

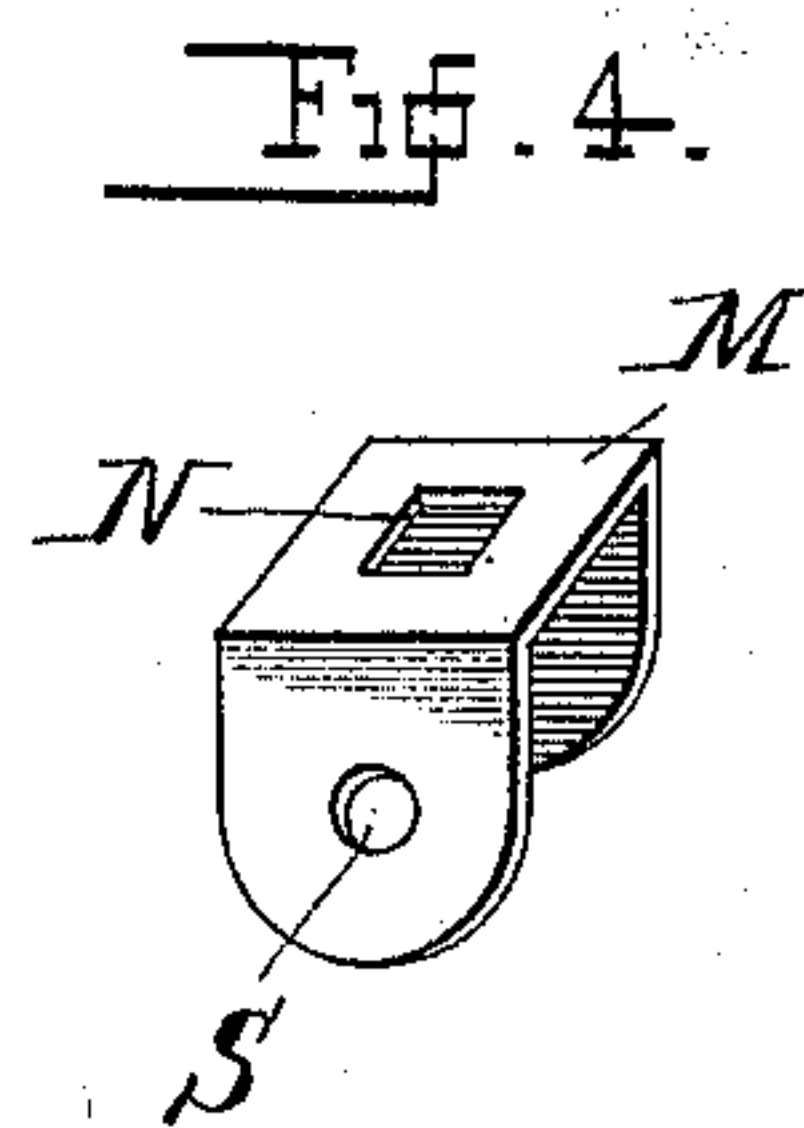
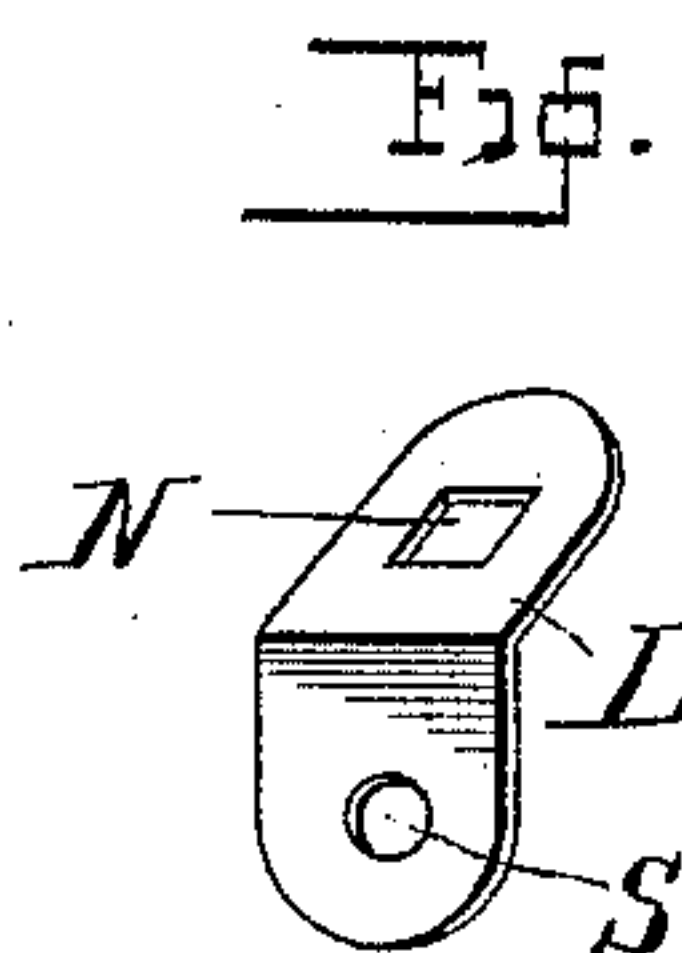
