No. 841,771. PATENTED JAN. 22, 1907.

F. E. FARNHAM.

PIN JOINT.

APPLICATION FILED JULY 8, 1905.

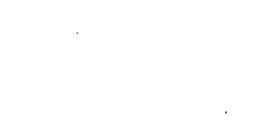

Fig. 1.

Fig. 2.

Fig. 3.

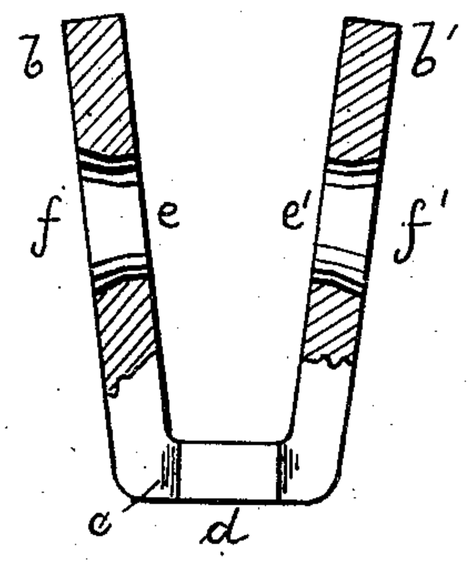

Fig. 4.

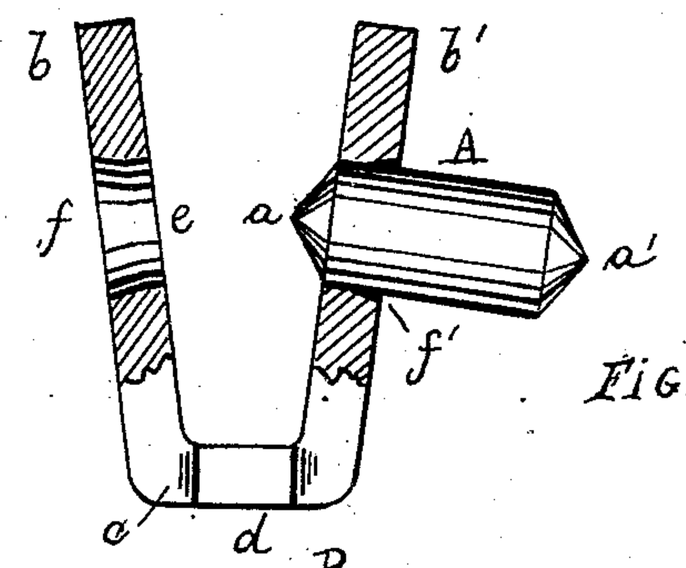

Fig. 5.

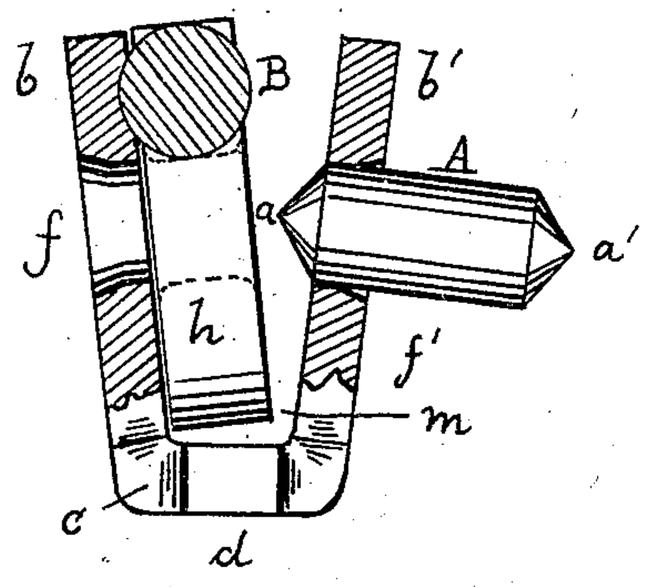

Fig. 6.

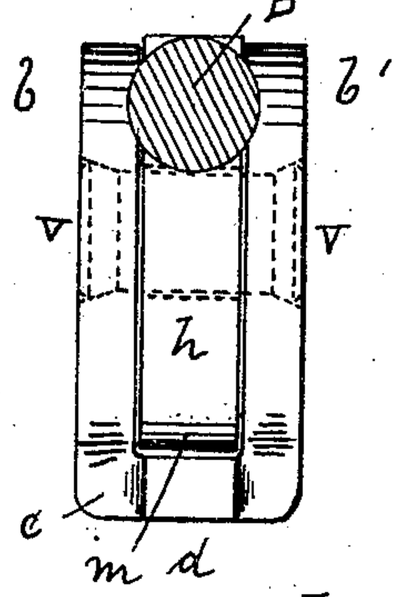

Fig. 7.

