

No. 815,797.

PATENTED MAR. 20, 1906.

E. W. CRANE.

UMBRELLA.

APPLICATION FILED JULY 3, 1905.

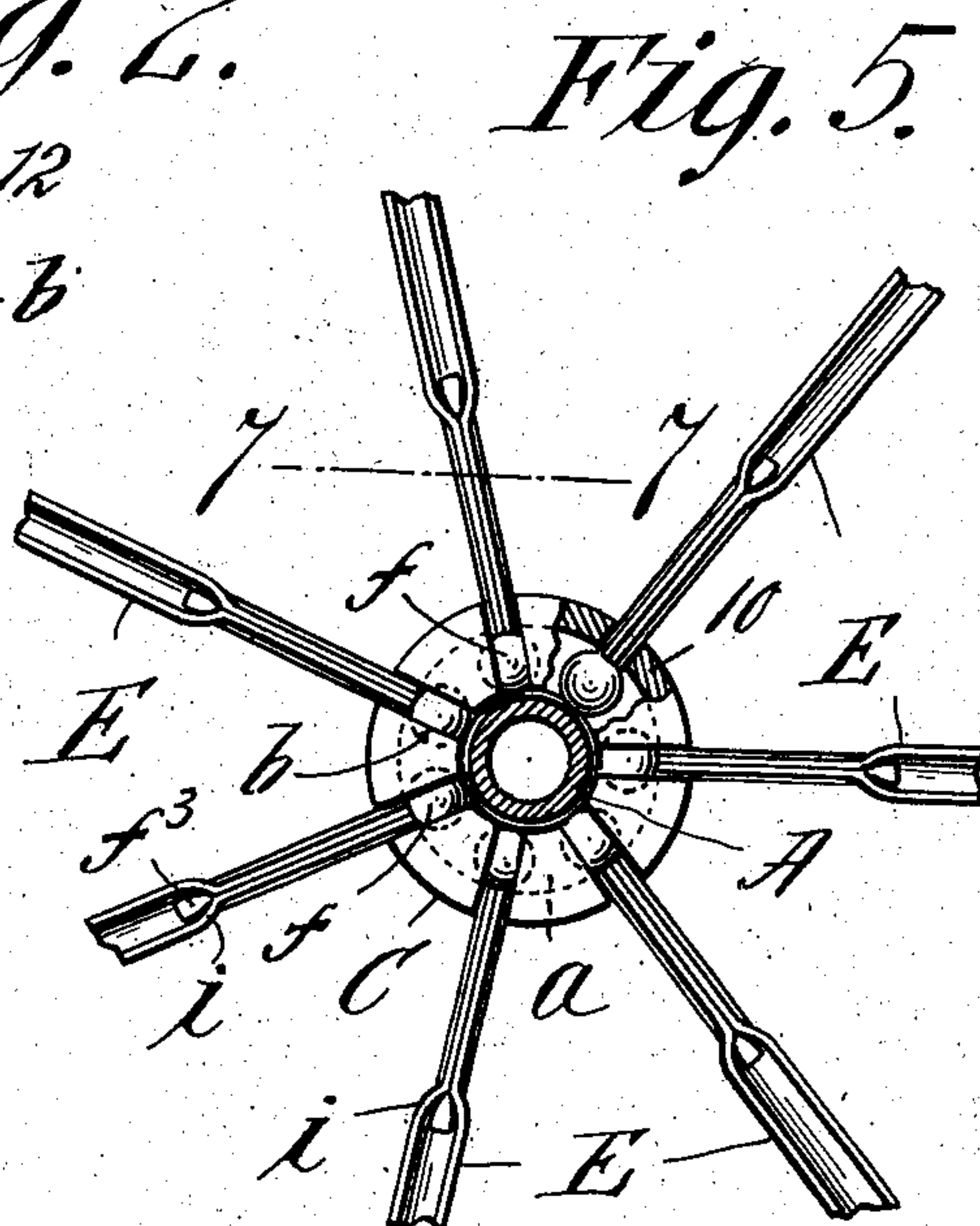
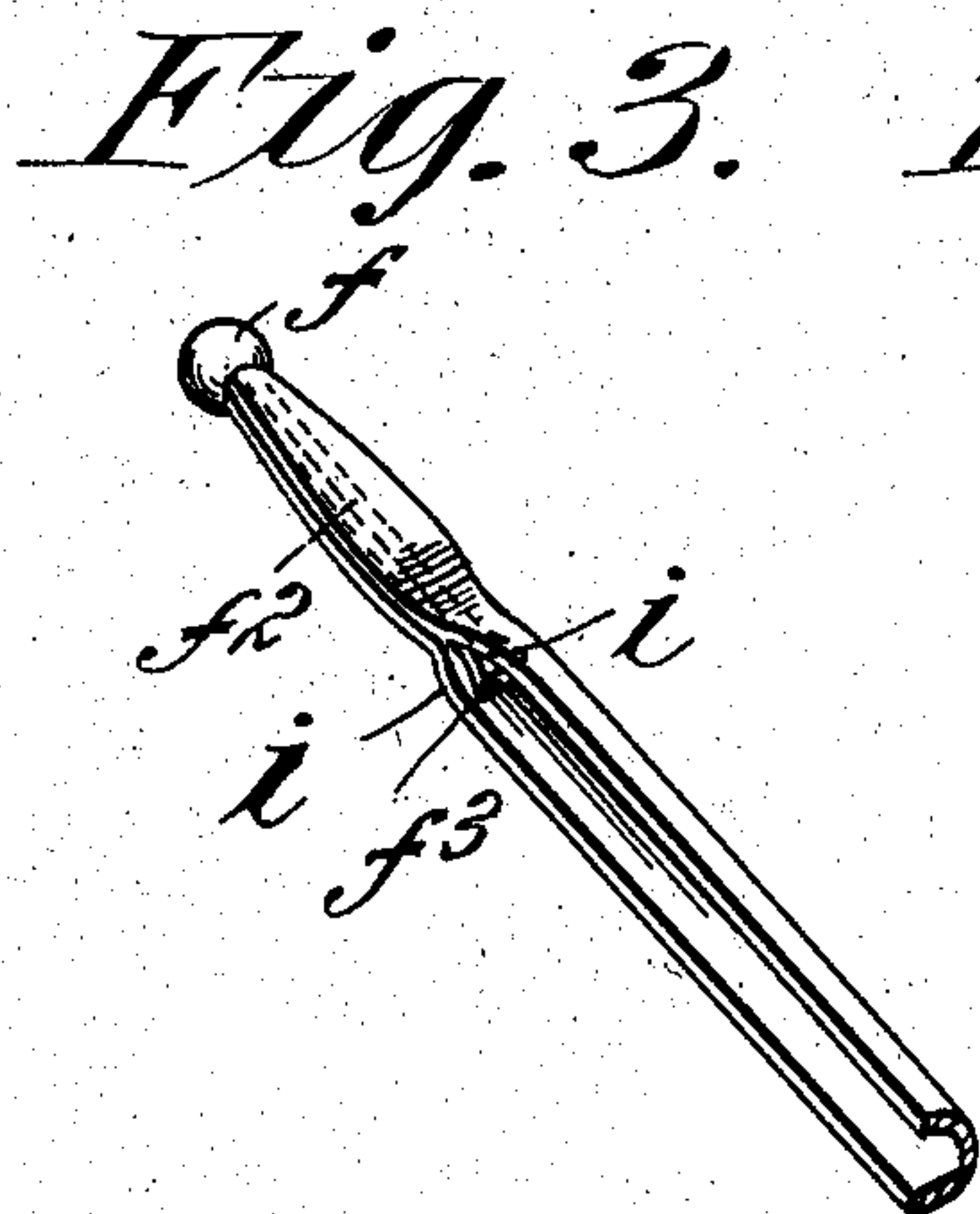
