

Draftsman.

No. 822,570.

PATENTED JUNE 5, 1906.

E. BOMMER.
BALL BEARING FOR SPRING HINGES.
APPLICATION FILED JAN. 14, 1905.

Fig: 1.

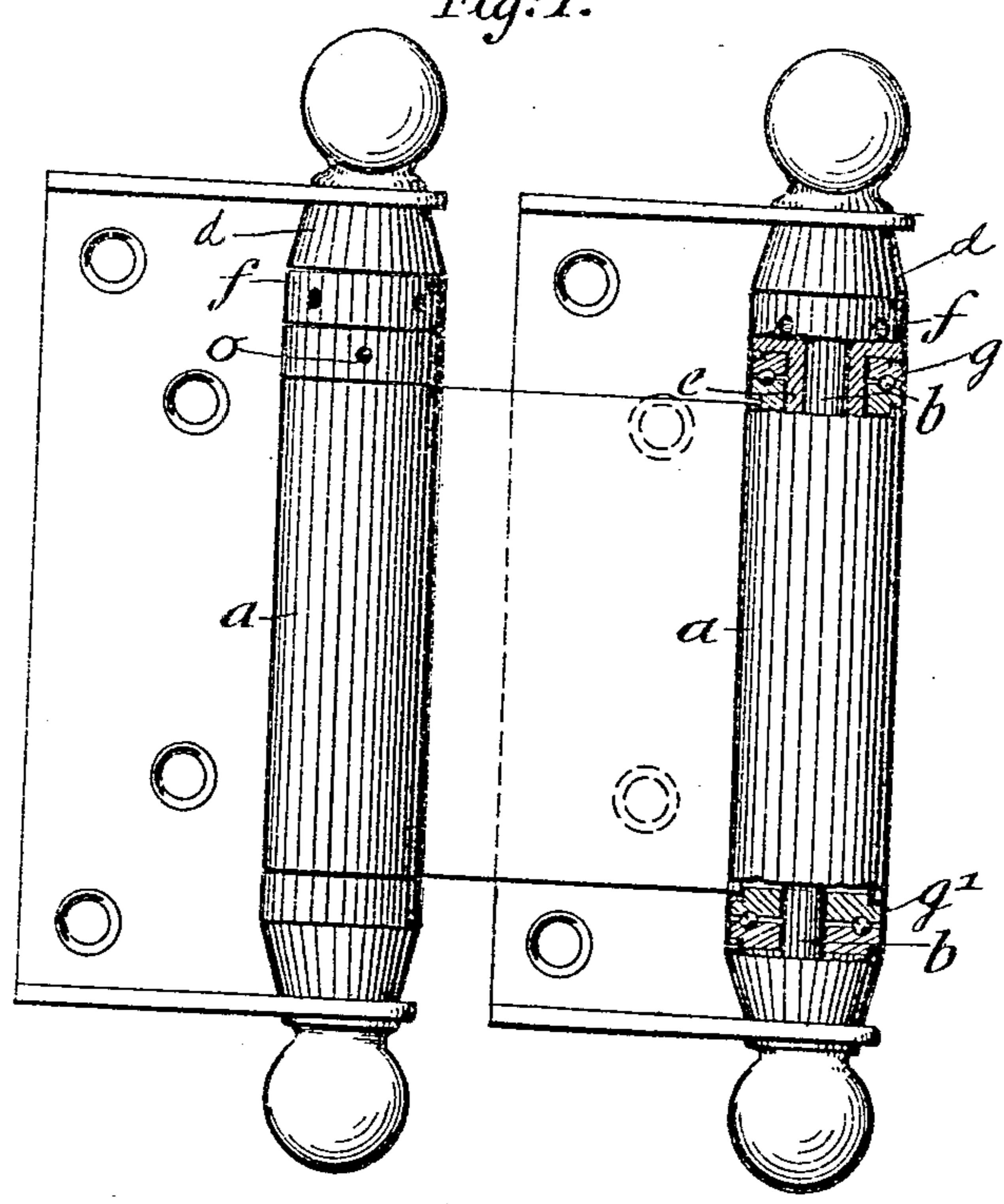


Fig: 2.