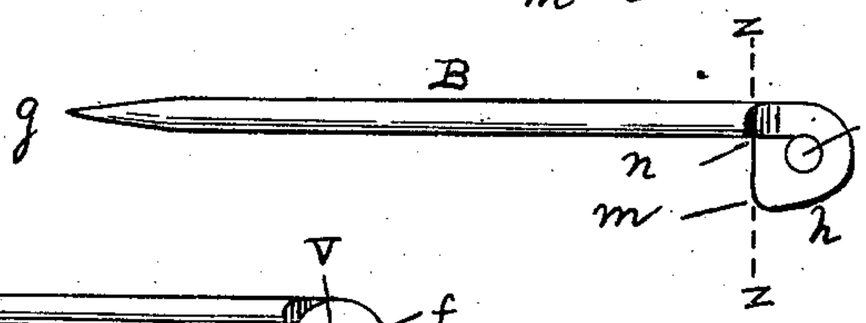

Fig. 8.

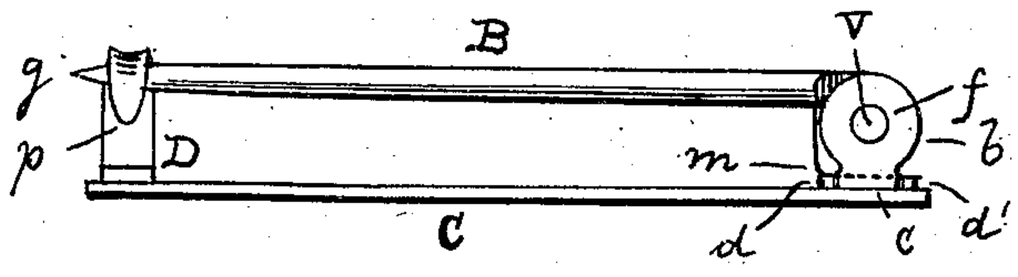

Fig. 9.

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PIN-JOINT.

No. 841,771. Specification of Letters Patent. Patented Jan. 22, 1907.

Application filed July 8, 1905. Serial No. 268,861.

To all whom it may concern:

Be it known that I, FRANK E. FARNHAM, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Pin-Joints, of which the following is a specification, reference being had therein to the accompanying drawings.

Like reference-letters indicate like parts.

Figure 1 is a view in elevation of the pivot of my improved pin-joint. Fig. 2 is a top plan view of the blank from which the hinge-joint member or earpiece is made. Fig. 3 is a side elevation of the hinge-joint member. Said Figs. 1, 2, and 3 are on an enlarged scale. Fig. 4 is a view, partly in front elevation and partly in section on line *x x* of Fig. 3, of the hinge-joint member shown in Fig. 3. Fig. 5 shows the hinge-joint member of Fig. 4 fitted with a pivot. Fig. 6 shows the hinge-joint member and pivot as in Fig. 5 with a pin-tongue inserted in position ready to be engaged by the pivot. In this figure the pin-tongue is shown partly in elevation and partly in section as seen on line *z z* of Fig. 8. Fig. 7 is a full view in elevation of the complete hinge-joint constituting my invention. Said Figs. 4, 5, 6, and 7 are on a much more enlarged scale than Figs. 1, 2, and 3. Fig. 8 is a view in elevation of a pin-tongue used in my said hinge-joint. Fig. 9 is a view in elevation of the finished brooch or breastpin embodying my said improvements. Figs. 8 and 9 are on an enlarged scale much less than those of the other figures.

My invention relates to hinge-joints for brooches and similar articles; and it consists of the novel construction and combination of the several parts, as hereinafter described, and specifically set forth in the claims.

My invention is a jeweler's finding and is a new article of manufacture sold in quantities to manufacturers of jewelry to be used by them in assembling brooches and similar articles. It is therefore made in a form which is adapted for such use, but is changed in form by that use, the relative positions of the parts being quite different after use than before.

In Fig. 1 is shown the pivot A of my said invention, which is made with tapering or conical ends *a a'*, preferably formed at about an angle of forty-five degrees. This pivot is best adapted to the purpose of this invention if made of a metal such as German silver, which is somewhat softer than the metal of either the pin-tongue or earpieces.

In Fig. 2 is shown the blank for the hinge-joint member. It is made from flat stock, cut by a die and plunger and comprising in one piece the two earpieces *b b'*, the base-plate *c*, and the two projections *d d'*. The earpieces are each made in the arc of a circle of about two hundred and seventy degrees in extent, and at the center of the earpiece *b* is a pivot-hole *e*, which, as best shown in Fig. 4, is tubular from the inner surface of said earpiece to a line half-way through the same, and a flaring or conical hole *f* is reamed out or otherwise formed, which extends from said center line to the outer surface of said earpiece. These holes or openings *e f* are in the same axial line and are continuous with each other. In like manner the earpiece *b'* has the holes or openings *e' f'*, similarly made and located.

