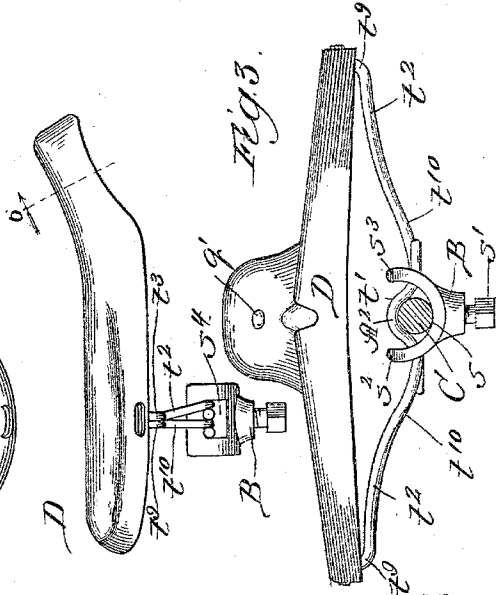
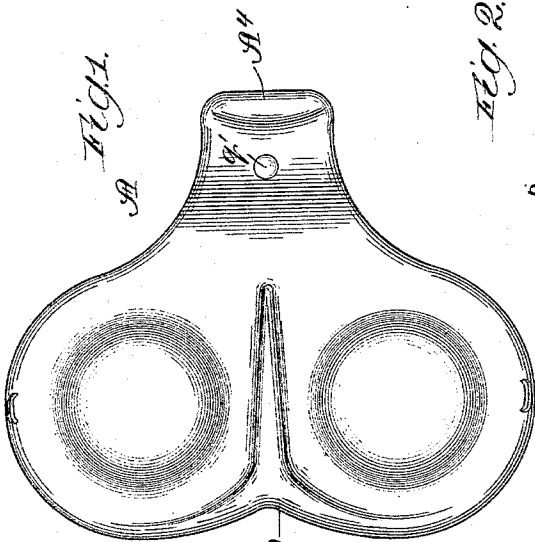
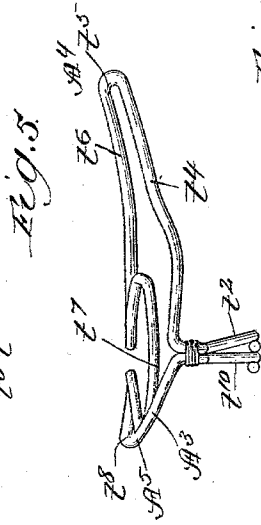
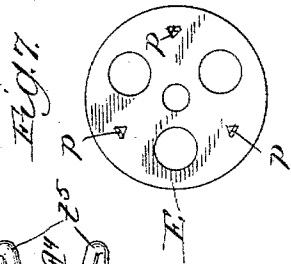
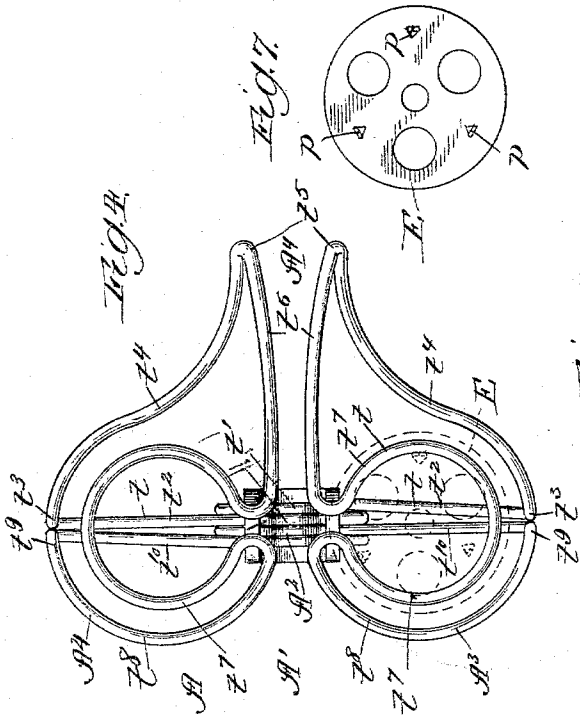


(No Model.)

