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973,825.

Patented Oct. 25, 1910.

3 SHEETS—SHEET 2.

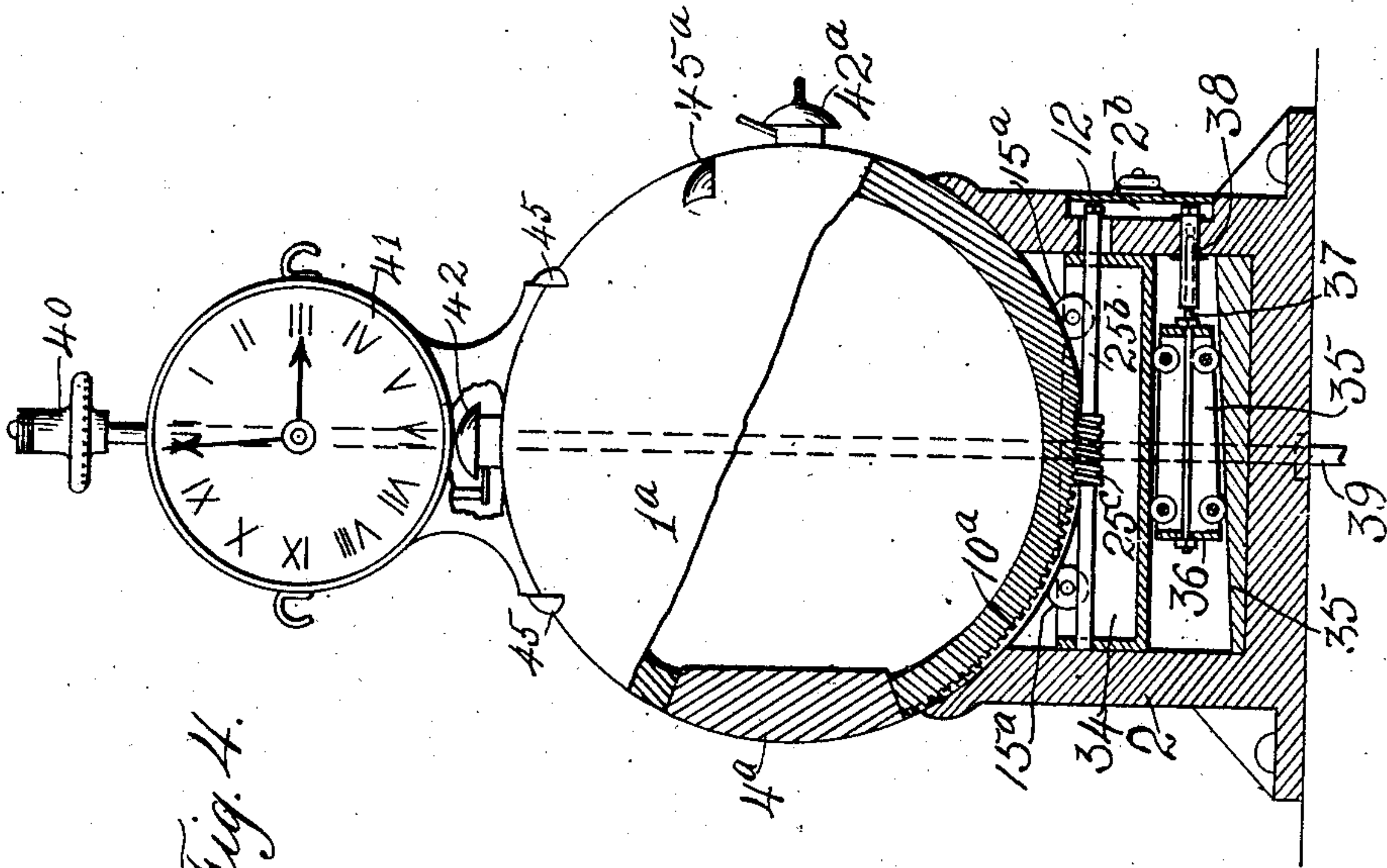


Fig. 4.

