

T. S. SPIVEY.  
SAFE CONSTRUCTION.  
APPLICATION FILED OCT. 7, 1907.

903,800.

Patented Nov. 10, 1908.

Fig. 3.

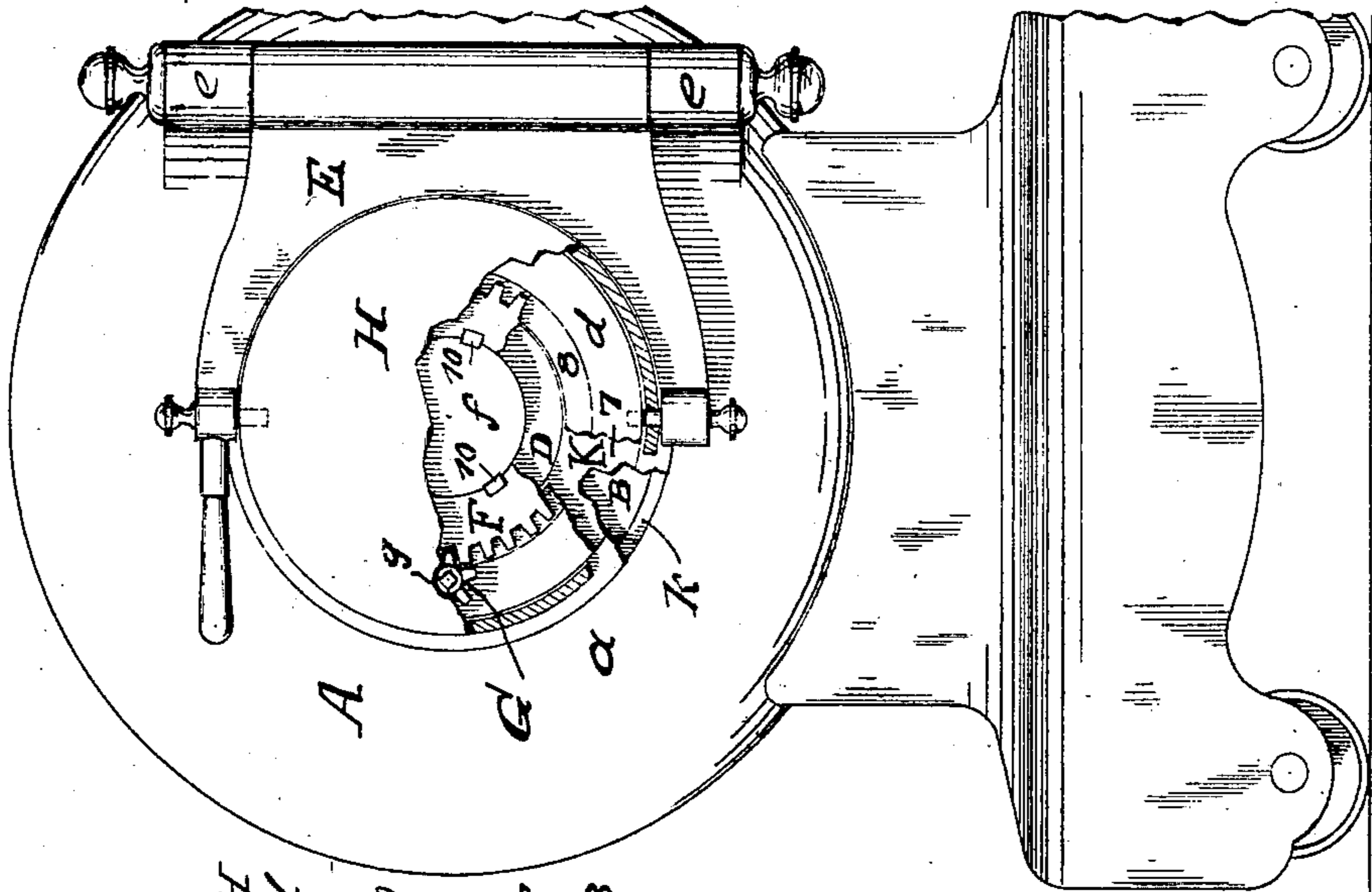


Fig. 2.

