

No. 793,292.

PATENTED JUNE 27, 1905.

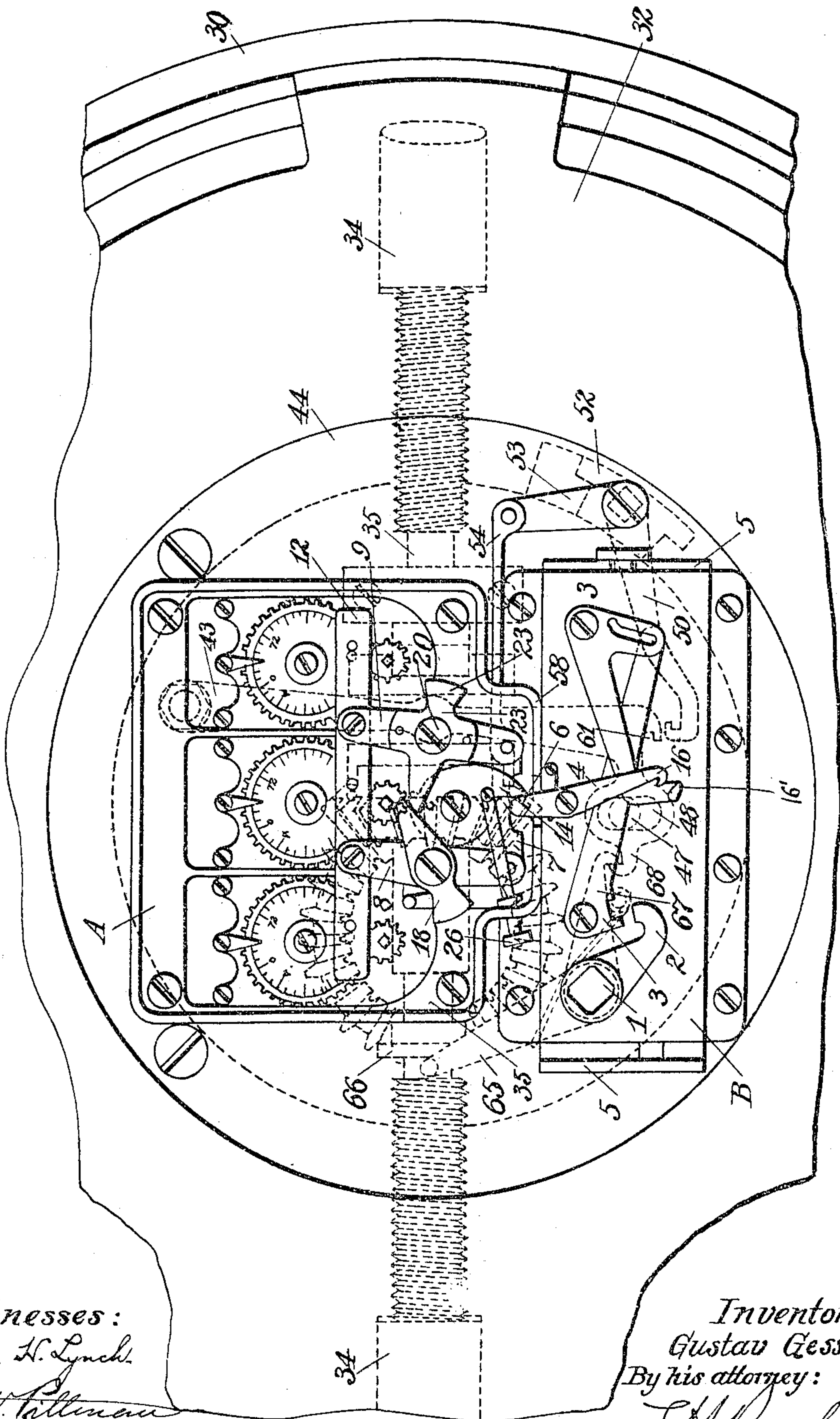
G. GESSWEIN.

DOGGING MEANS FOR SAFE OR VAULT DOOR AUTOMATICS.

APPLICATION FILED OCT. 7, 1904.

3 SHEETS—SHEET 1,

Fig. 1.