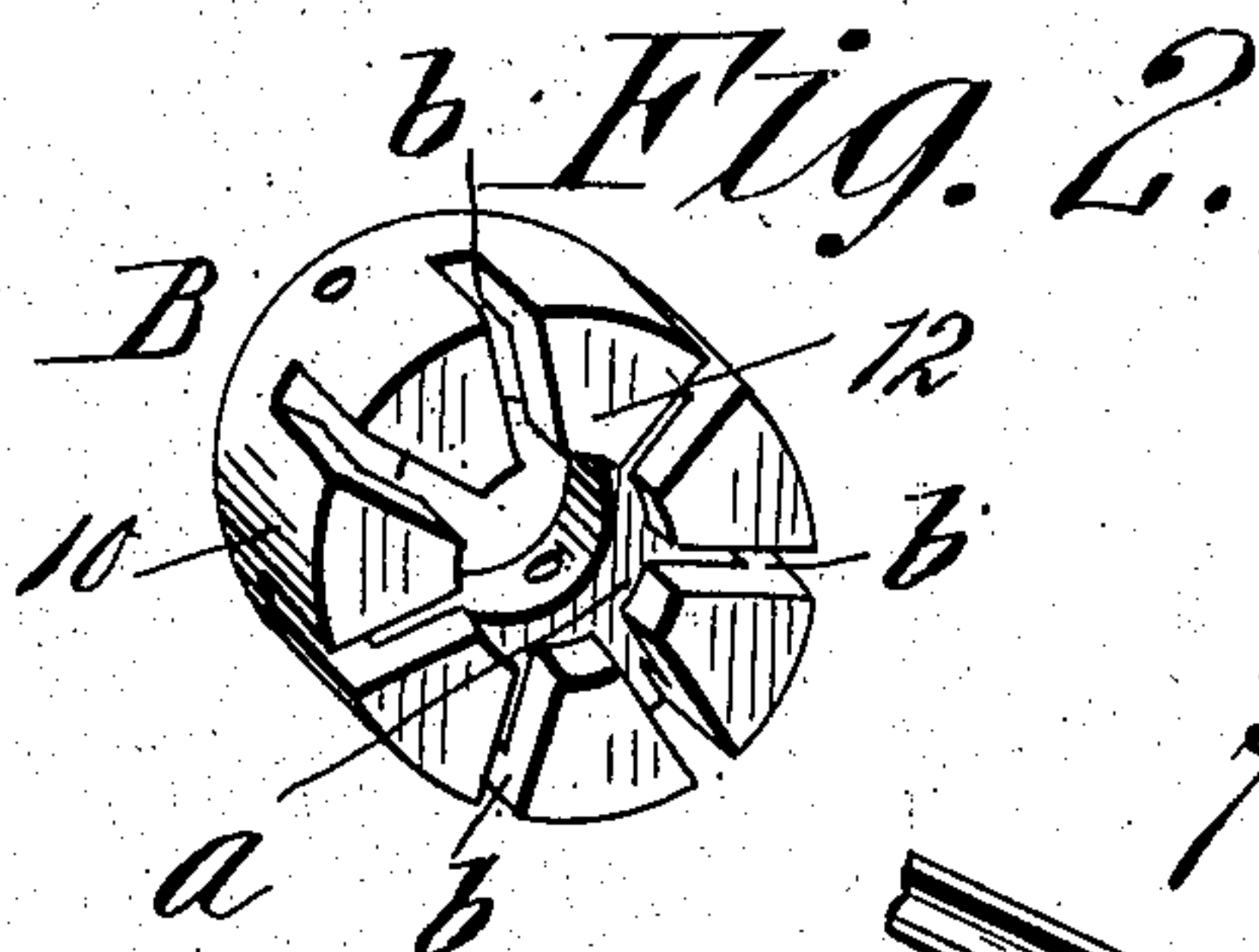
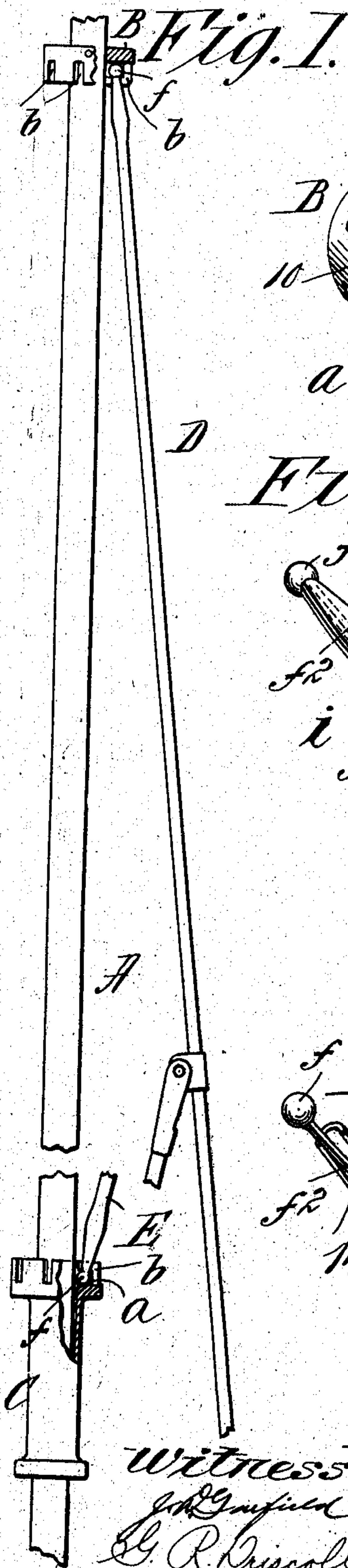


