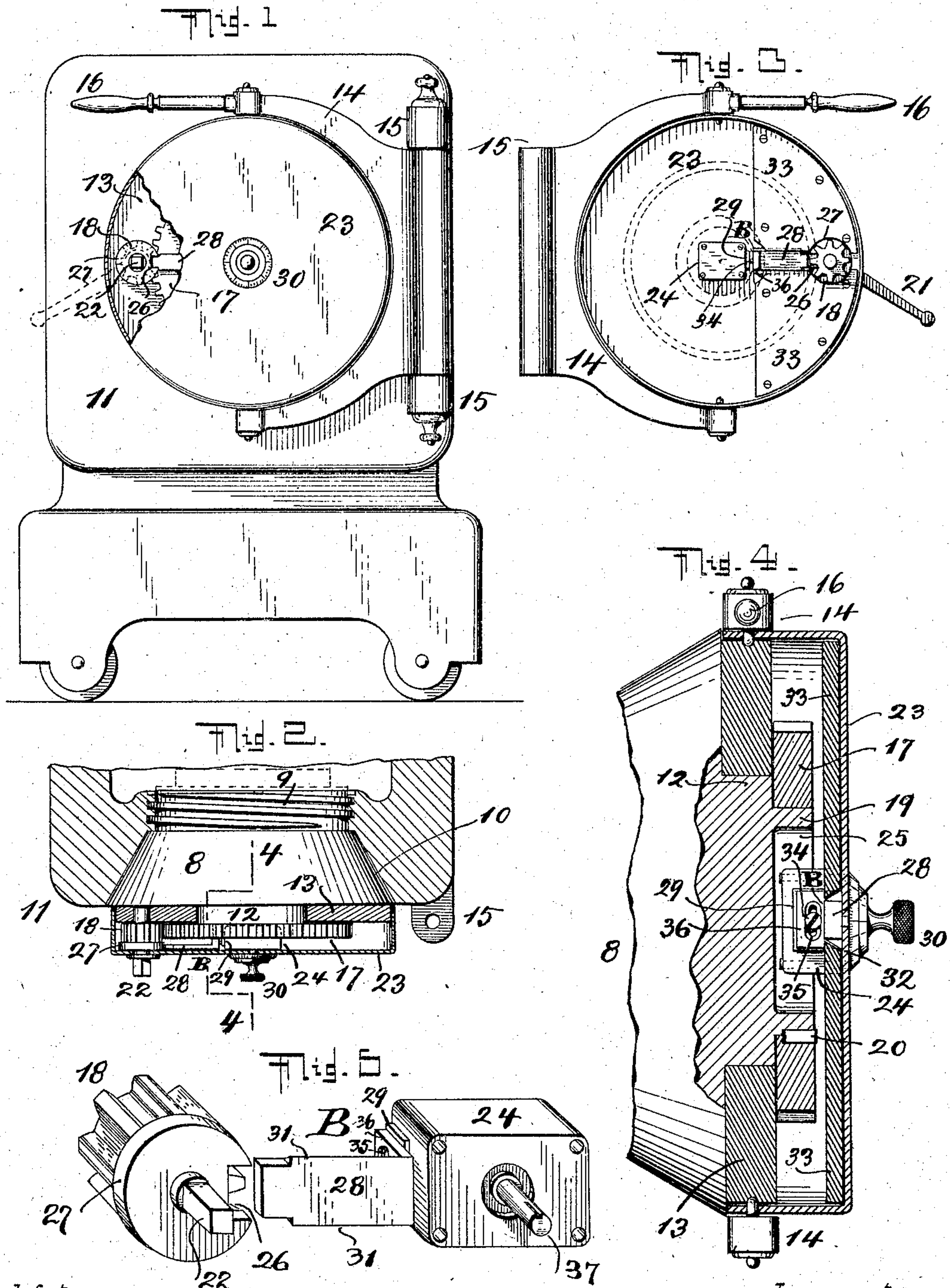


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C. E. BLECHSCHMIDT.
DAY LOCK FOR SCREW DOOR SAFES.
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Witnesses
H. E. Arnold
Arthur Kline

Inventor
Charles E. Blechschmidt
by C. Spengel Atty

UNITED STATES PATENT OFFICE.

CHARLES E. BLECHSCHMIDT, OF BELLEVUE, KENTUCKY, ASSIGNOR TO
VICTOR SAFE & LOCK CO., OF CINCINNATI, OHIO, A CORPORATION
OF OHIO.

