

No. 788,085.

PATENTED APR. 25, 1905.

O. W. BEDELL & H. D. HIBBARD.

DOGGING MECHANISM FOR SAFE OR VAULT BOLTING MECHANISMS.

APPLICATION FILED FEB. 4, 1904.

2 SHEETS—SHEET 1.

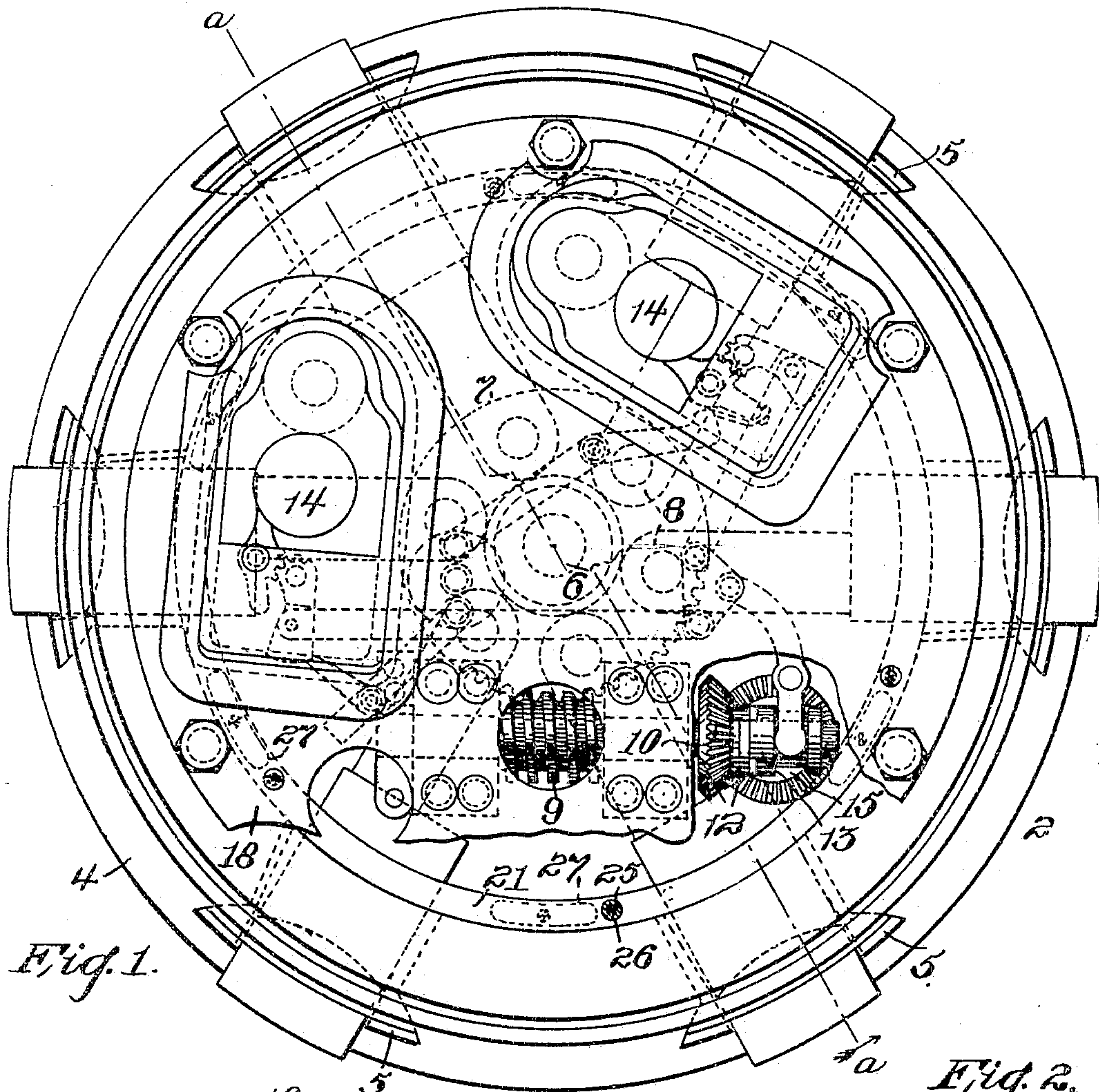


Fig. 1.