Fig. 6.

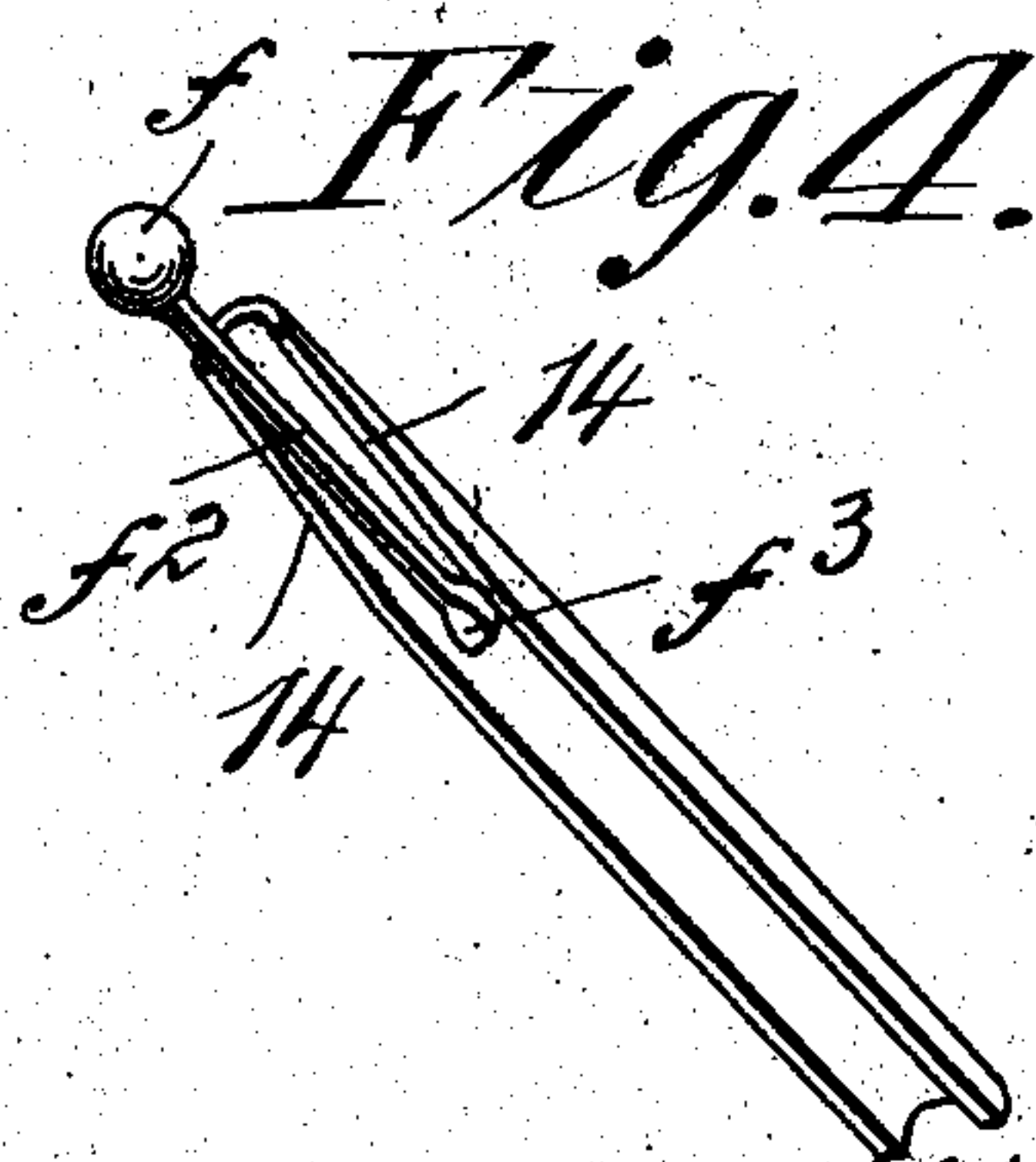