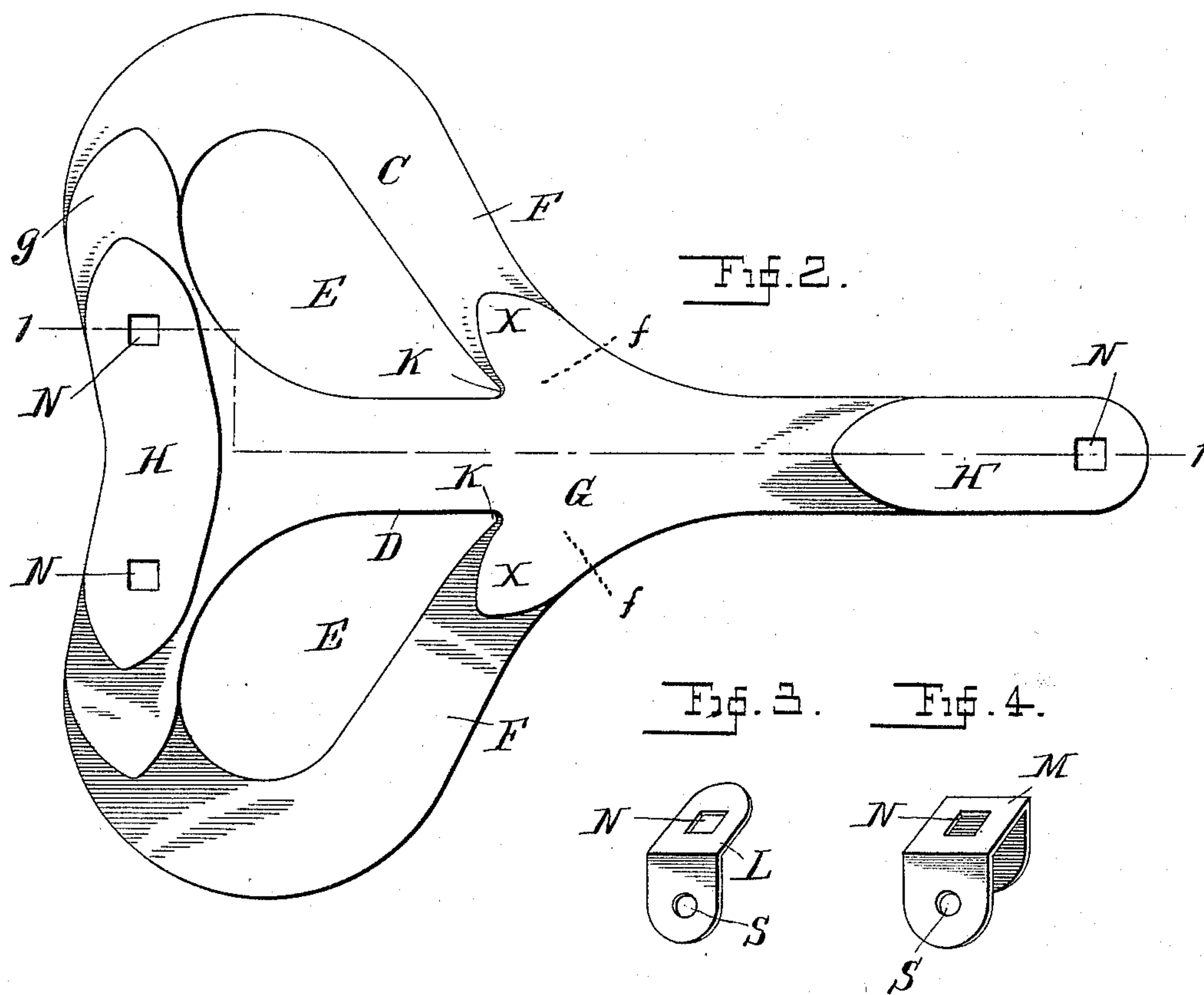
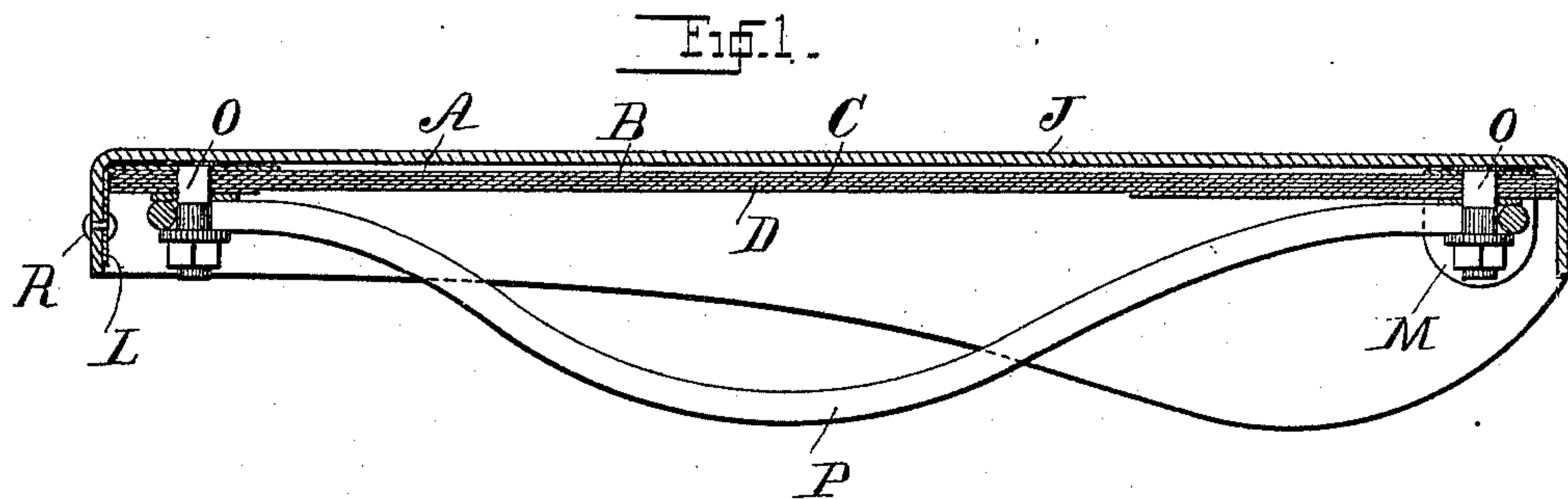
No. 634,910.