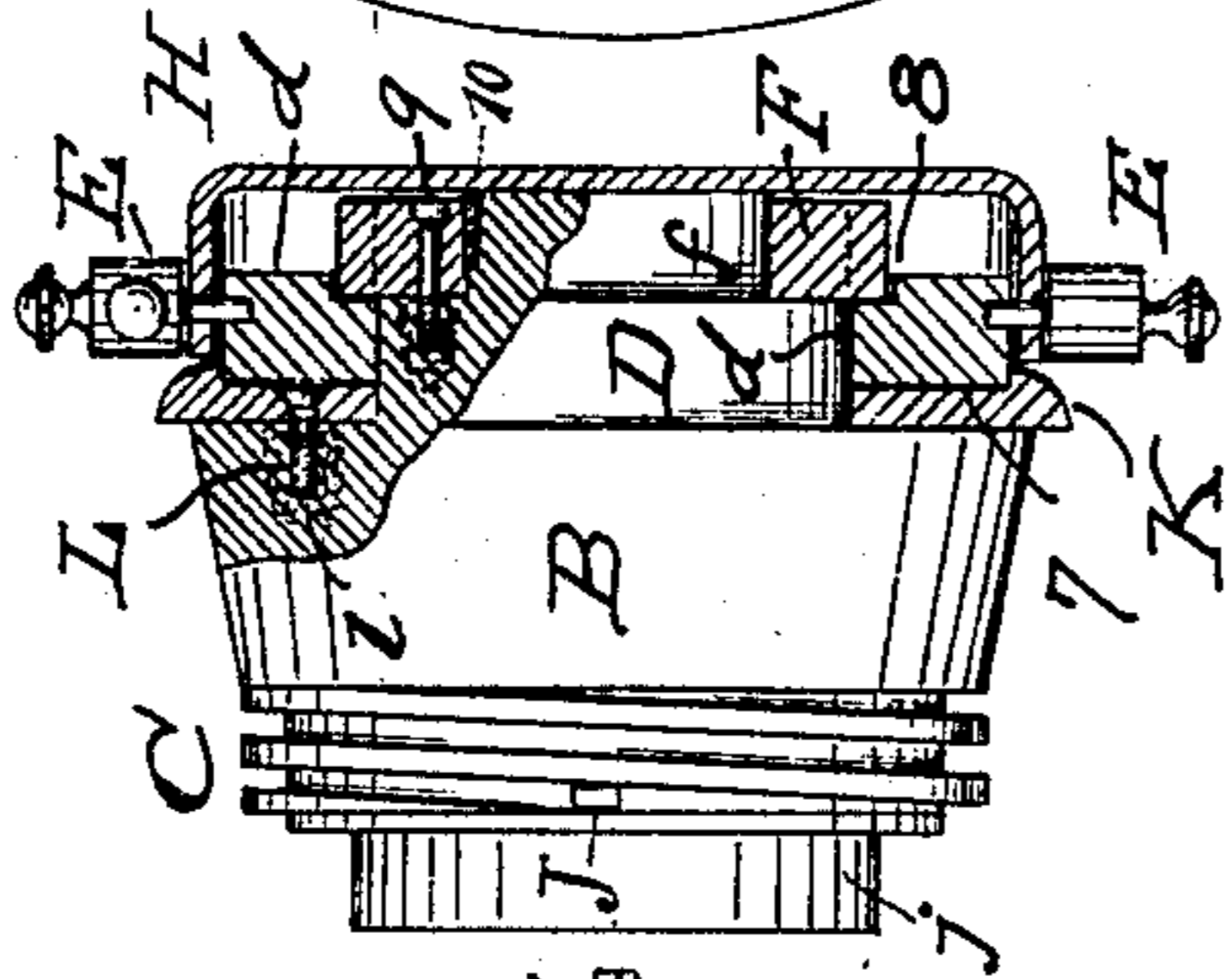