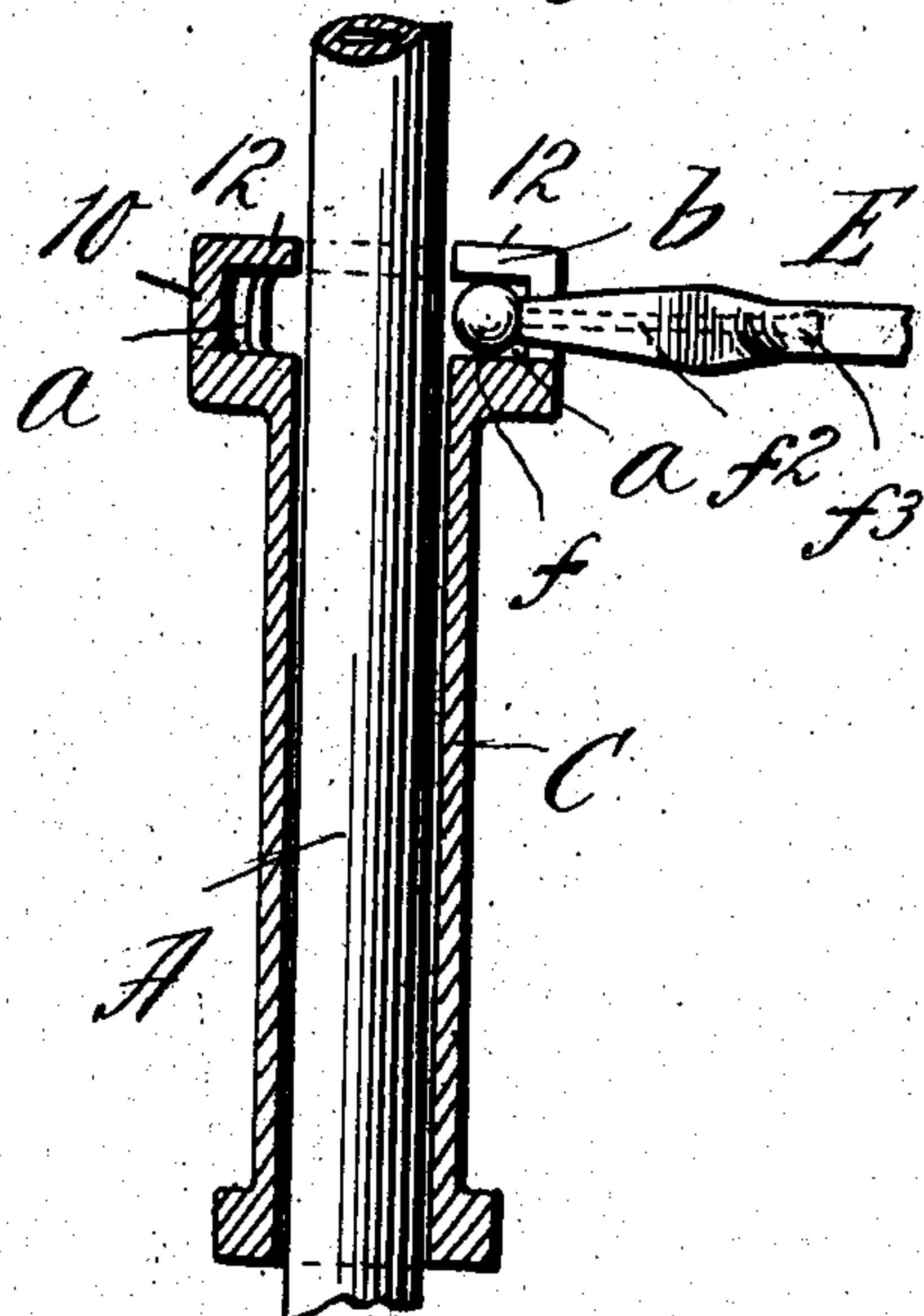


