

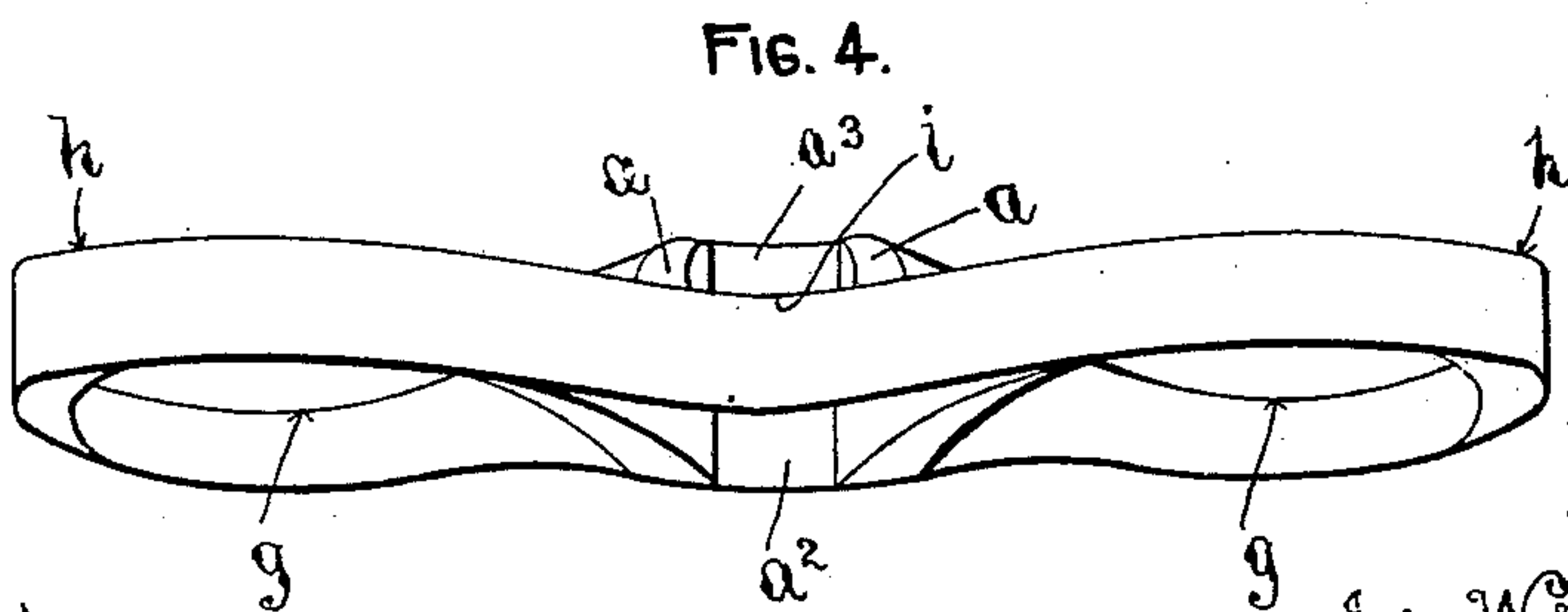
