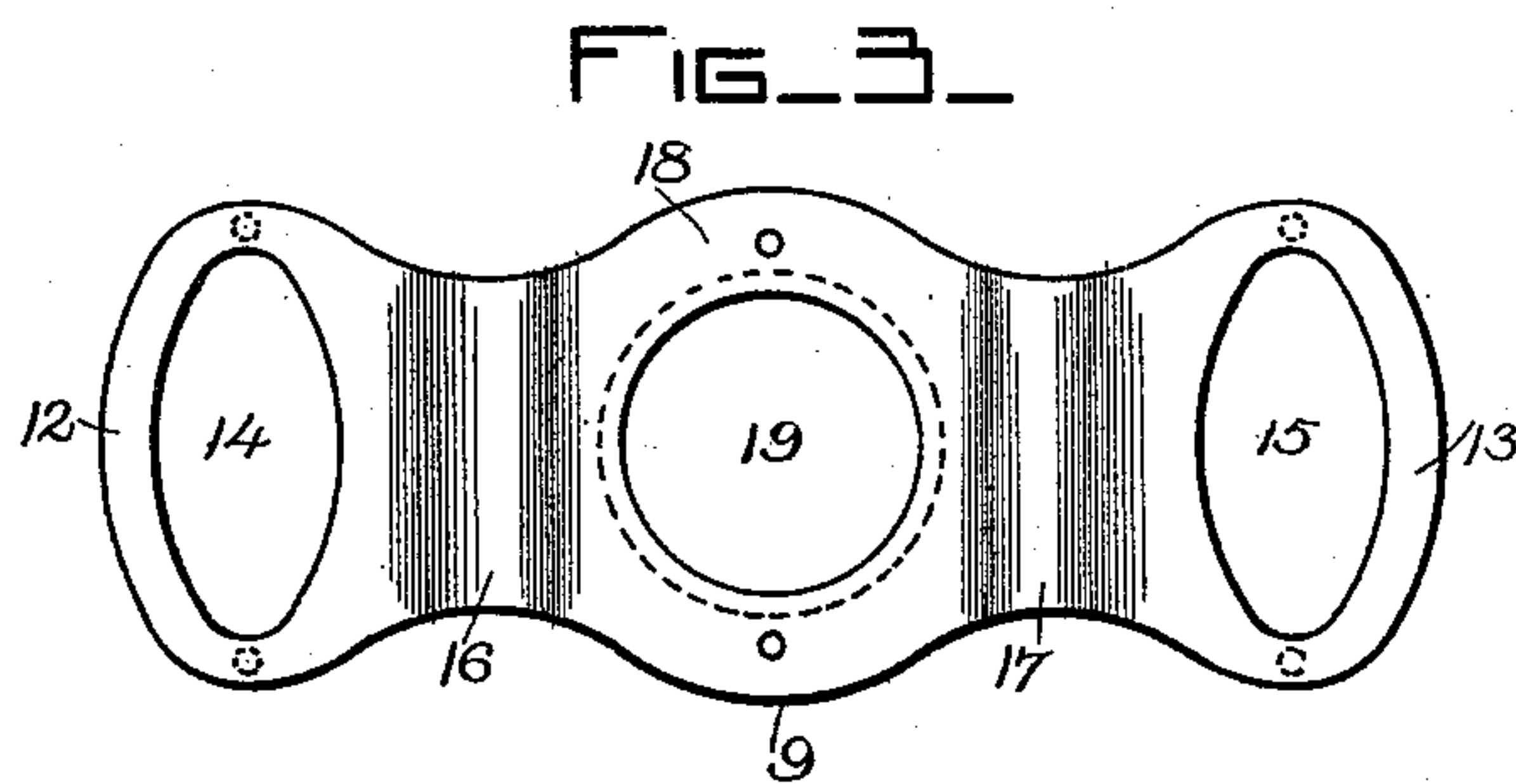
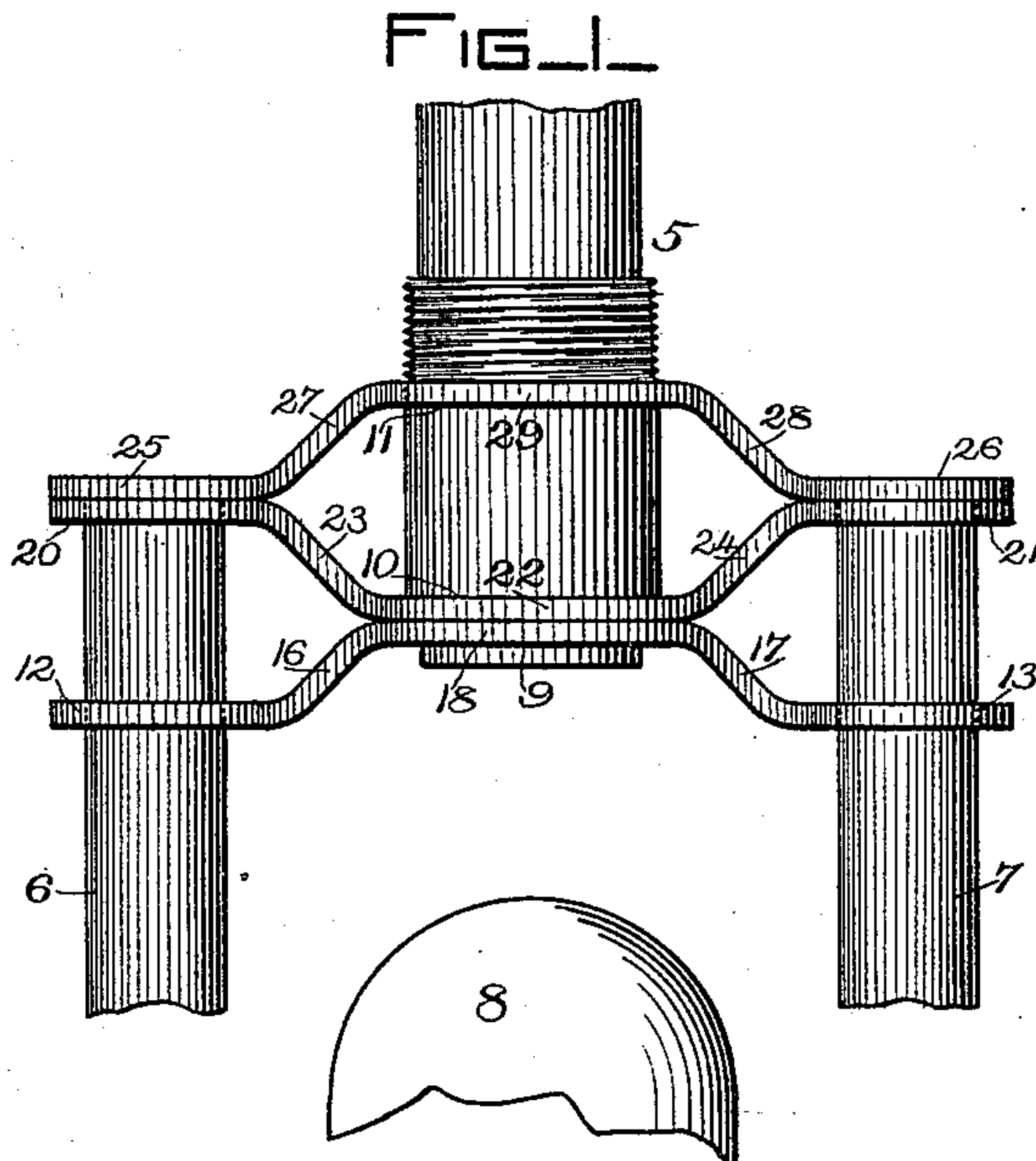
