

(No Model.)

J. BERKEY.
FRICTION HINGE.

No. 413,891.

Patented Oct. 29, 1889.

Fig. 1.

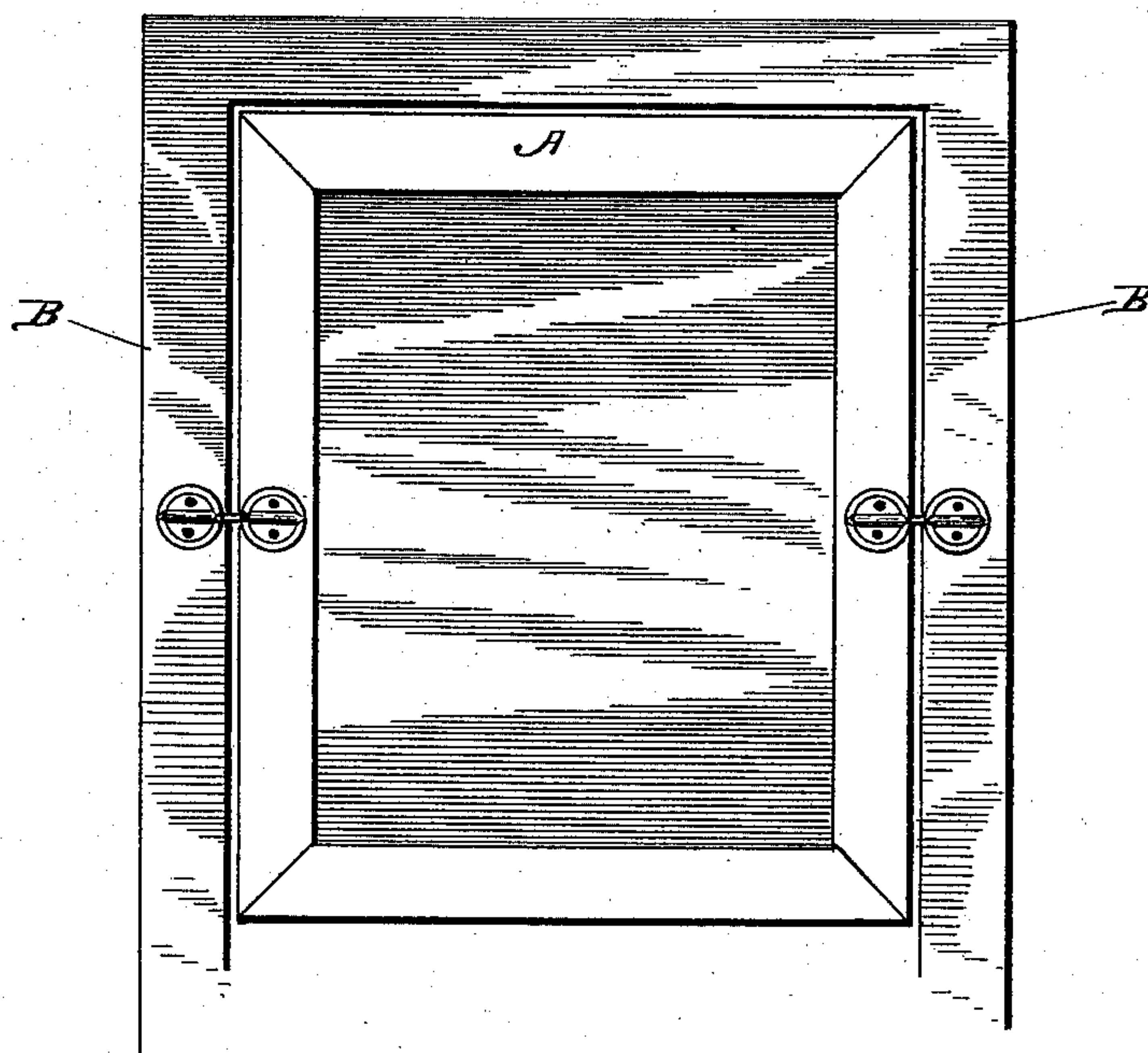


Fig. 2.