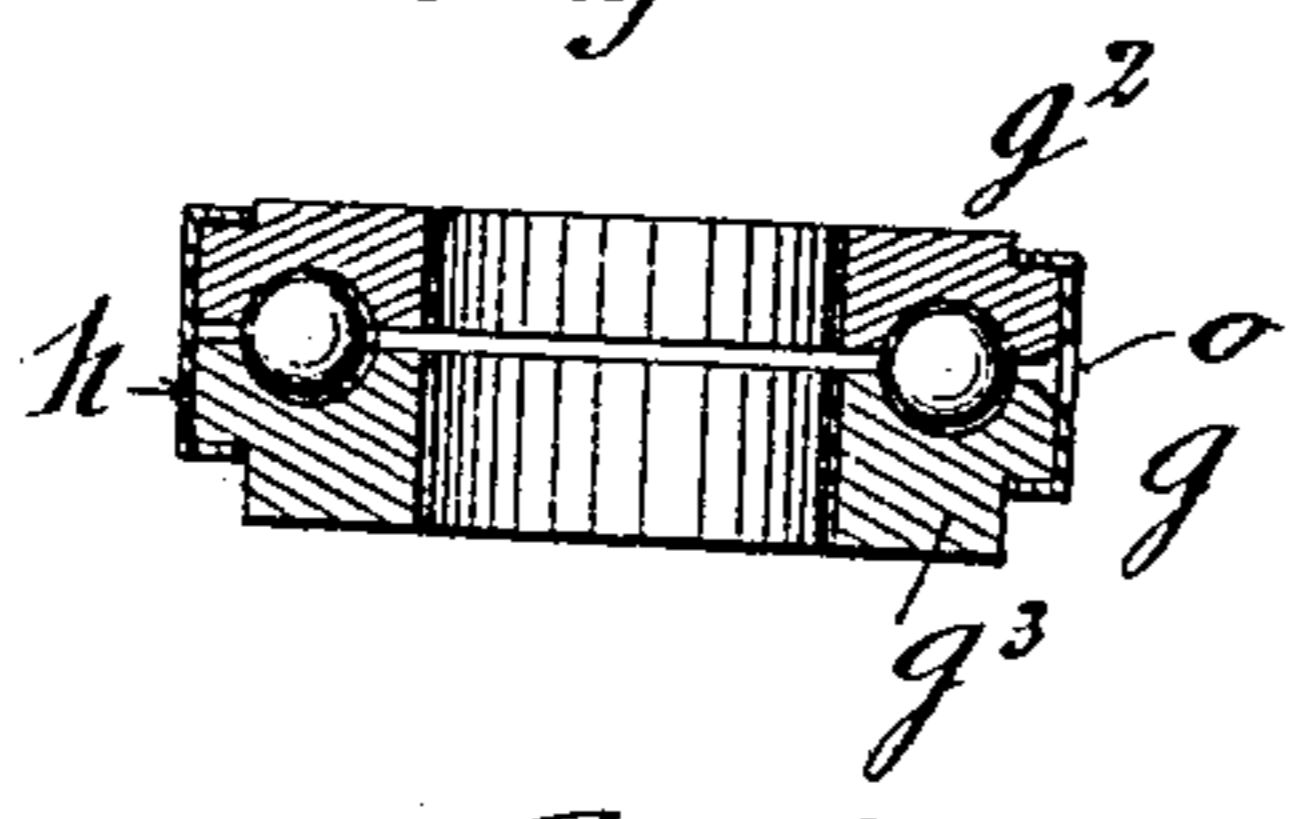


Fig: 4.