Patented Oct. 17, 1899.

F. B. RAY.
BICYCLE SADDLE.

(Application filed Jan. 6, 1899.)

(No Model.)



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANCIS B. RAY, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO OSCAR S. BRANDT, OF SAME PLACE.

BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 634,910, dated October 17, 1899.

Application filed January 6, 1899. Serial No. 701,397. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. RAY, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Saddles for Bicycles, Tricycles, &c., of which the following is a specification.

My invention relates, as indicated, to saddles or seats which are more particularly adapted for such vehicles where the rider provides the motive power through the medium of a pedaling action, and it is designed to increase the ease and comfort of the rider without interfering with his efficiency, and, in fact, through the instrumentality of the aforesaid advantages it is proposed that such efficiency shall and will be increased.

I have found that in seats or saddles of this kind wherein spring-metal plates are used to form the base of the saddle it is essential that sufficient strength or firmness shall be obtained, combined with a certain degree of resiliency or flexibility, and that these results cannot satisfactorily be obtained from a single plate of uniform gage throughout. If sufficiently strong to withstand the varied strain of the rider's weight, it will not have the requisite flexibility, and if thin enough to give proper flexibility it will not have a sufficient degree of strength. I have therefore devised a structure which consists of a plurality of thin plates or leaves of spring metal, which fastened together and sustained from fixed points and graduated and overlapping one another from those points toward the center of the saddle from the supported points and from a central longitudinal line toward the sides secures both the strength and flexibility required; and this structure formed into a base or foundation for a seat or saddle constitutes my present invention.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a central longitudinal section of a saddle embodying my invention on the line 1 1, Fig. 2; and Fig. 2 is a bottom view of the metallic or spring parts. Figs. 3 and 4 are detail views of clips employed in fastening and conveniently securing the parts together.