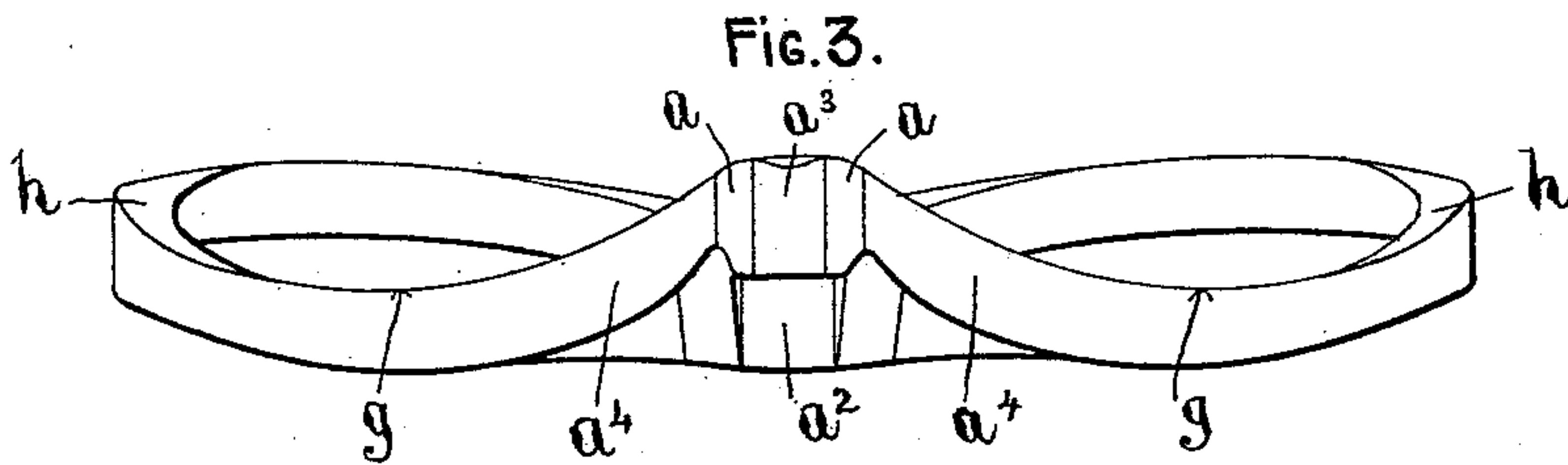
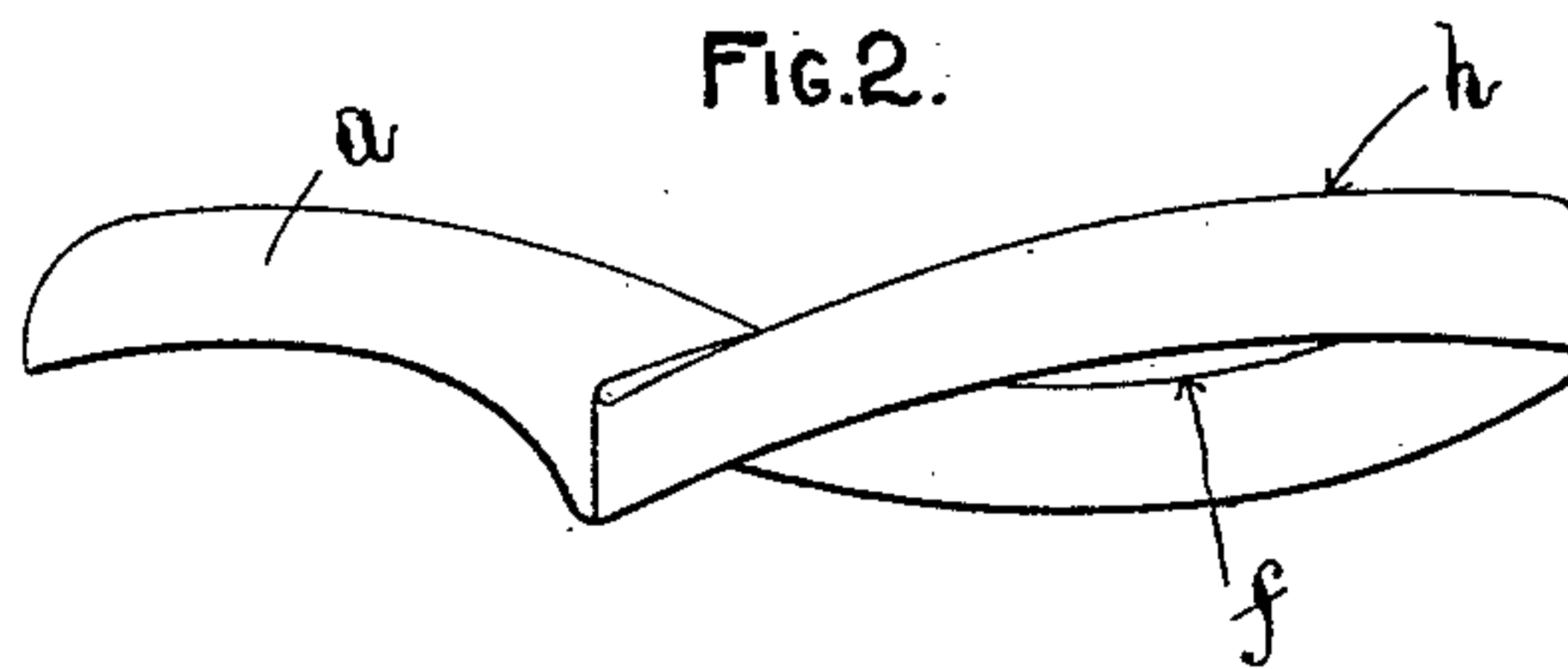
