No. 713,142. Patented Nov. 11, 1902.

J. PATON.

SAFE OR VAULT.

(Application filed Aug. 8, 1902.)

(No Model.) 2 Sheets—Sheet 1.

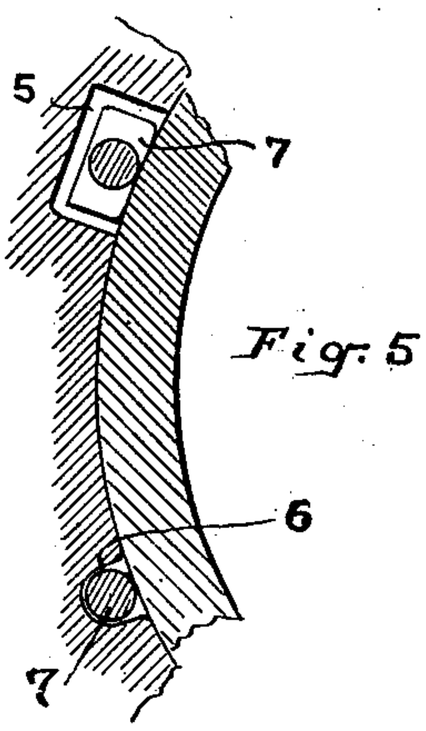


Fig. 5

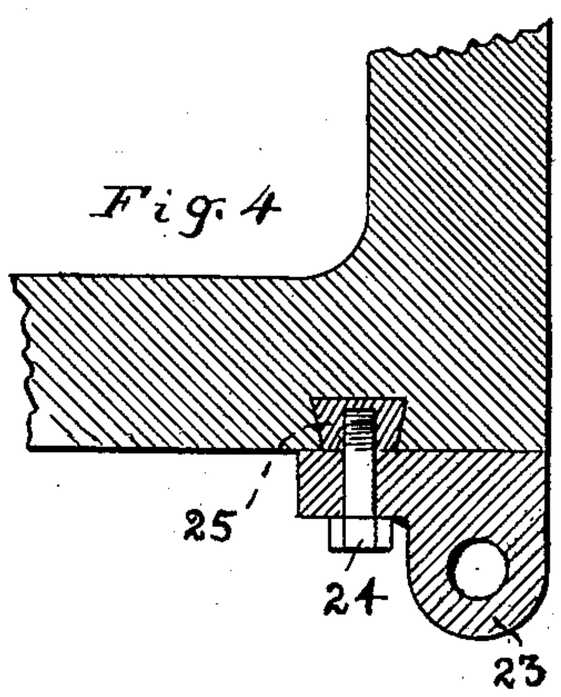
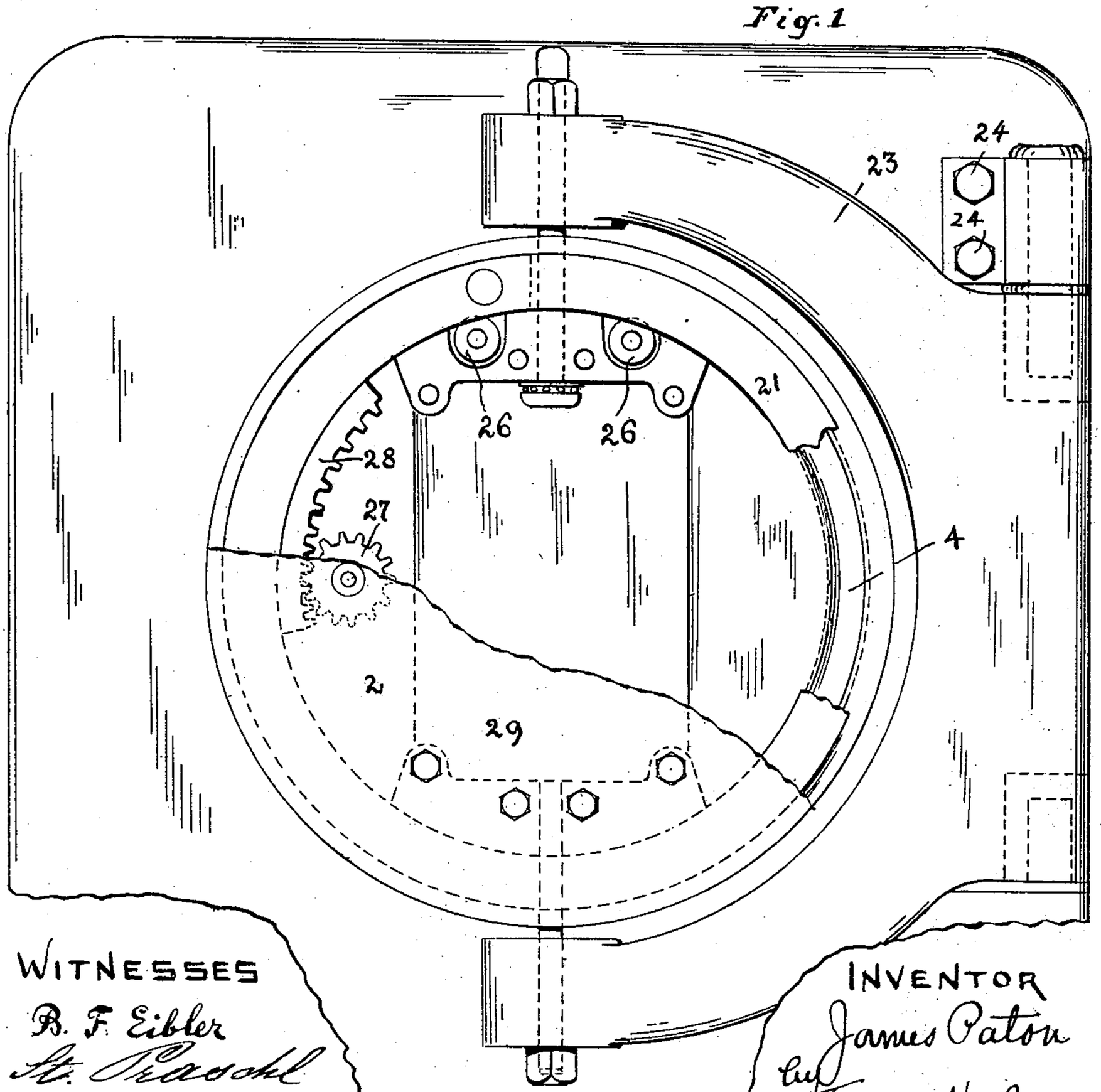


