed, be found necessary to modify the construction of the lock so as to prevent the premature retraction of the lock-bolt as a consequence of the breaking of the more delicate parts of the lock if subjected to a sudden and heavy shock, such as would be sufficient to break the fastening-bolts of the lock; but such modified construction of a time-lock in connection with supplemental supports does not constitute the subject of the present application, being already the subject of Letters Patent No. 262,101, dated August 1, 1882.

When, again, combination or other spindle locks are provided with supplemental supports in connection with the ordinary fastening-bolts, it is desirable that some provision should be made for a longitudinal movement of the spindle relatively either to the lock mechanism or the door of the safe or vault, and a construction designed to effect this result is shown in Fig. 4, where the inner end of the spindle is shown as made square so as, if necessary, to have a to-and-fro movement in a hole of corresponding shape in the hub of the driving-cam T. This special construction of combination and kindred locks forms the subject of the pending application above referred to as "Case Q." The object of it as used in that application is not to preserve the operative relation of the combination-lock to the door-bolts of the safe in case the fastenings of the lock are broken, but to preserve the operative connection between the lock and the operating-spindle, which passes through to the exterior of the safe. For the purpose of preserving the operative relation of the lock to the door-bolts when the primary fastenings are broken, it is not absolutely essential that there be this capacity for longitudinal movement of the spindle. If it did not exist, the inner end of the spindle might be broken off by the same shock that a burglar would use to shatter the fastening-bolts of the lock; but in such case, if supplemental supports are provided, the lock would still be held in position and be effective to guard the safe. In such case, however, it would be necessary to cut the safe open in order to have access to its contents. This cutting open of the safe under the circumstances supposed may, it is believed, be obviated by the use of the movable spindle in connection with supplemental supports.

It will be manifest, also, to a person skilled in the art that supplemental supports are ap-

plicable to that class of locking devices which do not embody any clock mechanism, and which, also, have no spindles connecting them with the exterior of the safe or vault. An instance of such a locking device is the spring-box as sometimes used in connection with what is known as "automatic bolt-work." Another form of such locking device is seen in the supplemental check or lock shown and described in Letters Patent No. 262,093, granted to me August 1, 1882.

What is claimed as new is—

1. The combination of the primary or main fastenings of a lock and supplemental supports, substantially as set forth, whereby the operative connection of the lock with the door-bolts of the safe or vault in which it is used may be preserved in case the main fastenings of the lock are destroyed.

2. In combination with supplemental supports for preserving the operative connection between a lock and the door-bolts of a safe or vault in which it is used, springs arranged to operate substantially as above set forth.

3. In combination with a spindle-lock mounted on the door or wall of a safe or similar structure, supplemental supports for preserving the operative connection between such lock and the door-bolts in case the primary fastenings are broken, and means for permitting a longitudinal movement of the lock-spindle, substantially as and for the purpose described.

HENRY F. NEWBURY.

Witnesses:

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SAML. A. DUNCAN.