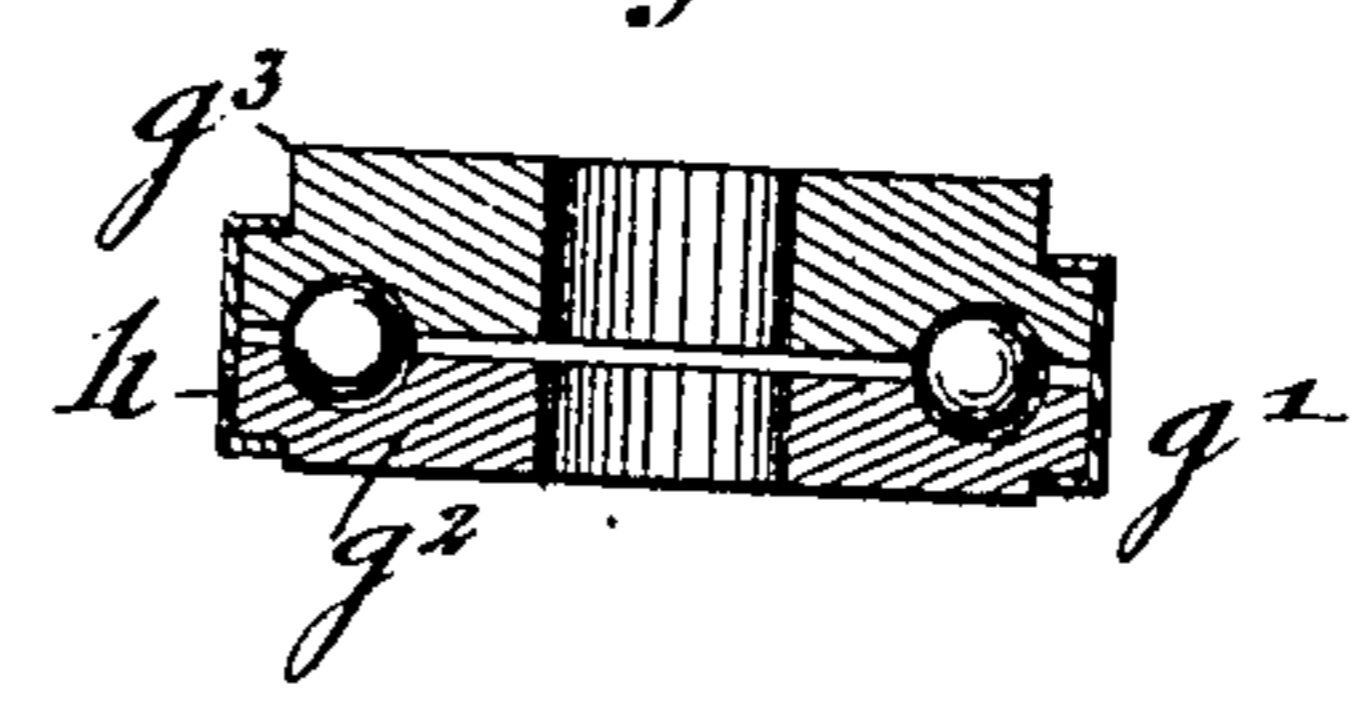


Fig: 3.