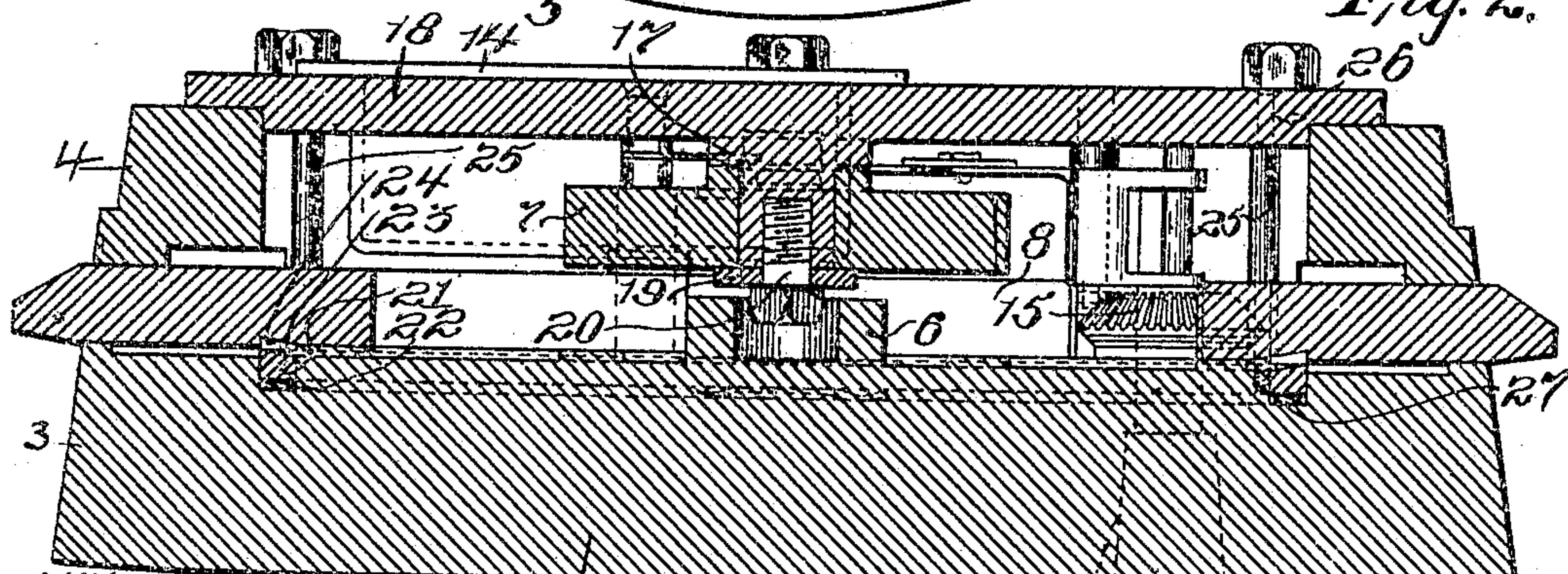


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