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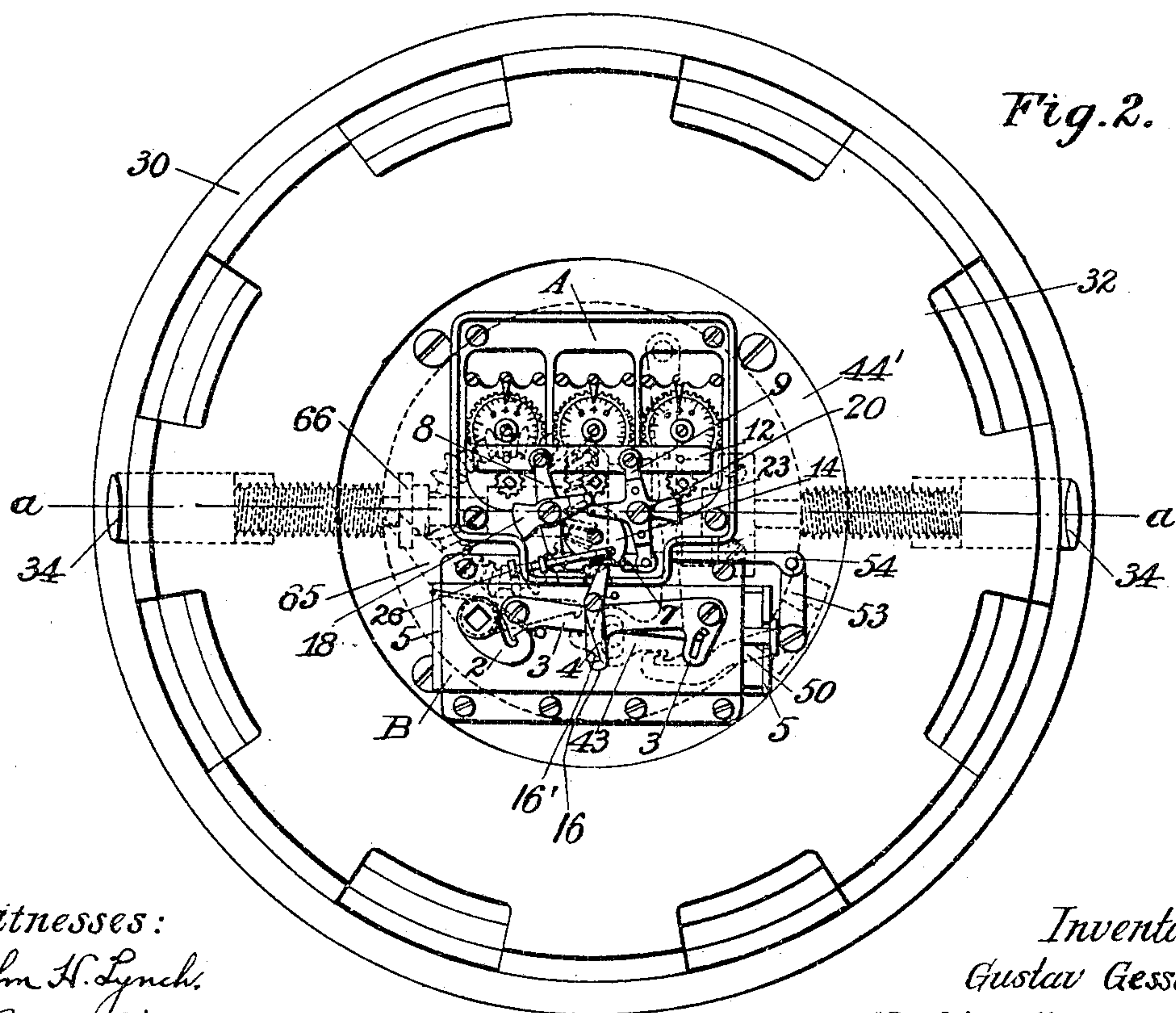
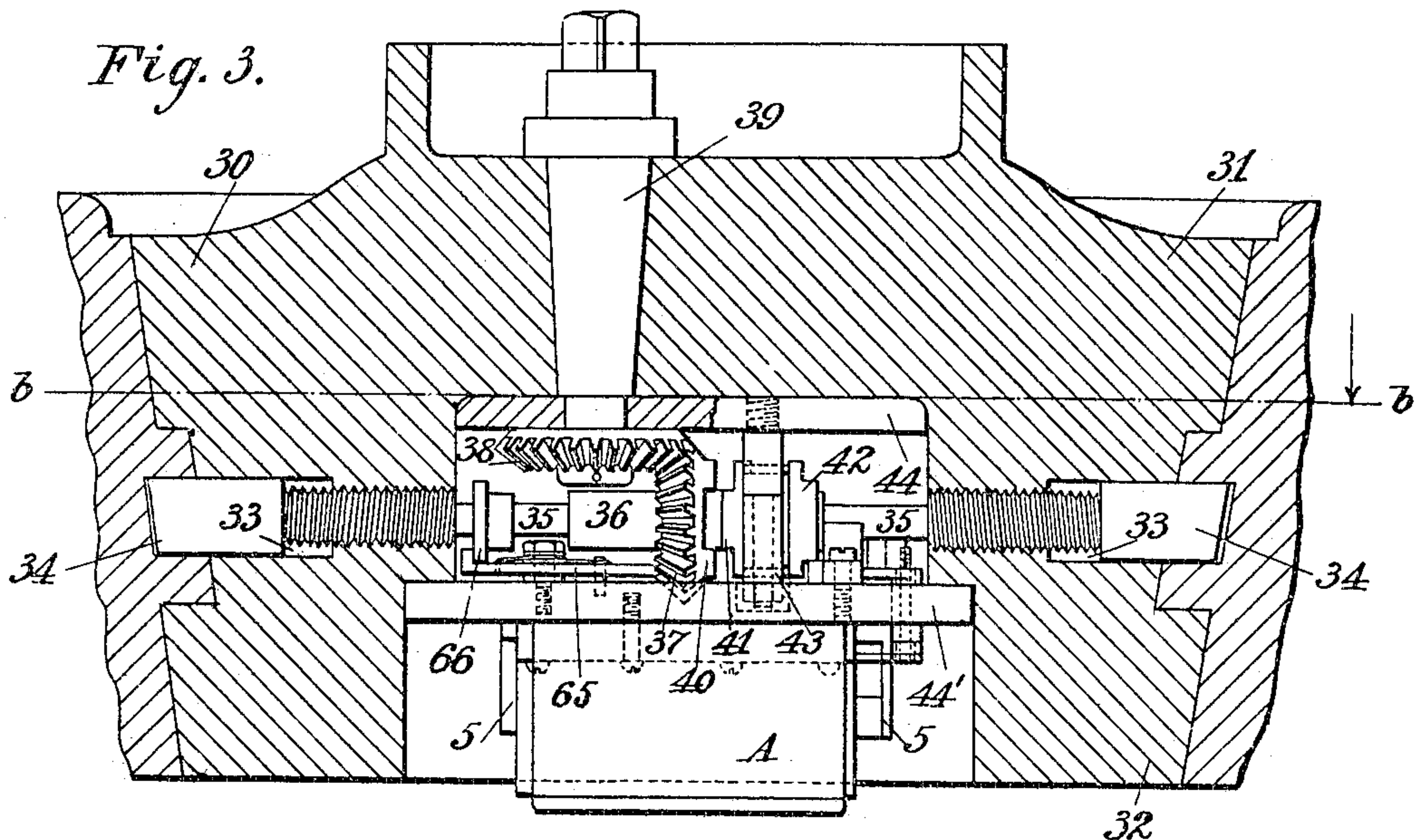
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 4.