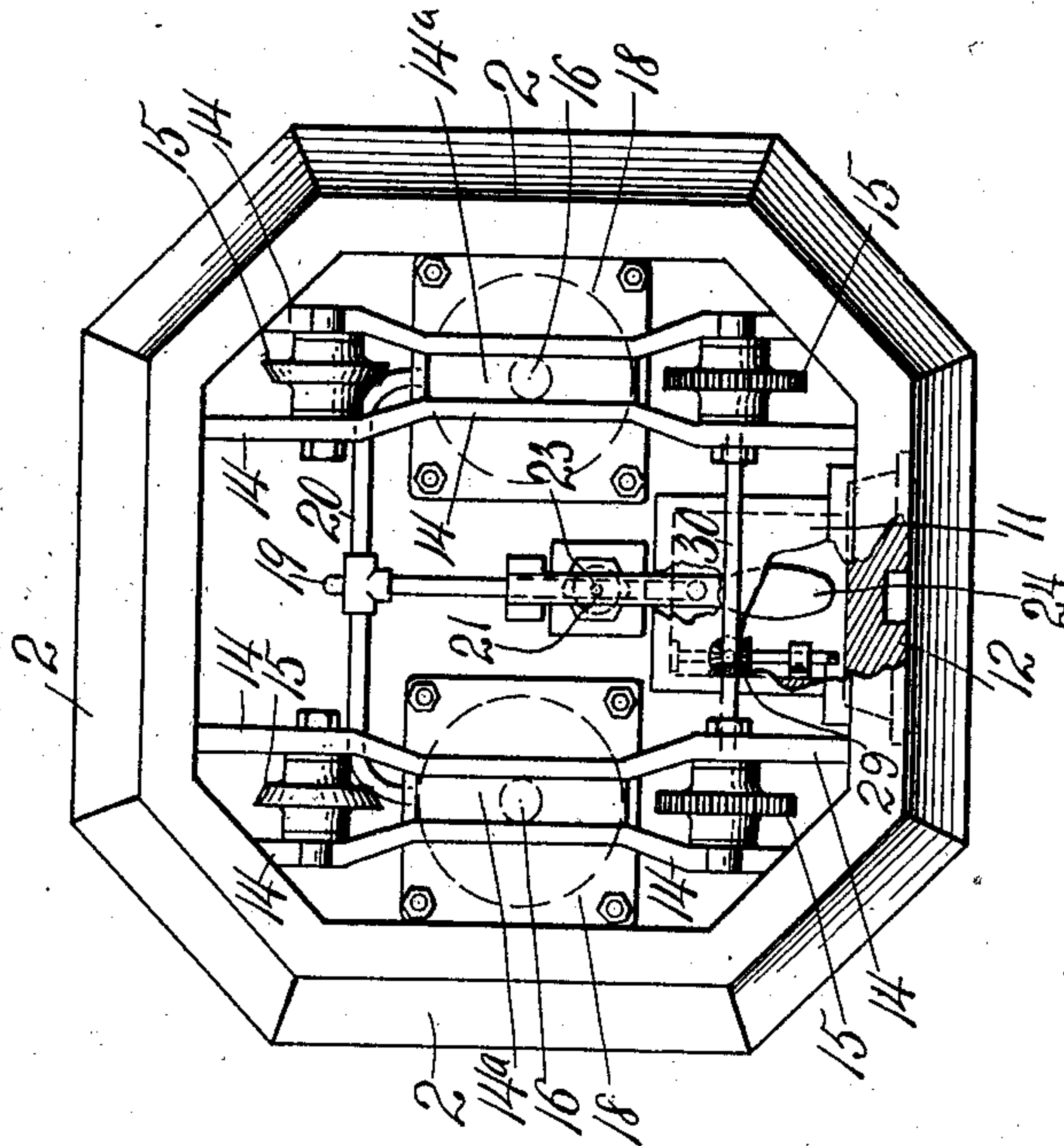


Fig. 3.

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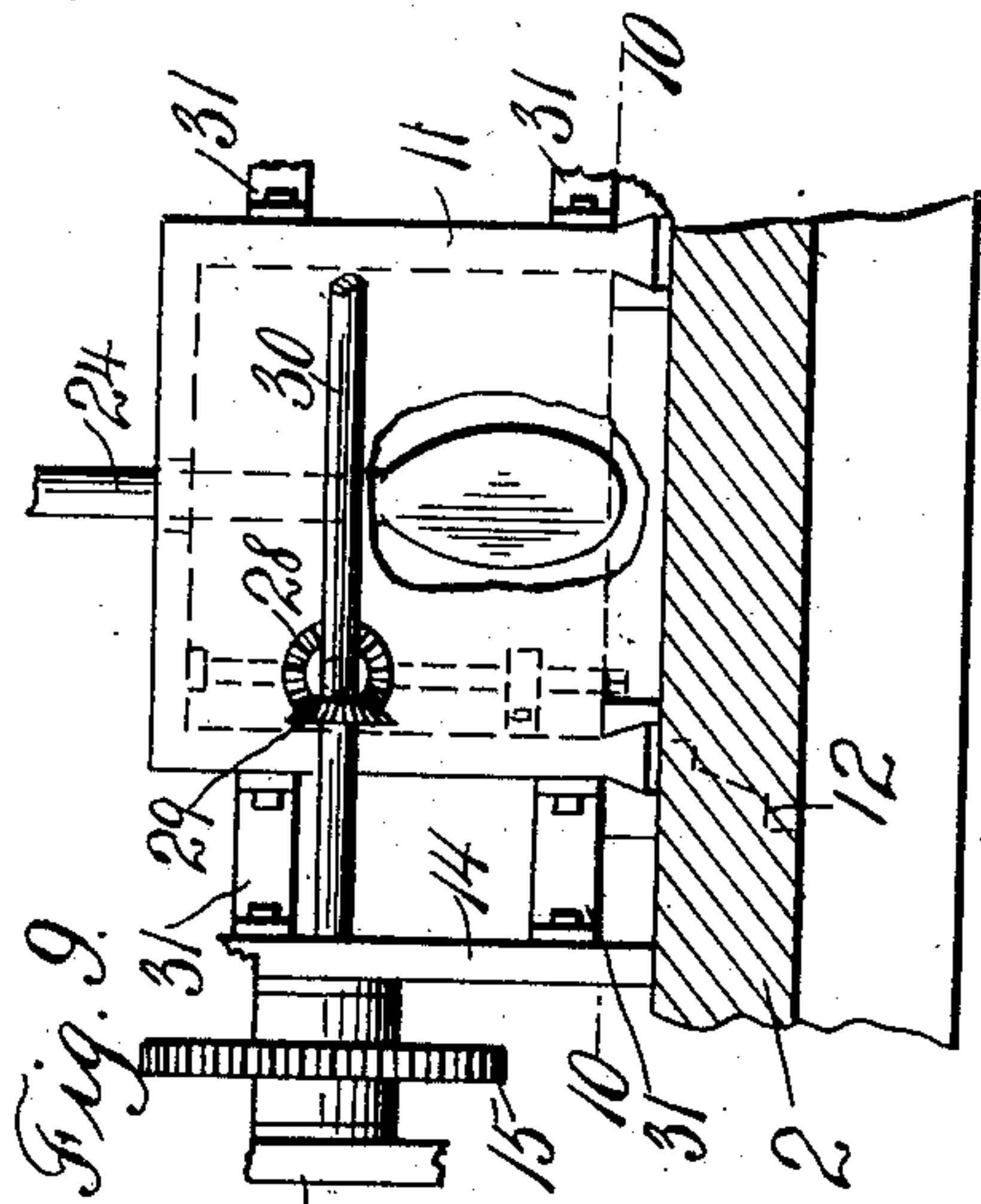