Any suitable pin-tongue may be used, the kind preferred being one made with a flattened head having a pivot-hole through it. Generally these heads are solid and integral with the pin-stem, being cut from flat stock and hammered or swaged into the desired shape. I show in the drawings, however, a pin-tongue of my invention which is particularly suited to such use, but which, as it forms a part of the subject-matter of my pending application for Letters Patent, Serial No. 268,860, I need not here fully describe except in general terms.

The pin-tongue shown in Fig. 8 consists of a pin-stem B, having a sharp thrusting-point *g* and a flattened integral head *h*, formed of a bent portion of the wire from which the pin-tongue is made, swaged into the peculiarly-shaped fulcrum-point *m* and closed tightly into contact with the pin-stem B along the line *n*, as shown in Fig. 8. It has the pivot-hole *o* formed in said flattened head entirely by swaging, so that the peripheral edge of said pivot-hole *o* is slightly convex, as illustrated in Fig. 6.

The back plate of the brooch is designated at C, and the pin-catch D is soldered, as usual, at one end thereof and is provided with the hooked portion *p* to engage the sharpened end of the pin-stem B.

The blank shown in Fig. 2 is bent as shown in Fig. 4, with the ears *b b'* in angular divergent positions.

The base-plate *c* and the projections *d d'* are soldered to the brooch-plate C in the position indicated in Fig. 9.

The parts of my said device are assembled as follows: The pivot A is cylindrical and has a diameter equal to that of the pivot-holes *e e'* of the ears *b b'* of the hinge-joint, so as to fit snugly therein, but to be capable of a sliding movement in said pivot-holes when subjected to a sufficient force, as by the pressure of a pair of pliers or other suitable tool or implement. The pivot-hole *o* of the head *h* of the pin-tongue is of a diameter slightly larger than the diameter of the cylindrical pivot A, as indicated by dotted lines in Fig. 7. The pivot A is inserted through the pivot-holes *f' e'* of the ear *b'*, as illustrated in Fig. 5, until the whole of the conical point *a* thereof extends beyond the inner surface of the ear *b'*. In this position the portion of the cylindrical surface of the pivot A which is contiguous to the point *a* is held frictionally or by pressure in the part of the pivot-hole which is marked *e'* in Fig. 4. This combination of the earpiece or hinge-joint with the pivot A, held therein as described and as shown in Fig. 5, is the marketable form of my invention and constitutes a jeweler's finding and is a new article of manufacture.

When it is to be used by the workman in the manufacture of a brooch, he solders the base *c* thereof and its projections *d d'* to the back plate C of said brooch. He then inserts the pin-tongue B and its flat head *h* in the manner illustrated in Fig. 6, one of the parallel sides of which head he places against the inner surface of the ear *b*, with the pivot-hole *o* thereof substantially in alinement with the pivot-hole *e*. He then uses a pair of pliers, placing the inner face of one of the jaws thereof against the outer surface of the ear *b* and the inner face of the other of the jaws thereof against the apex of the conical point *a'* of the pivot A and presses the jaws of said pieces inwardly together. The first result of the pressure so applied is to force the pivot A to move inwardly, sliding along through the pivot-hole *e'*, and so to overcome the frictional hold upon the pivot in the ear *b'*. As the pivot A is thus forced to move inwardly its point *a* approaches to the head *h* of the pin-tongue B and enters within the pivot-hole *o* of said pin-head. Owing to the angular direction of the conical end *a* of the pivot A, said pivot in further moving inwardly by the said pressure of the tool not only enters but centers itself in the pivot-hole *o* of the pin-head; but as the pivot-hole *o* is larger in diameter than the diameter of the pivot A, as seen in Fig. 7, the pin-head *h* is loosely mounted on said pivot A. The further movement of the pivot A by the pressure of the tool causes the conical point *a* of said pivot to enter and center itself in the pivot-hole *e* of the ear *b* and finally to pass through the enlarged opening *f* of said pivot-hole.

As the pivot A is made of a comparatively soft metal, the continued pressure of the tool causes the conical points *a a'* of the pivot A to upset and spread laterally and radially into the form of rivet-heads *v*, which fill (or nearly fill) the cavity of the reamed holes *f f'* of the ears *b b'*, as seen in Fig. 7. These riveted ends lie approximately flush with the outer surface of the ears *b b'*. The ears *b b'* then lie parallel with each other, nearly in contact with the parallel sides of the flat head *h* of the pin-tongue, and while the pivot A is loose in the pivot-hole *o* of the head *k* of the pin-tongue it is tight in the pivot-holes of the ears *b b'* and being thus headed over at its ends is held immovably in said ears.