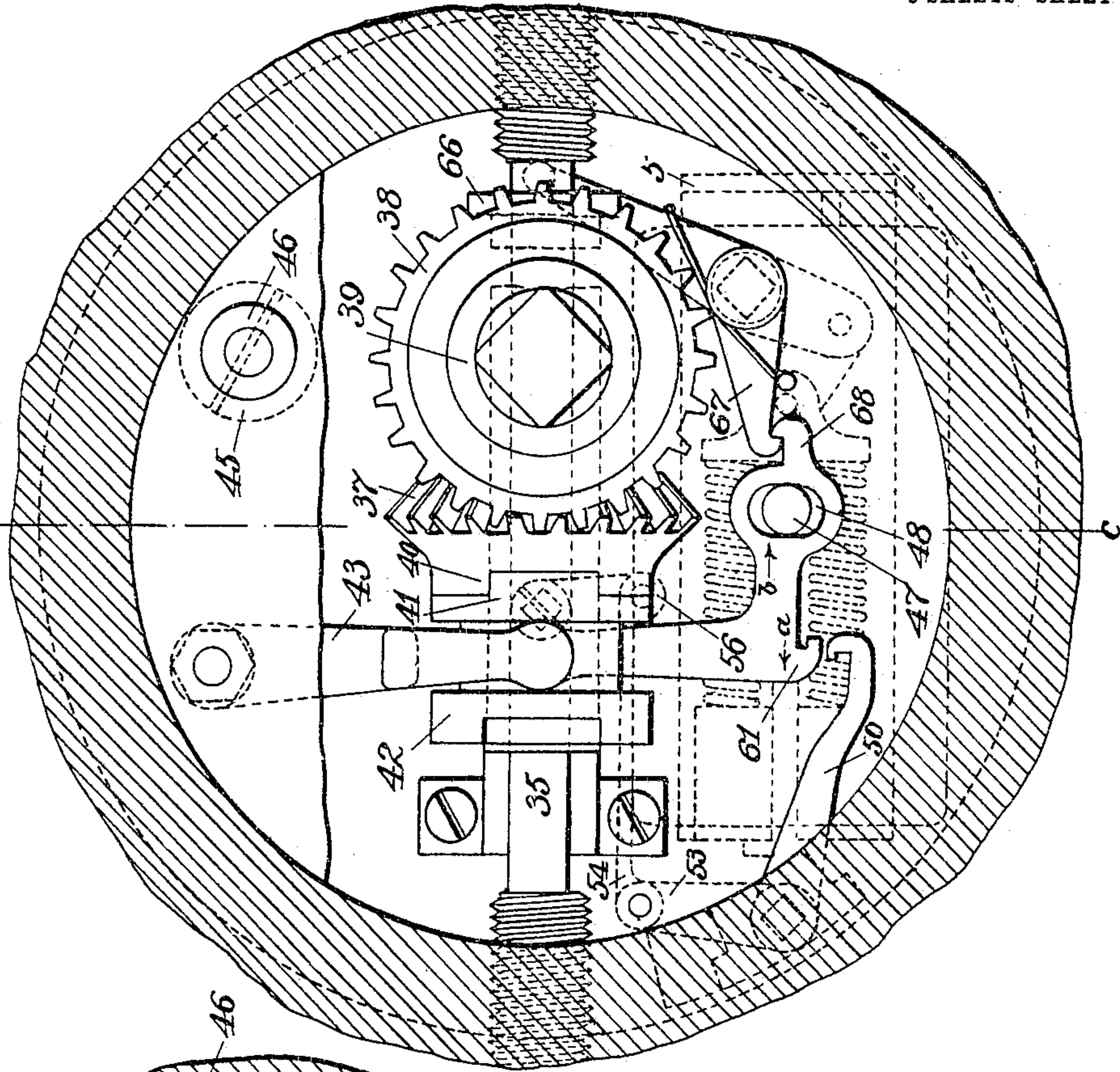
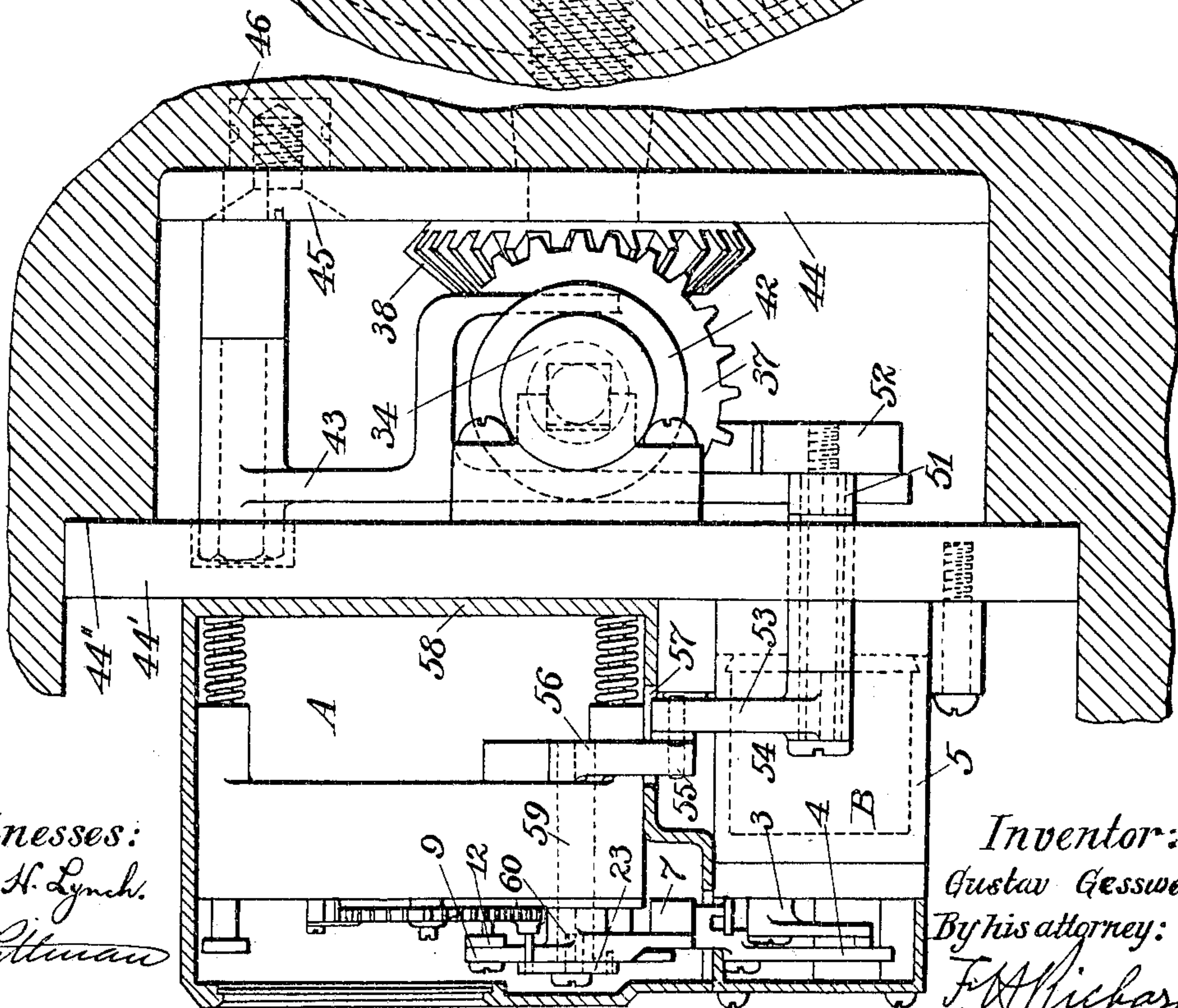


