

(No Model.)

2 Sheets—Sheet 1.

E. F. SHAW & A. S. CARTER.
BICYCLE SEAT.

No. 549,692.

Patented Nov. 12, 1895.

Fig. 1

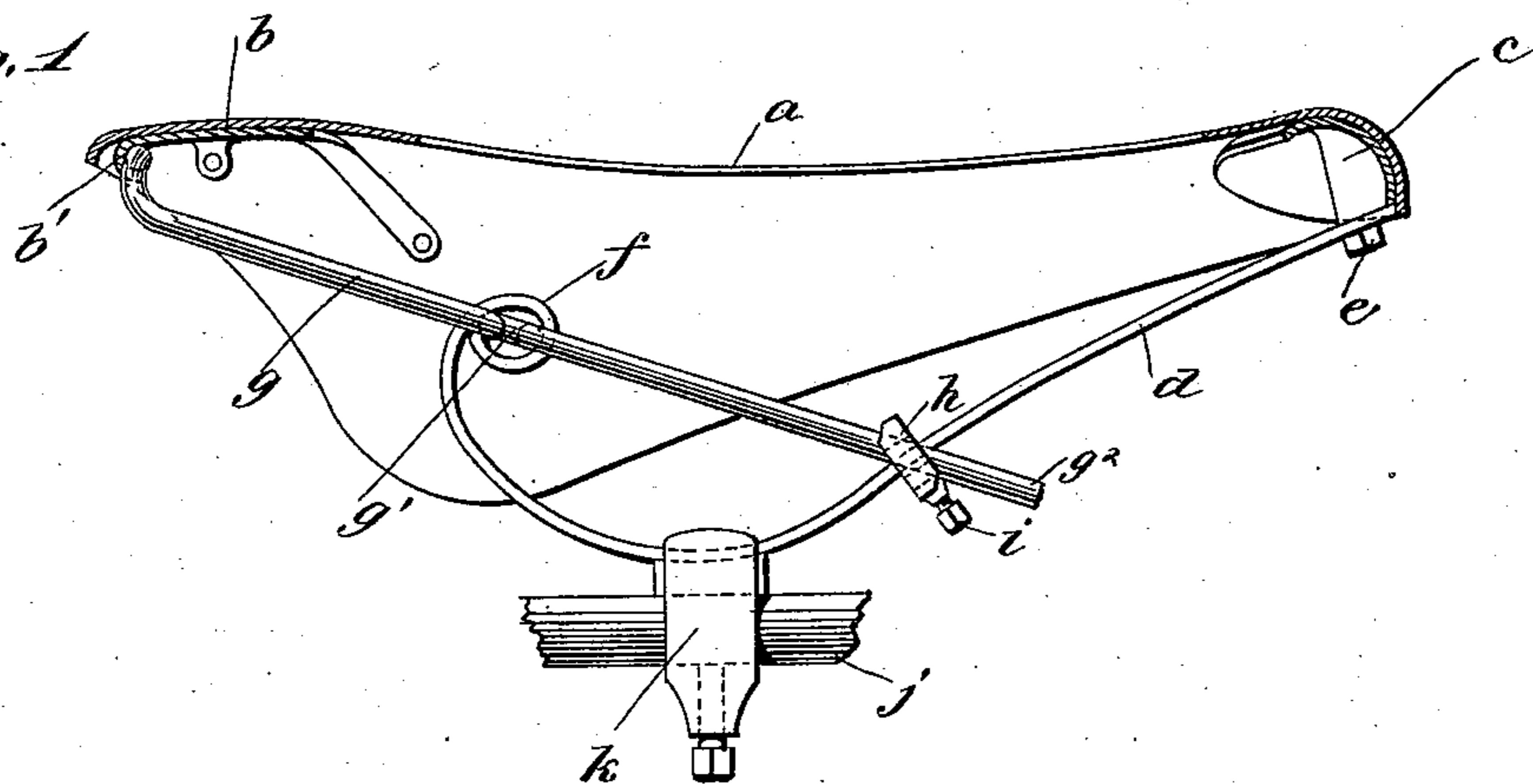


Fig. 2

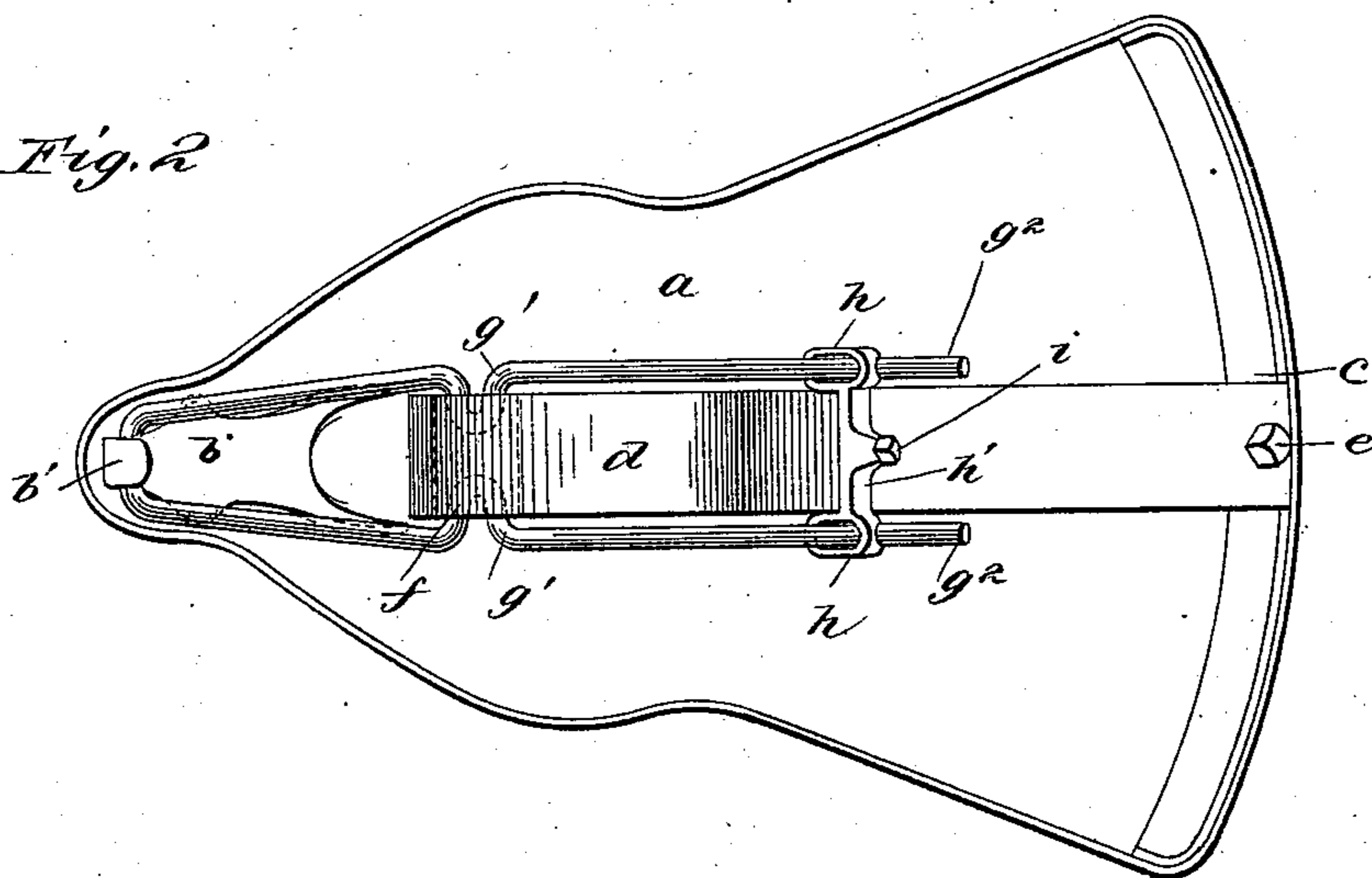