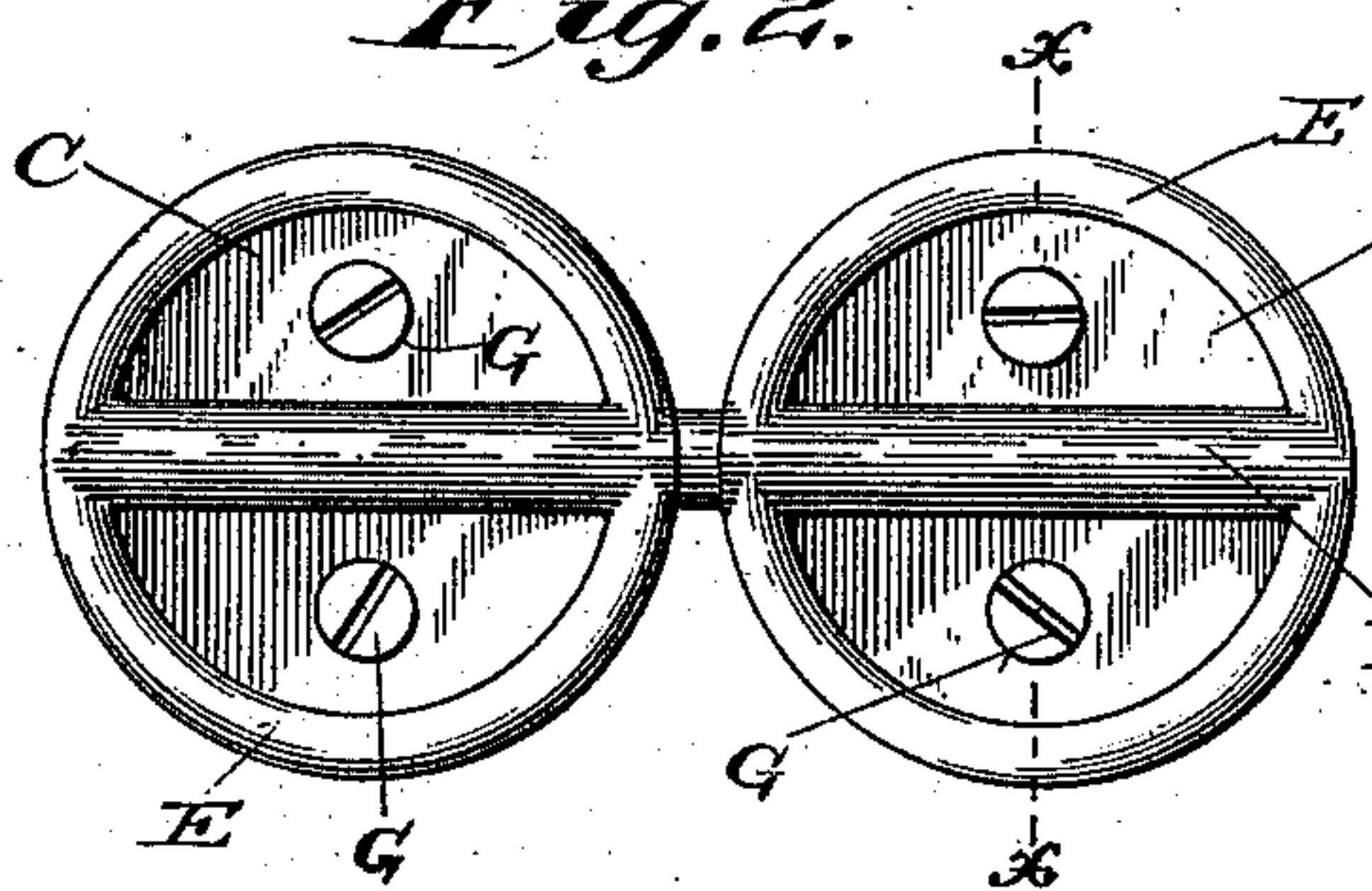


Fig. 3.