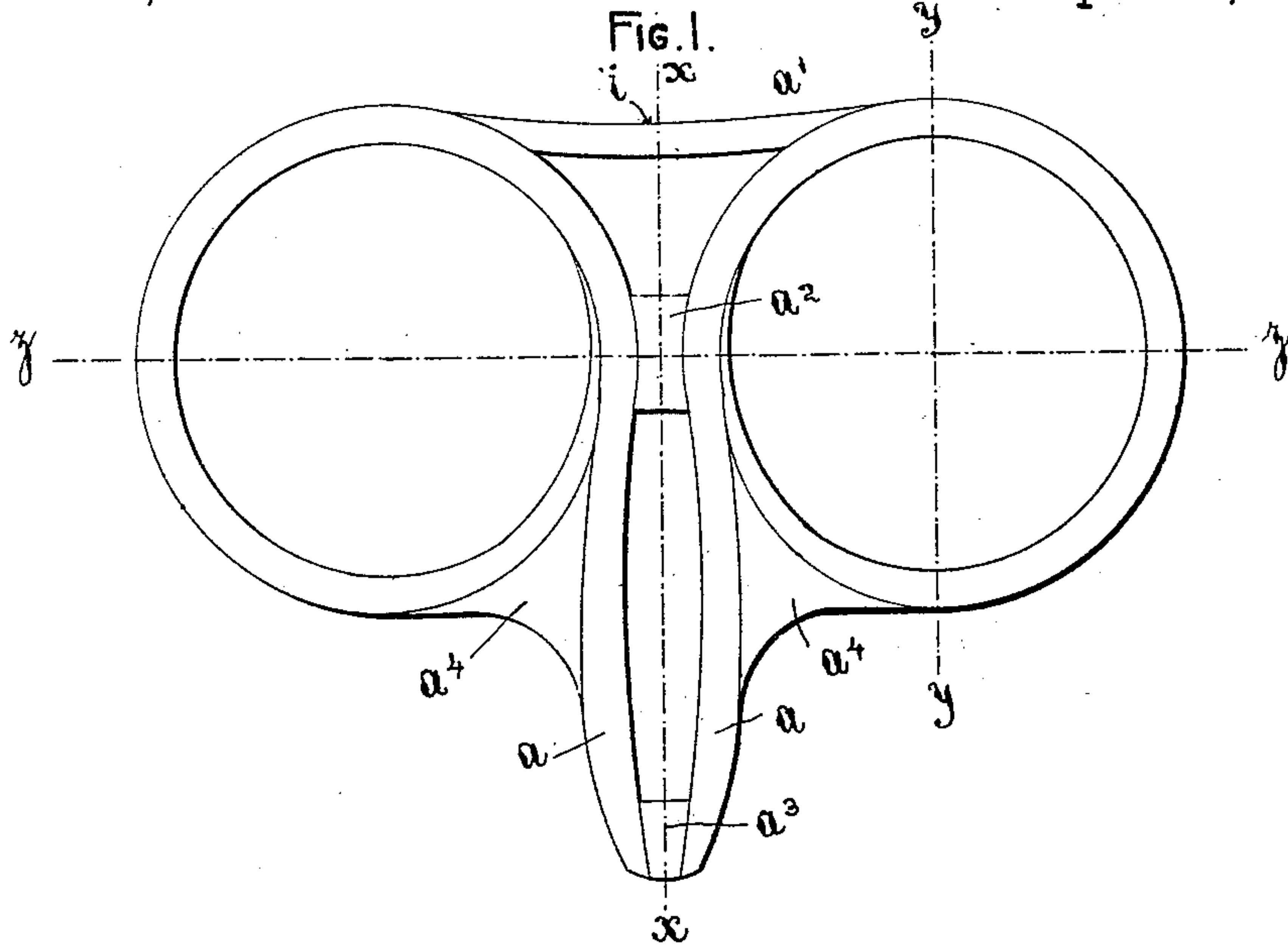
(No Model.)