Fig. 7.

Witnesses:

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UNITED STATES PATENT OFFICE.

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UMBRELLA.

No. 815,797.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 3, 1905. Serial No. 268,225.

To all whom it may concern:

Be it known that I, EDWARD W. CRANE, a citizen of the United States of America, and a resident of Dalton, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Umbrellas, of which the following is a full, clear, and exact description.

This invention relates to improvements in umbrellas, as represented in the accompanying drawings, in which—

Figure 1 is a side elevation, with parts in section, of a portion of an umbrella-frame in which this invention is embodied. Fig. 2 is a perspective view of the fixed collar. Fig. 3 is a perspective view of an end portion of one of the umbrella ribs or rods including novel features of construction. Fig. 4 is a perspective view somewhat similar to Fig. 3, but showing the same parts in an incomplete stage of production. Fig. 5 is a cross-sectional view of the umbrella-stick and a plan view of the sleeve or runner and of inner end portions of the several distending-ribs. Fig. 6 is a longitudinal sectional view through the sleeve or runner, showing one of the peculiarly-constructed distending-ribs in engagement therewith, other of the ribs being absent in this view. Fig. 7 is a cross-sectional view as taken on the line 7 7, Fig. 5.

Similar characters of reference indicate corresponding parts in all of the views.

The object of this invention is to improve the construction of an umbrella, especially in the jointing or pivotal engagement between the cover-supporting ribs and the collar and between the distending-ribs and the sleeve or runner.

In the drawings, A represents the umbrella-stick; B, the collar affixed thereto; C, the sleeve or runner to slide thereon; D, the cover-supporting ribs, and E the distending-ribs, the organization of the several parts being such as to permit the usual opening and closing of an umbrella. The sleeve and collar are both similarly constructed with an inwardly-opening annular channel *a*, having a series of radial slots *b* formed through the circular wall 10 of said channel and through one of the walls 12 which is angular thereto.

The ribs D and E are respectively at their upper and lower ends provided with spherical heads *f*, while the ribs adjacent thereto are flattened and thinner than the diameter of

the heads. The ribs, as clearly shown in the drawings, are made of thin metal bent into trough shape and have the tapered edges 14 at their extremities. The spherical heads *f* are comprised as parts of studs having, in addition to said heads, the attenuated straight shanks *f*², with inner-end enlargements *f*³, said stud portions and enlargements being disposed within the end portions of the U-shaped ribs, which end portions are constructed and flattened about the shanks *f*² and in shouldered engagement, as represented at *i*, with the enlargements *f*³, so that both ends are to all intents and purposes the same as integral parts of the ribs, which latter preserve their light yet strong characteristics because of their cross-sectionally trough-shaped construction and their being composed of light-gage sheet metal.