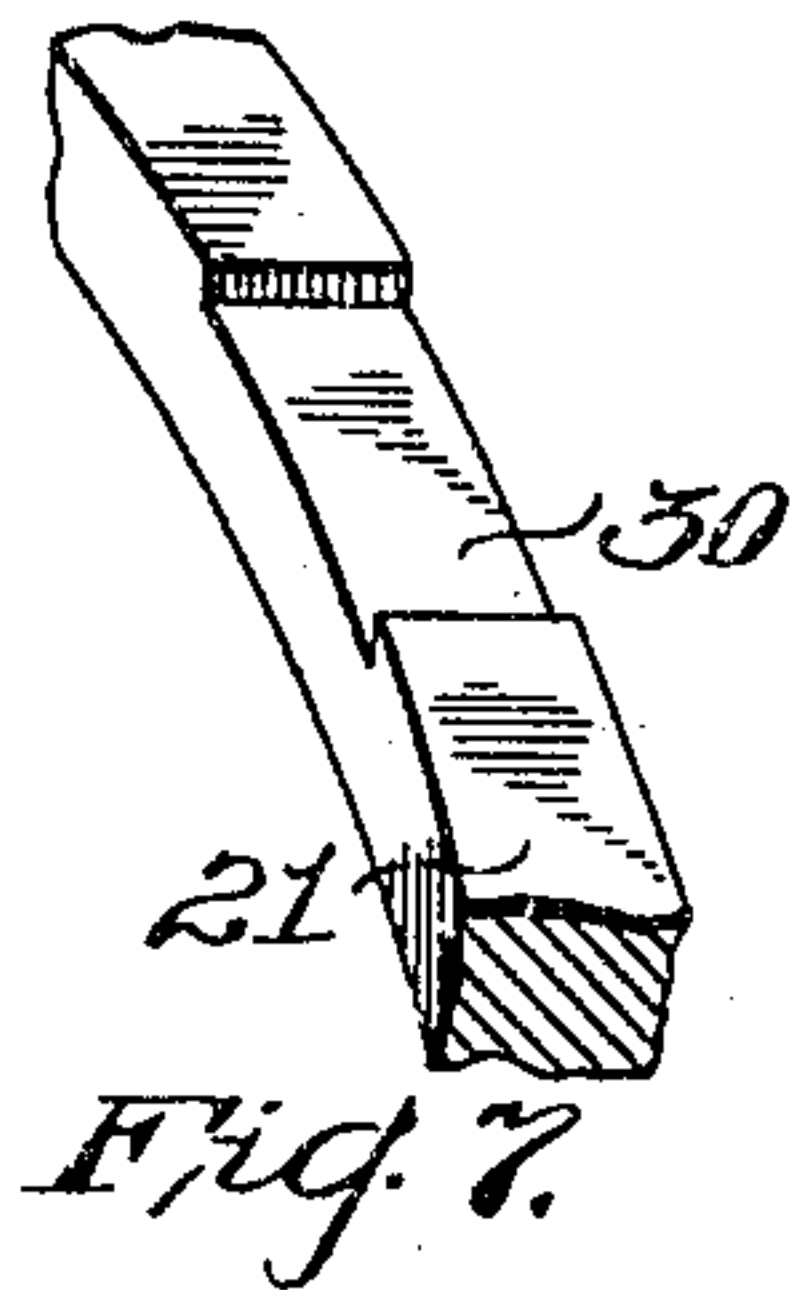
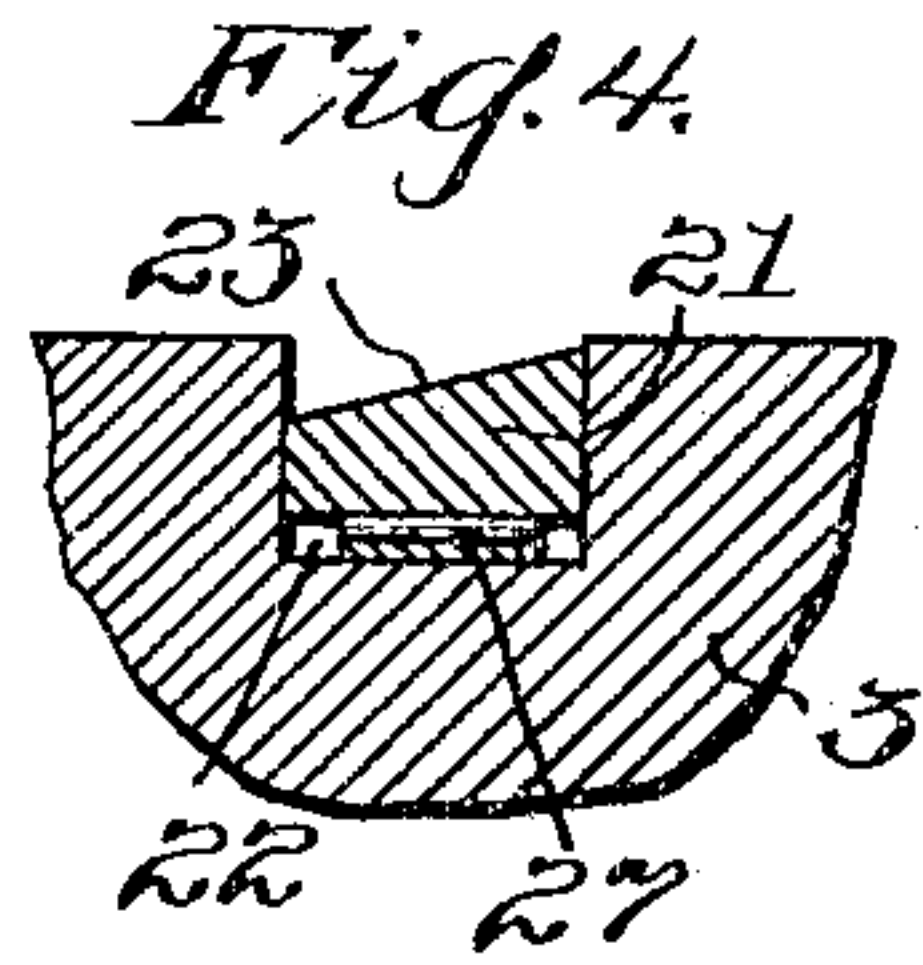
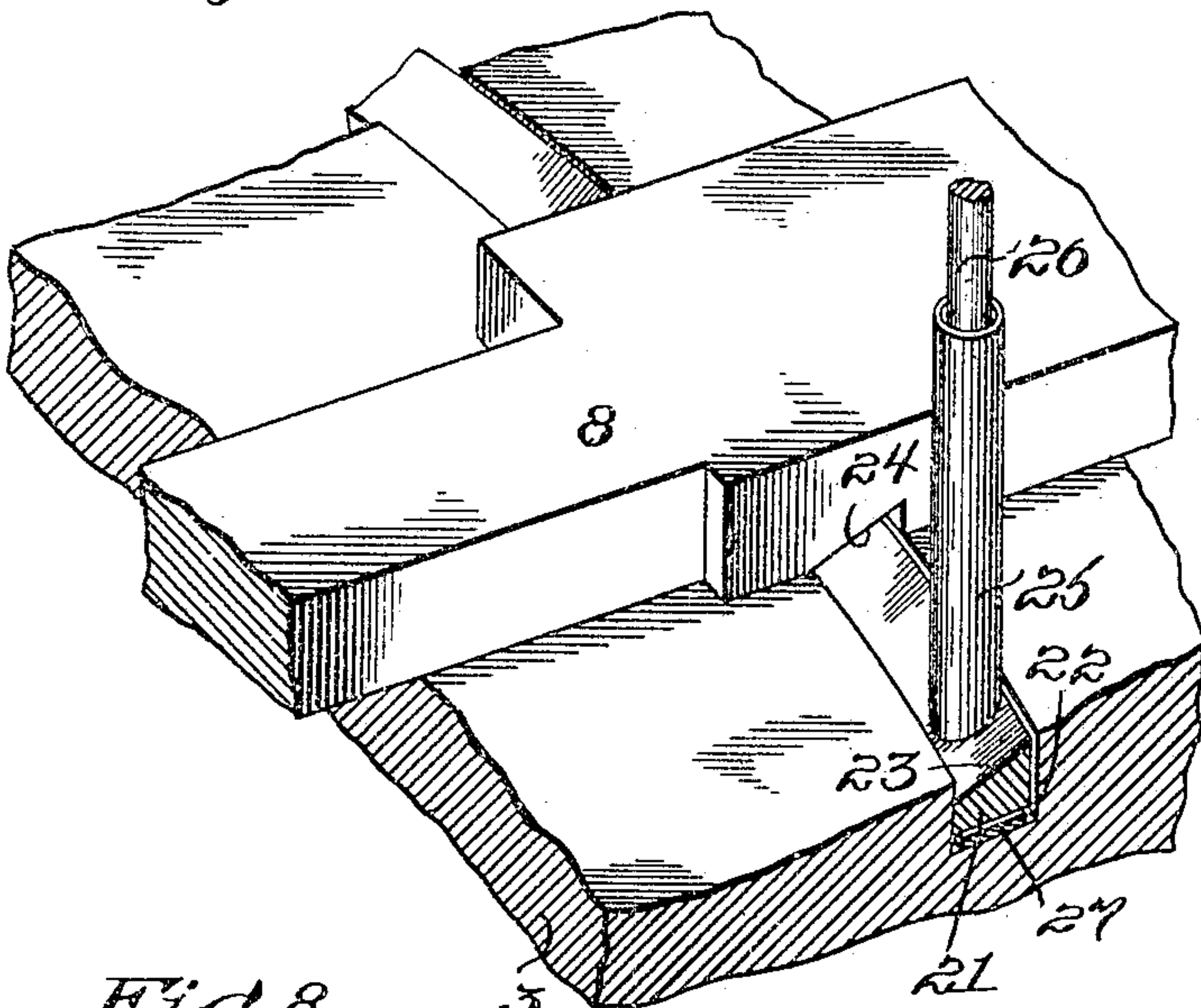


Fig. 8.