DAY-LOCK FOR SCREW-DOOR SAFES.

SPECIFICATION forming part of Letters Patent No. 791,534, dated June 6, 1905.

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To all whom it may concern:

Be it known that I, CHARLES E. BLECHSCHMIDT, a citizen of the United States, residing at Bellevue, Campbell county, State of Kentucky, have invented certain new and useful Improvements in Day-Locks for Screw-Door Safes; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in so-called "day locking devices" for safes which are provided with a time-lock and in place of which latter the former are used at certain times. The time-lock is relied upon to close and guard the safe during the night and during intervals from one business day to another. When once set and closed in this manner, the safe remains entirely inaccessible until the determined time has expired, after which the time-lock releases the bolts automatically. It becomes often desirable, however, to also lock the safe temporarily during the day-time for indefinite shorter or longer periods, which locking need not necessarily be as secure—that is, burglar-proof—as the time-locking over night and for which reason it is undesirable to wind and manipulate the time-lock or to change the setting thereof, which is usually arranged for a certain and normally fixed time which does not ordinarily change. Use of the time-lock for such purpose is furthermore undesirable for the additional reason that such use would require the setting of a fixed time during which the safe would also remain inaccessible, which would also be objectionable if immediate access were wanted before the end of the time fixed by the time-lock. The main requisite of such a day-lock outfit is therefore entire independency of time as to its use for locking or unlocking, and both of which operations are therefore arranged to be performed manually, so as to be subject to direct and positive control, so that whenever the day-lock has been used immediate access to the safe may be had. Devices of this kind are

illustrated in patents previously granted to me, one on October 7, 1902, and another on October 27, 1903, and upon which devices this present invention contemplates a further improvement. The type of safe shown in these patents is a screw-door safe, and this present invention is arranged and devised with a view to be adapted for such a safe. The doors of these safes are provided with an external screw-thread which fits into an internal thread around the door-opening. When the door is fully screwed home, so as to close the safe, the ends of the bolts carried by the door have arrived opposite their sockets in the safe-body, so that whenever actuated by the time-lock or otherwise they may now enter these sockets, so as to prevent rotation of the door, thereby locking the same. The doors are supported in a manner to permit such rotation for closing or opening, and mechanism is provided whereby the rotation is brought about. The bolts remain in the locking position until withdrawn by the time-lock, which controls their operation. When locked by a day-lock, no bolts are used to lock the door to the safe-body, and the locking is done merely by preventing use of the mechanism for rotating the door for the purpose of withdrawing—that is, unscrewing—it from the door-opening. It will thus be seen that the two locking means are entirely independent of each other, and one does not interfere with the operation or manipulation of the other. The door may be locked by either one of the devices or by both simultaneously, and in the latter case the unlocking of one of the devices does not affect—that is, unlock—the other.

Day locking devices may be operated by a key or combination tumbler-lock, the latter being the usual medium, and this invention belongs to that particular class—that is, to a day locking device controlled by a combination tumbler-lock.

The particular object of this present invention is to provide a construction which prevents any possible injury or disarrangement of this combination-lock should forcible attempt be made by unauthorized persons or such unfamiliar with the operation to manip-

ulate the mechanism for rotation when such mechanism is locked by the day locking means.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows a front view of a customary screw-door safe with parts of the outer shell of the door broken away. Fig. 2 is a horizontal section of the front side of the safe, taken at a height so as to pass about through the center of the door. Fig. 3 shows the inside of the outer shell of the door as the same appears when the door is open, but with this latter removed. Fig. 4 is an enlarged vertical side view of the door, partly in section, taken on line 4 4 of Fig. 2. Fig. 5 is an enlarged detail view of the means directly concerned in the locking operation.