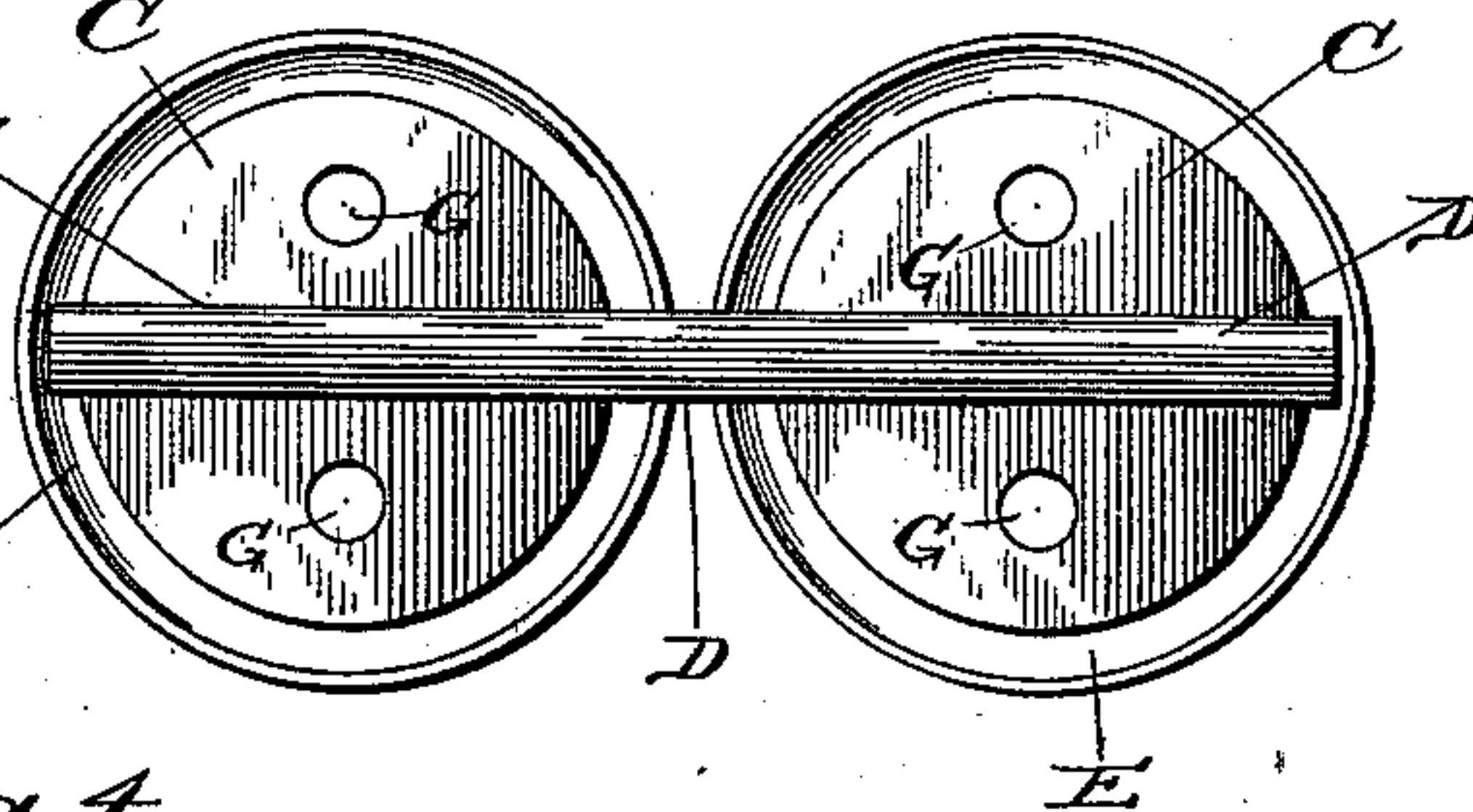