2 Sheets—Sheet 1.

J. W. RICHARDSON.
SADDLE FOR VELOCIPEDES.

No. 602,523.

Patented Apr. 19, 1898.



WITNESSES.

Alfred H. Broad,
Albert G. George.

INVENTOR.

John William Richardson

per. Robert E. Phillips.
Attorney.

(No Model.)

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FIG. 5.

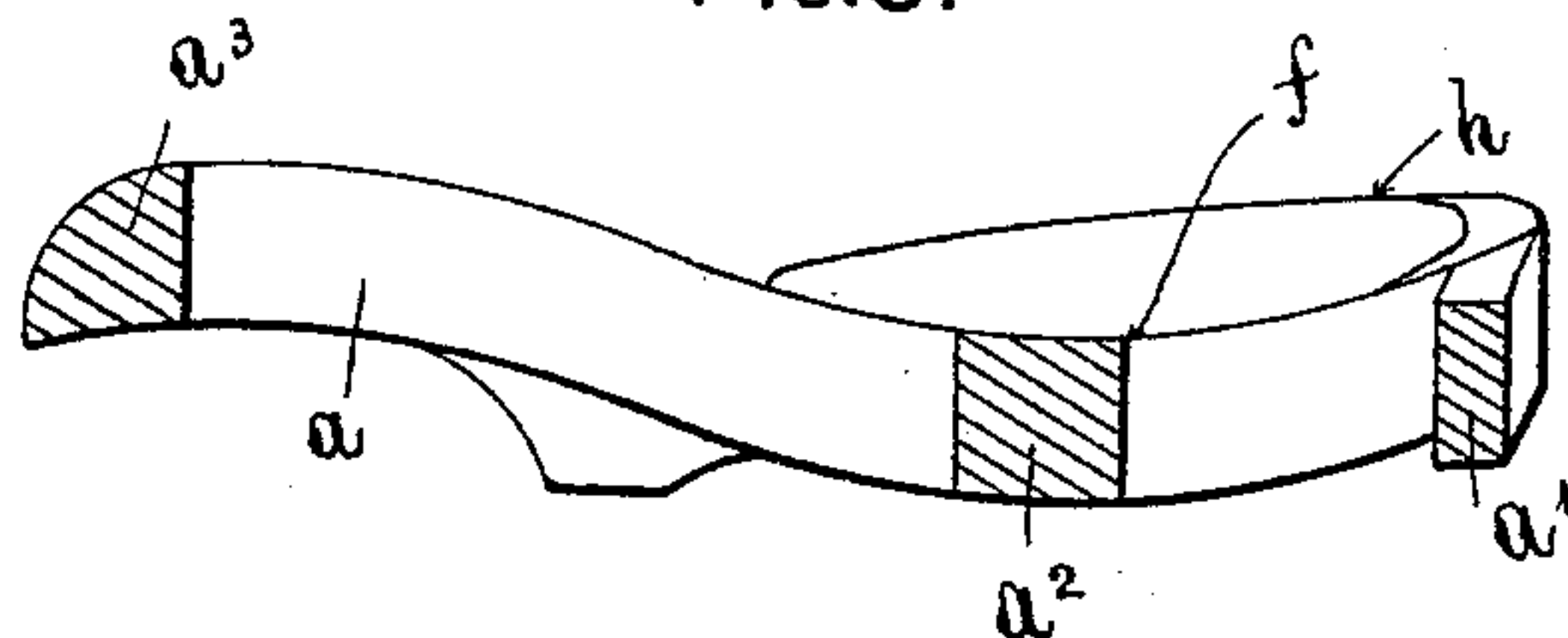


FIG. 6.