Fig. 9.

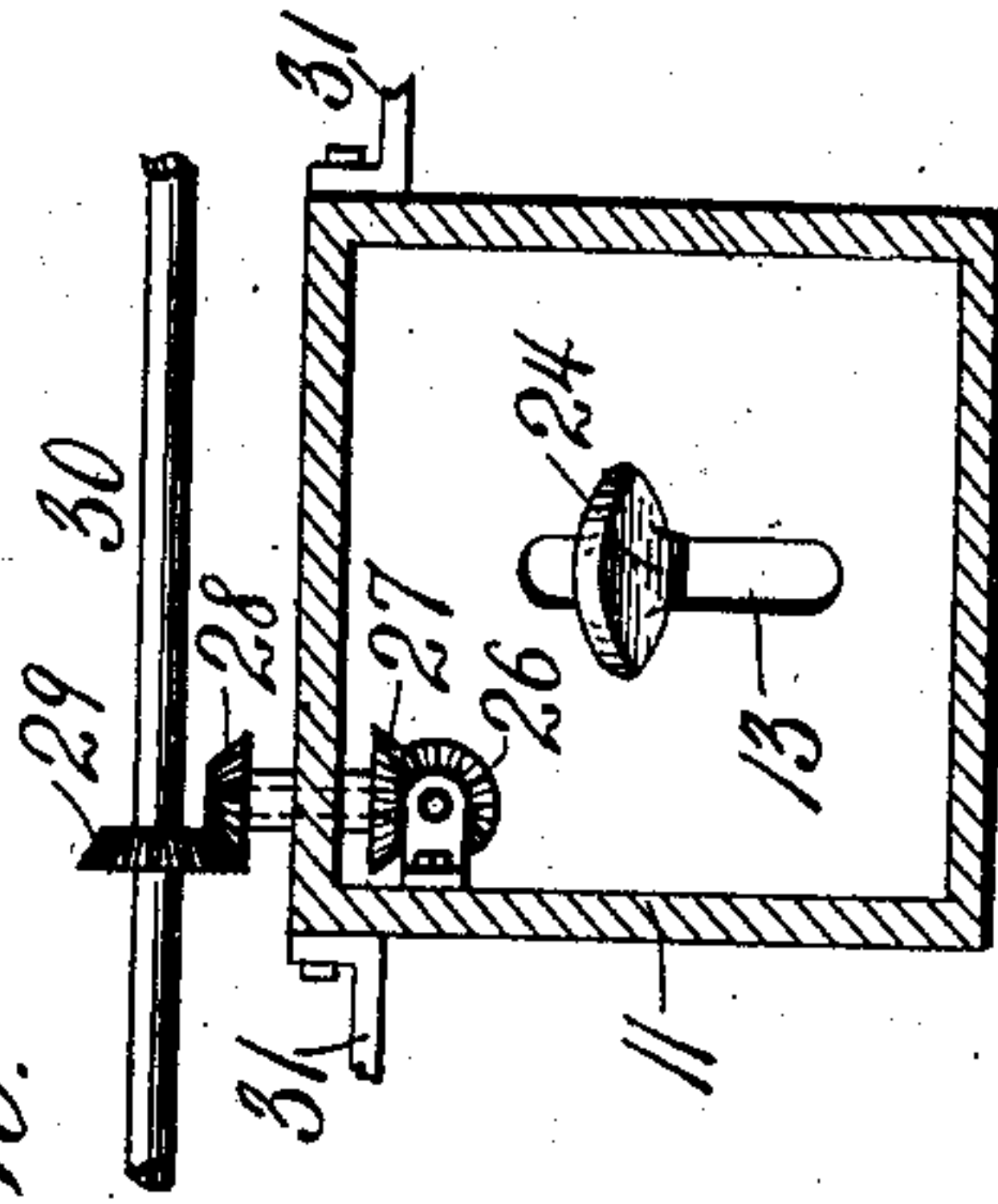


Fig. 10.