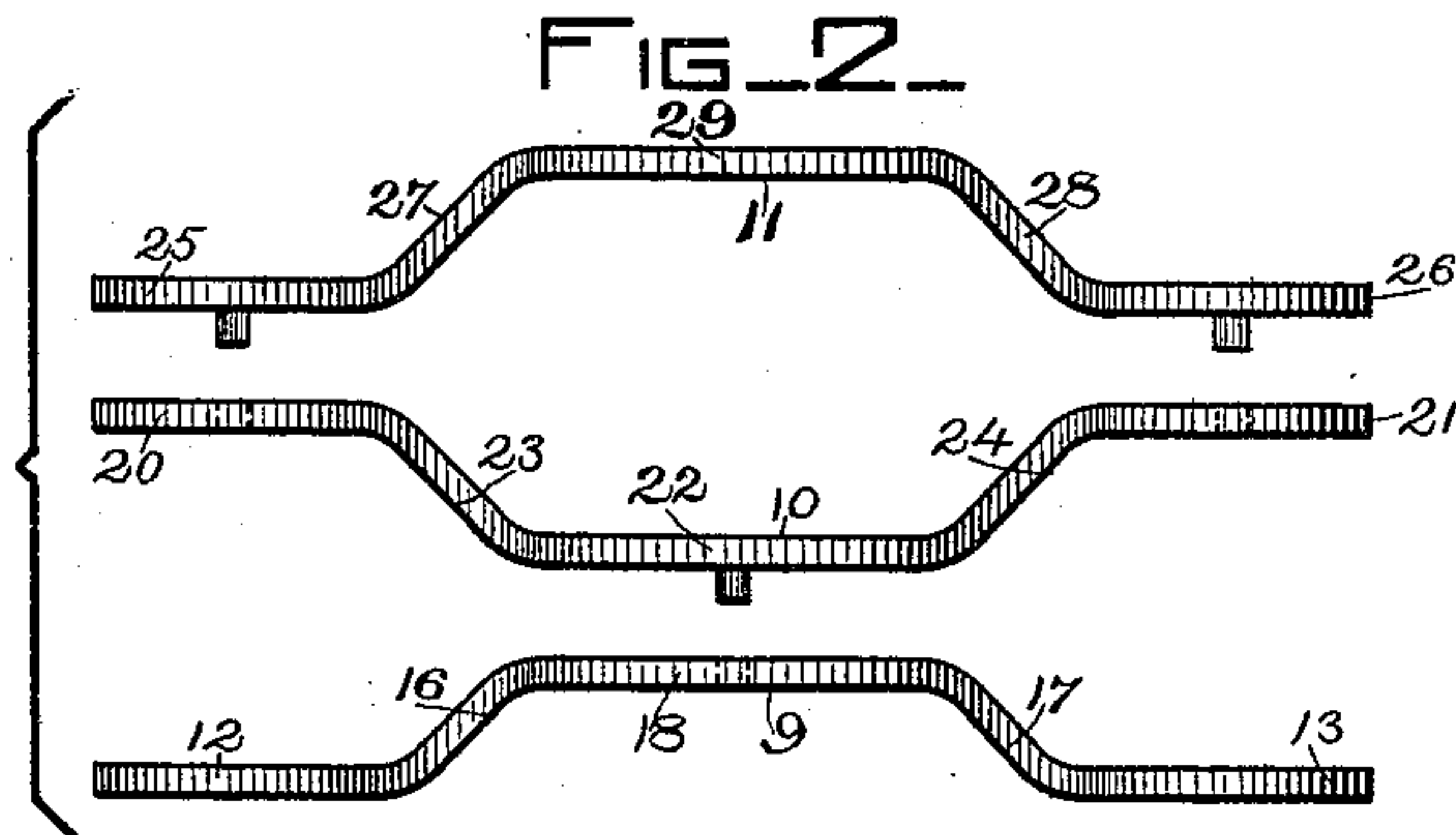


