B. F. FOSS.

ADJUSTABLE HINGE.

APPLICATION FILED MAR. 16, 1911.

992,182. **Patented May 16, 1911.**

Fig. 1.

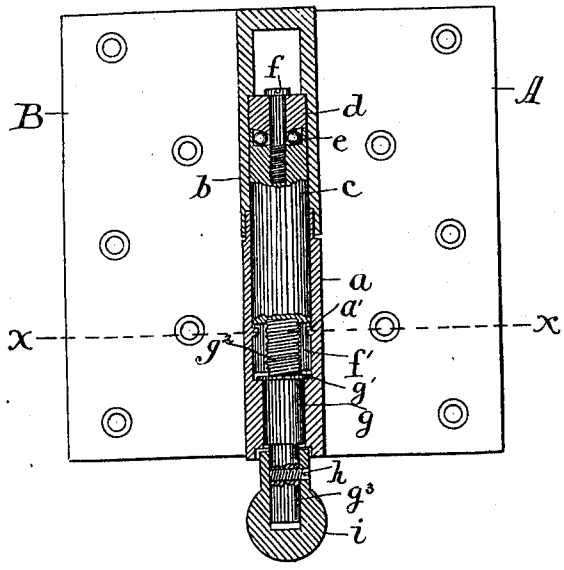
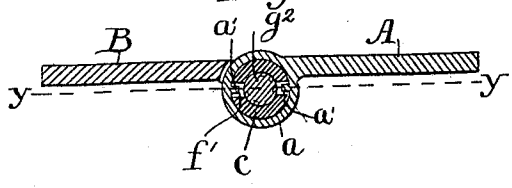


Fig. 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. FOSS, OF PORTLAND, MAINE.

ADJUSTABLE HINGE.

992,182. Specification of Letters Patent. Patented May 16, 1911.

Application filed March 15, 1911. Serial No. 614,736.

To all whom it may concern:

Be it known that I, BENJAMIN F. Foss, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Adjustable Hinges, of which the following is a specification.

My invention relates to an adjustable hinge and is primarily designed as an improvement on the ball bearing hinge patented to me Oct. 10, 1905 No. 801,232. In the hinge covered by said patent, the two knuckles were united by a pintle made in two parts with a ball bearing joint between them, the weight being carried by the upper element of the two part pintle. The pintle was raised and lowered by a screw which extended up through the bottom of the lower knuckle, the lower end of the pintle resting on the upper end of the screw. On the lower end of this adjusting screw was a knob for operating the screw. It was found in the practical use of this hinge that there was a tendency for the screw to turn as the hinge rotated on the ball bearing pintle so it was necessary to secure the screw in place by the use of a set screw. Another difficulty was that the ornamental knob on the lower end of the screw which was designed to match the knob on the upper end of the hinge was liable to vary in vertical position, and was never sure of being in the right position to look well as compared with the upper knob.

According to my present invention, I support the pintle in its position so that it will not turn, although it may be moved longitudinally, and I engage the lower end of the pintle with a screw formed on the upper end of a spindle permanently journaled in the lower knuckle. Thus the pintle being prevented from turning, has no tendency to turn the screw to vary the adjustment and the ornamental knob is always in the same vertical position.

My invention is best understood by means of the accompanying drawing, in which is shown a hinge constructed according to my invention.

In the drawing, Figure 1, is a central vertical section taken on the line *y y* of Fig. 2, and Fig. 2, is a horizontal section on the line *x x* of Fig. 1.

The hinge is composed of two leaves A and B having knuckles *a* and *b* respectively. Each knuckle has a longitudinal opening for the admission of a pintle. As here shown, the pintle is in two parts, a lower member *c* having on its upper end a ball race and an upper member *d* having its lower end formed as a cone, the two constituting a ball bearing joint, whereby the upper member rotates on the lower member. A screw *f* secures the two members together and the balls *e* furnish the rolling friction. The weight is carried by the upper member *d* by means of a shoulder formed on the inner surface of the knuckle *b*.

The lower end of the member *c* is supported on the upper end of spindle *g* which is journaled in the knuckle *a*, and it has on its upper end, a screw g^2 fitting a screw threaded opening in the lower end of the member *c*. The member *c* is so held that it may be moved vertically, but cannot be turned, and for this purpose the lower end is slotted or bifurcated at *f'*. A projection on the interior of the knuckle *a* fits in the slot *f'* and as shown, this projection *a'* is formed integral with the casting, one on each side.

A flange *g'* is formed on the spindle *g* and this rests on a shoulder formed in the knuckle and holds the spindle in position on the pintle by a handle or knob *i* which is fitted on the reduced end g^3 of the spindle A screw *h* holds the knob in position.

As explained, the weight is carried by the upper member *d*, and the hinge turns on the ball joint. The pintle and the upper hinge are adjusted vertically by turning the knob *i*. Thus the door may be adjusted to any desired height, and the ball bearing always be held in operative position. It will be seen that the weight of the pintle on the upper end of the spindle *g*, will have no tendency to turn it, and the screw will tend to remain in any position in which it is left. The knob *i* does not change position, and can be made to match the knob on the upper end of the knuckle.

I claim:

1. A hinge having complemental leaves, a knuckle on each leaf, a pintle joining the two knuckles, the upper end of the said pintle having a bearing in the upper knuckle, said pintle having a longitudinal screw threaded spindle in its lower end, means in the lower knuckle to prevent the pintle from turning while allowing its longitudinal

movement, and a spindle journaled in the lower knuckle and having a screw on its upper end fitting said screw threaded recess.

2. A hinge having complemental leaves, a knuckle on each leaf, a pintle joining the two knuckles, a ball race, balls and cone on the upper end of the pintle forming a ball bearing, on which the upper knuckle rests, said pintle having on its lower end a longitudinal screw threaded opening, means on the lower knuckle to prevent the pintle from turning while permitting it to move longitudinally, a spindle journaled in the lower knuckle and having a screw on its upper end fitting said screw threaded recess.

3. A hinge having complemental leaves, a knuckle on each leaf, a pintle joining the two knuckles, a ball race, balls and cone on the upper end of the pintle forming a ball bearing on which the upper knuckle rests, said pintle having a bifurcated lower end and a screw threaded longitudinal opening therein, a projection on the interior of the knuckle extending into the bifurcation to prevent the pintle from turning, and a spindle journaled in the lower knuckle and having a screw on its upper end fitting said screw threaded opening.

In testimony whereof I have affixed my signature, in presence of two witnesses.

BENJAMIN F. FOSS.

Witnesses:

S. W. BATES,

C. B. CREIGHTON.