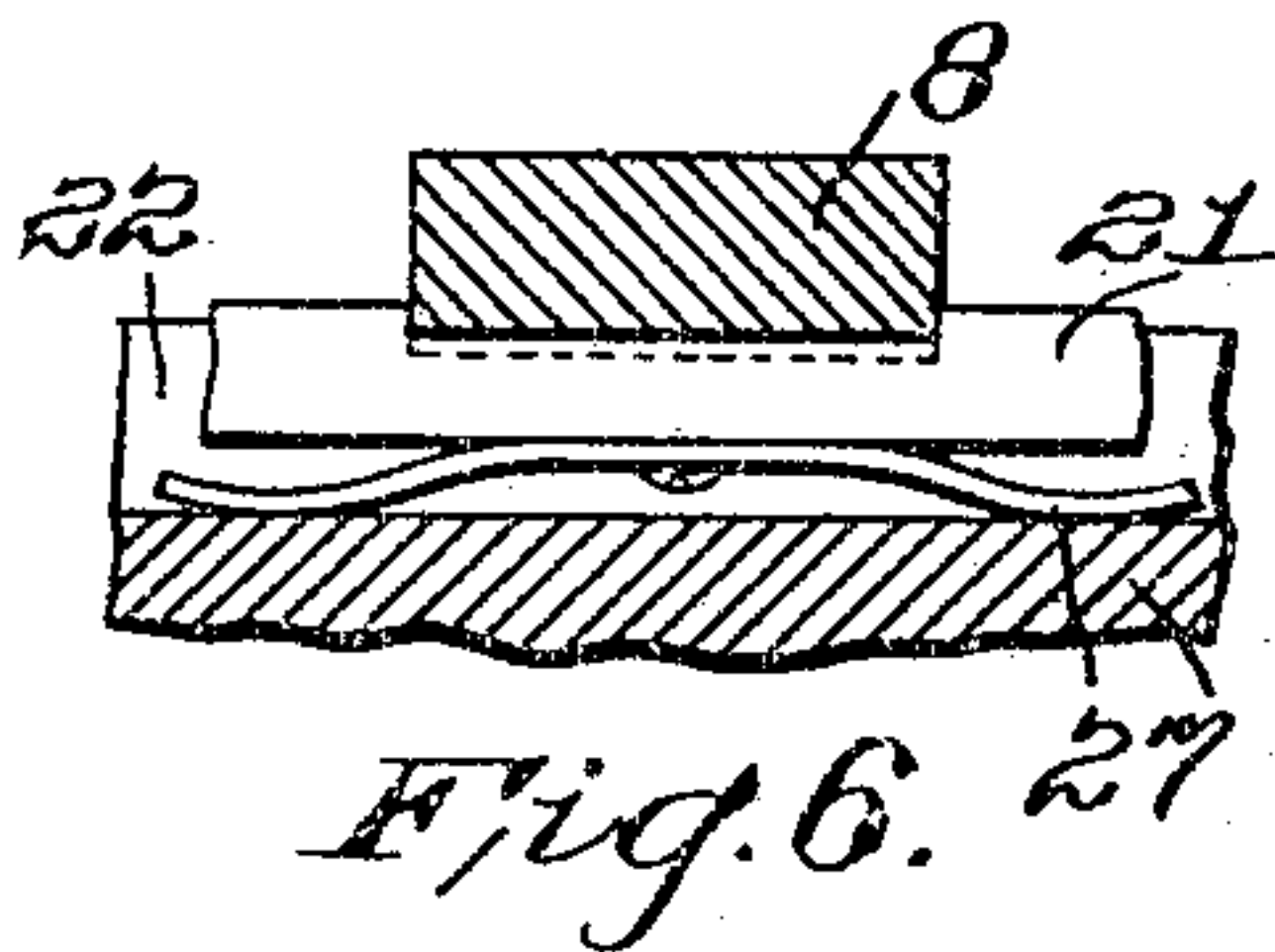
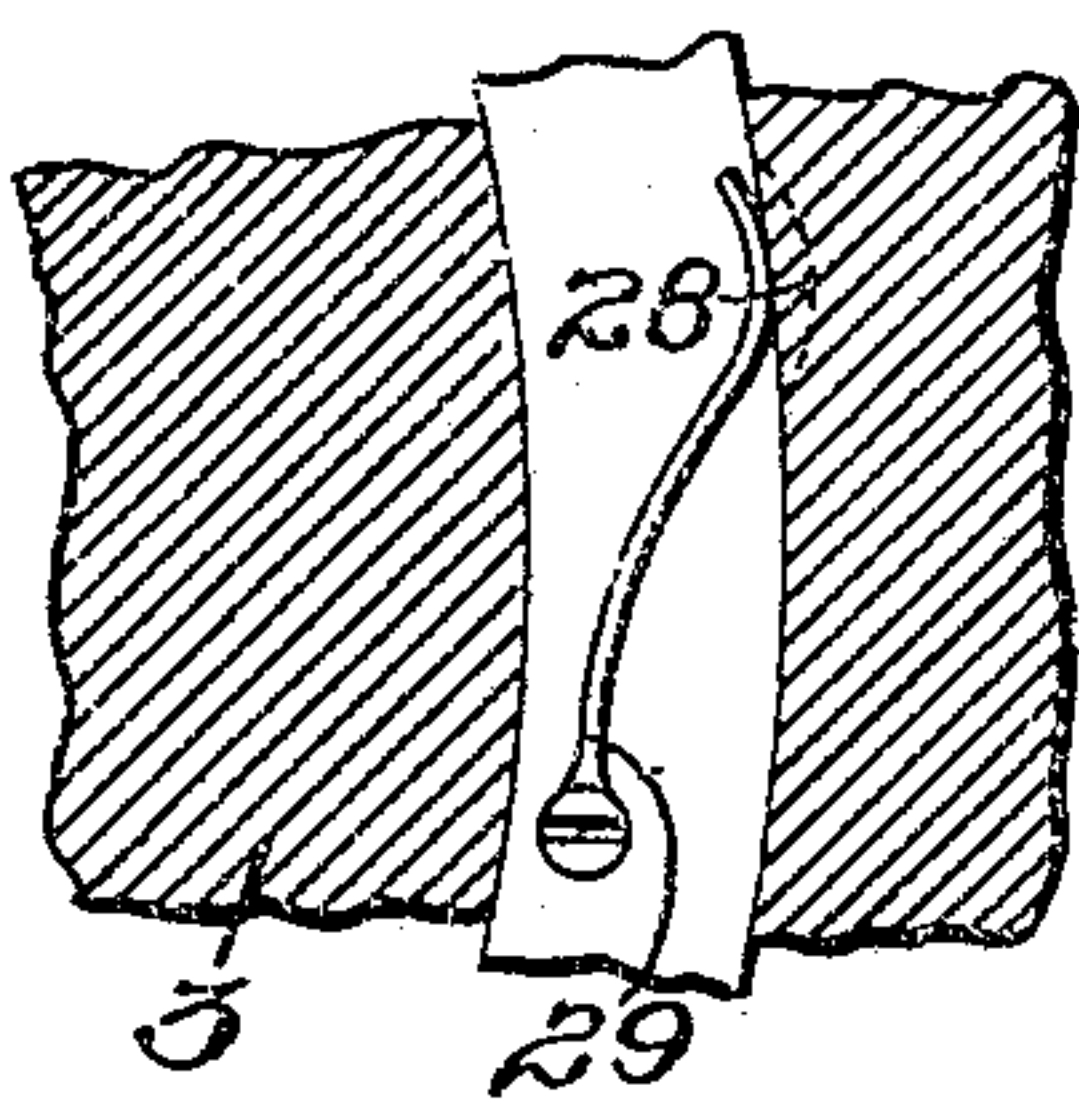