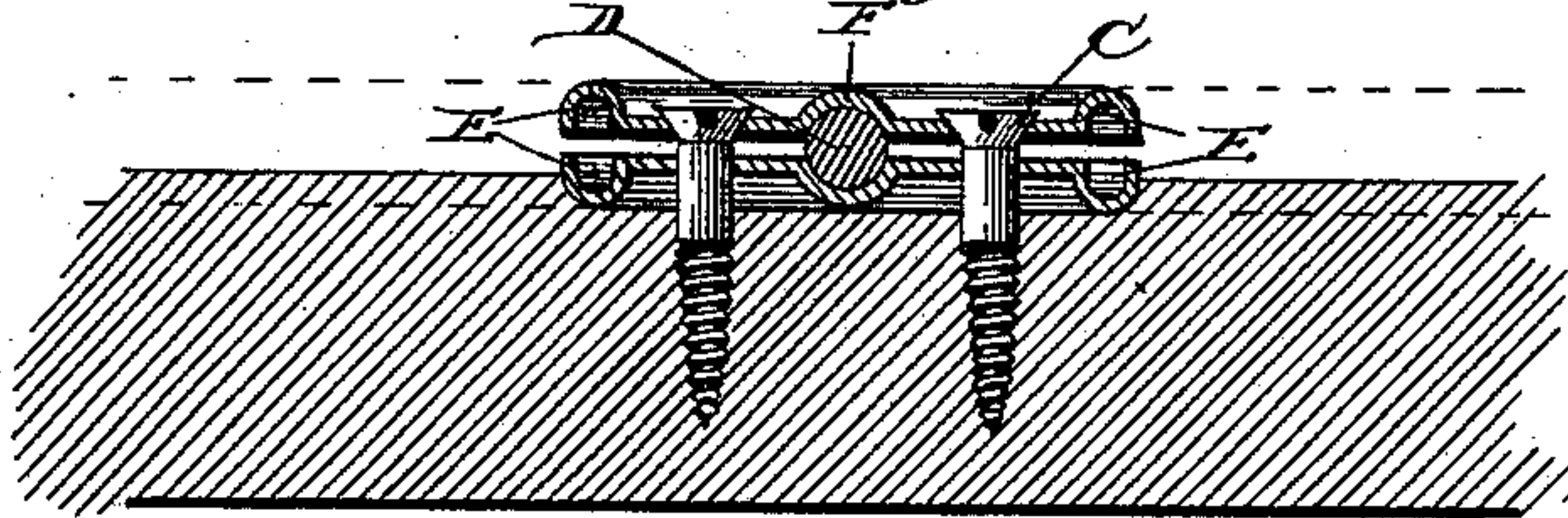