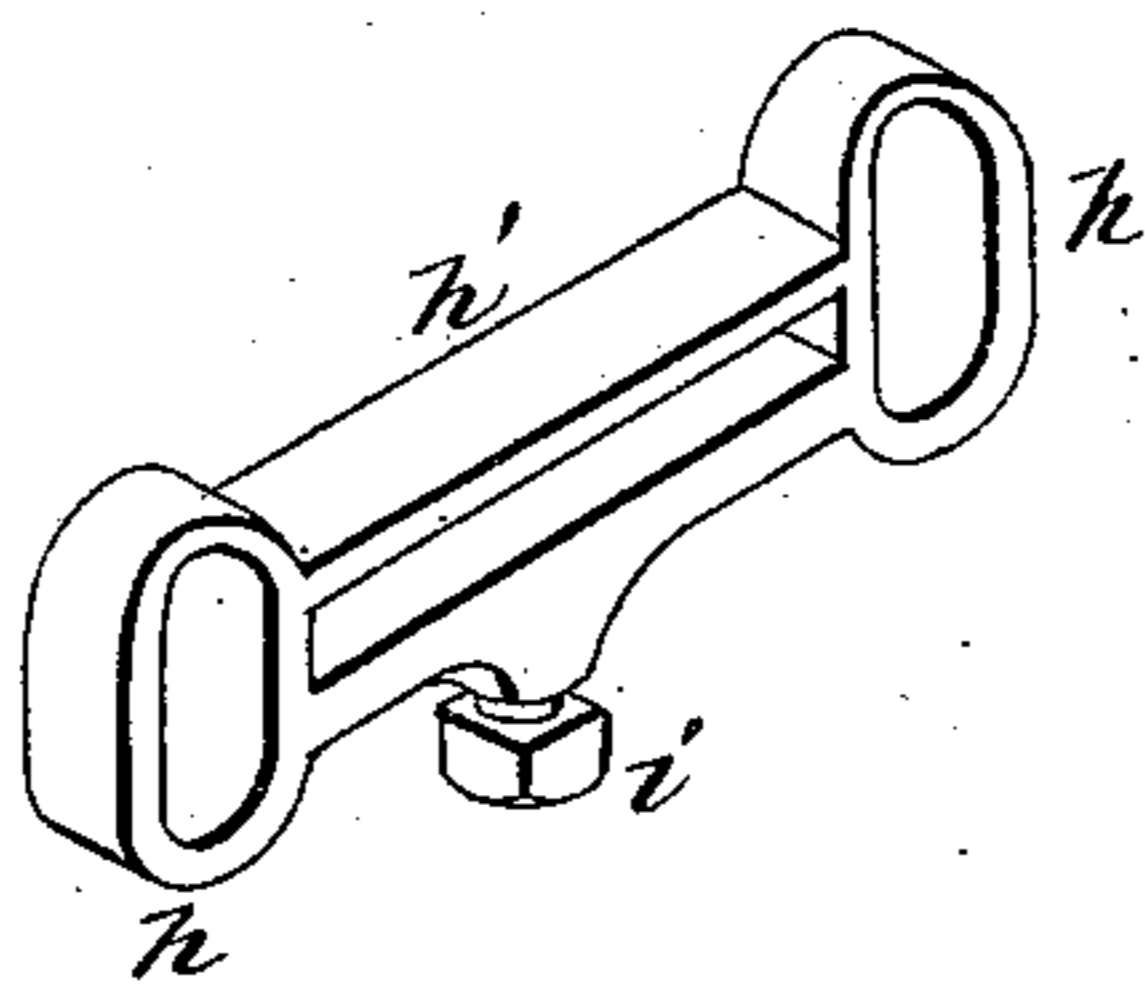


Fig. 3



Witnesses:

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E. A. Turner.