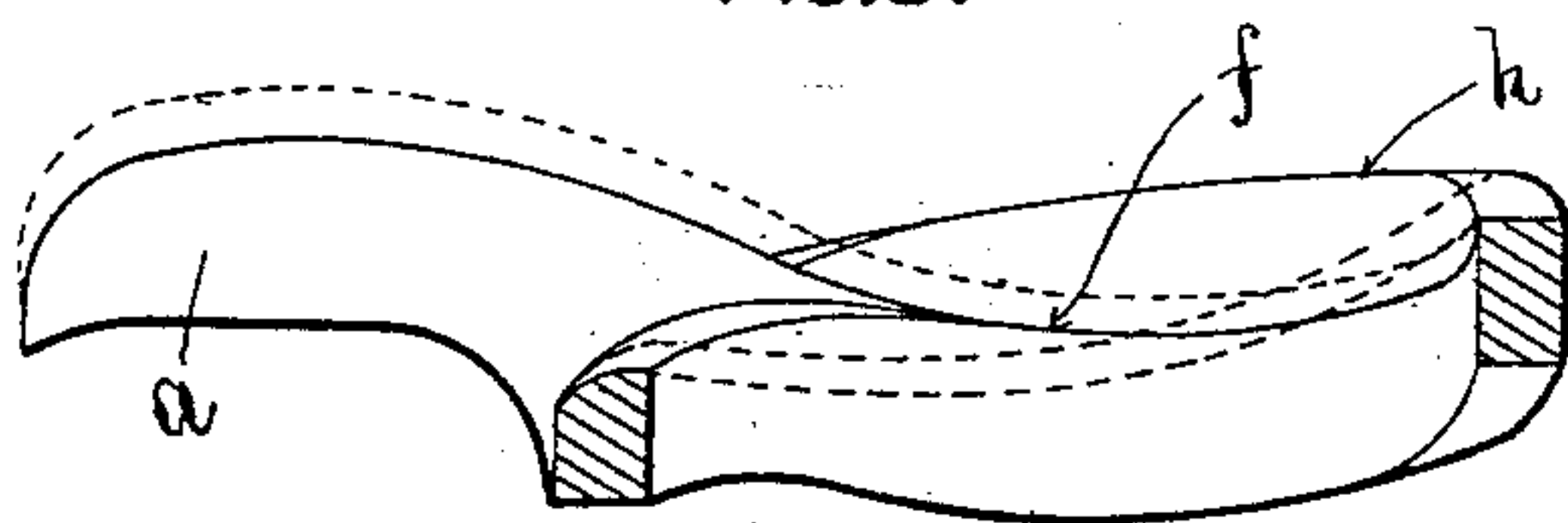


FIG. 7.