In my said pending application for Letters Patent I have fully described and claimed the pivot and the hinge-joint member hereinbefore specified and their several combinations with the peculiar pin-tongue mentioned. The present application, therefore, is confined to the feature of such a pivot temporarily held or engaged by one of the ears of the hinge-joint.

It is quite immaterial by what specific means the pivot is held in the hinge-ears for the purpose stated, whether by swaging, forcing, friction, or by slight soldering, or otherwise, the mechanical principle involved being the securing of the pivot to the earpiece sufficiently to keep them from separating during the manipulation of the workman, such securing means, however, being adapted to yield to pressure properly applied when the three parts are assembled in readiness for the final fastening operation.

I claim as a novel and useful invention and desire to secure by Letters Patent—

1. As a new article of manufacture, the jeweler's finding herein described, consisting of a hinge-joint member having ears each of which is provided with a pivot-hole, and a pivot secured only at one end in the pivot-hole of only one ear.

2. As a new article of manufacture, the jeweler's finding herein described, consisting of a hinge-joint member having ears each of which is provided with a pivot-hole, and a pivot held at only one end in the pivot-hole of only one ear solely by friction.

3. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having an ear provided with a pivot-hole, and a pivot temporarily secured in said pivot-hole but capable of a sliding movement therein under pressure.

4. As a new article of manufacture, the jeweler's finding herein described consisting of the combination of a hinge-joint member having an ear provided with a pivot-hole, and a pivot secured temporarily in said

pivot-hole at one of its ends and having its opposite end protruding from and beyond the outer side of said ear, said pivot being capable of a sliding movement through said pivot-hole by the application of a sufficient force.

5. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having ears arranged opposite each other and in divergent angular positions, each of which ears has a pivot-hole, a pivot held at one end in the pivot-hole of one of said ears by frictional pressure and having its opposite end protruding out from the outer side of said one of the ears, said pivot being capable of a sliding movement through said first-named pivot-hole to and into the pivot-hole of the opposite ear by the application of a sufficient force.

6. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having two ears arranged opposite each other in divergent angular positions, each of which has a tubular pivot-hole extending from the inner side thereof to the center of said ear and a conical pivot-hole in line with and continuous with said tubular hole and extending from said center of the ear to the outer side of said ear, and a pivot mounted and held in the tubular pivot-hole of one of said ears but capable of a sliding movement to and into the tubular pivot-hole of the other ear under sufficient pressure, with the ends of said pivot extending into the conical pivot-holes of said ears respectively.

7. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of two ears arranged opposite each other in divergent angular positions, each of which ears has a tubular pivot-hole extending from the inner side of said ear to the center and a conical pivot-hole in line with and continuous with said tubular hole and extending from said center to the outer of said ear, and a pivot having conical ends and mounted near one end in the tubular pivot-hole of one of said ears but capable of a sliding movement to and into the tubular pivot-hole of the other ear under sufficient pressure with said conical ends of the pivot extending into the conical pivot-holes of said ears respectively.

8. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having two ears arranged opposite each other each of which has a pivot-hole through it whose diameter is greater on the outer side of said ear than on the inner side of said ear, and a pivot mounted and held in the smaller end of the pivot-hole of one of said ears and extending out from the outer side of said ear but capable of a sliding movement under sufficient pressure into the smaller end of the pivot-hole of the other ear.

9. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having two ears arranged opposite each other each of which has a pivot-hole through it whose diameter is greater on the outer side of said ear than on the inner side of said ear, and a pivot having conical ends and mounted near one end thereof in the smaller end of the pivot-hole of one of said ears and extending out from the outer side of said ear but capable of a sliding movement under sufficient pressure into the smaller end of the pivot-hole of the other ear.

10. As a new article of manufacture, the jeweler's finding herein described, consisting of the combination of a hinge-joint member having two ears arranged opposite each other each of which ears has a pivot-hole through it, a pin-tongue placed between said ears and having a flat head provided with a pivot-hole whose diameter slightly exceeds that of the pivot-holes of said ears, and a conically-pointed pivot mounted and held near one end thereon in the pivot-hole of one of said ears, but capable of a sliding movement under sufficient pressure along said last-named pivot-hole in said one of the ears and through the pivot-hole of the head of said pin-tongue and into engagement with the pivot-hole of the other of said ears.

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

FRANK E. FARNHAM.

Witnesses:

WARREN R. PERCE,

KATIE GALLIGAN.