

No. 629,764.

C. E. BLECHSCHMIDT.
SCREW DOOR SAFE.

(Application filed Apr. 3, 1899.)

Patented Aug. 1, 1899.

(No Model.)

FIG. 1.

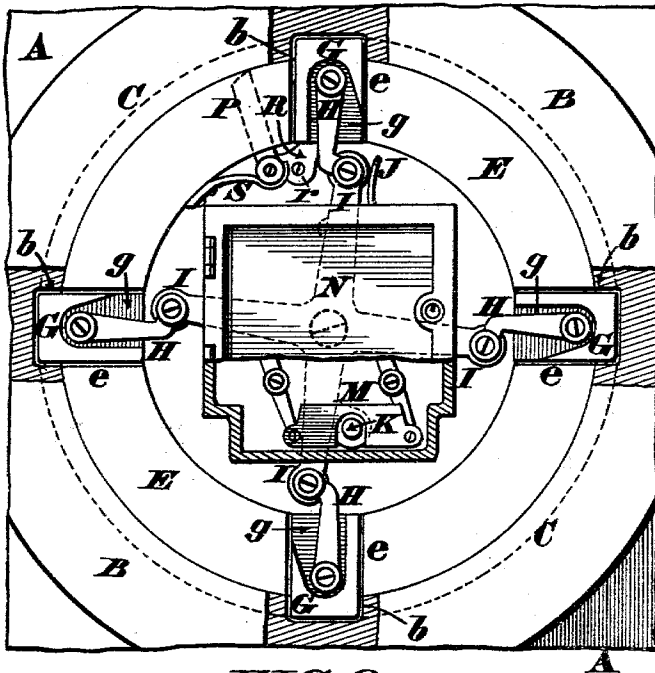


FIG. 2.

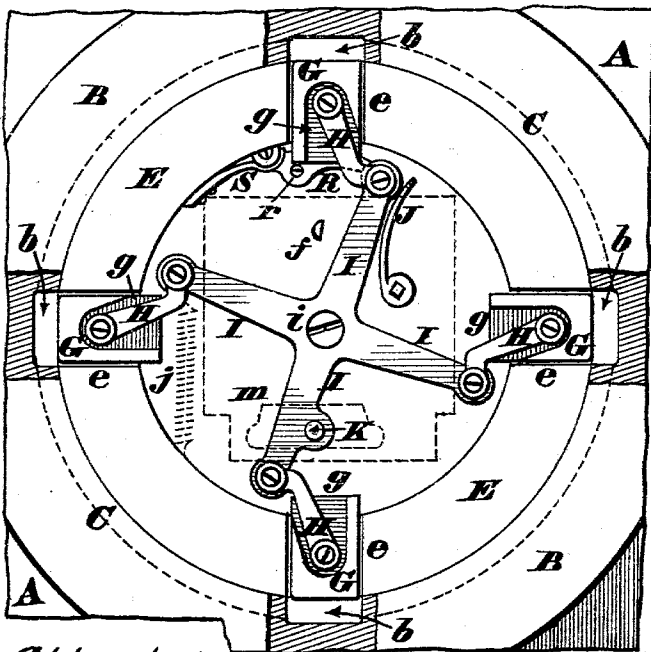


FIG. 3. B

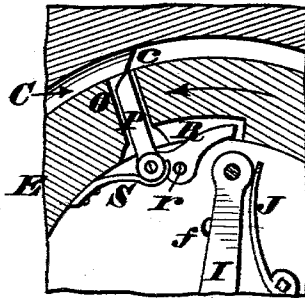


FIG. 4. B

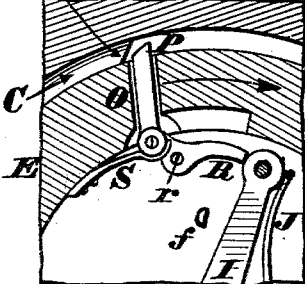
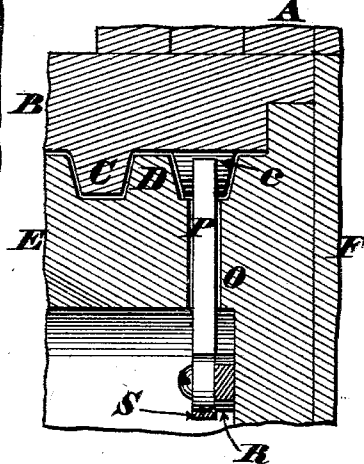


FIG. 5. A



Attest.

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UNITED STATES PATENT OFFICE.

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SCREW-DOOR SAFE.

SPECIFICATION forming part of Letters Patent No. 629,764, dated August 1, 1899.

Application filed April 3, 1899. Serial No. 711,508. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BLECHSCHMIDT, a citizen of the United States, residing at Bellevue, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Screw-Door Safes; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to those safes having screw-doors, which latter after being closed are securely fastened by the automatic advance of a number of sliding bolts, the retraction of the same at any predetermined hour being automatically effected by a time-lock; and my improvement comprises a novel combination of such self-acting bolt-operating mechanism. Said mechanism includes an oscillating device pivoted to the inner side of the door, couplings that unite said device to the bolts, a spring for turning it in one direction, a time-lock connection for rotating it in an opposite direction, and a combined trip and stop that automatically liberates said oscillator and permits it to turn far enough by the stress of said spring to advance said bolts, said liberating action being effected by the contact of one member of said combined trip and stop with the outer end of a female thread of the door-frame; but when the time-lock turns said oscillating device far enough to retract the bolts said member is at once freed from contact with said female thread, and then said combined trip and stop arrests said oscillator and holds it securely in its new position until the door is again closed, as hereinafter more fully described.