Inventors

Edwin F. Shaw
Albert S. Carter.

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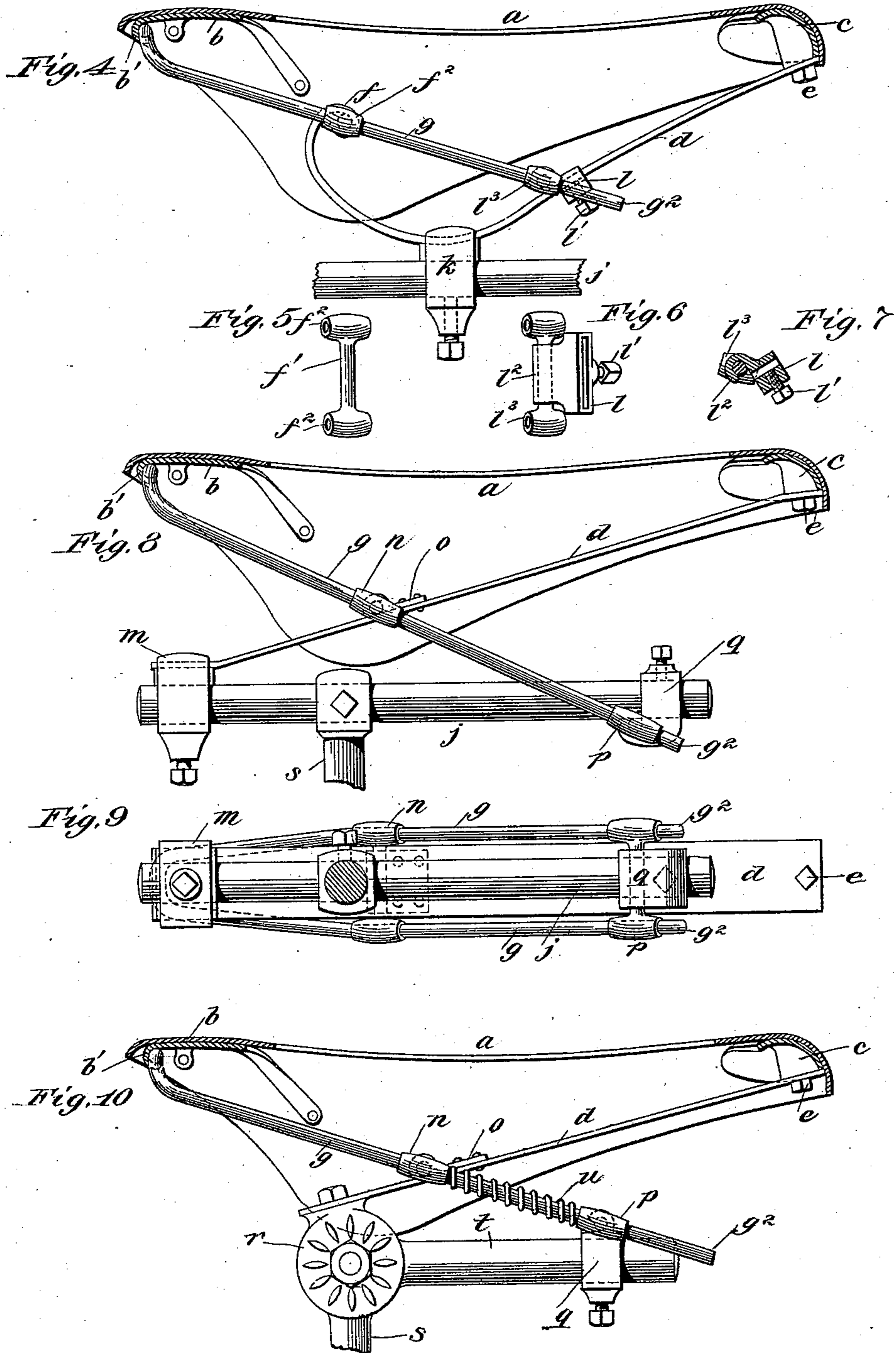
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2 Sheets—Sheet 2.