Fig. 4

Fig. 1



WITNESSES

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Fig. 3

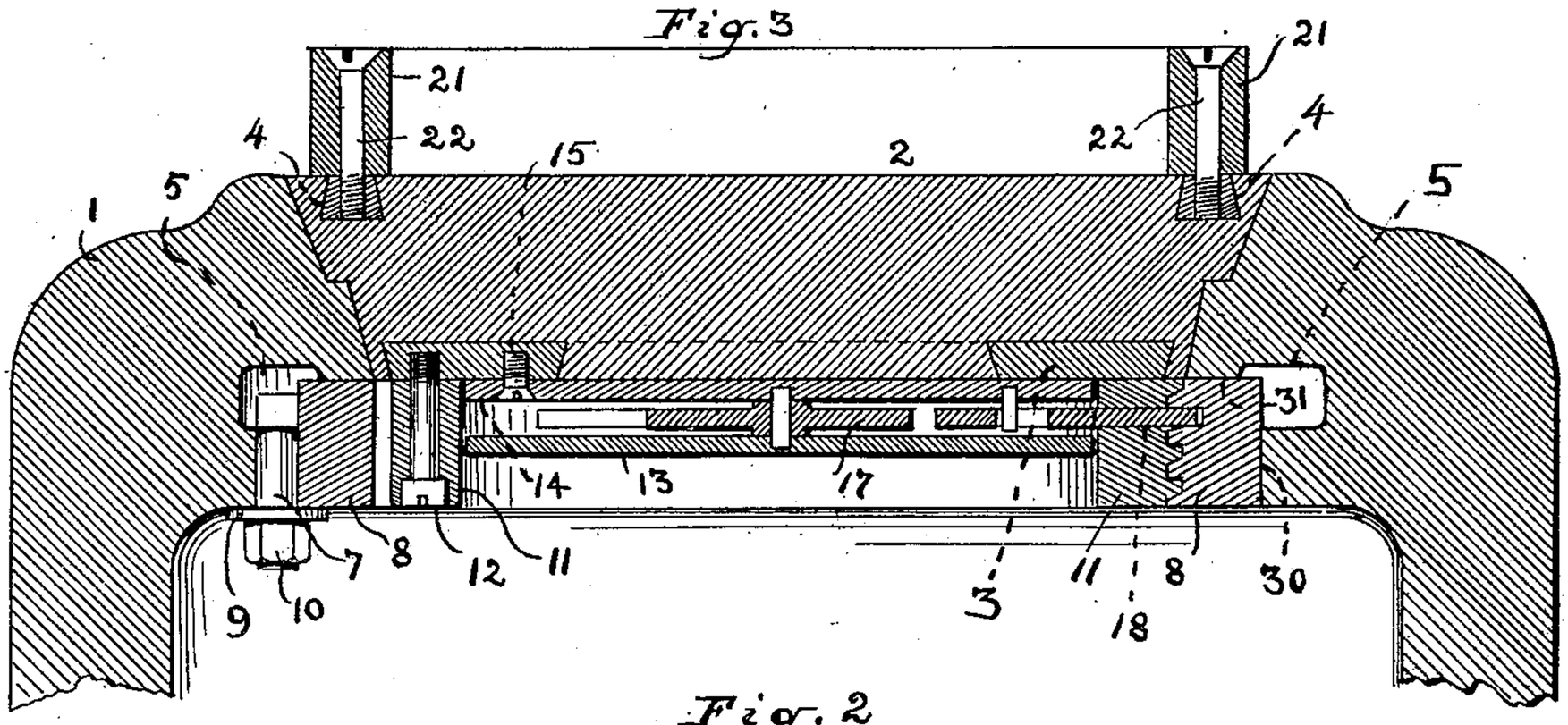
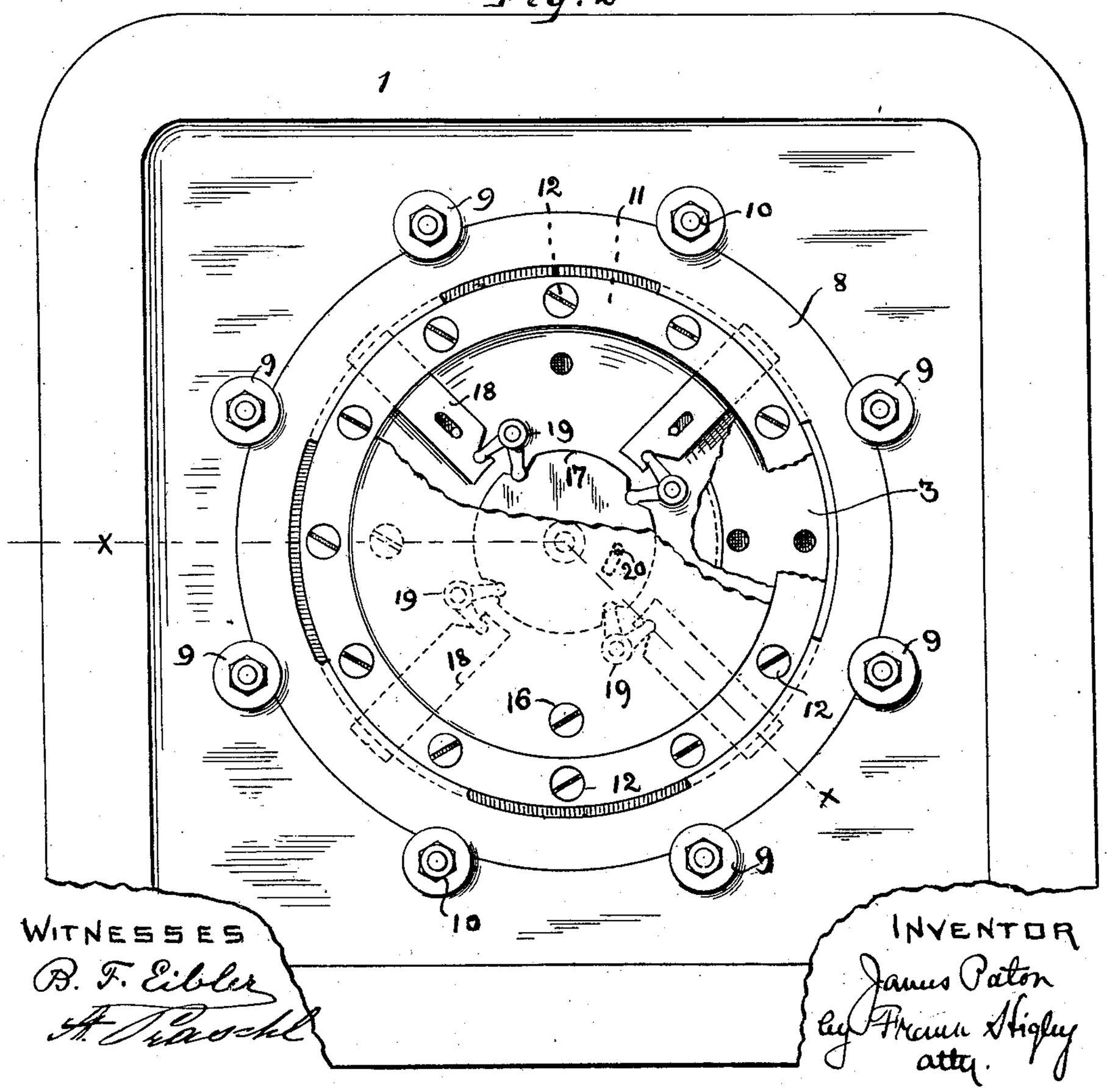