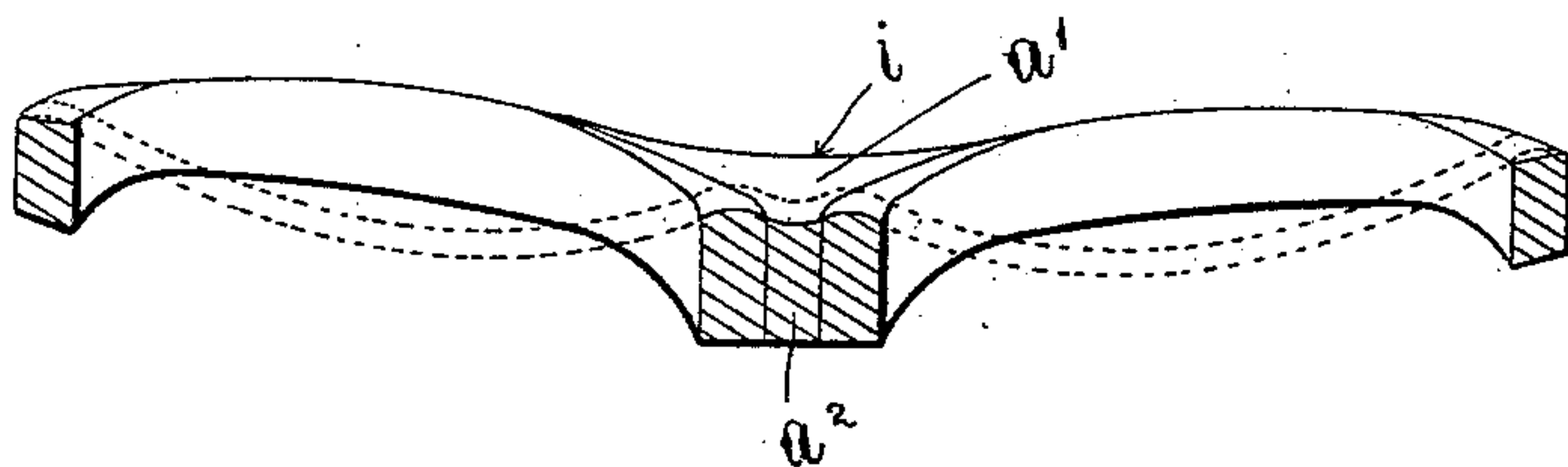
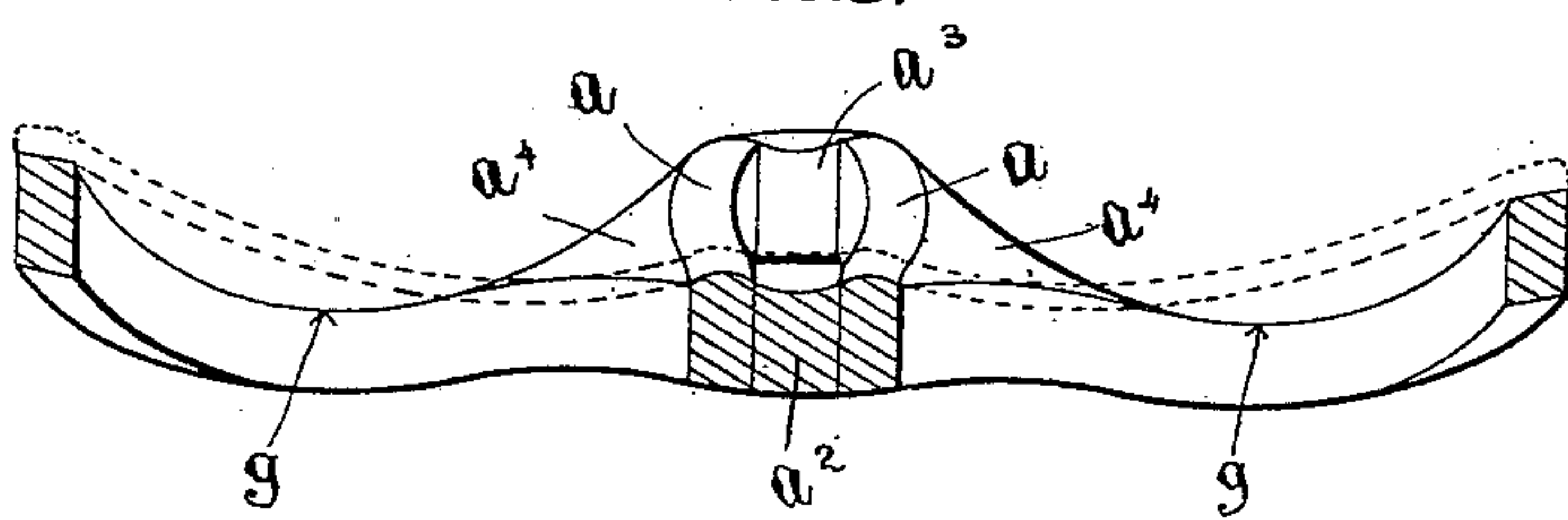


FIG. 8.



