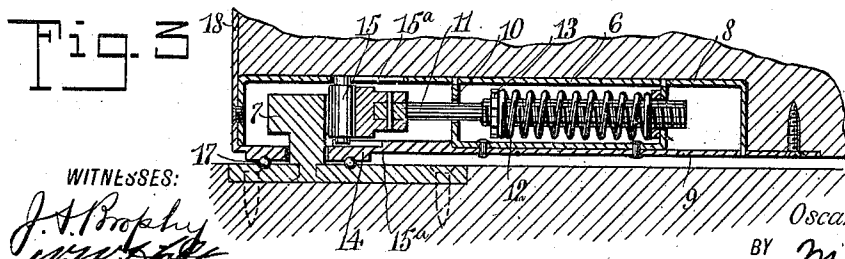
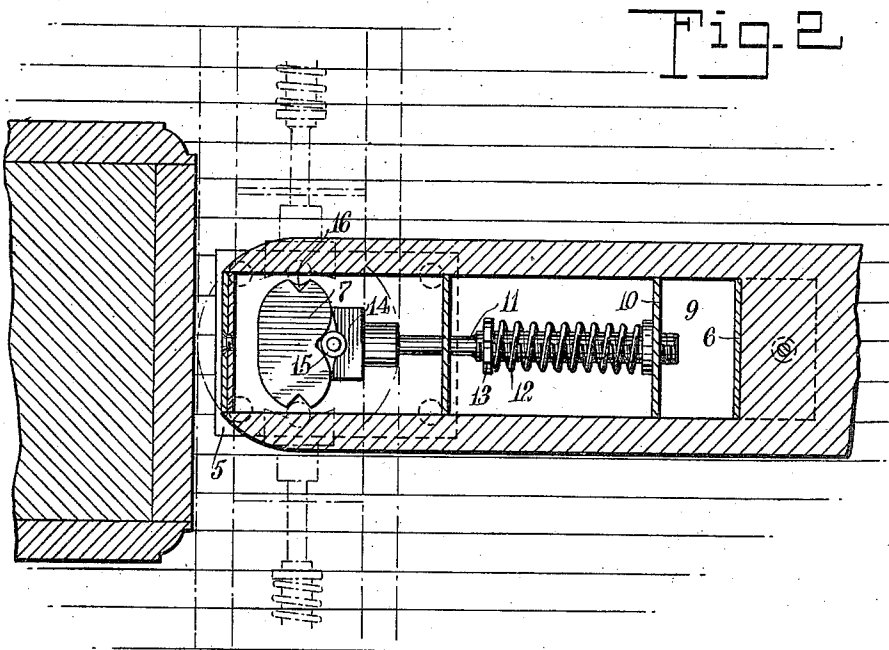
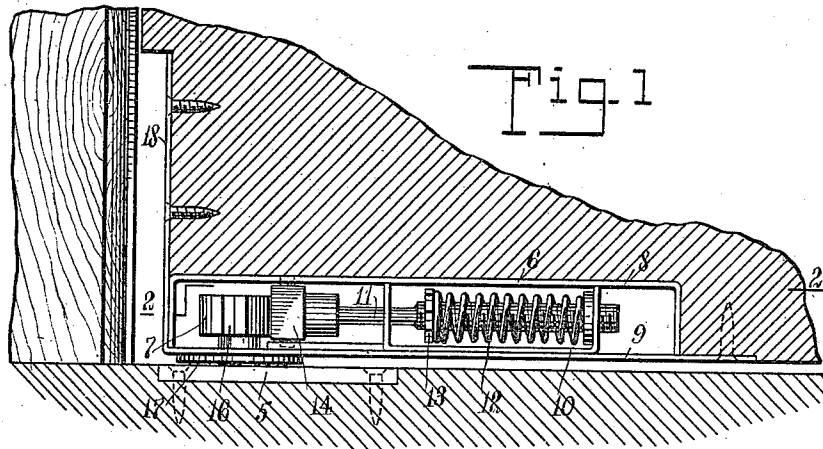


O. KATZENBERGER.
DOUBLE ACTING SPRING HINGE.
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987,467.

Patented Mar. 21, 1911.



WITNESSES:
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OSCAR KATZENBERGER, OF CHICAGO, ILLINOIS.

DOUBLE-ACTING SPRING-HINGE.

987,467.

Specification of Letters Patent.

Patented Mar. 21, 1911.

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To all whom it may concern:

Be it known that I, OSCAR KATZENBERGER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Double-Acting Spring-Hinge, of which the following is a full, clear, and exact description.