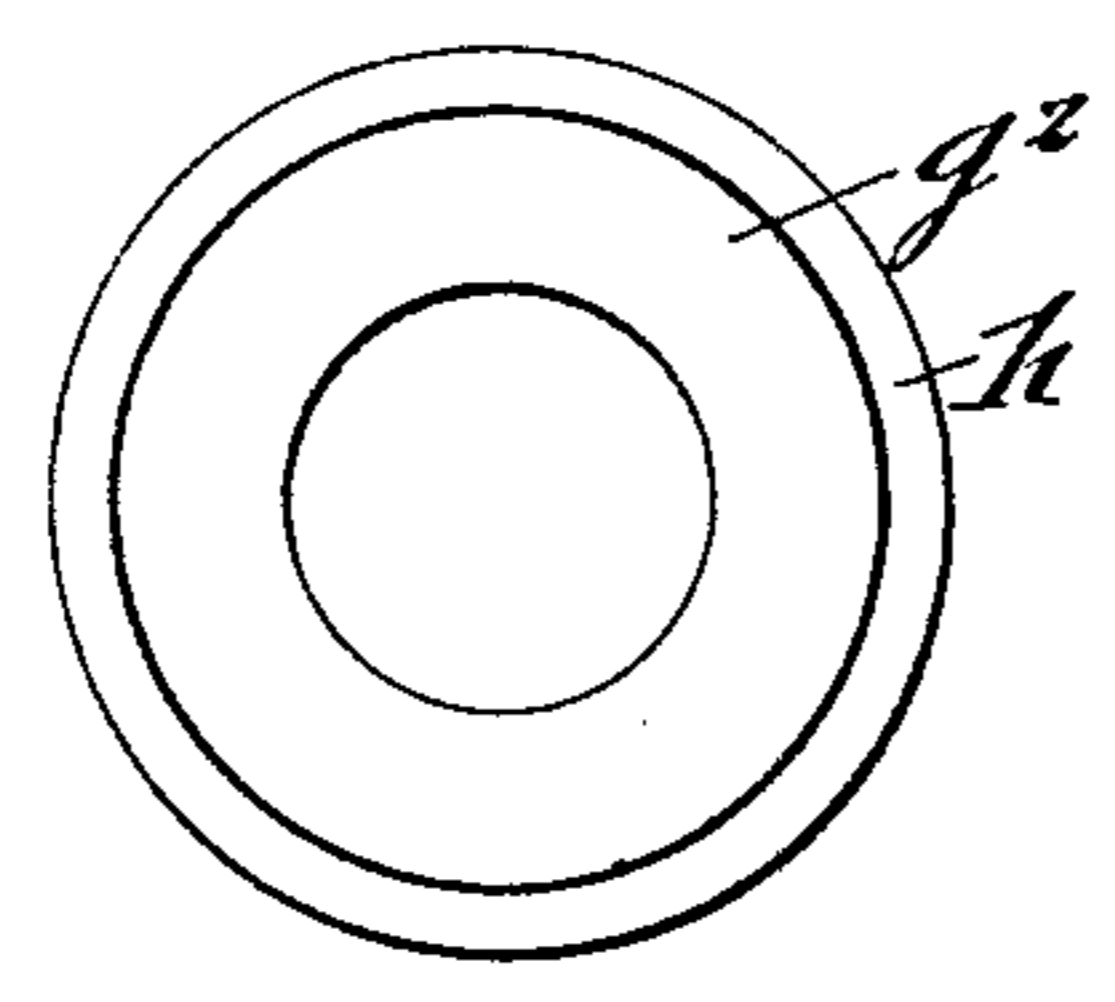