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## DOGGING MEANS FOR SAFE OR VAULT DOOR AUTOMATICS.

SPECIFICATION forming part of Letters Patent No. 793,292, dated June 27, 1905.

Application filed October 7, 1904. Serial No. 227,524.

*To all whom it may concern:*

Be it known that I, GUSTAV GESSWEIN, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Dogging Means for Safe or Vault Door Automatics, of which the following is a specification.

The present invention is designed to provide improved means for dogging or locking the bolting or locking mechanism of a safe or vault door to prevent its withdrawal by accident or otherwise except at the proper time and by the proper manipulation of the mechanism provided for that purpose, the primary object of the invention, however, being to provide a locking or dogging means which is effective, except at the proper time and by the proper means, to prevent the operation of the automatic, should its tripper or tripping-latch be prematurely operated by accident or otherwise, and to accomplish this by a means which is simple in its construction and operation and which can be applied to timing and automatic mechanism as ordinarily constructed.

In the present instance the improvement is constructed for application in connection with a bolting mechanism designed to prevent rotary movement of the door after it is rotated to its locked position, the bolts of which are operated by means of a spindle and gearing. This particular form of bolting mechanism, however, does not form a part of my invention, it being merely used to illustrate a mode of application of the present improvement.

This improvement may be used in connection with all forms of bolting or locking mechanism under the control of an automatic, the primary object of the invention being, as stated, to dog or lock the automatic against accidental or designed operation thereof other than by the proper means—that is to say, to prevent, on the accidental tripping of the automatic-controlling latch prior to the running down of the time-lock, the operation of the automatic, whatever be the form of the mechanism

which may be used with and controlled by such automatic. When, however, a different form of mechanism is used than that shown under the control of the automatic, the dogging or locking means herein shown would dog a part which would be connected with the automatic in such way as to lock the carriage or plunger thereof against retraction on the improper or premature operation of the tripping-latch and which part would not in such instance be a clutch-shifter.

The present improvement is shown applied to the timing and automatic mechanism illustrated in Patent No. 647,998, dated April 24, 1900, of which a detailed description thereof other than sufficient to illustrate the construction and operation of the present improvement is not deemed necessary. In that patented structure, however, which is one now frequently used in connection with safe or vault doors, particularly rotary doors in which means are used to prevent the rotation of the door after it is rotated to a locked position, the automatic, which is connected with the boltwork of the door, whatever may be its form, is held against its retracting movement by means of a latch, (designated as 4,) which when the time-lock runs down is operated by what is termed an "auxiliary" tripping device 14, it not being in engagement with the latch 4 until the time-lock has completely run down, at which time it acts quickly to release the latch 4, which in turn releases the several levers 3, thus permitting the automatic to retract the bolts with which it is connected. It will be noted, however, that the operation of this automatic to withdraw the bolts is thus only prevented by means of a hook 16 at the end of the latch 4, which hook in practice, in order to prevent accidental tripping, has been, together with the pin 16', made with inclined faces, the intent being that the greater the pressure upon the hooked face of the latch 4 the tighter such pin, and thereby the automatic will be locked against movement; but experience has demonstrated that it may be possible to accidentally trip this



latch 4, which is the only means, as stated, that holds the automatic against retraction, and consequently is the only means which prevents the unlocking of the safe-door if it be a bolted door and the only means of preventing rotation of the door if it be a rotary door. The present improvement therefore is designed to positively dog or deadlock the automatic should this latch or tripping device become accidentally tripped, either by concussion or otherwise, since, as will be obvious, if the part 6 is moved slightly, either by concussion or otherwise, in the same direction as the part 14 shifts it the tripping of the automatic would be completely effected and the door unlocked, since the proper locking of the door, either against rotation or against withdrawal, as the case may be, according to the form of locking means used, depends upon the proper working of this latch 4, the inclined face of which latch, as stated, is depended upon to prevent such accidental tripping.