Fig. 6.

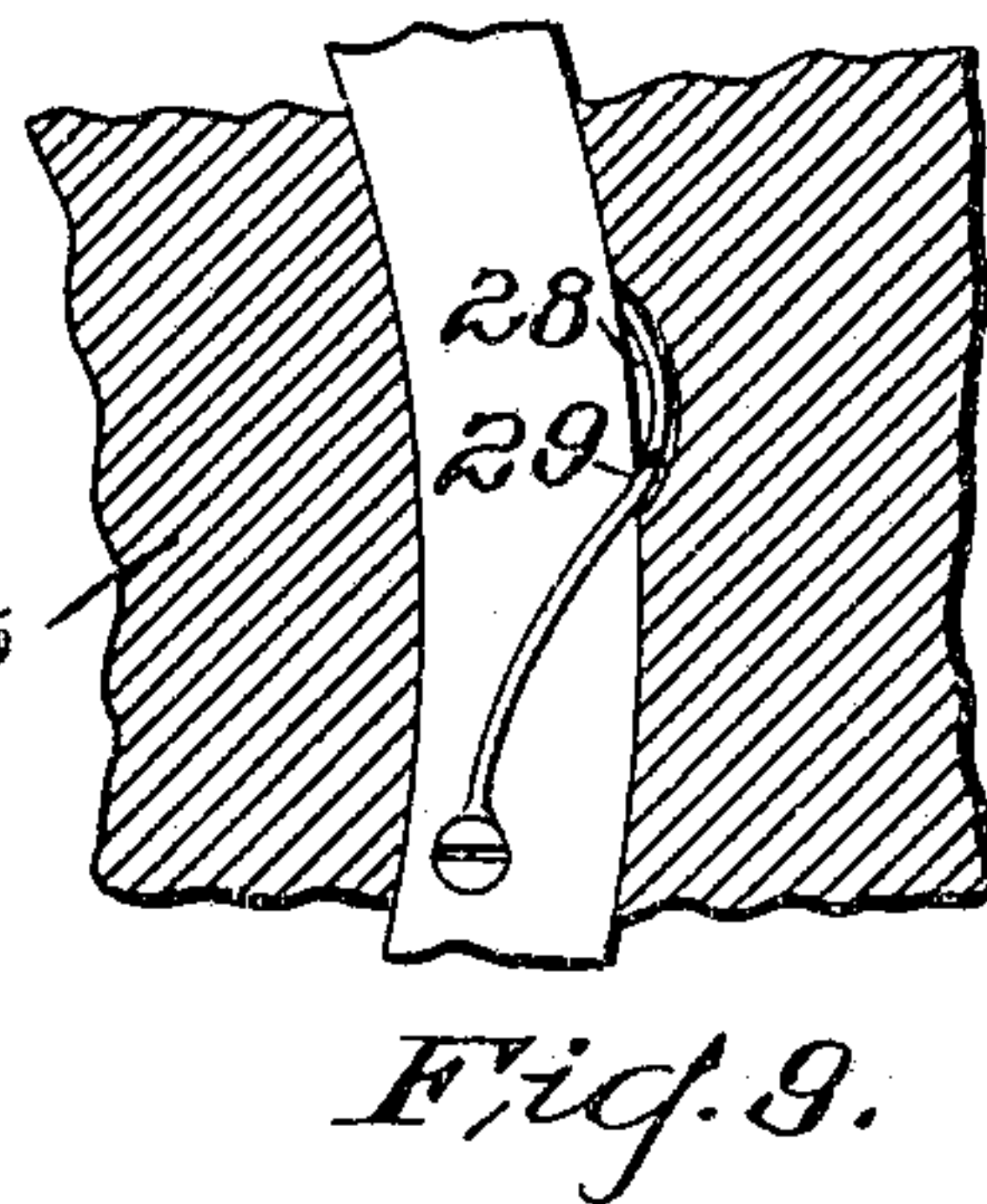


Fig. 9.