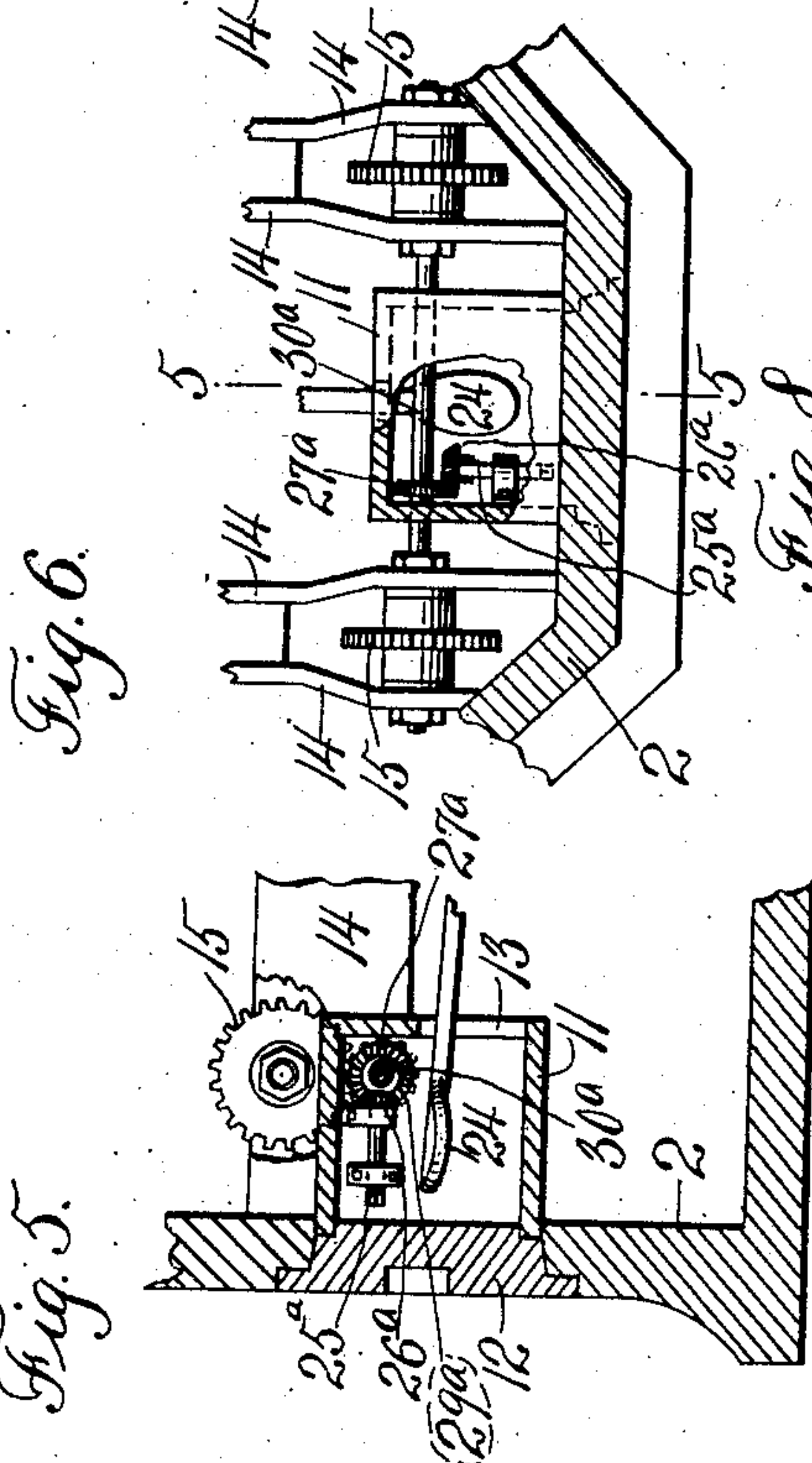


Fig. 5.