In the drawings accompanying and forming a part of this invention, Figure 1 is a view of the rear side of a door with the bolting mechanism, the means for operating it, and the timing and automatic mechanism hereinbefore referred to in its proper position in connection with this improved means for dogging such automatic, the view illustrating the bolts as retracted. Fig. 2 is a similar view to Fig. 1 on a somewhat smaller scale, but illustrating the bolts as protracted and the dogging mechanism in position to prevent the retraction of such bolts by the accidental tripping of the latch. Fig. 3 is a cross-sectional view taken in line *a a*, Fig. 2. Fig. 4 is a rear view illustrated as taken on line *b b*, Fig. 3, looking in the direction of the arrow; and Fig. 5 is a sectional view taken in line *c c*, Fig. 4, and looking toward the right hand.

Similar characters of reference indicate corresponding parts in the different figures.

The door 30, which may be of any preferred form, is illustrated herein as a rotary integral door, of unmachineable metal, comprising a body 31 and a flange 32, having bolt-openings 33. Any suitable form of bolt mechanism for preventing the rotation of the door may be provided. In the present instance this bolt mechanism comprises a pair of right and left hand threaded oppositely-located bolts 34, the inner squared ends 35 of which project into a sleeve 36, suitably supported. Loosely mounted upon this sleeve is a bevel-gear 37, meshing with a bevel-gear 38, fixedly secured to a tapered spindle 39, projecting through the body of the door and by means of which the bolts are shifted. The loosely-mounted bevel-gear is provided with clutch-teeth 40 to mesh with clutch-teeth 41 of a clutch member 42, keyed to the said sleeve. For throwing the clutch members into and out of engagement a suitable clutch-shifter 43 is provided, pivoted to a plate 44, preferably secured to

the body 31 of the door by means of screws or bolts 45 projecting into soft-metal inserts 46, located in such door. In the present instance this clutch-shifter, which when shifted in one direction throws the splined clutch member into engagement with the clutch-teeth of the bevel-gear, and thus fixedly connects such gear with the sleeve, and thereby with the right and left hand threaded bolts, so that on the turning of the bevel-gear by means of the spindle the bolts will be retracted or protracted, and which when thrown in the opposite direction disengages the clutch members to prevent this manipulation of the bolts and is controlled in its operation by means of timing and automatic mechanism, which, as hereinbefore stated, may be in the usual form thereof. This mechanism, as shown, comprises a suitable timing mechanism, (designated by A,) having the usual triple time movements, and a suitable automatic, (designated by B,) properly connected, so that when the automatic is wound and the time mechanism properly set it will trip the automatic to throw the clutch-shifter 43 into position to engage the clutch members, so that the bolts can be manipulated by the spindle. This timing mechanism and automatic are shown supported by a plate 44', secured to an annular shoulder 44'', formed on the door-flange. In view of the well-known construction of the timing and automatic mechanisms it is merely necessary to refer only to those parts thereof which have connection with the present improvement. The spring-controlled carriage or plunger 5 of the automatic is set by means of a hub 1 for the reception of the key or crank. This hub is provided with a hooked arm 2, coöperating with a system of levers 3 under the control of a latch or tripper 4 for locking such carriage in its set position. This latch 4 is shown projecting into the casing of the timing mechanism and is adapted to be tripped by means of an auxiliary tripping device 14, having a peripheral tooth to engage the end 6 of such latch and which latch should the auxiliary tripping device 14 fail to work will be tripped, its end 6 being forced toward the left, Fig. 1, by means of the yoke 7, connected with the bar 12 by means of primary levers 8 and 9. The auxiliary device 14 is spring-actuated, being set by a plunger 26, and is locked in its set position by means of a detent 18, under the control of a releasing-arm 23, carried by the primary lever 9 and which when the primary lever 9, which is fulcrumed upon the screw 20, is swung by the time movements releases the detent 18, whereupon the spring or springs of the auxiliary device moves the same to trip the latch 4, and should it fail to do so the yoke 7, which on the complete running down of the time movements is moved toward the left, Fig. 1, through the action of the bar 12, which is shifted toward the right, Fig. 1, by means of pins or studs



carried by the dials of the time mechanism, which engage with projections on the rear of such bar 12, will accomplish this result.

The spring plunger or carriage 5 of the automatic is connected with the clutch-shifter 43, hereinbefore described, by means of a pin or stud 47, which projects rearwardly of such member, such stud projecting into an elliptically-shaped opening 48 of the clutch-shifter. From the foregoing it will be seen that when the automatic is set the carriage moving in the direction of the arrow *a*, Fig. 4, will shift the clutch-shifter so as to carry the splined clutch member away from the teeth of the bevel-gear; but when the time movement runs down and the latch 4 is shifted to release the automatic and the spring-actuated carriage 5 moves in the direction of the arrow *b*, Fig. 4, it will shift the clutch-shifter so that it will move the splined clutch member into engagement with the teeth of the bevel-gear and permit, through the medium of the companion bevel-gear and the spindle, the retraction of the bolts.

From the above it will be seen that in the present mechanism, as well as in any other form of mechanism known to me in which the automatic is under the control of a mere latch 4, even though this latch may be itself held by a spring-controlled or yieldingly-supported guard, it is possible to trip this latch by concussion, especially as it is free and not engaged either by the yoke 7 or the auxiliary device 14 except when it is shifted, thus releasing the automatic, which of course would withdraw the bolts in the ordinary forms of bolting mechanism and in the present case shift the clutch-shifter so that by the manipulation of the spindle the bolts could be retracted. To prevent this, the present improvement is devised, which comprises a dogging means consisting of a hooked arm 50, the hub 51 of which is pivotally secured to the door, preferably by means of an insert 52, located in a suitable part of the door. A projecting part 53 of this arm is connected, by means of a link 54, with a part of the time-lock mechanism. In the present instance it is connected thereto by means of a crank-pin 55, the arm 56 of which pin passes through an opening 57 in the bottom of the time-lock casing 58 and has its hub fixed to a stud 59, held in place by a screw 60 and upon which stud the hub of the primary arm 9 is located in such manner that the stud oscillates with the arm 9, so as to swing the dogging-arm 50 in a manner which will be readily understood. The assemblage of the parts is such that the crank-pin 55 fits relatively loosely in the end of the link 54, and as the hub 51 of this link is supported between the plates 44 and 44' and as the clutch-shifter 43 is supported by the plate 44, both of which supports are thus in front of the plate 44, should the plate 44', ordinarily termed the "back" plate, be blown

off, together with the timing and automatic mechanism, the clutch-shifter would still be locked against movement, so that the bolts could not be retracted. It will thus be seen that although the time-locks control the locking device and operates it as it runs down such locking device would continue to lock the clutch-shifter against movement, even though both time-locks and automatic are blown into the interior of the safe, the pin or stud of the automatic slipping, of course, out of the opening in the clutch-shifter.