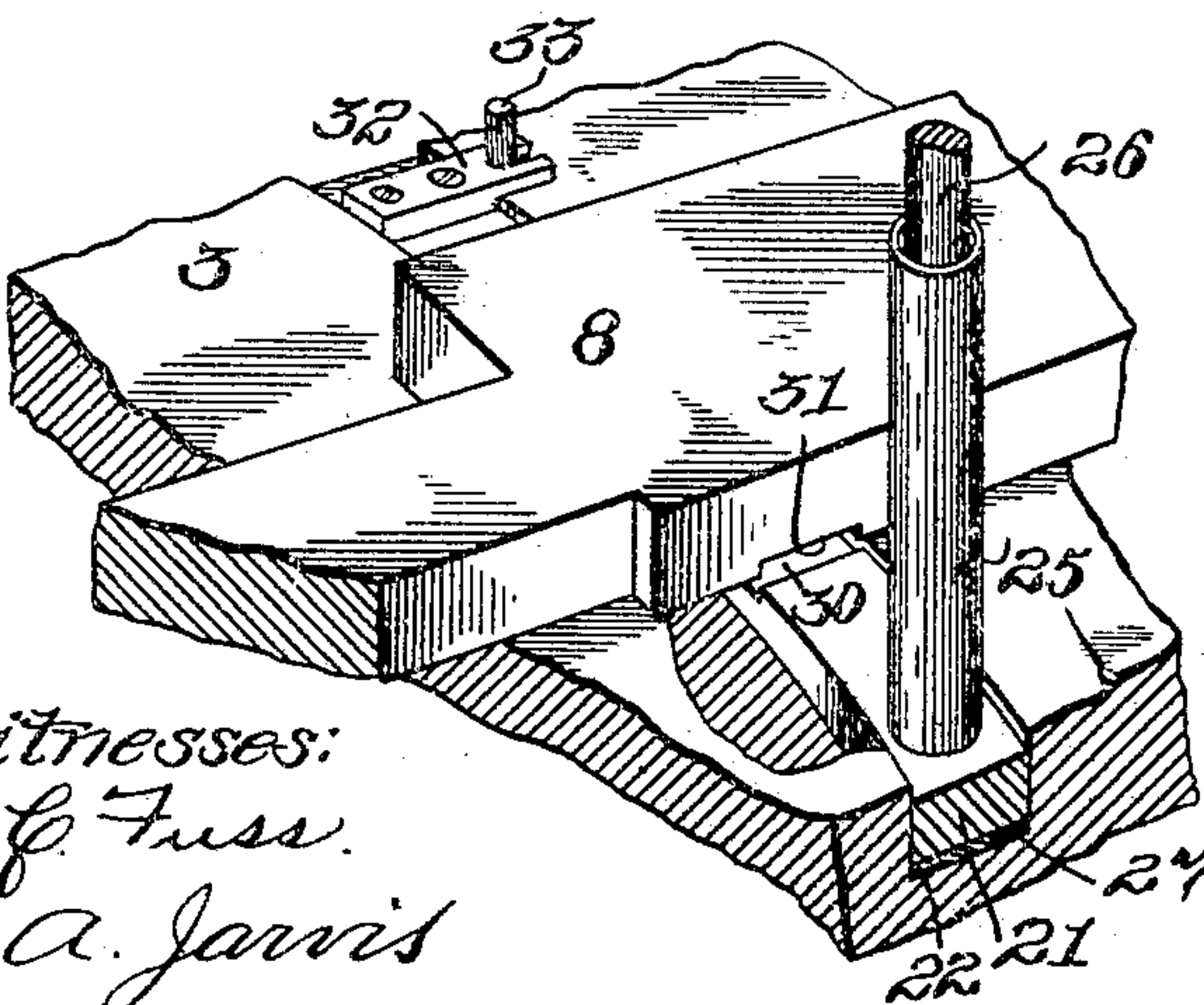


Fig. 5.

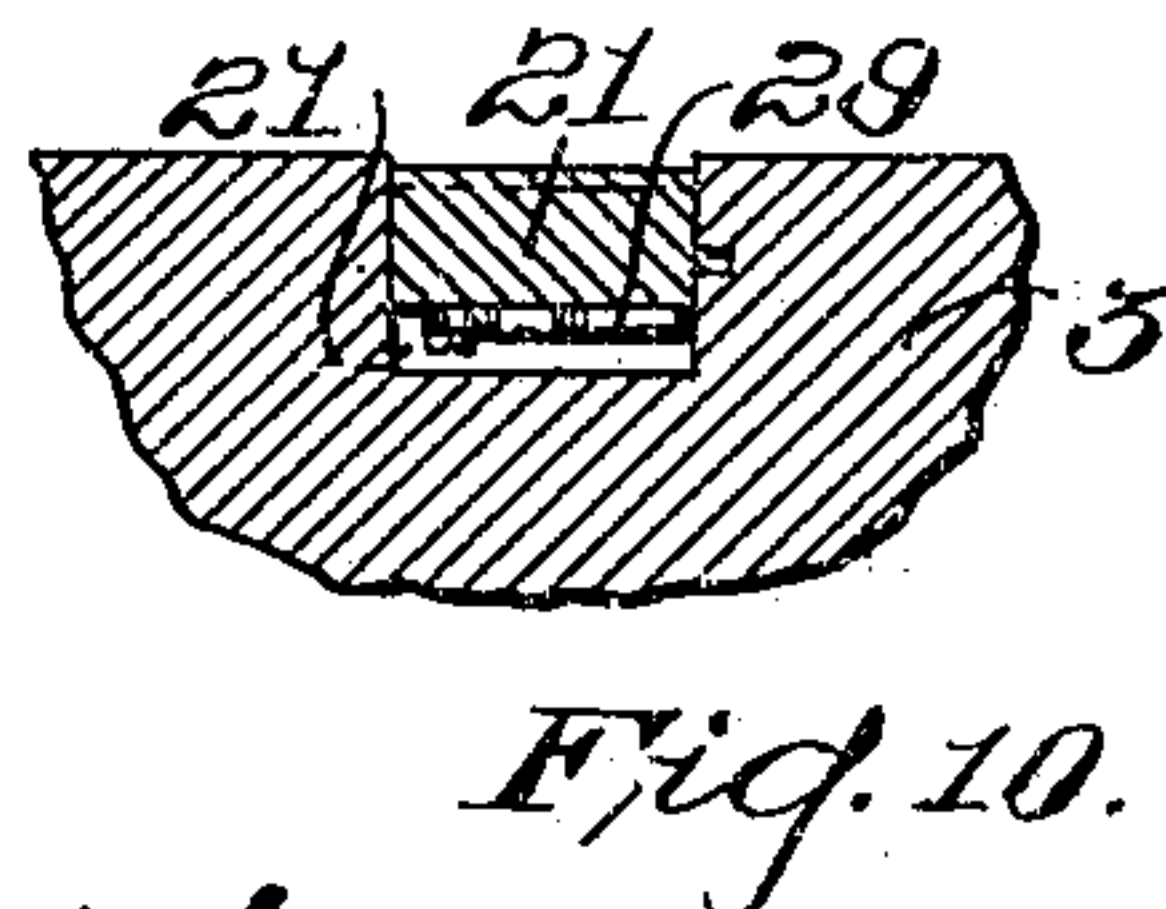


Fig. 10.