In the accompanying drawings, Figure 1 is an elevation of the inner end of a screw-door safe provided with my bolt-operating mechanism, the bolts thereof being advanced and their keepers and the lower portion of a time-lock case being sectioned. Fig. 2 is a similar elevation, but showing said bolts retracted, the time-lock case removed, and its position indicated by dotted lines. Fig. 3 is a vertical section through the upper part of the door, the combined trip and stop being shown

in the same position as in Fig. 1. Fig. 4 is a similar section, but showing said trip and stop in the same position as in Fig. 2. Fig. 5 is a greatly-enlarged section of the door, taken transversely of its screw-threads and in the plane of a push-stem constituting the operating member of the combined trip and stop.

The front wall A of the safe may be built up in any desired way and has secured to it a ring B, which ring has a steeply-pitched female screw-thread C cut around its inner periphery to permit the engagement of a male thread D of a ring E, secured to the inner side of a door F, a portion of the latter being shown in Fig. 5. Again, the inner end of this ring E is grooved radially at e to guide the reciprocating bolts G, of which any desired number may be used, although in the present case four are shown. These bolts are cut away, as at g, to permit free play of angular links H, the outer ends of the latter being pivoted to said bolts, while their inner ends are coupled to the four arms of an oscillating spider I, pivoted to the door at i and held in its normal position against a stop f by a spring J. (See Fig. 3.) By thus cutting away the inner ends of the bolts and connecting them to the oscillator I by means of the bent links H the bolt-operating mechanism is very compactly housed within the limited space afforded between the ring E and the time-lock case.

Projecting rearwardly from one of the spider-arms is a pin K, engaged with a shifter-bar M of any preferred construction of time-lock, the latter being securely housed within a case N.

O is a transverse bore in the door-ring E to admit a reciprocating push-stem P, whose outer end is beveled off, as shown, while its inner end is coupled to a short lever R, pivoted to the door at r. S is a spring that maintains said stem and lever in their normal positions. These devices P R S constitute the combined trip and stop above referred to.

b are keepers or sockets in the ring B to admit the bolts G when they are advanced, so as to lock the door F and prevent it being opened until the "timer" liberates the mechanism that retracts said bolts.

In arranging this mechanism its various parts must be so disposed with reference to each other and to the end *c* of the outermost or front female thread *C* as to cause the final closing turning of the door in the direction of the arrow shown in Fig. 3 to bring the bolts *G* directly opposite the entrance of the keepers *b* the very moment the outer end of push-stem *P* contacts with said screw end *c*, and, bearing in mind that the lever *R* was previously impinging against one of the spider-arms *I*, as shown in Fig. 4, it is evident this contact will force said stem inward, the result being to swing said lever away from said arm. Consequently the spring *J* now turns the liberated spider *I* in such a direction as to simultaneously advance all the bolts and engage them with their respective keepers *b*, thereby securely locking the screw-door. As soon, however, as the hour arrives for which the timer was set its bar *M* shifts over to the position indicated by the dotted line *m* in Fig. 2, and thus turns the spider *I* around far enough to withdraw all the bolts from their keepers and retain them in this retracted position until the bar is again intentionally restored to its normal place, as shown in Fig. 1. The door is now unlocked, and as soon as it is turned a slight distance in the opening direction of the arrow shown in Fig. 4 the push-stem *P* escapes from contact with the female thread *C*, and then the spring *S* advances said stem, swings down the lever *R*, and causes it to impinge against the spider-arm *I* and prevents said spider being rotated backward by the pressure of spring *J*. Consequently the timer is relieved from the constant stress of said spring. In this arrested position of the spider the door can be screwed wide open and the timer be again set to go off at any hour before shutting said door.

From the above description it is evident the bolts cannot be advanced until the door is shut and the screw run completely home, and then the locking is automatically effected and without employing special external devices.

The dotted line, *j* in Fig. 2 indicates a coiled spring that may be used instead of the plate-spring *J* for turning the oscillating spider in such a direction as to advance the bolts. Finally, by referring to Fig. 1 it will be noticed that the shifter-bar *M* has coupled to it two levers pivoted to the case *N*, thereby indicating that a pair of timers are used for operating said bar, and by thus employing two time-locks sufficient force is obtained to overcome the stress of the spring *J* and the friction incidental to the retraction of the various bolts *G*. Therefore there is no danger of the bolt mechanism failing to operate promptly at any predetermined hour.

I claim as my invention—

In a safe, the front plate *A*, provided with a ring *B*, having keepers *b*, and female thread *C*; the door *F*, provided with a ring *E*, having grooves *e*, and male thread *D*; the bolts *G* traversing said grooves; the oscillating device *I*, having links *H*, jointed to said bolts; a spring that turns said device in one direction; a timer connection for rotating it in an opposite direction; and a combined trip and stop consisting of the push-stem *P*, pivoted lever *R*, and spring *S*, all combined to operate as herein described, and for the purpose stated.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. BLECHSCHMIDT.

Witnesses:

JAMES H. LAYMAN,
JESSE M. SIMON.