In the drawings, 8 is the circular door of a screw-door safe, part of the edge of such door being provided with a screw-thread 9, which is fitted into a corresponding thread around the inside of the door-opening 10 in the front of the safe-body 11. From the front side of this door there projects a boss forming a journal 12, about which the door rotates, said journal being fitted into a ring 13, which forms a bearing therefor and supports the door. This ring is carried on a crane-frame 14, which is hingedly attached to the front of the safe-body, as shown at 15. This crane-frame, carrying with it the door supported thereon for rotation, is manipulated—that is, swung into or out of the door-opening—by means of a handle 16 provided on said frame. The door is rotated in its bearing by means of a gear-train consisting of the larger gear-wheel 17, connected to the door for unitary movement, and of a pinion 18 in mesh with it and mounted on the stationary ring 13. For its connection to the door the larger gear-wheel is mounted upon a hub 19, which is simply an extension of boss 12. It is connected to this hub in any suitable way—as, for instance, by keys 20—and whereby said gear-wheel and door are caused to rotate as one. For such rotation a handle 21 is used, which is attached to the square end 22 of the pinion-shaft. These operating parts, with the exception of this square end 22, are covered by a hollow casing or shell 23, which beyond serving as an inclosure has no further function. This shell is attached and supported in a manner so as not to rotate with the door, it being secured for such purpose to ring 13. As before stated, such a safe is day-locked by preventing manipulation of the operating parts of the door for the purpose of rotating the same to screw it out of the door-opening. These operating parts are the gear-train, and its operation is prevented by locking the pinion there-
of against rotation by means of a bolt B, ac-

tuated by a combination-lock 24. This lock is attached to the inside of shell 23 and projects into the space surrounded by said shell, in addition to which, if not sufficient, it may also occupy part of the space provided by a recess 25 in the front side of the door or of its journal. The keeper which receives the free end of this bolt consists of a recess or notch 26, provided in a lateral extension of the hub or face of pinion 18 or in the edge of shroud 27, where a shrouded pinion is used. The bolt consists of two parts, one, 28, being the locking part proper and another part, 29, being its actuating part, it extending for such purpose into the housing of the combination-lock to be operated by the tumblers contained therein. These tumblers are manipulated in the usual manner by a knob 30, accessible from the outside of the safe-door and mounted on the lock-spindle 37, which projects through shell 23. The edges of the locking part 28 of the bolt B are beveled, as shown at 31, and fitted with a dovetail into a guideway 32, formed between two plates 33, substantially attached by screws or rivets to the inside of shell 23, so as to firmly hold and guide said part of the bolt. The connection of this part of the bolt to its actuating part 29 is not rigid and merely sufficient to drag said first part out of notch 26 when in locking position. No direct connection would be necessary to push it into this position. The connection mentioned is by means of a screw 34, the head of which occupies an opening 35 in an angular flange 36 at the inner end of the locking-bolt. This opening is merely sufficient to prevent the head of the screw from slipping through, so as to hold the two parts of the bolt to each other for movement in a longitudinal direction. It is enlarged, however, to prevent this connection from being a rigid one. The result is that while said locking-bolt is firmly guided in its way between the two plates 33 any undue exertions on handle 21 to turn the pinion will not in their effect be transmitted to the tumblers which engage bolt 29, preventing thereby any injury or disarrangement of the combination-lock. It is obvious that this locking mechanism does not interfere with the operation of the time-lock outfit, since there is no connection of any kind between the two, and no part of the day-lock engages any part of the safe-body, as is done by the time-lock-controlled door-bolts.

Notch 26 is of course so located that when rotation to seat the door ceases and the latter is fully in position it has arrived and stops opposite the end of the locking-bolt, so as to be capable to receive the same.

Having described my invention, I claim as new—

1. In means for locking the rotary door of a screw-door safe, the combination of a circular door having a boss projecting from its front which forms a journal, a non-rotary ring

which by receiving this journal supports the door, a gear-train to rotate the door consisting of a gear-wheel attached to the door and a pinion with an axially-extended hub supported on the ring which supports the door, a shell which incloses this gear-train, a combination-lock attached to the inside of this shell, a bolt actuated thereby and a keeper to receive the end of the bolt, such keeper being constituted by a notch provided in the extended part of the pinion mentioned.

2. In means for locking the rotary door of a screw-door safe, the combination of a circular door having a boss projecting from its front which forms a journal, a non-rotary ring which by receiving this journal supports the door, a gear-train to rotate the door, consisting of a gear-wheel attached to the door and

a pinion supported on the ring which supports the door, such pinion being provided with a notch to form the keeper for a locking-bolt, a shell which incloses this gear-train, a guideway formed on the inside of this shell, a locking-bolt fitted into this guideway, an actuating-bolt connected to the former bolt to move the same longitudinally and a combination-lock of which this actuating-bolt forms a part and which lock is also attached to the inside of the shell.

In testimony whereof I hereunto set my signature in the presence of two witnesses.

CHARLES E. BLECHSCHMIDT.

Witnesses:

C. SPENGEL,

ARTHUR KLINE.