E. F. SHAW & A. S. CARTER.
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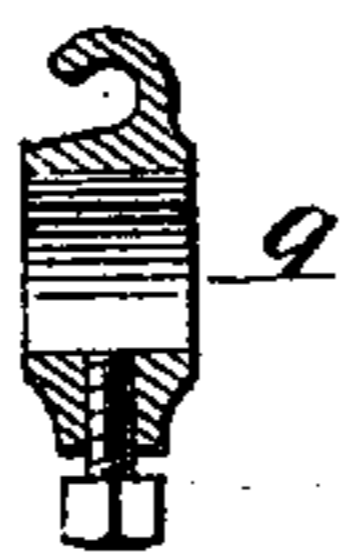
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Fig. 11



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UNITED STATES PATENT OFFICE.

EDWIN F. SHAW, OF PHILADELPHIA, PENNSYLVANIA, AND ALBERT S. CARTER, OF HADDONFIELD, NEW JERSEY, ASSIGNORS OF ONE-HALF TO HENRY W. SCATTERGOOD AND SAMUEL E. CARVER, OF PHILADELPHIA, PENNSYLVANIA.

BICYCLE-SEAT.

SPECIFICATION forming part of Letters Patent No. 549,692, dated November 12, 1895.

Application filed December 6, 1894. Serial No. 530,967. (No model.)

To all whom it may concern:

Be it known that we, EDWIN F. SHAW, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, and ALBERT S. CARTER, residing at Haddonfield, in the county of Camden and State of New Jersey, citizens of the United States, have invented a certain new and useful Improvement in Bicycle-Seats, of which the following is a full, clear, and exact description.

The object of this invention is to provide a bicycle-seat in which the tendency of the seat to hug the person of the rider, after having been affected by the warmth of the body, is overcome, and a stiff, smooth, and elastic seat is produced.

A further object of the invention is to restore the seat after use to its original shape.

In attaining the objects of our invention we have employed in various forms a combination of a spring and connected movable rods upon which the seat proper is mounted, all as hereinafter more particularly set forth, and finally claimed.

In the accompanying drawings illustrating our invention, in these several figures of which like parts are similarly designated, Figure 1 is a sectional side elevation, and Fig. 2 a bottom plan view illustrating one form of our invention. Fig. 3 is a perspective view of the adjustable guide shown in said figures. Fig. 4 is a sectional side elevation illustrating another form of our invention. Fig. 5 is a plan view of one guide, and Fig. 6 of another guide used in this form of our invention; and Fig. 7 is a transverse vertical section of the guide shown in Fig. 6. Fig. 8 is a sectional elevation of still another form of our invention; and Fig. 9 is a bottom plan view of the form shown in Fig. 8, omitting the seat and seat connections. Fig. 10 is a sectional side elevation of still another form of our invention, and Fig. 11 is a vertical transverse section of the dog used in some of the forms shown of our invention.

The saddle or seat *a* may be of leather or other flexible material, as usual, and it is supplied at one end with a transverse rigid plate *b*, riveted or otherwise secured thereto, and

at its other end it is provided with another rigid plate *c*, these plates serving to receive the saddle-supporting devices.