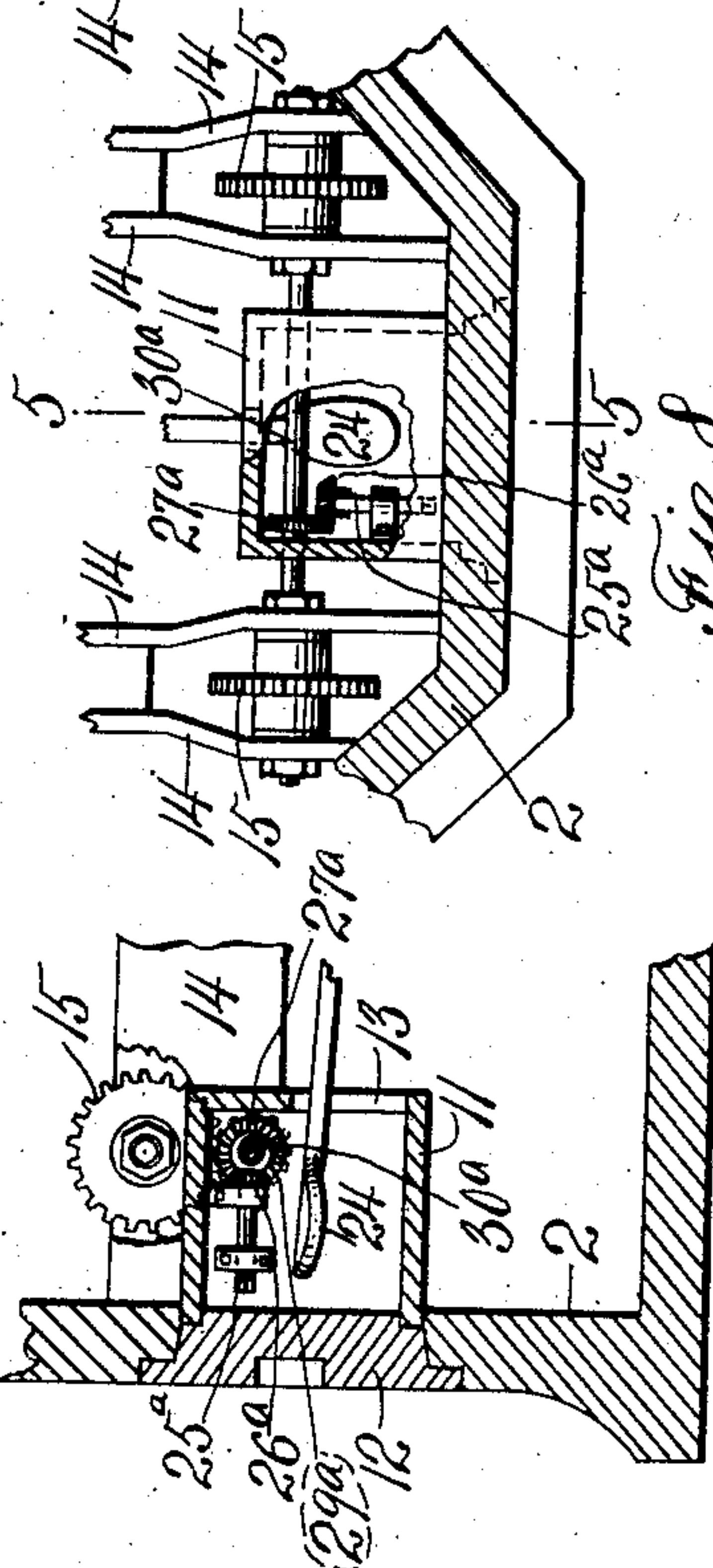


Fig. 6.