In the drawings, A represents the upper

member of a series or nest of springs forming, with the other members which I shall describe, a leaf-spring. Contiguous to the member A is the second member B, of the same size and contour. Below B is the member C, similarly formed. These parts A, B, and C are formed of steel spring-plate properly tempered, so as to secure the strength and elasticity required. They are provided with a central shank D, extending from the cantle at the back and forming the pommel in front. Extending outwardly and bow-shaped from the back of the cantle the spring-plate forms two openings E, which impart greater flexibility to the outer edges and also accommodate the tuberosities of the pelvic bone. The parts F F join the central shank forwardly at points *f f*. Each member is made integral and its parts continuous.

In carrying my invention into effect I may employ one, two, or three of the plates A B C, according to the stiffness or quality of saddle which I wish to produce and varying, of course, with the individual qualities of the said spring-plates. In my drawings I have shown three and prefer three.

Beneath the plate C, I place the member G. This latter is formed as shown in the bottom plan view, Fig. 2. It extends from the front end of the pommel rearwardly along the central shank to the cantle, where it is enlarged laterally and provided with arms *g g* and extensions X, rounded at the ends, as shown. These arms are of sufficient length to brace the cantle at its weakest points and serve as supporters and as a reinforce therefor. The construction of the plate or member G also provides, with the arms *g g* and the extension X, a graduation of stiffness from the supported points, hereinafter referred to, toward the parts which are intended to support the weight of the rider. In other words, the plates being supported rigidly, or nearly so, forward at the pommel and at the cantle in the rear, as will be explained, and the plate G being provided with these arms or extensions, the spring movement, elasticity, or give will be less along the central longitudinal line than it will be upon either side of said line and, *per contra*, the spring movement will increase from said central longitudinal line laterally

toward the periphery. The flexibility of the saddle increasing in the manner indicated, it is evident that I have produced a saddle composed of assembled plate-springs graduated and shaped in such a manner as to impart the greatest elasticity to those portions upon which the form and movements of the rider impose the greatest pressure.

In addition to the above plates I provide the plate H and the plate H', the former straddling the central line of the cantle and the latter serving as an additional brace forward. These plates in the discharge of their functions operate as part of the graduated structure. It will be seen that these plates A, B, C, G, and H H' lie immediately contiguous to one another throughout the entire area in each and every instance, and that by reason of this close association the support and reciprocal interaction are intimate and immediate, and that especially along the central part of the plates the association of the parts lends strength and affords means for calculable resiliency.

The above structure forms the base of the seat or saddle, and over the same I place a cover J, preferably of leather, and I secure this cover in position by means of the lugs or clips L L at the rear or cantle end and by the clip M at the pommel end. These lugs or clips are provided with eyes or openings N, through which the bolts O extend and which bolts serve the purpose not only of securing the clips to the leaf-spring structure, but also the ordinary bow-shaped support P, as well as the individual members of the leaf-spring to one another.

The cover J is attached to the clips by means of rivets R, extending through eyes or openings S.

It will be seen that the collective layers of spring-plates are supported at the extreme ends, forward and back at the pommel and at the cantle, and that from these two supported points a graduation toward the center of the saddle occurs, and that a similar graduation proceeds outwardly and in both directions from a central longitudinal line, the cantle and pommel-tip being rigid, or nearly so, and easing off toward the saddle-center, and the lateral extensions or wings of the

saddle, which constitute the weight-supporting parts, increasing in stiffness from the outer edge or periphery of the saddle, to which one or more of the spring-plates extend, to the central longitudinal or median line. It will also be seen that the spring-plates or leaf-spring structure shown and described by me is part and parcel of the saddle proper and is not in any sense a part of the saddle-support. It will also be seen that I have shown and described a leaf-spring structure for bicycle-saddles which is not only adapted to operate to give unusual ease to the rider, but is also well adapted for a strong and durable saddle-base. It will also be understood that I can vary to some extent the number of leaves in the spring structure, as well as their form, shape, and thickness, without departing from the spirit of my invention.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A base for the seats or saddles of bicycles, tricycles and like vehicles, formed of consecutive layers of spring-metal plates secured together and supported at the pommel and cantle, two or more of which lie immediately contiguous to each other from front to back and along a central longitudinal line said plates being graduated from the supported points toward the supporting parts or edges.

2. In a seat or saddle for bicycles, tricycles and like vehicles, a base formed of consecutive layers of spring-metal plates supported at the cantle and at the forward end of the pommel and graduated from said supported points toward the center of the saddle.

3. In a seat or saddle for bicycles, tricycles and like vehicles, a base formed of consecutive layers of spring-metal plates constituting part of the saddle proper and supported as shown at the cantle and at the forward end of the pommel and graduated from these points of support toward the center of the saddle and laterally toward the sides of the saddle from a central longitudinal line.

FRANCIS B. RAY.

Witnesses:

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