(No Model.)

C. H. METZ.
BICYCLE.

No. 585,043.

Patented June 22, 1897.



WITNESSES

A. C. Arne

C. S. Miller

INVENTOR

Charles H. Metz
by Henry J. Miller
att'y.

UNITED STATES PATENT OFFICE.

CHARLES H. METZ, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO THE
WALTHAM MANUFACTURING COMPANY, OF SAME PLACE.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 585,043, dated June 22, 1897.

Application filed July 20, 1896. Serial No. 599,849. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. METZ, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain
5 new and useful Improvements in Bicycles; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

10 This invention has reference to improvements in bicycles and similar vehicles, and relates particularly to the construction of the swiveled portion, in which the steering-wheel is mounted.

15 The object of the invention is to improve the construction of the yoke or crown connecting the arms, between which the wheel is operatively mounted and in which the spindle is secured to this end.

20 The further object of the invention is to so construct the yoke or crown that the lateral motion of the spindle with reference to the fork-arms will be resisted at both sides by double inclined struts, the lines of lateral re-
25 sistance of each pair being in different horizontal planes.

Another object of the invention is to so construct a yoke or crown of this nature that a sudden impact on the wheel or on the spindle
30 may be distributed through the members of which the crown is composed and resisted by all of said members in combination.

Another object of the invention is to provide a light and durable crown having the
35 greatest vertical extension without interfering with the running of the wheel and without the unnecessary lifting of the steering-head.

40 The invention consists in a crown composed of members, the centers of each pair of the members being bent in opposite directions out of the planes of their end portions.

45 The invention also consists in a crown or yoke comprising a series of inclined strut-plates.

50 The invention also consists in a crown having a lower member having end portions adapted to be secured to the fork-arms, upwardly-inclined struts, and a connecting-plate between the struts to receive the lower end of the spindle.