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By their Attorney,  
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# UNITED STATES PATENT OFFICE.

ORLANDO W. BEDELL, OF PRINCESS BAY, NEW YORK, AND HENRY DEMING HIBBARD, OF PLAINFIELD, NEW JERSEY, ASSIGNORS TO MANGANESE STEEL SAFE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## DOGGING MECHANISM FOR SAFE OR VAULT BOLTING MECHANISMS.

SPECIFICATION forming part of Letters Patent No. 788,085, dated April 25, 1905.

Application filed February 4, 1904. Serial No. 191,924.

*To all whom it may concern:*

Be it known that we, ORLANDO W. BEDELL, residing at Princess Bay, Staten Island, in the county of Richmond and State of New York, and HENRY DEMING HIBBARD, residing at Plainfield, in the county of Union and State of New Jersey, citizens of the United States, have invented certain new and useful Improvements in Dogging Mechanisms for Safe or Vault Mechanisms, of which the following is a specification.

This invention relates to the bolt mechanism of safes or vaults, it more particularly relating to means for dogging such bolt mechanism, the object of the invention being to provide improved means for directly dogging the bolts, thereby to prevent the retraction of such bolts when the operating or actuating means therefor is disassembled or disconnected by force therefrom.

A further object of the invention is the provision of depressible bolt-locking means thrown into operation on the displacement or separation of a part of the door proper—as, for instance, the back plate.

In the drawings accompanying and forming a part of this specification, Figure 1 is an interior view of a safe or vault door having a part of its back plate removed with this improved dogging mechanism in position. Fig. 2 is a cross-sectional view thereof, taken in line *a a*, Fig. 1. Fig. 3 is an enlarged detail view of a part of one form of this dogging mechanism. Fig. 4 is a detail sectional view of a part thereof. Fig. 5 is an enlarged detail view of another form of such dogging mechanism. Fig. 6 is a sectional view thereof in its locking position. Fig. 7 is a detail view of the locking-ring shown in Fig. 5. Figs. 8, 9, and 10 are detail views illustrating one form of spring which may be used to maintain the ring in its bolt-dogging position.

Similar characters of reference designate like parts in all the figures.

This bolt-dogging mechanism may be used in connection with various forms of doors. The

one shown is an integral door 2 comprising a body 3 and a flange 4, provided with a back plate 18, said flange having a suitable number of bolt-openings 5. In practice the door will preferably be made of manganese steel. Cast with the body of the door is a centrally-located boss 6, against which it is intended the inner ends or shanks of the bolts will engage when such bolts are protracted. The operating means may be any suitable means adapted for the purpose, but is shown herein comprising a worm-wheel member or disk 7, to which the inner ends 8 of the bolts are pivoted. This worm-wheel 7 is in engagement with a worm-shaft 9, carrying a loosely-mounted bevel-gear 10, having a hub 12, formed as a clutch member, in position to be engaged by a splined clutch member 13, mounted upon said shaft and connected with one or more combination-locks 14, shown herein as two. A bevel-gear 15, mounted on the inner end of a spindle 16, passing through the body of the door, is in mesh with the loosely-mounted bevel-gear 10, whereby when the clutch members are in engagement the worm-shaft can be turned to rotate the worm-wheel to rock the bolts, and thus shift them radially in a manner that will be readily understood. The worm-disk is shown mounted upon a stud 17, carried by a back plate 18, being held thereon by a suitable washer 19 and bolt 20.

Owing to the fact that it is not practicable to swing or rock the bolts into such position that they will be in a dead-center position with the axis of the door, it is desirable that such bolts be dogged to prevent them from being retracted should the back plate be forced off, in which event it would carry with it the worm-wheel, and thus leave the bolts unconnected with the operating or actuating mechanism. To prevent the retraction of the bolts, dogging mechanism is provided, which in the preferred form thereof herein shown and described comprises a member shown in the form of a ring 21, located in a recess or channel 22, formed in the body of the door. When



the body of the safe is made of hard and un-machineable metal, such as manganese steel, this recess may be formed during the casting of the door. This ring in the form shown in Figs. 2, 3, and 4 comprises a bevel-faced or wedge-shaped ring 23, adapted to cooperate with a beveled or wedge-shaped recess 24, formed at one side of each of the bolts. This ring is maintained within its recess, so as to permit the ordinary shifting of the bolts by a suitable means—such, for instance, as stems—shown herein in the form of sleeves 25, each having one end in engagement with the outer face of the ring and the other end in engagement with the back plate. Each sleeve is located upon a screw or bolt 26, projecting from the back plate through the sleeve and into the ring. By this means the ring is normally maintained in its recess out of engagement with the bolts when the back plate is bolted in position. Should, however, this back plate be forced off by explosives or other means, the bolts 26 act to pull the ring out of its recess and into the recesses of the bolts, thereby interlocking the parts and locking the bolts against retraction. This may also be assisted by means of one or more springs, which in Figs. 1, 2, and 3 are shown as flat springs 27, the tendency of these springs being to throw the ring into engagement with the bolt and to maintain it into such engagement. Instead of utilizing this form of spring for holding the ring in its bolt-dogging position a different form may be used. In the form shown in Figs. 8, 9, and 10 a notch or opening 28 is provided in the side wall of the recess, being located adjacent to the free end of the spring 29, so that when the ring is pulled into engagement with the bolts this spring will enter such notch or recess and maintain the ring in its bolt-dogging position, as illustrated in Fig. 9. In another form thereof this locking-ring is shown as a flat member recessed at those points 30 thereof contiguous to the bolts, each of which is also recessed, as at 31, to interlock with such ring, so that when the ring engages the bolts it overlaps such bolts at the sides thereof, while the bolt in turn overlaps the sides of the ring, so that the bolts are locked against both longitudinal and sidewise movement. The same means may, however, be used for shifting the ring into its dogging position. To prevent the shifting of this recessed ring and maintain it in position to properly engage the bolts at the desired time, it may be held against movement by means of a forked arm 32, attached to the ring and cooperating with a pin 33, located on the door-body. It of course will be understood that instead of this annular ring a series of members, one for each bolt or even a less number, or even one or two such members cooperating with one or two of the bolts only, could be used to dog the bolts. In this last case it would be pref-

erable to form or unite the inner ends of the bolts, so that one could not move independently of its companion bolts. In some forms thereof the depressible dogging means could be used in connection with other shapes of door than circular.