The hook of the dogging-lever in the present instance coöperates with a similarly-formed hook 61, carried by the clutch-shifter 43, although in those constructions in which a clutch-shifter would not be used its hooked part 61 could be formed on some other part or, in fact, be simply a hooked member having an opening for the reception of the pin of the spring-actuated plunger or carriage 5 of the automatic, so that should the latch 4 be shifted accidentally or prematurely the clutch-shifter or other member provided for coöperation with the dogging-arm would be prevented from movement by such arm, as shown in Fig. 2, and thus the carriage or plunger of the automatic prevented from retracting the bolts. The action of the time movements, however, is such that the bar 12, and thereby the primary arms 9 and 10, are gradually shifted as the time movements run down, and during this final running down of the time movements the bar 12 moving toward the right in Fig. 1 throws the lower end of the primary arm 9 toward the left, thereby oscillating the locking-arm 50 and moving it away from the clutch-shifter, so that as such time movements finally run down the primary arms 9 and 10 are further operated and release the detent 18, and thereby the auxiliary device 14, through the action of which the latch 4 is tripped, whereupon the retraction of the carriage 5 of the automatic moves the clutch-shifter to throw the splined clutch member into engagement with the teeth of the bevel-gear, as hereinbefore set forth.

From the foregoing it will be seen that a safeguard is provided against the premature operation of the automatic on the accidental tripping of the latch 4, so that the entire contents of a safe no longer depend upon the mere security of a swinging latch, as heretofore, which may be jarred by concussion to release the boltwork, but depend in addition upon a positively-acting locking mechanism—that is, one not merely held in position by means of a spring and which until the time-lock has run down in its proper manner will not permit the operation of the automatic, and consequently will prevent the retraction of the bolts which may be used either to bolt the door to its seat or to prevent its rotation, as the case may be. Furthermore, it will also be observed that it is not the latch 4 which



is locked, but the plunger or carriage itself. In consequence should the tripper or latch be jarred it will not, as stated, release the plunger or carriage, as heretofore.

5 In the present organization while the automatic is locked against premature operation this is accomplished in a practical manner and by a means which is itself under the control of  
10 a part of the operating mechanism—to wit, the time-lock—so that it is positively set each time the locking mechanism is set and does not depend upon concussion or other violence to set it and is also properly released by a part of such mechanism, so that a lock-out does not  
15 result each time it is set, which would be the case if no means were provided to properly release this dogging means when the time-lock runs down. Consequently each time the time-lock is set the dogging device is thrown  
20 into its effective position; but as this time-lock runs down it is released to permit the bolts to be retracted.

In the mechanism shown it is necessary that some means be provided for holding the clutch  
25 members in engagement during a certain period to permit the bolts to be protracted after the door is rotated to its locked position, since the automatic must be set before the door is closed. In other words, as the automatic is  
30 set before the door is closed the protraction of the plunger would move the clutch-shifter, and thereby the splined clutch member with which it is connected, away from the clutch-teeth of the bevel-gear, so that after the door  
35 is closed it would not be possible, owing to the fact that the clutch members would be then out of engagement, to rotate the bolts into their protracted position. For the purpose of holding the clutch-shifter against move-  
40 ment until the bolts are firmly shot home a suitable actuating device is provided comprising a spring-controlled arm 65, having a pin or stud to engage a collar 66 of one of the bolts. This arm is pivotally secured to the  
45 plate 44' and has its opposite end 67 hooked to engage a hooked portion 68 of the clutch-shifter, so that when the bolts are in their retracted position the hooked portions of this lever and the clutch-shifter will engage, and  
50 consequently when the automatic is set the spring-actuated plunger will be prevented from moving, although the levers 3, which tend to hold it in such protracted position, will be set. As soon, however, as the bolts  
55 are fully protracted by means of the spindle and gearing the arm 65 will be shifted so as to release the clutch-shifter, whereupon, owing to the fact that the plunger or carriage is under spring-pressure and the levers of which  
60 have been set, the clutch-shifter will be immediately shifted as the plunger moves into its proper position to carry the splined clutch member away from the teeth of the bevel-gear, so that no longer can the bolts be ma-  
65 nipulated by means of the spindle and which

can only be done thereafter when the time movements have run down in the manner hereinbefore described. This part of the present subject-matter, however, is not a part of my invention except in so far as relates to the  
70 particular means for locking the automatic against accidental operation.

The term "automatic" as used herein is intended to mean a power device—such, for instance, as those now well known to and called  
75 by the trade an "automatic"—and which comprises an organization of mechanism adapted to perform certain work when by means of a lock—such, for instance, as a time-lock—its latch is tripped to release the spring-operated  
80 carriage or plunger of such automatic.

I am aware that it is not new to guard, by means of a yielding device, the latch or tripper of an automatic; but this guard depends for its efficiency upon a spring and is therefore  
85 not positively acting nor is it effective to prevent the automatic from operating should the tripper or latch be prematurely moved, which is possible, since the guard depends, as stated, upon the mere efficiency of the spring. More-  
90 over, in the structure referred to as the hook-engaging surface of the latch and its cooperating part of the lever are not inclined the guard merely performs the work which would be performed by the inclined surface of the  
95 hook and its cooperating lever were they inclined, and therefore is merely a substitute therefor and does not accomplish the object of the present invention—namely, preventing  
100 the operation of the automatic should the latch itself be tripped prematurely.