WITNESSES

Alfred K. Broad.
Albert J. George.

INVENTOR.

John William Richardson.
per. Robert S. Phillips.
Attorney

UNITED STATES PATENT OFFICE.

JOHN WILLIAM RICHARDSON, OF LONDON, ENGLAND.

SADDLE FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 602,523, dated April 19, 1898.

Application filed April 16, 1897. Serial No. 632,426. (No model.) Patented in England July 9, 1896, No. 15,276.

To all whom it may concern:

Be it known that I, JOHN WILLIAM RICHARDSON, a subject of the Queen of Great Britain, residing at Hampstead, London, in the county of Middlesex, England, have invented a new and useful Improvement in Saddles for Velocipedes, (for which I have obtained a patent in Great Britain, No. 15,276, bearing date July 9, 1896,) of which the following is a full and complete specification.

This invention relates to saddles for velocipedes and comprises the improvements herein set forth.

It has been found in practice that the majority of velocipede-saddles as usually constructed give rise during use to friction and injurious pressure, principally at the following points: first, at the sides of the fore part of the saddle, where they are in contact with the thighs and where, by reason of the saddle's excessive width, it unduly forces the thighs apart and produces pain from pressure and soreness due to friction; second, along the central longitudinal line of the upper surface of the saddle, where, owing to the downward lateral curving convexity, the weight of the rider concentrated on each side of this line forces the saddle upward, with injurious effect, against the central line of the pelvic outlet—a pressure to which most medical men attribute injurious results, especially in the case of women; third, at the parts supporting the ischial tuberosities; fourth, at the posterior margin of the saddle, where, by reason of its insufficient antero-posterior diameter, the frame comes in contact with the coccyx or terminal portion of the spinal column and with the soft parts in front of it, sometimes causing ischio-rectal abscess; fifth, and, finally, at the outer margin of the body of the saddle, where, owing to its insufficient breadth and to its convexity, it cuts into the gluteal muscles and produces impairment of action, as well as painful inflammation.

The object of this invention is to provide an improved saddle so shaped and formed that such injurious pressures and frictions will be obviated, or practically so. For this purpose it is preferred to employ a skeleton frame, in combination with an upper or outer covering or seating, which frame and covering are exactly adapted to the normal ana-

tomical curvatures of the gluteal regions and pelvic outlet in every position assumed by a cycle-rider, thereby permitting of a complete and physiological distribution of the weight of the body, a free and frictionless movement of the lower limbs in the act of pedaling, a complete or practically complete immunity from injurious pressures, and the application of all the muscular power of the rider to the propulsion of the cycle, which has hitherto been largely wasted in balancing the body and in endeavoring to avoid the evils of pressure and friction.

In the accompanying drawings is shown how this invention may be conveniently and advantageously carried into practice.

Figure 1 is a plan view of the saddle-frame. Figs. 2, 3, and 4 are views in side elevation, front elevation, and rear elevation, respectively, thereof. Fig. 5 is a section on line xx of Fig. 1. Fig. 6 is a section on line yy of Fig. 1, with dotted lines indicating the outer covering. Fig. 7 is a section on line zz of Fig. 1, looking rearwardly, with dotted lines indicating the outer covering. Fig. 8 is a similar section looking forward, with similar dotted lines.

Like letters of reference indicate corresponding parts throughout the figures.

The saddle consists of a rigid frame large enough to support the whole of the seat portion of the human body, curved and shaped to conform to the normal curvatures of the gluteal regions and pelvic outlet. The frame is constructed of any suitable material, preferably, however, of wood, on account of lightness and adaptability to the purposes required, and it is covered with leather or other suitable material. The frame consists of two lateral halves joined or connected together, as more clearly shown in Fig. 1, by interposed pieces or blocks $a' a^2 a^3$, so as to form a single frame with a central longitudinal space or opening. A convenient method of constructing this frame is as follows: Two strips of wood or other suitable material are taken and bent each in the form of a loop, leaving one end a , of several inches in length, free. They are then so cut away and shaped as to conform in curvatures to the gluteal regions and pelvic outlet of the normal human body in the several positions assumed by these parts