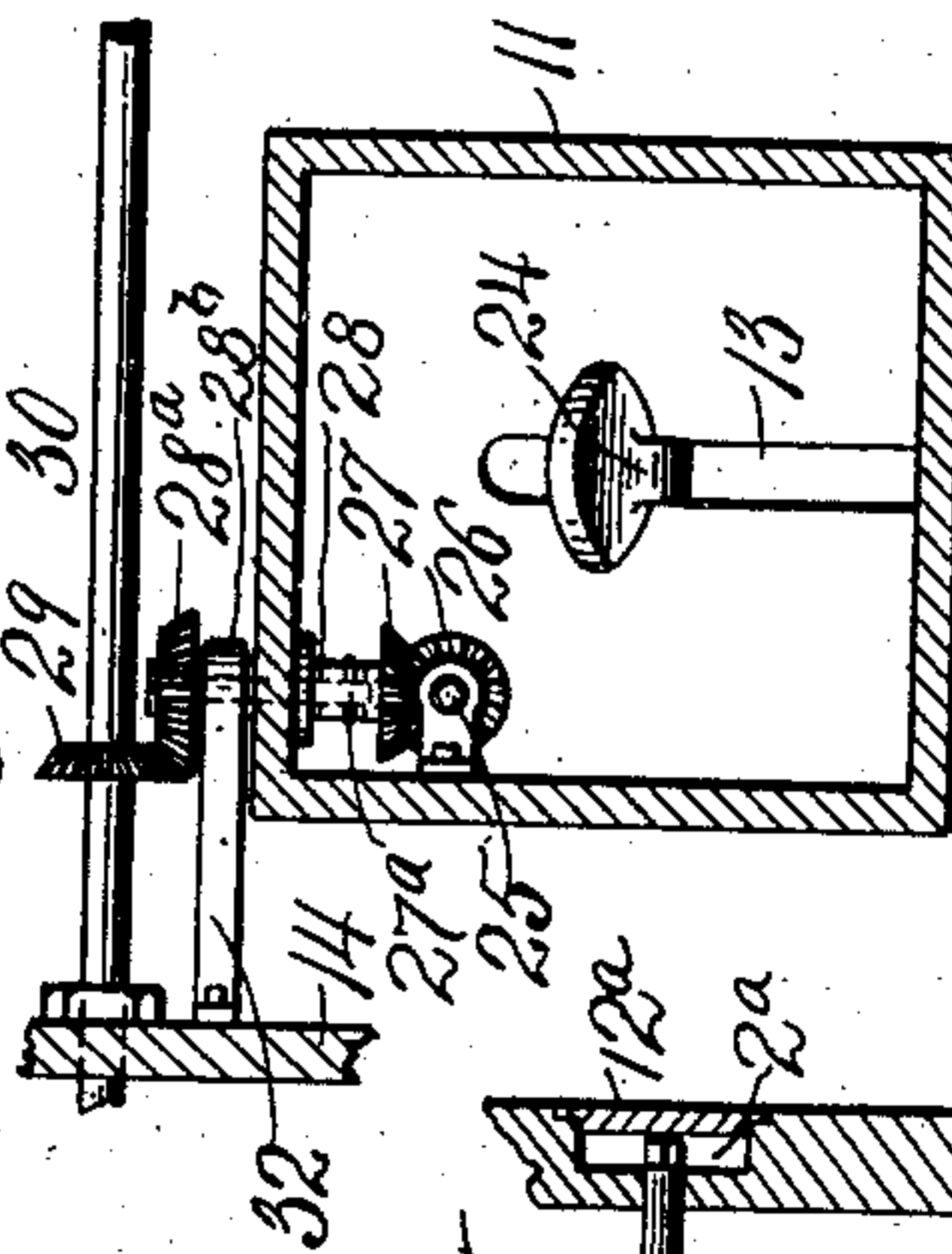
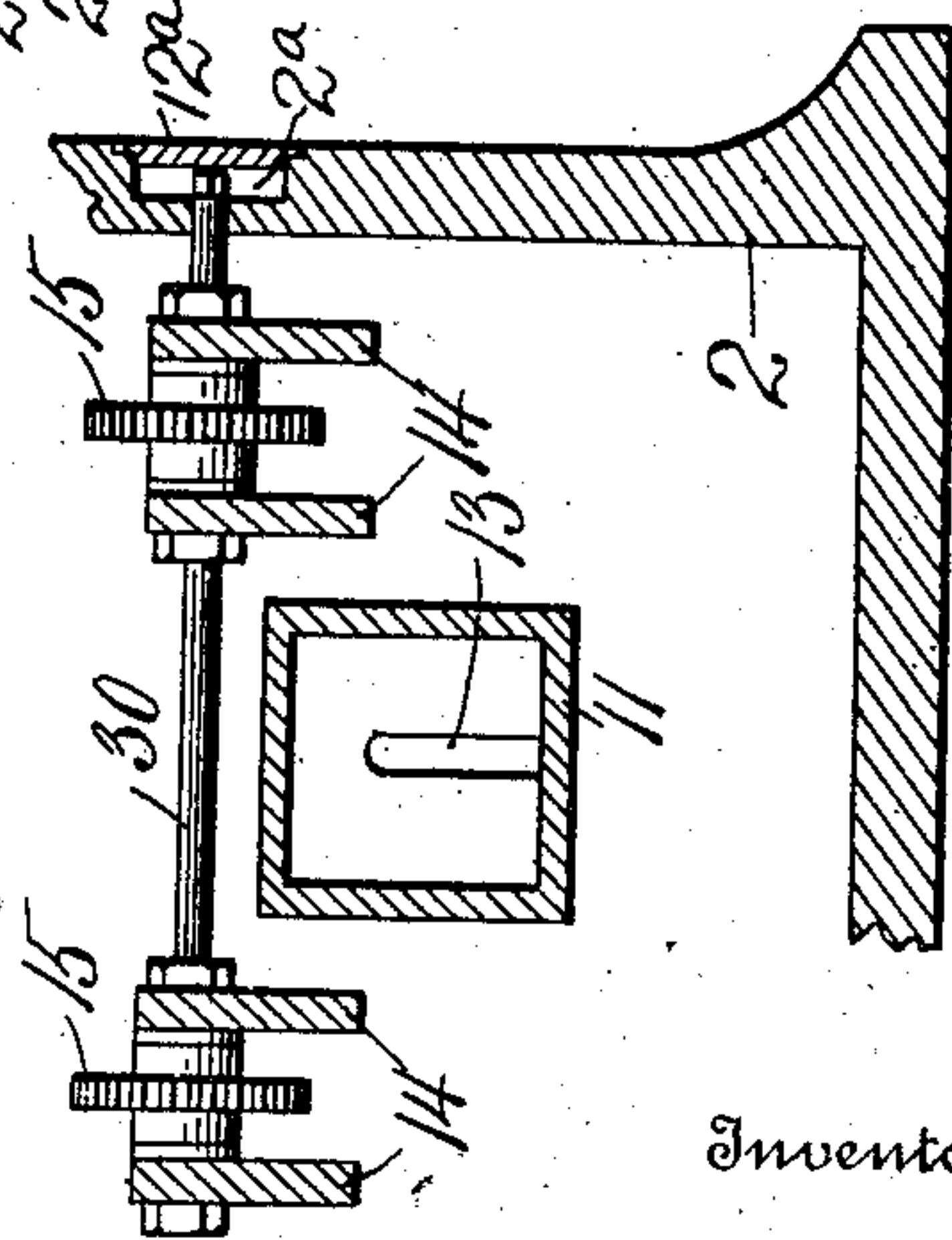


Fig. 8.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER THOMAS, a subject of the King of Great Britain, residing at Vancouver, in the county of Vancouver and Province of British Columbia, Canada, have invented certain new and useful Improvements in Safes, of which the following is a specification.

This invention relates to revoluble spherical safes.

The object of my invention is to provide a fire-proof revoluble safe which may be raised from its seat in a pedestal and turned, or partially revolved, so as to place its door in the pedestal opening and then lowered onto its seat making a tight joint therewith, and to provide operating mechanism which may be controlled in the pedestal having a locking door, so as to secure extra safety and make it impossible for the safe to be tampered with by a burglar or other unauthorized person.

The matter constituting my invention will be defined in the claims.

I will now describe the details of construction of my improved safe by reference to the accompanying drawings, in which—

Figure 1 represents a vertical section through the safe and pedestal on line $x-x$, Fig. 2. Fig. 2 represents a front elevation of the safe and a vertical section of the pedestal at right angles to the view in Fig. 1. Fig. 3 represents a top plan view of the pedestal, showing the supporting wheels and operating mechanism. Fig. 4 represents an elevation of the safe and a vertical section of the pedestal containing modifications in the operating mechanism. Figs. 5 and 6 represent, respectively, a vertical section and a horizontal section of a portion of the pedestal, showing a modification of gearing. Fig. 7 represents a vertical transverse section, showing another modification of the gearing. Fig. 8 represents a vertical section on enlarged scale on line 8-8, Fig. 1. Fig. 9 represents a top plan view of the same. Fig. 10 represents a vertical section on line 10-10, Fig. 9.