Fig. 2



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UNITED STATES PATENT OFFICE.

JAMES PATON, OF CLEVELAND, OHIO.

SAFE OR VAULT.

SPECIFICATION forming part of Letters Patent No. 713,142, dated November 11, 1902.

Application filed August 8, 1902. Serial No. 118,867. (No model.)

To all whom it may concern:

Be it known that I, JAMES PATON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Safes or Vaults, of which the following is a specification.

My invention relates to safes and vaults; and the object of my invention is to provide improved means of mounting, operating, adjusting, and locking the door.

My invention is shown in the drawings accompanying and forming a part of this specification, in which—

Figure 1 is a front elevation of a safe or vault door, showing the door closed. Fig. 2 is a view showing the interior of the safe or vault shown in Fig. 1 and showing a part of the inner plate of the door removed. Fig. 3 is a sectional view of the safe and part of the door upon the line *x x* of Fig. 2. Fig. 4 is a sectional view showing the manner of attaching the hinge to the body of the safe or vault. Fig. 5 is a sectional view showing the manner of interposing the retaining-bolts between the female screw-ring and the body of the safe or vault.

Like figures refer to corresponding parts in the several views.

In the drawings, 1 is the body of the safe or vault, which may be of any suitable form and constructed in any suitable manner and of any suitable material, but preferably of a hard material, such as manganese steel.

The body of the safe shown has a round door-opening, the jamb of which is provided with a single annular step. Fitting into the door-opening is a door the body 2 of which is made, preferably, of a metal of similar composition with the body of the safe. Cast into the hard body 2 of the door is an inner ring 3 and an outer ring 4, both of a soft metal.

The body of the safe is provided with a recess or channel 5, which extends around the door-opening, as shown in Fig. 3. Extending from the door-opening into the recess 5 are a series of channels, as shown at 6 in Fig. 5, to permit the introduction of retaining-bolts 7 between the female screw-ring and the safe-body.

Attached to the body of the safe is a ring or plate 8 of any suitable form having a mutilated female screw-thread. The ring or plate 8 is held firmly in place and may be adjusted by means of bolts 7, the heads of which rest against the inner wall of the recess 5. The ring 8 is preferably engaged by the washers 9, which are held by the nuts 10, which are screwed onto the bolts 7. If desired, instead of a single recess 5 extending around the door-opening there may be a series of pockets or recesses, as shown in Fig. 5, with corresponding channels 6 from the door-opening to admit the retaining-bolts 7, the heads of which will be held in the pockets.