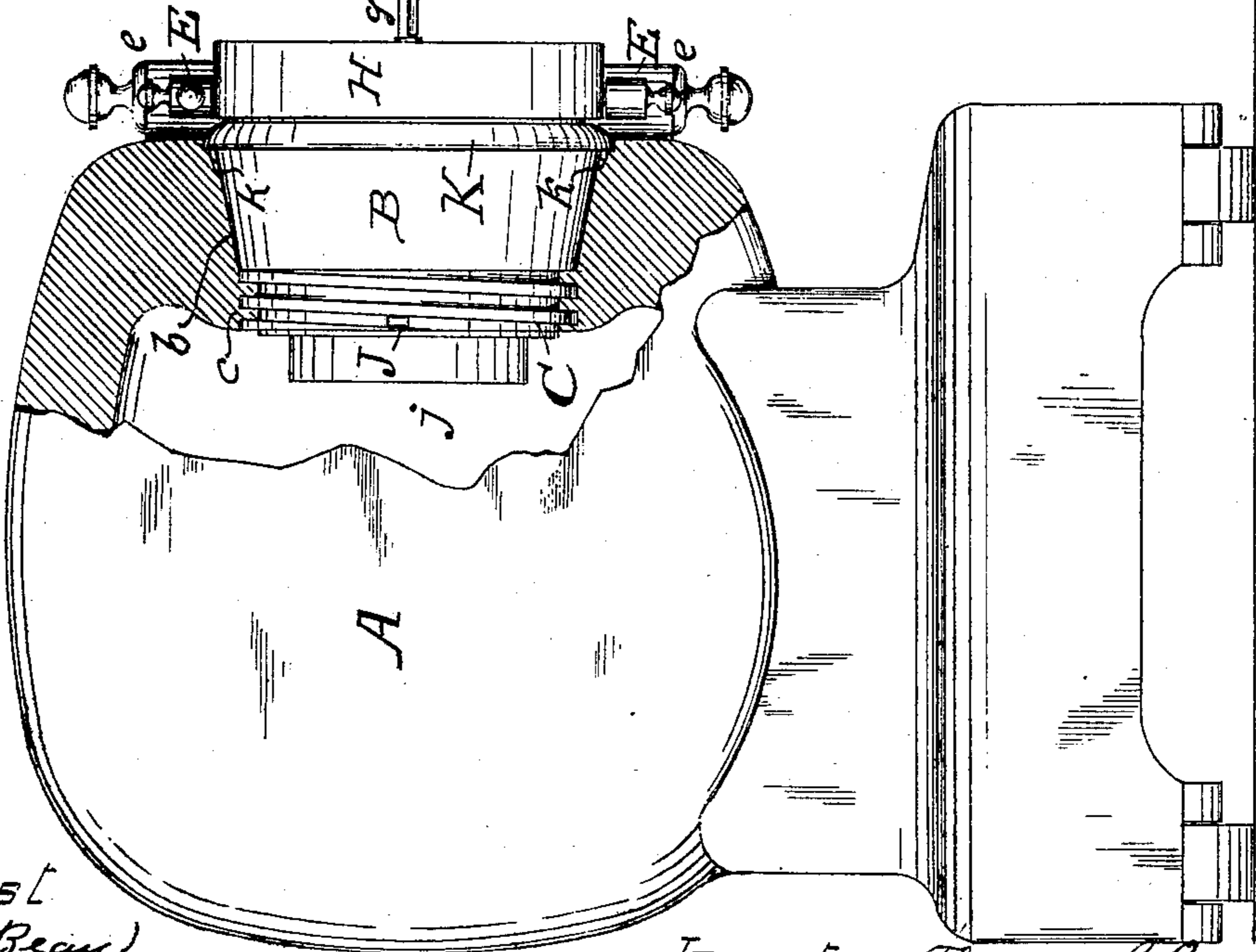