Having thus described my invention, I claim—

1. In a safe or vault door bolting or locking mechanism, the combination with an automatic  
105 for controlling such bolting or locking mechanism, of means for dead-locking such automatic should the latch or tripper thereof be prematurely actuated, thereby to prevent the operation of the bolting or locking mechanism  
110 and means for releasing such dead-locking means at the proper time.

2. In a safe or vault door bolting or locking mechanism, the combination with a time-mechanism-controlled automatic for controlling  
115 such bolting or locking mechanism, of means for dead-locking such automatic should the latch or tripper thereof be prematurely actuated, thereby to prevent the operation of the bolting or locking mechanism and means for  
120 releasing such dead-locking means at the proper time.

3. In a safe or vault door bolting or locking mechanism, the combination with an automatic having a spring-actuated plunger or carriage,  
125 of a member connected thereto for movement therewith, and means for dead-locking said member should the plunger be prematurely released, and means for releasing such dead-locking means at the proper time.  
130



4. In a safe or vault door bolting or locking mechanism, the combination with an automatic having a spring-actuated plunger or carriage, of a member connected thereto for movement therewith should the plunger be prematurely released, oscillatory means for dead-locking said member, and means for releasing said locking means.

5. In a safe or vault door mechanism, the combination with an automatic having a spring-actuated member or carriage, of a hook-shaped member connected thereto for movement therewith, and a hook-shaped locking device for dead-locking said member should the member or carriage be prematurely released, and means for releasing said locking means at the proper time.

6. In a safe or vault door mechanism, the combination with an automatic having a spring-actuated plunger or carriage, and timing mechanism for controlling the movement of said carriage when protracted, of a member connected to said carriage for movement therewith, and means for locking said member and thereby the carriage in its protracted position should the automatic be prematurely tripped prior to the proper running down of the time-lock.

7. In a safe or vault door mechanism, the combination with an automatic having a spring-actuated plunger or carriage, and means for holding the same in its protracted position, including a latch or tripper, of means for locking said carriage in its protracted position should the tripper be accidentally or prematurely shifted and a lock-operated means for releasing such locking means at the proper time.

8. In a safe or vault door mechanism, the combination with an automatic having a spring-actuated plunger or carriage and means for holding said carriage protracted including a tripping device, and timing mechanism for actuating said tripping device, of means for locking said carriage in its protracted position should the tripper be prematurely operated prior to the running down of the time-lock said timing mechanism also releasing as it finally runs down said locking means.

9. In a safe or vault door, the combination with means for locking the door in its seat, an automatic connected therewith for controlling the operation thereof, and timing mechanism for controlling the operation of said automatic, of means for locking said automatic against premature operation should its tripper or latch be prematurely operated, and means controlled by said timing mechanism for releasing said locking means.

10. In a safe or vault door, the combination with locking means for locking the door in its jamb, an automatic connected therewith for controlling the operation thereof and including a latch for maintaining said automatic properly

adjusted, and timing mechanism controlling the movement of said latch, of means for locking said automatic against premature operation should its latch be prematurely tripped, and including means so connected with said timing mechanism as to release said locking means prior to the tripping of said latch by said timing mechanism.

11. In a safe or vault door mechanism, the combination with bolting mechanism for locking the door against movement in its jamb, an automatic connected with such bolting mechanism for controlling the retraction thereof and including a latch or tripper, and time mechanism for controlling the movement of said latch or tripper, of locking means for locking the automatic against premature operation should its latch or tripper be prematurely tripped, and including means connected with the timing mechanism for releasing said locking mechanism prior to the tripping of the latch or tripper.

12. In a safe or vault door, the combination with bolting mechanism, of means for actuating the same including a clutch-shifter, an automatic connected with said clutch-shifter for actuating it and having a latch controlling the retraction of such automatic, timing mechanism controlling the shifting of said latch, and means for locking the automatic and connected with said timing mechanism for effecting the release thereof.

13. In a safe or vault door, the combination with bolting mechanism, means for actuating the same and including a clutch-shifter, an automatic connected with said clutch-shifter for actuating it and having a latch controlling the retraction of such automatic, and timing mechanism controlling the shifting of said latch, of means for locking said clutch-shifter thereby to prevent the retraction of the automatic.

14. In a safe or vault door, the combination with bolting mechanism, means for actuating the same and including a clutch-shifter, an automatic connected with said clutch-shifter for actuating it and having a latch controlling the retraction of such automatic, and timing mechanism controlling the shifting of said latch, of means for locking said clutch-shifter, thereby to prevent the retraction of the automatic, and connected with the time mechanism for releasing said clutch-shifter prior to the tripping of said latch.

15. In a safe or vault door, the combination with bolting mechanism, means for actuating the same and including a clutch-shifter, an automatic having a spring-actuated plunger or carriage connected with such clutch-shifter, of means for locking said clutch-shifter against movement thereby to prevent the premature shifting of the clutch should the automatic be prematurely tripped, and means for releasing said locking means.

16. In a safe or vault door, the combination with bolting mechanism, means for operating



the same and including a clutch-shifter, an automatic having a spring-actuated plunger or carriage connected with said clutch-shifter, said shifter having a hook, a locking device 5 having a cooperating hook for locking said shifter against premature movement should the automatic be prematurely tripped, and timing mechanism controlling the movement of said automatic, of means connected there- 10 with and with the locking device for releasing the clutch-shifter prior to the tripping of the automatic.

17. In a safe or vault door mechanism, the combination with an automatic having a 15 spring-actuated plunger or carriage, a member connected thereto for movement therewith, of means for latching said carriage against retraction, means for dead-locking said member to prevent the premature retraction of the 20 carriage should the latching means be prematurely tripped, and means for releasing said locking means.