Where the body of the safe is cast in one piece, the female screw-ring 8 will necessarily be made in sections to admit the ring into the door-opening in the construction of the safe. A ring 11, provided with a mutilated male screw-thread, is attached to the hard body of the door by means of screws 12, which screw into the soft-metal ring 3 of the door. The mutilated male screw-thread upon the ring 11 is adapted to interlock with the female screw-thread of the ring 8.

While in the drawings the screw-threads upon the male and female screw-rings are shown as mutilated, the screw-threads upon the rings may be continuous, if desired, or a series of interlocking lugs located upon the rings 8 and 11 may be substituted for the mutilated male and female screw-threads shown in the drawings. Plates 13 and 14 are fastened to the door by screws 15 and 16, which enter the soft-metal ring 3. Supported by the plates 13 and 14 is a disk 17, which is connected with bolts 18 by means of crank-levers 19. The bolts 18, by the partial revolution of the disk 17, are shot through openings in the male screw-ring into corresponding bolt-openings in the female screw-ring. The disk 17 is actuated by a suitable automatic device connected with pin 20 and located on the outside of plate 13, but not shown in the drawings. A ring 21 is attached to the body of the door by screws 22, which enter the soft-metal ring 4 on the outside of the door-body 2. The body of the door is supported by a swinging crane-hinge 23, which is attached to the hard safe-body by means of screws 24, which enter into soft-metal inserts 25 in the safe-body, as shown

in Fig. 4. The ring 21 upon the door engages rollers 26, which may be supported by the hinge 23, as shown in the drawings, Fig. 1, or in any other suitable manner.

The safe shown is provided with suitable gear mechanism, consisting of rack-teeth 28, located upon the inner surface of the ring 21, and a gear or pinion 27, which is in mesh with the rack-teeth 28 and is supported by outside plate 29 of the door, as is shown in Fig. 1. By means of the bolts 7 the female screw-ring 8 may be readily adjusted, so that the male screw-threads of the door-ring 11 will engage the female screw-threads of the ring 8. When the door shown is inserted in the doorway and rotated, the mutilated male and female screw-threads will engage and the door will be drawn with great pressure into the doorway and firmly held against withdrawal. While I prefer that soft-metal rings be embedded in the hard portion of the door for the purpose of holding the male screw-ring and outer ring, inserted pieces of soft metal of different form may be substituted, if desired. When the door is closed, the bolts 18 are shot into the bolt-openings in the ring 8 and further rotation of the door is prevented. Where the safe-body is formed as shown in Fig. 3, annular shoulders 30 and 31 are formed adjacent to recess 5, thus decreasing the bearing-surface to be ground to fit the mutilated screw-ring 8, and effecting thereby a decrease in the cost of fitting the screw-ring to the safe-body over the cost where the safe is constructed without the recess 5.

From the foregoing description it will be seen that the door of hard unmachineable metal may be connected with a safe or vault body of similar metal and provided with means for adjusting and locking the same and all done readily and at moderate cost.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination, a safe-body having a round door-opening and an annular shoulder adjacent to the opening, and a female screw-ring engaging the annular shoulder of the safe-body and held by retaining-bolts interposed between the screw-ring and body of the safe and having heads which are held in pockets in the safe-body adjacent to its door-opening, substantially as shown and described.

2. In combination, a safe-body of hard unmachineable metal having a circular door-opening and a recess surrounding the door-opening, and a ring having a mutilated female screw-thread and engaging an annular shoulder in the safe-body adjacent to the recess and held by bolts interposed between the screw-ring and safe-body and having heads which are held in the recess in the safe-body, substantially as and for the purposes described.

3. In combination, a safe-body of hard unmachineable material, having a circular door-opening surrounded by a recess forming an annular shoulder adjacent to the door-opening, a mutilated female screw-ring engaging the annular shoulder of the safe-body and held by bolts interposed between the screw-ring and safe-body and having heads which are held in the recess in the safe-body, and a round door adapted to fit and turn in the door-opening and having on its inner surface a ring provided with a mutilated male screw adapted to engage and interlock with the mutilated female screw-ring attached to the safe-body substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES PATON.

Witnesses:
JOHN N. WELD,
E. E. BROOKS.