The invention is an improvement in double-acting spring hinges, and has in view a hinge of this type in which the tension on the spring bolt is obtained by a thrust in axial alinement therewith, instead of a thrust at the side or oblique thereto, as is the usual practice, thus reducing friction, the friction being further reduced by providing between this bolt and the operating cam, a roller, the latter also arranged to successively engage in a number of recesses in the operating cam and firmly hold the door or other closure until pressure is brought to bear thereon, in closed and open positions.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through the lower portion of the door and the floor, showing a surface hinge applied thereto embodying my invention; Fig. 2 is a horizontal section substantially on the line 2—2 of Fig. 1, showing the relative position of the parts of the hinge when the door is closed, in full lines, and the position of these parts when the door is opened in either direction, in dotted outline; and Fig. 3 is a sectional view similar to Fig. 1, with the hinge also centrally and longitudinally sectioned.

The construction of my improved hinge embodies two hinge members 5 and 6, one of which is rotatable on the other, the hinge member 5 having a vertical stud rigid therewith, journaled in the hinge member 6, and provided with an operating cam 7. The hinge member 6 has a frame, ordinarily open at the sides and comprising top and bottom plates 8 and 9 respectively, secured together at the ends and at intermediate points by a plate 10, the latter providing bearings for a slidable bolt 11, which is pressed to the cam by a spring 12, this spring surrounding the bolt between the bearings afforded by the plate 10, and being capable of adjustment by means of a nut 13, the

latter being threaded on the bolt and shown to have a number of circumferential notches by which it is adapted to be turned when the bolt is positioned in the case. The inner end of the bolt is provided with a head 14 having a convex face opposed to the cam. The intermediate portion of this face has a recess to receive and conform to a portion of a bearing roller 15. This roller bears against the cam 7, and is adapted to successively engage in a number of recesses 16 formed therein, as best illustrated in Fig. 2. The bearing roller is provided with reduced journaled portions which are received in guide slots 15^a arranged longitudinally in the upper and lower plates of the frame of the hinge member 6.

The recesses 16 are arranged in the cam to firmly hold the door or other closure to which the hinge is applied, in a closed position and in open positions in either direction, the roller being forced into the recesses under the action of the spring bolt, and forced therefrom under a substantial pressure on the closure. The edges of the head 14, as shown in Fig. 2, project sufficiently from the convex face to just touch the periphery of the cam when the roller is in the central recess of the cam, which prevents the cam pressure on the roller from springing this end of the bolt to one side.

The weight of the closure to which the hinge is applied is carried by a roller bearing 17, which is interposed between the two hinge members, the lower plate of the hinge member 6 at this point being thickened or reinforced by a collar, as shown in Figs. 1 and 3. The bottom plate of the frame of the hinge member 6 is shown to be extended at the outer end, also an arm 18 is extended from said plate at the opposite end, these extended portions being provided with screw openings for securing this hinge member in place.

In applying the hinge, the hinge member 5 is ordinarily sunk into the floor, and the hinge member 6 let into the bottom edge of the closure, and both of the hinge members secured by screws or equivalent means.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a double acting spring hinge, hinge members connected to turn relatively one on the other, an operating cam projecting from one of the hinge members, and a slidable

spring bolt within the other hinge member, said bolt provided with a bearing roller pressing on the periphery of said cam, the vertical axis of the bearing roller arranged
5 in a plane passing centrally through the cam and longitudinally of the bolt.

2. In a double acting spring hinge, hinge members connected to turn one relatively to the other, a spring-pressed bolt slidably
10 mounted on one of the members, an operating cam rigidly attached to the other member and in engagement with the bolt, and a bearing roller carried by the bolt and forced thereby against the periphery of the cam.

3. In a double acting spring hinge, hinge members rotatable one on the other, a spring-pressed bolt in one of said members, said
15 bolt having a recess therein, an operating cam on the other of said rotatable members in engagement with said bolt, and a bearing member in said recess holding the bolt in engagement with said cam.

4. In a hinge, a fixed member, a cam on said member, said cam having a series of recesses, a movable member, a spring-pressed
20 bolt having a recessed head in said movable member, and a roller in said recessed head adapted to engage one of said recesses in the

cam, whereby the members are held relatively to one another.

5. In a hinge, a relatively fixed member carrying a cam, a relatively movable spring-pressed bolt, a roller between said cam and bolt, and a member on said bolt engaging the
periphery of said cam, whereby the cam
35 pressure prevents the roller from springing the bolt to one side.

6. In a hinge, a relatively-fixed member carrying a substantially elliptical-shaped cam, having a recess on one side and having
40 a recess on each of the ends, a relatively-movable spring-pressed bolt, and means interposed between said bolt and said cam, for engaging one of said recesses on said cam, whereby the bolt may be positioned either
45 opposite said side recess or at ninety degrees from said position, by moving said means into engagement with one of the end recesses.

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

OSCAR KATZENBERGER.

Witnesses:

Miss O. LUND,
ADOLPH PAUST.