when the rider is in the act of pedaling. The outer or projecting ends a a are placed in juxtaposition and are united at their extremities by means of the block a^3 , so as to form the front or peak of the saddle. The loops are joined up by means of the strip a' and block a^2 at such a distance from each other that they will correspond to the two gluteal regions. In the angle formed between the loop and the free end a on each side is inserted a wedge-shaped block a^4 , the anterior or free edge of which is then hollowed out, so as to form with the immediately adjacent portions of the loop a segment of several circles—that is to say, first, an anterior concave circle formed by the anterior surface; second, a concave circle formed at the junction of the upper and anterior surfaces; third, a convex circle formed by the superior surface transversely, and, finally, a convex curvature formed on the upper surface from the angle to the center of the base of the block.

In Figs. 2, 5, and 6, f indicates a concave curvature in the central longitudinal line of the saddle-frame.

In Figs. 3, 4, and 8, g g are concave curves, one in the anterior portion of each loop or lateral half of the complete frame, adapted to the curvature and shape of the gluteal fold.

In Figs. 2 to 6, h h are convex curves on the outside margins of the loops of the complete frame, each sloping downward and forward from a point near the rearward or posterior margin of the frame (following the outer margin of the gluteal regions) and becoming continuous with the concavity g g at the anterior portion of each loop or lateral half, and continuing downward and rearward to the concavity i , (see Figs. 1, 4, and 7,) which is formed to avoid contact with the coccyx.

It will be seen that each lateral half of the complete frame at its anterior part g g is so concaved and shaped as to adapt it to the surfaces of that portion of the body of the rider coming in contact with its different parts in each and every position assumed by the limbs in the act of pedaling.

To complete the saddle with the defined curvatures, I stretch over and secure to every part of the above-described frame a covering or coverings of slightly-yielding material, so that the completed or covered saddle will be in each lateral half of its upper surface concave both transversely and longitudinally, as shown in dotted lines in Figs. 6, 7, and 8, the said transverse concavities rising slightly inwardly toward the central longitudinal line and outwardly to a higher level at the side margin of the frame, thus producing a general concavity from side to side, and with the

covering of a double concavity, with a slightly-convex elevation in the center, as shown in Figs. 7 and 8, while the longitudinal concavity of the body of each half slopes or falls back to front, as shown in Fig. 6.

The inner margins of each loop or lateral half from the center line z z , Fig. 1, rise concavely forward, following the contour of the perineum, and eventually become merged in the peak.

It will further be seen that the central anterior portion of the complete frame forms a lozenge-shaped body having a central longitudinal opening and corresponding to the anatomical form of the skeletal pelvic outlet, giving support anteriorly by its upper surfaces to the region of the pubic arch or anterior portion or the bony pelvic outlet.

By constructing the frame and its covering in the form hereinbefore described the whole of the weight of the body is physiologically distributed, while the separation of the two lateral halves and the absence of any material other than the soft or padded covering above will relieve the central line of the pelvic outlet of any pressure other than the support it is intended to receive.

It may be found convenient in some cases to pad with india-rubber, pneumatic, or other suitable padding.

This saddle is made in various sizes to suit all riders and is supported by any suitable system of springs or their equivalent.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a bicycle-saddle, a frame comprising two strips bent around to form loops one end of each strip being secured to the body of the strip, and the other ends of the strips forming substantially parallel projections a , wedge-shaped blocks secured between the end portions of the said strips, and blocks secured between the said projections and between the rear parts of the said loops, the upper surfaces of the said loops, blocks and projections being curved to conform to the body of the rider, substantially as set forth.

2. In a bicycle-saddle, a frame comprising two strips bent around in opposite directions to form loops one end of each strip being secured to the body of the strip, and the other ends of the strips forming substantially parallel projections, and connections holding the said parts in position, the upper surfaces of the said parts being curved to conform to the body of the rider, substantially as set forth.

JOHN WILLIAM RICHARDSON.

Witnesses:

THOMAS GREENHILL,
H. H. SYNES.