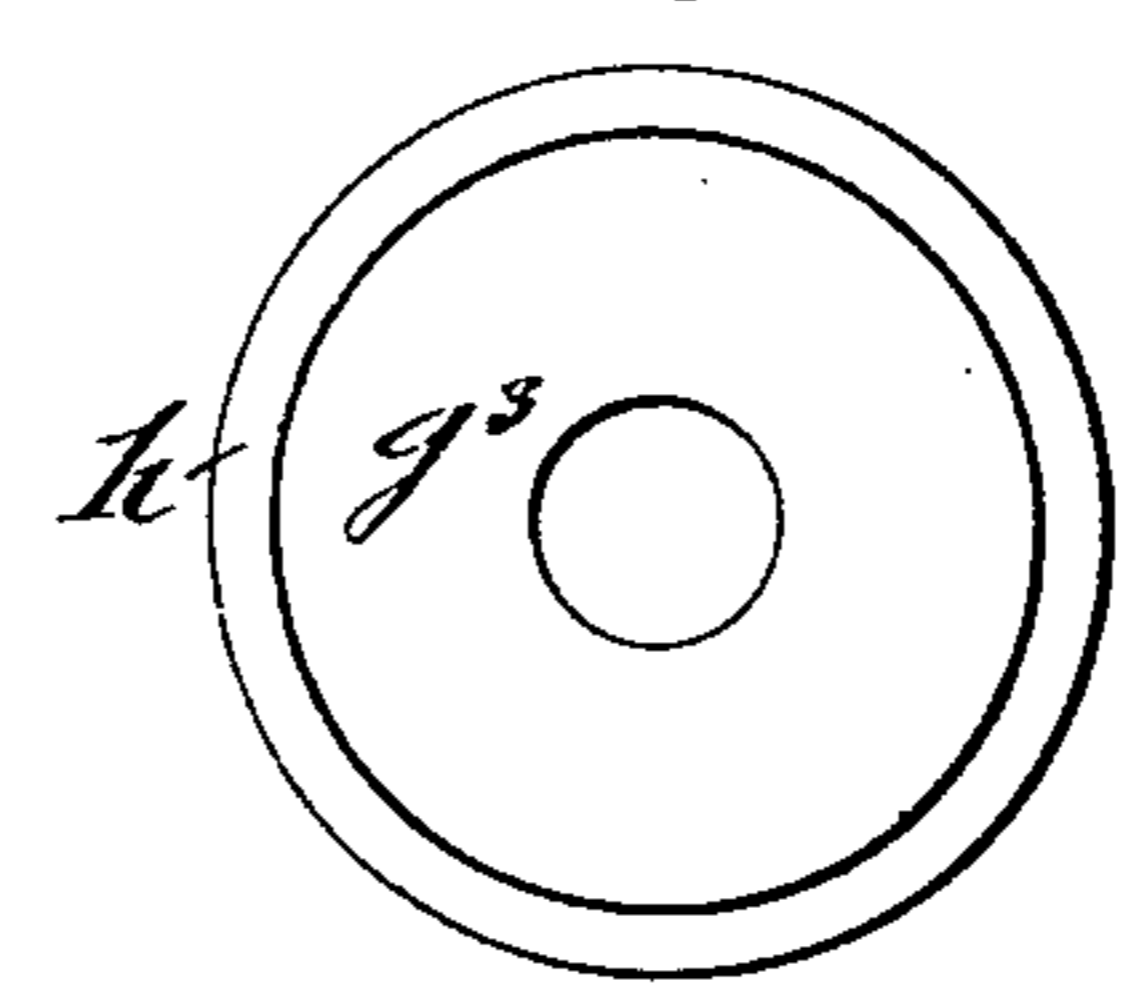