18. In a safe or vault door mechanism, the combination with an automatic having a 25 spring-actuated plunger or carriage, of a member connected thereto for movement therewith, means for latching said carriage against movement, means for dead-locking said member to prevent the premature retraction of the 30 carriage should the latch be prematurely tripped, and timing mechanism effective to first release the locking means and then the latching means.

19. In a safe or vault door locking mechanism, the combination with an automatic having 35 a spring-actuated plunger or carriage, a latch for controlling the movement thereof, of means for locking said carriage against retraction should the latch be prematurely tripped; and 40 means for releasing said locking means.

20. In a safe or vault door mechanism, the combination with an automatic having a latch or tripper, timing mechanism for actuating 45 said tripper and including an oscillatory arm, of means for locking said automatic against premature operation should the latch be prematurely shifted, and means shiftable with 50 said oscillatory arm for releasing said locking mechanism prior to the tripping of the latch by the time mechanism.

21. The combination with a safe or vault door having a chamber, of a plate secured 55 therein, bolting mechanism for locking the door in its seat and including a clutch-shifter pivoted to said plate, an automatic connected with said clutch-shifter for controlling the movement thereof, timing mechanism for controlling said automatic, and means for lock- 60 ing said clutch-shifter against premature operation and including means connected with the timing mechanism for releasing said locking means prior to the proper operation of the automatic.

22. A safe or vault door having a body pro-

vided with a flange forming a chamber, a plate 65 located in said chamber, bolting mechanism for locking the door in its jamb and including means for actuating said bolts having a clutch-shifter pivotally supported on said 70 plate, an automatic connected with said clutch-shifter and including a tripper, timing mechanism for actuating said tripper, and means pivotally secured adjacent to the flange for locking said clutch-shifter against premature 75 operation and connected with said timing mechanism for operation prior to the tripping of the automatic by said timing mechanism.

23. A safe or vault door comprising a body and a flange forming a chamber and having 80 an annular shoulder intermediate said body and the free end of said flange, a plate located within said chamber and secured to said body, a plate supported by said shoulder, bolting 85 mechanism for locking the door to its seat and including means for shifting said bolting mechanism and embodying a clutch-shifter pivotally connected to said first-mentioned 90 plate, an automatic connected with said clutch-shifter and supported by said second-mentioned plate, timing mechanism also supported 95 by said last-mentioned plate for controlling said automatic, and means controlled by said timing mechanism for locking said clutch-shifter and thereby the automatic against pre- 100 mature operation.

24. In a safe or vault door mechanism, the combination of an automatic, a time-lock 105 mechanism controlling the same, means controlled by said automatic for locking the door, means for locking said means against oper- 110 ation should the automatic be prematurely operated, the organization being such that the door-locking means is held locked although the time and automatic mechanisms be forced 115 into the safe.

25. In a safe or vault door mechanism, the combination of an automatic, a time-lock 120 mechanism controlling the same, means controlled by said automatic for locking the door and including a clutch-shifter, means for lock- 125 ing said clutch-shifter against operation should the automatic be prematurely operated, the organization being such that the clutch-shifter and thereby the door-locking means are held locked although the time and auto- 130 matic mechanisms be forced into the safe.

26. In a safe or vault door mechanism, the combination of a door having a flange form- 135 ing a chamber, a pair of plates carried by said door, one secured within said flange, time and automatic mechanism carried by the rearward 140 plate, means controlled by said automatic for locking the door in its seat, and means for locking said door-locking means against pre- 145 mature operation and supported behind said plates and having a readily-separable connec- 150 tion with the time and automatic mechanisms so that should the time and automatic mech-



anisms be forced into the interior of the structure the door would still be locked.

27. In a safe or vault door mechanism, the combination of a door having a flange forming a chamber, a pair of plates carried by said door, one secured within said flange, time and automatic mechanism carried by the rearward plate, means controlled by said automatic for locking the door in its seat, and including a clutch-shifter separably connected with said automatic, and means for locking said clutch-shifter against movement and separably connected with said time mechanism, said clutch-shifter and locking means being supported between said plates, so that should the time and automatic mechanisms be forced into the interior of the safe the door would still be locked in its seat.

28. In a safe or vault door, the combination with means for locking the door to its seat, an automatic controlling the operation of such door-locking means, timing mechanism for controlling the retraction of the automatic, of means for locking said door-locking means and thereby the automatic against premature retraction and released by said timing mechanism and having a readily-separable connection with the automatic and timing mechanism, and supported independently of said mechanism so that should such mechanism be forced into the interior of the safe the door would still be locked closed.

29. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, of means for dead-locking such plunger or carriage should it be prematurely tripped or released and time-lock mechanism for controlling the operation of said dead-locking means.

30. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, and a tripper or latch for releasing said carriage, of means for dogging a part of the automatic other than the tripper or latch thereby to lock the same against movement should the tripper be prematurely actuated and means

for releasing said dogging means at the proper time.

31. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, and a tripper or latch for releasing said carriage, of means for dogging a part of the automatic other than the tripper or latch thereby to lock the same against movement should the tripper be prematurely actuated, and time-lock mechanism for controlling the tripping of the latch, and said dogging means.

32. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, and a tripper or latch for releasing said carriage, of means for positively dogging a part of the automatic other than the tripper or latch thereby to lock the same against movement should the tripper be prematurely actuated and mechanism for mechanically setting and releasing said dogging means.

33. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, and a tripper or latch for releasing said carriage, of means for dogging a part of the automatic other than the tripper or latch thereby to lock the same against movement should the tripper be prematurely actuated, and means for preventing movement of the carriage or plunger at a predetermined period.

34. In a safe or vault door bolting or locking mechanism the combination with an automatic having a spring-actuated plunger or carriage, and a tripper or latch for releasing said carriage, of means for dogging a part of the automatic other than the tripper or latch thereby to lock the same against movement should the tripper be prematurely actuated, and means for preventing movement of the carriage or plunger at a predetermined period and controlled by the bolts of the bolting mechanism.

GUSTAV GESSWEIN.

Witnesses:

CHESTER A. WEED,  
SYDNEY L. SMITH.