Referring now to the form of the invention shown in Figs. 1, 2, and 3, *d* is a flat spring secured by a bolt *e* to the plate *c* and having its front end curved upwardly and rearwardly and provided with the loop *f*. A pair of looped rods *g*, made not unlike a hairpin, is secured at its united or closed end in a loop *b'* of the plate *b* in a pivotal manner, and said pair of rods has its limbs turned in at *g'* to form trunnions or pivots, which enter the loop *f* of the spring *d* to form a secure union with said loop and the spring of which it is a part. The free ends *g''* of the pair of rods are passed through eyes *h* of a cross-bar or guide *h'*, which is adjustably secured to the spring *d* by means of a set-screw or bolt *i*. *j* may represent the seat-supporting bar of the bicycle, and *k* may represent the ordinary dog or fastening device by which the seat is connected with the said bar *j*. This connecting device, dog, or clip *k* engages the spring *d* in such manner and the spring *d* is so curved that by simply rocking the seat fore or aft within the said dog or clip *k* the said seat may be given any angle of inclination that the rider may desire. In this form of our invention it will be observed that the spring *d* is made fast to the seat at one end by immediate and direct attachment thereto and that the other end of the said spring is connected by a loose joint with the front end of the seat, the said loose joint consisting of the pair of rods *g*. The weight of the rider therefore falls upon the spring at its rear end directly and upon its front end indirectly, and this front end being free to move under such weight the necessary resilience or spring to the seat is obtained. Moreover, it will be observed that as the rider's weight is applied to the seat there is a thrust motion upon the ends of the seat transmitted through the spring and its rods which tends to keep the seat or saddle distended and preserves its stiffness and prevents clinging to the person of the rider. The free ends of the rods *g*, playing through the eyes *h* of the guide, permit perfect free-

dom of motion. When it is desired to adjust the stiffness of the spring, the set-screw *i* may be loosened and then the guide *h h'* be moved up and down upon the spring *d* and secured in the proper position to effect the desired stiffness.

In Fig. 4 the same combination of spring and bars is shown; but we omit the trunnions or pivots *g'* of Figs. 1 and 2 and apply in a loop *f* in the forward end of the spring *d* a guide-piece *f'*, (shown in Fig. 5,) through the eyes *f²* of which the limbs of the rods are inserted up to the point where said limbs begin to converge to form the closed end, as illustrated in Fig. 9, and we also modify the construction of the guide *i*, Fig. 6, by using a clip or dog *l*, which is adapted to be secured to the spring by means of a set-screw *l'* and which is provided with the hook end *l²* to embrace the guide *l³* for the reception of the free ends of the looped rod.

A further modification of our invention is shown in Figs. 8 and 9, wherein the spring is secured to the seat at one end and connected with the saddle-bar *j* at its other end by means of a clip or dog *m*, and the guide-rod *g* is connected with the spring by means of the guides *n*, in which the limbs of the guide-rod are inserted up to their converging point, as in Fig. 4. The guides *n* vibrate in a fixed position relatively to the spring by means of a clip *o*, fixed to said spring and engaging the said guides *n*, and the free ends of said guide-rods *g* are engaged by guide-eyes *p*, adjustably secured to the rear end of the saddle-rod *j* by means of a dog or clip *q*. The dog or clip *q*, Figs. 8, 9, 10, and 11, comprises essentially a hole, by which it may be placed upon a support, a set-screw for holding it upon such support, and a lip to engage that which is to be held by the dog and is of ordinary construction.

Still another modification of our invention is shown in Fig. 10, wherein the spring is secured to the rear end of the saddle, and its front end is secured to an adjusting device *r*, of ordinary construction, interposed between the seat-standard *s* and the seat-supporting bar *t*, such adjusting device being also of usual operation. In this form of our invention the guide-rods are connected with the spring in the manner and by the means indicated in Fig. 8, and the free ends of the said bar are passed through a guide *p*, held to the bar *t* by a dog *q*, and a coiled spring *u* is interposed between the two guides *n* and *p*, the said spring *u* assisting in making the seat resilient and also in keeping it taut. The purpose of the adjusting device *r* is to permit the seat to be tilted forward, and as it is so adjusted the dog *q* is to be moved forward also.