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JULIUS BERKEY, OF GRAND RAPIDS, MICHIGAN.

FRICTION-HINGE.

SPECIFICATION forming part of Letters Patent No. 413,891, dated October 29, 1889.

Application filed November 28, 1888. Renewed September 30, 1889. Serial No. 325,468. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BERKEY, a resident of Grand Rapids, in the county of Kent and State of Michigan, have invented certain
5 new and useful Improvements in Friction-Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make
10 and use the same.

My invention relates to improvements in friction-hinges for mirrors, transom-sash, and similar objects, and is fully described and claimed in this specification, and illustrated
15 in the accompanying drawings, in which—

Figure 1 shows in elevation a mirror provided with hinges embodying my invention. Fig. 2 shows on a larger scale one of the hinges detached and seen as in Fig. 1. Fig.
20 3 is a similar view of the hinge with the outer plates detached. Fig. 4 is a section on the line xx of Fig. 2.

The hinge consists of a short pintle-rod whose ends are clamped, respectively, between
25 two plates upon the mirror-frame and two like plates upon the supports between which the mirror-frame swings. The construction of the apparatus is such that the friction of the plates upon the pintles may be varied at
30 will, and such that the pintle cannot escape longitudinally or otherwise, even if all friction be removed.

In the drawings, A is any ordinary mirror, and B B are supports between which it is pivotally mounted to swing about a horizontal
35 axis. One hinge is of course employed upon each side of the mirror, and each hinge consists of four identically similar plates C of circular outline and a pintle-rod D. The
40 plates may be cast, but are preferably stamped from sheet metal. Around the margin of each plate upon one face is an annular groove E, and upon the same face is a diametrical groove F, whose cross-section is circular, but
45 which is slightly less than half a cylinder, having the diameter of the rod D. This diametrical groove extends from one margin of the plate to the annular groove upon the opposite side, but does not cross its outer wall.
50 All the plates are provided with screw-holes G, that register when the grooved faces of two

plates are brought together. The rod D is of a length equal to twice the length of the diametrical groove plus the distance between the mirror-frame A and the adjacent support
55 B, but it may be a little less without detriment to the device. Now, if the grooved faces of two pairs of the plates be brought together, with the rod between them in the diametrical grooves, as indicated in Fig. 2, and if one
60 pair of the plates be screwed to the frame and the other to the support, as in Fig. 1, the hinge is in operative position. When in such position, the outer walls of the marginal grooves prevent the pintle D from slipping
65 longitudinally outward in either direction, thereby keeping the mirror-frame equally distant from the standard, and consequently avoiding the necessity for washers between the frame and standards. As the diametri-
70 cal grooves are each less than half-cylinders, the two plates cannot quite meet when the rod is in place, and any desired friction can therefore be produced by turning the screws
75 G, by which the plates are secured to the frame and supports. The outer groove serves the further purpose, when stamped in sheet metal, of producing a stiffening-rib around the margin of the plate and of protecting the
80 screw-heads, which, even when not countersunk, fall entirely within the plane of the rib. As shown, the wood is cut away to receive the under plate of each pair. It may, if desired, be cut to such a depth that both
85 plates of each pair are within the plane of the wood's surface, or all cutting may be dispensed with, the plates being screwed upon the normal surface. It is a convenience in manufacture to use a plain rod D, held by identical plates at each end; but evidently
90 the main purpose of producing such friction as may cause the mirror to remain at any angle where it is left may be accomplished by the two plates at one end of the rod without reference to the means for holding the other
95 end. It is also apparent that it is not necessary to always use the two plates in order to produce the necessary friction for holding the mirror or transom at any desired angle. While it is preferable to use both plates the
100 under one can be dispensed with and substantially the same result accomplished by

using in its stead a plate having a groove or channel corresponding to the diametrical groove or channel in the upper plate, or the lower or under plate might be dispensed
5 with altogether, if the hinge is used upon any of the hard woods, by forming a similar groove or channel in the wood. The essential features in my invention are, however, the construction of a friction-hinge in which the upper and lower plates have concave bearings
10 for the pintle, and are also provided with annular grooves which serve as stiffening-ribs and to retain the pintle.

What I claim as new, and desire to secure
15 by Letters Patent, is—

1. The combination, with the mirror-frame and mirror-supports, of a pintle and two slightly-separated superposed plates provided with registering grooves adapted to receive
20 the end of the pintle, whereby a uniform frictional bearing is formed for nearly the entire surface of the end of the pintle, and means

for clamping the plates upon the pintle, whereby rotation upon the pintle may be resisted by any desired friction. 25

2. The combination, with a hinge-pintle, of two plates provided with diametrical registering grooves for the pintle and having an annular groove which serves as a stiffening-rib and a keeper for the pintle. 30

3. The combination, with the plates C, arranged in pairs, provided with registering screw-holes G and each having the marginal groove E and the diametrical groove F, of the pintle-rod D, lying between the plates in the
35 groove F, substantially as and for the purpose set forth.

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

JULIUS BERKEY.

Witnesses:

WALLACE GREENE,
SCHUYLER DURYEE.