The cover-ribs D and the distending-ribs E have respectively at their upper and lower ends engagements by their spherical heads in the aforesaid annular channels *a* in the collar and in the runner-sleeve, while the necked portions of the ribs adjacent said heads are free for their swinging movements relative to the collar and sleeve through said radial slots *b*.

The formation of the ribs with their spherical heads or both ends in the manner described is entirely satisfactory, practical, cheap, and rapid and in an umbrella of the character substantially as described, by the avoidance of individual pivots between the rib ends and the collar and sleeve or the avoidance of joint-constituting wires at said places, an umbrella of greater increased durability and excellence is produced.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an umbrella, the combination with a stick, of a collar encircling and secured to the stick and having at its inner portion a recess opening to the surface of such inner wall which adjoins the stick, and having a radial slot intersecting said recess, and a cover-supporting rib having a head located in said internal recess and having its portion adjacent said head free for swinging movements through the slot.

2. In an umbrella, the combination with a stick, of a sleeve encircling and slidable along the stick and having at its inner portion a re-

cess opening to the surface of such inner wall which adjoins the stick, and having a radial slot intersecting said recess, and a cover-distending rib having a head located in said internal recess and having its portion adjacent said head free for swinging movements through the slot.

3. In an umbrella, the combination with a stick, of a collar encircling and secured to the stick, and a sleeve encircling and slidable along the stick, and said collar and sleeve each having at its inner portion a recess opening to the surface of such inner wall which adjoins the stick, and having a radial slot intersecting said recess, and cover-supporting and cover-distending ribs having heads located in said internal recesses of the collar and the sleeve, and having their portions adjacent their heads free for swinging movements through said slots.

4. In an umbrella the combination with a stick, of a collar encircling and secured to the stick, and a sleeve encircling and sliding along the stick, and said collar and sleeve each being provided with an annular groove or channel within its inner wall which adjoins the stick, and formed with a series of radial slots therethrough which intersect the groove, a series of cover-supporting ribs and a series of distending-ribs having heads located in the internal annular channels of the collar and sleeve, and having portions thereof adjacent such heads free for swinging movements through said slots, the ribs of the one series being pivotally connected to those of the other series.

5. In an umbrella, the combination with the stick, the collar affixed thereto and the sleeve slidable thereon, said sleeve and collar each having an inwardly-opening annular channel, and having a series of radial slots

formed through the circular wall of said channel and through one of the walls which is angular thereto, of the cover-supporting ribs, and the distending-ribs pivoted to the intermediate portions of said cover-ribs, and said ribs having, respectively at their upper and lower ends, heads which engage in said channels, while the necked portions of the ribs adjacent said heads are free for their swinging movements, relatively to the collar and sleeve, through said radial slots.

6. In an umbrella the combination with the stick, the collar affixed thereto and the sleeve slidable thereon, said sleeve and collar each having an inwardly-opening annular channel, and having a series of radial slots formed through the circular wall of said channel and through one of the walls which is angular thereto, of the cover-ribs, and the distending-ribs formed of thin metal cross-sectionally of U shape and provided, respectively at their upper and lower ends with studs having enlarged outer-end spherical heads, and also smaller inner-end enlargements, said studs and enlargements being disposed within the end portions of the channel-shaped ribs, which portions are contracted and flattened about the stud-shanks and in shouldered relations to the said inner enlargements, the said spherical heads engaging in said channels while the contracted portions of the ribs adjacent said heads have extensions through, and free movements within, said radial slots.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

EDWARD W. CRANE.

Witnesses:

WM. S. BELLOWS,
G. R. DRISCOLL.