Fig. 1.



Attest  
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# UNITED STATES PATENT OFFICE.

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## SAFE CONSTRUCTION.

No. 903,800.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed October 7, 1907. Serial No. 396,163.

*To all whom it may concern:*

Be it known that I, THOMAS S. SPIVEY, a citizen of the United States, and residing at Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Safe Construction; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawing, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in the construction of safes, the object being to increase their security against unauthorized and forcible access.

The improvements are shown as applied to a safe provided with a circular door which is fitted into a door-opening with a correspondingly shaped jamb. A screw-connection is generally used to hold such doors seated in their opening for which purpose they are supported to be axially rotatable and the improvements are shown as applied to safes having such doors.

This particular type of safes is generally known as a screw-door safe and of late body and door of such safes are made each of a solid casting of a non-machineable metal, which feature however has not necessarily any bearing upon my invention.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a side-elevation of such a safe with parts broken away, the door being shown in side-view, and seated in its opening in the front-wall of the safe-body which is shown in section. Fig. 2, is a side-view of the door detached, part of the same and its manipulating means being shown in section. Fig. 3, is a front-view of the safe with parts of the door being broken away.

A, is the body of the safe, and *a*, is the front-wall thereof which is provided with a circular opening into which the door B, is fitted. The edge of the door is tapering and jamb *b*, to which it is fitted is shaped correspondingly. Means like a screw-connection are presumed to be used for keeping the door seated in its jamb and which require rotation

of the door, to seat or unseat it. The complementary parts of this connection are provided, one C, on the door, and the other *c*, in the door-opening back of jamb *b*. The door, to enable it to enter or leave its screw-seat, must be rotated, for which purpose a journal D, is provided on its front-side, which is fitted for support into a bearing constituted by a circular frame *d*, in a manner to be free for rotation therein. This door-bearing is carried on a crane-frame E, supported by hinges *e*, on the front-wall of the safe and by means of which frame the door is swung into or out of its opening. The door may be rotated in its bearing in either one of these positions to effect engagement, or disengagement, as the case may be, of the complementary parts of its screw-connection. Rotation is accomplished by means of a set of gear-wheels, the larger one F, of which is rigidly secured to the door, a boss *f*, being provided upon which it is mounted, the smaller one, a pinion G, being supported on circular frame *d*. A cover H, incloses these parts with exception of a shaft *g*, on pinion G, which projects through the same and permits application of a crank for operation of the gear-train, to seat or unseat the door.

The door is locked in its closed position by sliding bolts J, which when projected into corresponding sockets prevent its rotation for unscrewing, and which are actuated in the usual way by a lever-mechanism controlled by a time-lock which is contained in a casing *j*. Although such a door is ground to its seat on jamb *b b*, with a perfect, practically air-tight fit, efforts have nevertheless been made to introduce liquid explosive-matter between the two, sufficient space having been forced by suitable implements like a peening tool, or by hammer-blows directed against the front of the safe close to the edge of the door-opening which would cause the metal thereat to bulge and force it out of shape until a gap of a size, sufficient for the purpose, was produced. My object is to prevent use of such expedients at that place, by covering the joint where door and front-wall of the safe meet, by a member which covers this joint, and also portions of the metal on adjacent sides, so that efforts to enter this joint, or to distort the metal adjacent to it, by hammer-blows would be useless, since the intended spot cannot be reached. This interposed

member consists of a shield K, provided on the outer side of the safe-door and projecting also over the edge of the same, so as to cover the crevice at the joint where door-edge and jamb come together. This projection is not merely sufficient for this purpose however, but it is extended to cover also a zone of the surface of the safe-body around the edge of the door, so that the metal so covered cannot be reached by implements, or be acted upon in any manner. This shield is suitably attached to the safe-door, as for instance by being shrunk onto the journal D. Or screw-connected means like bolts or screws L, may be used to secure shield K in position.