The body of the safe 1 is made spherical and preferably of cast steel and is made with an extra thick and heavy wall 6 at and around the door way and is supported on a pedestal 2 provided with raising and lowering mechanism. At the thickened portion 6 of the body is provided a door way 3, having offsets, as shown, in which is fitted a door

4, having corresponding offsets in its periphery and made extra thick and heavy as compared with the opposite wall of the body. The door is provided with a removable handle 5 which may be readily applied to it or detached, as required. The knob 7 of a locking device may also be sunk centrally in the door. At diametrically opposite points within the spherical body are fixed supporting trunnions 8 for supporting a swinging frame and casing 9 which is provided centrally with journals 9^a fitting over the trunnions. The frame or casing 9 may be divided into suitable compartments for receiving various articles or boxes. The frame or casing, journaled as described, will remain upright when the sphere is revolved, so that the contents may not be disturbed in the revolving operation.

At a suitable distance apart and at either side of the greatest circumference in the exterior surface of the sphere are formed two short grooves 10, which may extend across the door, as shown in Fig. 2. These grooves may be provided with teeth below the exterior surface of the sphere for engaging toothed wheels in the pedestal, but they may also be left plain and simply receive the plain edges of wheels in the pedestal. These grooves are made only sufficiently long, a quarter arc of a circle, more or less, to enable the sphere to be turned with its door into the opening of the pedestal, so that both the door and grooves shall be within the outer face of the pedestal when the sphere is turned and lowered upon its seat for the night, and so that a perfectly tight joint shall be made all around the periphery of the sphere at its junction with the pedestal. In the pedestal may be provided an inclosing compartment 11 for containing certain operating parts and this compartment is provided with a door-way 11^a provided with offsets for receiving a door 12, which may be hinged or otherwise connected to the wall of the pedestal and capable of being locked. The door may be made quite small and practically secret. The compartment 11 is also provided in its inner wall with a slot 13 for passage of the lever bar 24. At opposite sides in the pedestal are fitted two pair of transverse supporting bars 14, suitably spaced apart and strengthened by a central bar of metal 14^a. Evidently the spaced bars 14 and central bar 14^a could be swaged from a single

piece of metal, but they may be built up of separate parts if desired. Within the spaced outer ends of the bars 14, are journaled rollers or wheels 15 adapted to fit in the grooves 10. These wheels may be toothed or have plain peripheries as desired. In the construction shown in Fig. 3, four of these wheels, mounted in two pair of bars 14, are shown. The spacing bar 14^a is formed with a central opening in which is fitted the upper end of a piston rod 16, having a collar 16^a. This rod extends down into a hydraulic cylinder 18 and is provided at its lower end with a piston 17, having a suitable annular packing. A rubber cushion 18^a is preferably placed in the upper head of the cylinder 18. In the lower end of the cylinder is provided a water inlet *a* and in the upper end an air vent *b*. Between the two hydraulic cylinders is fixed a valve stand 21 with which is connected a water supply pipe 19 and a pipe 20 which connects by branches with the lower ends of the cylinders at the ports *a*. An exhaust or discharge pipe 22 also connects with the valve stand for waste water. A stem 23 connects with the valve and at its upper end is pivotally connected to the hand lever 24 which, at its inner end, is pivotally connected to a bracket which may be secured to the valve stand, as shown. The hand lever 24 passes through the slot 13 and terminates in the compartment 11, as shown in Fig. 1. The shaft 25 of operating gearing is also journaled in the compartment 11 and has a squared projecting end for application of a wrench. On this shaft is fixed a bevel pinion 26, Fig. 8, which meshes with a similar pinion 27 on a vertical sleeve shaft 27^a. In this shaft is inserted an internal shaft 28 the two shafts being connected by a spline joint so that the shaft carrying the upper bevel pinion 28^a may be reciprocated in the sleeve shaft 27^a. On the shaft 28 is fixed a collar 28^b which is connected by a bracket 32 to one of the cross bars 14 so as to raise the shaft and bevel gear 28^a when the cross bars are raised for keeping the pinions 28^a and 29 in engagement. A bevel pinion 29 is fixed on a cross shaft 30 on which is fixed the toothed wheels 15 in the cross bars 14, as shown in Fig. 3. These rollers are preferably mounted in ball bearings in a well known manner. It will be understood that a wrench having a squared socket and crank may be applied to the squared end of the shaft 25 when the door 12 is opened and that by turning the shaft 25 and the connecting gearing the wheels 15 will be turned, thereby rotating the spherical safe to the desired position.

The gearing may be modified as shown in Figs. 5 and 6, so that the horizontal shaft 25^a, carrying the gear 26^a shall mesh with a bevel gear 27^a on a transverse shaft 30^a

which in turn carries toothed wheels 29^a which engage with the teeth on the wheels 15. This simplifies somewhat the number of parts in the gearing and will be operative if the teeth of the toothed wheels 29^a and of the wheels 15 are made long enough to keep in engagement when the safe is slightly raised from its seat, as about one-eighth of an inch. The gearing may be further modified by extending the transverse shaft 30, Fig. 8, directly through the inner wall of the pedestal into a recess 2^a as shown in Fig. 7 and there providing it with a squared end for application of a wrench. This recess is closed by a secret locking door 12^a.