Fig: 5.



Witnesses
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UNITED STATES PATENT OFFICE.

EMIL BOMMER, OF NEW YORK, N. Y.

BALL-BEARING FOR SPRING-HINGES.

No. 822,570.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed January 14, 1905. Serial No. 241,140.

To all whom it may concern:

Be it known that I, EMIL BOMMER, a citizen of the United States, residing in New York, borough of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Ball-Bearings for Spring-Hinges, of which the following is a specification.

This invention relates to improvements in ball-bearings, and more especially ball-bearings for single and double acting spring-hinges, in which ball-bearings are used for permitting the easy working of the hinge, said ball-bearings being used with the spring-hinge for which Letters Patent were granted to me on December 22, 1903, No. 747,680.

The invention has among its objects to provide a ball-bearing in which the ball-races are held together very securely, although the thickness of the bearing is not increased, and in which the amount of metal used for the covering is reduced to a minimum.

With these ends in view the invention consists in the novel features and combinations of parts to be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of a double-acting spring-hinge provided with my improved ball-bearings and showing two of said ball-bearings in central section. Figs. 2 and 3 are respectively a vertical central section and a plan view of my improved ball-bearing, drawn on a larger scale, the ball-bearing being adapted for use with the upper pintle-socket; and Figs. 4 and 5 are respectively a vertical central section and a top view of the improved ball-bearing shown as adapted for use with the lower pintle-socket of the hinge.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* denotes the spring-barrel of a single or double acting spring-hinge, which is provided with the usual pintles *b*. Between the tension-collar *f*, by which the tension of the spring in the spring-barrel is adjusted to the desired degree, and the rims or ledges of the hinge leaves or flanges are interposed the pintle-sockets *d*, which are of conical shape, as shown, and which receive the end portions of the pintles *b*. Between the tension-collar *f* of the upper adjustable spring-holder *e*, which tension-collar is provided with the usual radial holes for inserting the pin-lever in adjusting the tension of the spring in the spring-barrel, and

the adjacent edge of the barrel and between the lower edge of the barrel and the adjacent face of the lower pintle-socket are interposed ball-bearings *g g'*, which consist each of two circular ball race-plates *g² g³*, which are shown in detail in Figs. 2 and 4. The ball race-plates are provided in their adjacent faces with circular grooves, between which the antifriction-balls are interposed when the race-plates are placed in position. The race-plates *g² g³* and the balls between the same are held in position by means of a cylindrical covering or shell *h*, which is made of suitable metal—such as bronze, brass, or the like—and the edges which are lapped over so as to form flanges, which extend into circumferential recesses of the race-plates. The flange at one end of the sheet-metal covering *h* is set into a circumferential recess of one race-plate, which recess is approximately equal in depth with the thickness of the sheet-metal covering, so that the flange is flush, or approximately so, with one of the race-plates, while the circumferential recess of the other race-plate is at a greater distance from the face, so that the race-plate can rest on the edge of the spring-barrel, while the body of the same projects into the spring-barrel, as shown clearly in Fig. 1.

After the race-plates and balls between the same are properly assembled, the covering *h*, which is flanged at one end, is placed over the same, after which the other edge is bent over by means of suitable dies, so that the flanges of the covering hold the race-plates and the antifriction-balls in position and prevent their getting detached from each other. The ball-bearings are thereby ready for use, so that they can be quickly and conveniently assembled when putting together the parts of the hinge. The sheet-metal covering *h* of the ball-bearings is preferably provided with a suitable hole *o* at a suitable point, which registers with the clearance between the ball race-plates, so as to serve as an oil-hole for oiling the ball-bearings from time to time.

The race-plates of the ball-bearings are preferably made of steel, while the covering of sheet metal corresponds to the metal of which the flanges of the spring-hinge are made, the sheet-metal covering acting at the same time as a cap for excluding dust and rain from the ball-bearings. The application of the sheet-metal covering is so arranged that the contact of the faces of the race-plates with the adjacent tension-collar and with the lower pintle-socket, respectively, is made

hard-metal contact, thereby preventing compression and consequent play between the joints, the flanges of the cover not being subjected to wearing contact.

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

10 1. A ball-bearing for spring-hinges, comprising two race-plates provided with circumferential grooves in their adjacent faces, antifriction-balls in said grooves, each of said race-plates being provided with a circumferential recess near its outer face, and a flanged sheet-metal covering engaging said
15 recesses for holding together said race-plates and balls.

2. A ball-bearing for spring-hinges, com-

prising two race-plates provided with circumferential grooves in their adjacent faces, antifriction-balls in said grooves, each of said
20 race-plates being provided with a circumferential recess near its outer face, one of said recesses being of small depth and the other of larger depth, and a flanged sheet-metal covering engaging said recesses for maintaining
25 said race-plates and balls in operative position.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

EMIL BOMMER.

Witnesses:

HENRY J. SUHRBIER,
PAUL GOEPEL.