If the body of the door is of non-machineable metal, inserts of workable metal l, are provided to receive these screws. In addition to this, the position of shield K, and its connection to the door-body, is still further secured, by provision of an annular recess k, in the front side of the safe and around the outer edge of the door-opening, into which the overlapping part of the shield extends and which it fills, the thickness of this shield being such that it also projects beyond this recess and above the frontside of the safe. The effect of this arrangement, in addition to its function stated, is that the joint between door and safe-body does not extend inwardly on a straight, unbroken line, and furthermore access to the inner edge and under side of shield K, for the purpose of prying it off from the door-body, or of separating it therefrom in any manner, is rendered impossible since this inner edge of shield K is covered by the overlapping metal of the front-wall of the safe-body. More security is added by recessing shield K, on its outer side as shown at 7, and by fitting frame d, into the same, so that similar advantages are imparted at this point, that is absence of a straight joint where these two members, shield K, and frame d, come together whereby their separation is prevented by insertion of means between them, or in any other manner. Still more security is added by repeating the same relative arrangement between frame d, and gear-wheel F, the former being recessed as shown at 8, for reception of part of the gear-wheel, so that separation of these two members, by introduction of implements between them, is also prevented or rendered difficult.

Gear-wheel F, is rigidly secured upon the door in any manner or by screws 9, similar to the screw-connection before described for shield K.

It will be seen now that the door-joint is not only covered, but adjacent surfaces on either side and particularly on the safe-body, are also covered and protected against attacks in the manner indicated.

By recessing the various superposed parts

involved in this construction into each other as shown, shield K, into the safe-body, frame d, into the shield and gear-wheel F, into frame d, the additional security which it was the object to obtain is provided.

Shield K, and gear-wheel F, are both rigidly secured to the door and rotate with the same, while confining it also in position on frame d, which is closely fitted into the space between them and supports the door.

Having described my invention, I claim as new:

1. In a safe, the combination of the safe-body provided with a circular opening in its front-wall, a door fitted to the same, means whereby it is kept seated in its opening, and the operation of which means involves rotation of the door, a frame in which the same is supported in a manner to permit such rotation, and a shield in form of a circular plate connected to the door so as to be between its front-side and the frame mentioned, said shield being of a thickness sufficient to closely fill the space between door and frame and of a diameter so as to project all around beyond the edge of the door so as to cover a part of the surface of the front-wall of the safe-body which surrounds the door-opening.

2. In a safe, the combination of the safe-body provided with a circular opening in its front-wall, a door fitted to the same, means whereby it is kept seated in its opening, and the operation of which means involves rotation of the door, a journal projecting from the front-side of this door, a frame into which this journal is fitted for rotation and which supports the door, and a shield which is shrunk onto the journal between the front-side of the door and its supporting frame and which extends beyond the edge of the door sufficiently to cover also a portion of the front-wall of the safe around the opening therein.

3. In a safe, the combination of the body provided with a circular opening in its front-wall, a door fitted to this opening and provided with a journal which projects from its front, and with a boss which extends from this journal, means whereby the door is kept seated in its opening, and the operation of which means involves rotation of the door, a shield on the outside of the door, a frame outside of this shield into which the journal of the door is fitted for rotation and which supports the door, and a gear-wheel rigidly mounted on the boss outside of this frame, the superposed parts mentioned overlapping each other, and the shield overlapping the safe-body around the edge of the opening therein, and means to operate the gear-wheel to rotate the same with the door.

4. In a safe, the combination of the body provided with a circular-door-opening in its front-wall, a door fitted to this opening and

provided with a journal which projects from  
its front and with a boss which extends from  
this journal, means whereby the door is kept  
seated in its opening, and the operation of  
5 which means involves rotation of the door, a  
shield on the outside of the door of a size  
sufficient to project beyond the edge of the  
same, and overlapping also a part of the  
outside of the safe-body around the door-  
10 opening, a frame provided against the out-  
side of this shield into which the journal of  
the door is fitted for rotation and which sup-  
ports the door, and a gear-wheel rigidly

mounted on the boss and seated against the  
outside of this frame, the superposed over- 15  
lapping parts being also recessed into each  
other and the projecting edge of the shield  
being recessed into the metal of the safe-  
body which surrounds the door-opening.

In testimony whereof I hereunto affix my 20  
signature in the presence of two witnesses.

THOMAS S. SPIVEY.

Witnesses:

C. SPENEGEL,  
T. LE BEAN.