The guides *f' f²*, Figs. 4, 5, and 6, and *n*, Figs. 8, 9, and 10, serve to resist the rearward movement of the rods by contact with their convergent limbs and allow forward movement. These guides and the trunnions or

pivots *g'* of Figs. 1 and 2 constitute a pivotal connection between the spring and guide-rods.

A further advantage of our invention is that the seat and its supporting appurtenances are very light in weight.

It will be observed in all the instances of our invention herein shown and described that there is the capacity of vertical movement at the point of the intersection of the spring and the rods and also that there is a capacity of longitudinal movement of the free ends of the rods, but a definitive restraint of vertical movement of said free ends, and, finally, that the seat-support *k m r* is arranged in advance of the location of the main bulk of the weight of the rider. All these elements contribute to the attainment of the functions of the invention hereinbefore stated.

In all instances of our invention it will be observed also that a flat spring is used. In Figs. 1, 2, and 4 this flat spring is a partially elliptical or volute spring, while in the other forms of the invention the spring is shown as straight.

What we claim is—

1. A bicycle seat having a spring rigidly attached to the rear end of the seat, a pair of rigid rods movably connected at one end with the front end of the seat and extending thence at a downward inclination rearwardly across the spring and pivotally connected with the spring at the point of intersection, and a rod-receiving device through which the rear ends of the rods have free longitudinal play and by which such ends are restrained from undue movement at right angles to their length, substantially as described.

2. A bicycle seat having a spring rigidly attached to the rear end of the seat, a pair of rigid rods movably connected at one end with the front end of the seat and extending thence at a downward inclination rearwardly across the spring and pivotally connected with the spring at the point of intersection, and a rod-receiving device through which the rear ends of the rods have free longitudinal play and by which such ends of the rods are restrained from undue movement at right angles to their length, the said rod-receiving device being adjustable upon its support to vary its proximity to the pivotal connection of the rods and spring, substantially as described.

3. A bicycle seat having a spring rigidly attached to the rear end of the seat, a pair of rigid rods movably connected at one end with the front end of the seat, and extending thence at a downward inclination rearwardly across the spring and pivotally connected with the spring at the point of intersection, a guide for the rear ends of the pair of rods comprising connected eyes for the respective limbs of the rods, and a holder for such eyes suitably supported in the rear of the pivotal connection of the rods and spring and adjustable relatively thereto, substantially as described.

4. A bicycle seat having a flat spring rigidly attached to the rear end of the seat, a pair of rigid rods movably connected at one end with the front end of the seat and intersecting the spring and pivotally connected with the said spring at such point of intersection, and a rod receiving device applied to the spring and receiving the other ends of the pair of rods and adjustable upon the spring, thereby to vary the angle of intersection of the rods with the said spring, substantially as described.

5. A bicycle seat having a spring rigidly attached to the rear end of the seat, a pair of rigid rods movably connected at one end with the front end of the seat and extending thence at a downward inclination rearwardly across the spring and pivotally connected with the spring at the point of intersection, and a rod-receiving device through which the rear ends of the rods have free longitudinal play and by which such ends are restrained from undue movement at right angles to their length, and combined with a connection with the seat post arranged in advance of the location

of the center of weight of the rider, substantially as described.

6. In a bicycle seat, the combination of the curved flat spring *d* fixed to the rear end of the seat and terminating in a rearwardly projecting loop, of a pair of rods pivotally connected to the front end of the seat and having inwardly turned bends between its ends, entering the loop in the end of the spring and thereby establishing fixed relation between the pivot end of the pair of rods and the free end of the spring, and means to permit free longitudinal movement of the free ends of the pair of rods and simultaneously to restrain their vertical movement, substantially as and for the purpose described.

In testimony whereof we have hereunto set our hands this 5th day of December, A. D. 1894.

EDWIN F. SHAW.
ALBERT S. CARTER.

Witnesses:

JOHN M. HARPER,
HENRY MARSH.