The invention still further consists in such other novel features of construction and combination of parts as may hereinafter be more fully described, and pointed out in the claims. 55

Figure 1 represents an elevation of portions of the fork-arms and of the spindle, the crown being secured thereto and a portion of the wheel being in position. Fig. 2 represents an elevation of the crown-plates, shown slightly
60 separated. Fig. 3 represents a plan view of the lower crown-plate.

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 5 indicates the spindle, 65 which is of usual construction and is generally journaled in the bicycle-head. 6 and 7 are the fork-arms, between the lower ends of which the shaft carrying the wheel 8 is mounted. The crown or yoke forming the connection between the arms 6 and 7 is formed of
70 three members 9, 10, and 11. These are constructed separately in any well-known manner, as by forging in dies, and are afterward brazed together and to the arms 6 and 7 and
75 the spindle.

The member 9 has the end portions 12 and 13, with the openings 14 and 15 of a cross-sectional shape to correspond with that of the arms 6 and 7 and to closely fit the same. 80 From the ends 12 and 13 extend the upwardly-inclined struts 16 and 17, which are connected by the plate 18, having the opening 19 to receive and closely fit the lower end of the spindle. The member 10 is of similar construc-
85 tion to that marked 9, its ends 20 and 21 having openings to receive the arms 6 and 7 and the central plate 22 having an opening to receive the spindle 5. The struts 23 and 24 of this plate 10 incline downwardly from said
90 ends.

The top member 11 has the ends 25 and 26, which rest on the upper ends of the arms 6 and 7, the inclined struts 27 and 28, extending
95 upwardly from the ends, and the center plate 29, having an opening to receive the spindle 5.

The center plates 18 and 22 of the members 9 and 10 are brazed together, and the ends 20 and 21 of the member 10 are similarly secured to the ends 25 and 26 of the member 11, the
100 openings in the members being in alinement. The arms 6 and 7 are now passed through the

openings in the ends of the members 9 and 10 and pressed against the ends of the member 11. In this position these arms are secured to the end plates by brazing.

5 Reference to Fig. 1 of the drawings will indicate that, with relation to the arms 6 and 7, the spindle 5 is substantially supported by the inclined struts 16 17 and 27 28, the forward or backward pressure at the ends of the
10 spindle or a breaking strain on the upper end of the spindle and the lower ends of the arms 6 and 7 is resisted by the leverage of the plates 22 and 29 on the spindle and of the ends 12 13 and 20 21 and 25 26 on the arms 6 and 7, while
15 a lateral breaking strain on the same portions will be resisted by the pairs of struts 16 and 23, bearing against the lower end of the spindle, and by the pair of struts 24 and 28, resisting the upper portion, or if the strain is in
20 the opposite direction by the corresponding pairs of struts.

Attention is particularly called to the large vertical extension and leverage of the crown on the arms 6 and 7 without interfering with
25 the working of the wheel, the crown being secured to said arms as low down as possible.

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

30 1. A crown for bicycle-forks comprising a vertical series of inclined struts having sufficient width to resist a torsional strain, and portions forming connections between the struts and the fork-arms.

35 2. A compound crown for bicycle-forks com-

prising a series of plates, arranged one above the other, and connected alternately at their centers and ends.

3. A crown or yoke comprising the member 9 having the ends 12 and 13 furnished with
40 the openings 14 and 15, the inclined struts 16 and 17 extending from the ends, and connected by the plate 18 having an opening, the member 10 having the plate 22 united to the plate 18 and furnished with an opening,
45 the struts 23 and 24 inclined upwardly from said plate, the ends 20 and 21 extending from the struts 23 and 24 and having openings, and the member 11, the ends 25 and 26 of which, are secured to the ends 20 and 21 of the mem-
50 ber 10, and having the inclined struts 27 and 28 and the perforated plate 29 as described.

4. In a crown for bicycle-forks, the combination with the fork-arms, and the spindle, of a plurality of cross members secured at
55 their ends to the fork-arms and having their central portions bent out of the plane of the ends and secured to the spindle.

5. In a crown for bicycle-forks, the combination with the fork-arms, and the spindle,
60 of a lower member, secured to the fork-arms below their upper ends and having its central portion bent out of the plane of its ends and secured to the spindle, and an upper member secured to the fork-arms and to the spindle.
65

CHARLES H. METZ.

Witnesses:

MICHAEL J. CONNOLLY,
WARREN F. HAZEN.