The compartment 11 may be made detachable from the side wall of the pedestal and be attached by brackets 31 directly to the transverse bars 14 so as to rise and fall therewith, as shown in Figs. 9 and 10. The gearing remains similar to that shown in Fig. 8 though no sleeve shaft or collar will be required. The pedestal is made with an inwardly beveled annular seat suited to the contour of the spherical safe, so as to make a tight fit, as indicated in Figs. 1 and 2. Instead of two hydraulic cylinders, one may be used, especially in a small house safe and the frame or bars 14 supporting the rollers will be modified accordingly. A simple hydraulic elevating jack or a jack operated with a screw may be used in the pedestal for raising the sphere.

My spherical revoluble safe is especially adapted for domestic use and may be made of a small size suited for such purpose, as indicated in Fig. 4. This safe for domestic use may be highly ornamented and surmounted by a clock 41 or a vase or other ornamental figure. The sphere is provided with a set of lugs 45 for supporting a clock when the door 4^a is in position to be opened, Fig. 4, and with an electric alarm 42; also with a second set of supporting lugs 45^a and an electric alarm 42^a, a quarter arc distant in such position that they will be at the top when the sphere is turned to place its door into the top opening of the pedestal. In Fig. 4 I have provided a sunken toothed rack 10^a adapted to engage with a worm 25^a on a transverse shaft 25^b journaled in a cradle 34 which extends transversely across the interior of the pedestal. In this cradle are journaled or otherwise mounted anti-friction rollers or balls 15^a. At the bottom of the pedestal is fixed an inclined plane 35 upon which is mounted a traveling wedge shaped device 36, having two pair of anti-friction rollers, as shown, one pair bearing upon the inclined plane 35 and the other pair supporting the cradle 34. In this wedge shaped device is fixed a shaft 37, the outer end of which is screw threaded and over this portion is fitted an internally screw

threaded sleeve 38 which is held by collars in an opening in the pedestal and is provided with a squared outer end for application of a wrench. In the wall of the pedestal is made a recess 2^b into which the end of the shaft 25^b and the end of the sleeve 38 project, so that by opening the door 12, the said shaft and sleeve may be turned by application of a wrench. The sleeve shaft 38 will first be turned for drawing the wedge shaped device 36 a short distance up the inclined plane, thereby raising the cradle 34 and sphere a short distance, as about one-eighth of an inch, so that the sphere shall clear its beveled seat. The shaft 25^b may now be rotated for revolving the sphere on the rollers 15^a until its door 4^a and groove 10^a are brought within the opening of the pedestal. Before revolving the sphere 1^a, the clock or other ornamental figure will be detached from the lugs 45 and after the sphere has been revolved to the closed position, the clock or vase may be placed at the top of the sphere between the projecting lugs 45^a, Fig. 4, which will be at the top. At one side or at the back of the safe and pedestal is extended upward a water pipe 39, having at the top a fusible plug and sprinkler 40 for automatically showering water on the safe in case of fire. The sphere 1^a having been rotated with the door 4^a within the pedestal and the clock or vase 41 being in position at the lugs 45^a and over the electric alarm 42^a, the removal of the clock or vase either by hand or in the act of turning the sphere, would start an electric alarm which would continue ringing until stopped by hand.

Various arrangements of water supply devices for showering water over the safe in case of fire may be used, but such devices do not form part of my present invention.

Since the door of the safe is turned into the pedestal when the safe is out of use and the door of the pedestal locked and the means for operating the gearing in the pedestal are removed, unusual safety is provided against burglars or any unauthorized tampering with the safe.

Having described my invention, what I claim and desire to secure by Letters Patent, is—

1. The combination with a revoluble safe having a door, of a pedestal having a seat at the top and an opening in its wall, means therein for raising the safe from, and lowering on, its seat, and means for rotating it to bring its door into the top opening of the pedestal, substantially as described. 55

2. The combination with a revoluble safe, of a hollow pedestal having at the top a seat for the safe, means for raising and lowering the safe, means for rotating it, controlling devices in the pedestal connecting with the raising and lowering, and revolving mechanism, substantially as described. 60 65

3. The combination with a revoluble safe, of a hollow pedestal having a seat therefor, means in the pedestal for raising and lowering the safe, means for revolving the safe, a door in the pedestal giving access to the controlling devices by which the mechanism is operated, substantially as described. 70

4. The combination with a revoluble safe, of a hollow pedestal having a seat therefor, a movable frame in the pedestal having wheels or rollers therein for supporting the safe, means bearing on the frame for raising and lowering it to raise and lower the safe, and means in the pedestal for revolving the safe, substantially as described. 75 80

5. The combination with a revoluble safe having a toothed rack in its outer surface, of a hollow pedestal, a gear within it for engaging said rack to turn the safe, and means in the pedestal for raising the safe from its seat so that it may be revolved and for lowering it on its seat after being revolved, substantially as described. 85

6. The combination with a revoluble safe, of a hollow pedestal having a seat for the safe, a hydraulic raising and lowering device, a frame carrying wheels or rollers for supporting the safe and means for revolving the safe when raised from its seat, substantially as described. 90 95

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

WALTER THOMAS.

Witnesses:

A. E. GALPIN,
C. N. CORNELL.