This improved dogging means, it will be seen from the foregoing, comprises depressible means normally held under depression and in the present instance within and below the surface of the door-body, a recess being formed in the metal thereof for the reception of this means.

Having thus described my invention, I claim—

1. The combination with a safe or vault door having a back plate, of bolt mechanism, lock mechanism for controlling the operation of said bolt mechanism, and means entirely independent of the lock mechanism or any part thereof and under the control of the back plate for dogging the bolts.

2. The combination with a safe or vault door, of bolt mechanism, lock mechanism therefor, and means entirely independent of such lock mechanism or any part thereof and controlled by a fixed or rigid part secured to the door, for dogging the bolts.

3. The combination with bolt mechanism comprising a plurality of bolts projecting in different directions, of dogging means for such bolts comprising a single member shiftable to engage each and simultaneously dog all of the bolts.

4. The combination with bolt mechanism, of a depressible spring-engaged annular means normally held under depression for simultaneously dogging several of the bolts to prevent the retraction of the same.

5. The combination with bolt mechanism of a positively-controlled, depressible ring-shaped member, normally held within the surface of the door for engaging each and dogging all of the bolts simultaneously to prevent the retraction thereof.

6. The combination of a plurality of radially-shiftable bolts each having a recess and a depressible member normally held within the surface of the door and adapted to enter each of said bolt-recesses for dogging all of the bolts simultaneously, and means for releasing said member.

7. The combination with a safe or vault door, of bolts, a movable ring carried by the door, normally held out of engagement with the bolts and shiftable to engage all of the bolts simultaneously to lock the same against retraction, and means for controlling the movement of said ring.

8. The combination of a safe or vault door having a recess located therein and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism



and lock the same against movement, and means connected with the back plate for maintaining said locking means in its recess.

9. The combination of a safe or vault door 5 having a recess located therein and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism and lock the same against movement, and 10 means connected with the back plate for shifting said locking means into position to engage the bolt mechanism.

10. The combination of a door having a recess and also having a back plate, bolt mechanism, and means located in said recess and adapted to be shifted into position to engage the bolt mechanism and lock the same against 15 movement, and means connected with the back plate for maintaining said locking means in its recess and also effective to shift said locking means into engagement with the bolt mechanism. 20

11. The combination of a door, bolt mechanism therefor, and an annular member carried by said door between the door-body and bolt mechanism and normally held within the recess formed in the metal of the door and adapted to be shifted into position to engage the bolt mechanism and lock the same against 25 movement, and means for controlling the movement of said member. 30

12. A safe or vault door having a recess, a bolt, a wedge-shaped device located in said recess and normally held within such recess 35 and adapted to be shifted into position to lock the bolt and prevent movement thereof, and means for controlling the movement of said device.

13. A safe or vault door having a recess and 40 a back plate, a bolt, a device located in said recess and adapted to be shifted into position to lock the bolt and prevent movement thereof, and means for preventing the movement of said device, said means comprising a stem 45 located between and in engagement with the back plate and said device.

14. A safe or vault door having a back plate and an annular recess formed in the metal of such door, bolts passing over such 50 recess, dogging means located in such recess and normally held within such recess and adapted to engage and dog the bolts and means under the control of the back plate for controlling the position of such dogging means.

55 15. A safe or vault door having a recess and a back plate, a bolt, a member located in said recess and effective to engage the bolt and lock the same against movement, and means for shifting said locking member into position to

lock the bolt, said shifting means comprising 60 a device secured to said locking member and to a fixed part of the door, said fixed part comprising the back plate secured to the door, and means located between said back plate and said locking member to maintain it out of 65 engagement with the bolt.

16. A safe or vault door having a recess, a bolt, a device located in said recess for locking the bolt, means for shifting said locking device into engagement with the bolt, and 70 means for maintaining it in its locking position, said means comprising a spring adapted to enter a notch or recess in the side wall of such recess.

17. A circular safe or vault door comprising 75 a body and a flange, said body having an annular recess located therein, bolt mechanism, an annular ring located in said recess and adapted to cooperate with the bolts to lock the same against movement, means for preventing the shifting of said ring, a back plate secured to the door, means between the back plate and the ring for maintaining it in its normal unlocking position, and means connecting said ring with the back plate, whereby 85 on the displacement of the latter the bolts will be locked.

18. A circular safe or vault door comprising a body and an integral flange, said body having an annular recess located therein, bolt 90 mechanism, an annular ring located in said recess and adapted to cooperate with the bolts to lock the same against movement, means for preventing the shifting of said ring, a back plate secured to the door, means between the 95 back plate and the ring for maintaining it in its normal unlocking position, means connecting said ring with the back plate, whereby on the displacement of the latter the bolts will be locked, and means for maintaining said ring 100 in engagement with the bolts.

19. In a safe or vault door having a back plate, the combination with bolting mechanism and lock mechanism connected with the bolt mechanism, of means independent of and 105 free of any connection with such lock mechanism for locking said bolt mechanism against movement and shifted into its locking position on the displacement of the back plate, and means for holding such locking means in 110 its bolt-locking position thereby to maintain the bolts locked against movement.

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