A. J. EDDY.  
BICYCLE SADDLE.

No. 545,224.

Patented Aug. 27, 1895.



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# UNITED STATES PATENT OFFICE.

ARTHUR J. EDDY, OF CHICAGO, ILLINOIS.

## BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 545,224, dated August 27, 1895.

Application filed May 24, 1895. Serial No. 550,515. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR J. EDDY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bicycle-Saddles, of which the following is a specification.

It is a fact now well recognized that lasting injury to health may be occasioned by the more or less constant riding upon a bicycle-saddle which is not constructed according to hygienic and anatomical principles to conform to the body of the rider; and the difficulties hitherto in the way of obtaining a resilient saddle for bicycles which would be free from all danger of working injury to a rider and at the same time contribute to his ease and comfort, without interfering with the free movement of his legs, is well known to those who have investigated the subject, and has caused many to adopt saddles of the unyielding type, but shaped to permanently conform to the body, rather than resilient saddles, which, if constructed with due regard to the health of the rider, would be much more comfortable.

One of my objects is to provide a yielding saddle for bicycles which shall possess the properties of adapting itself to the form of the rider and of fitting against a considerable area of his body during and without interfering with the movement of his legs, whereby the weight of the rider while he works the pedals will be upon those parts of his body naturally intended to sustain the weight in sitting, and never with undue pressure upon the prostate gland or any part which such pressure might injuriously affect.

My object is also to provide a saddle having the properties named and of a construction which shall render it yielding in such a manner as to neutralize the vibrations transmitted by the machine and give particular ease and comfort to the rider.

My object is still further to provide a yielding saddle of improved construction which shall be comparatively simple, durable, light, attractive, and inexpensive.

In the drawings, Figure 1 is a top plan view of a saddle of my improved construction; Fig. 2, a side elevation of the same; Fig. 3, a rear elevation of the saddle, illus-

trating the manner of attaching it to a saddle-support, which is shown in section; Figs. 4 and 5, a top plan view and a side elevation, respectively, of the spring-frame portion of the saddle; Fig. 6, a section taken on line 6 of Fig. 2 and viewed in the direction of the arrow, and Fig. 7 a plan view of a detachable reinforcing plate or pad.

A is the saddle formed with the spring-frame A', comprising a transverse, preferably resilient, bar A<sup>2</sup> and horizontally-disposed seat-sections A<sup>3</sup>. As I prefer to construct the frame it is in two parts, as shown, each formed of a single length of spring-wire bent to produce the transversely-extending arm t, having the free end portion t' and upwardly-inclined part t<sup>2</sup>, bend t<sup>3</sup>, from which extends the ogee length or outer forward rail t<sup>4</sup>, terminating at the forward end in a bend t<sup>5</sup>, center rail or length t<sup>6</sup> in a plane somewhat higher than the length t<sup>4</sup>, horizontally-disposed loop t<sup>7</sup>, rear curved portion or back rail t<sup>8</sup>, terminating in a bend t<sup>9</sup> in close proximity to the bend t<sup>3</sup>, and arm t<sup>10</sup>, formed like and extending parallel with the arm t. The arm portions t<sup>10</sup> of the frame-sections together form the transverse supporting-bar A<sup>2</sup> of the saddle, and the other parts of the sections form the horizontally-disposed seat portion.

B is a saddle-supporting block or clip provided with the socket portion s, saddle-bar-engaging screw s', and the upward-projecting arms s<sup>2</sup> s<sup>3</sup>. In the arms s<sup>2</sup> s<sup>3</sup> are openings s<sup>4</sup> to receive the end portions t' of the arms t<sup>10</sup>. The arms overlap or intermesh with each other in the saddle-supporting block B, and between the arms s<sup>2</sup> s<sup>3</sup> of the latter they are bent coincidentally upward to form a saddle-support-receiving socket, as shown at t' in Fig. 3. The saddle-support C extends through the socket s of the block B and socket formed by the parts t' of the arms, and the saddle is fastened in place by tightening the screw s', which thus clamps all the parts firmly in position. The lengths t t<sup>10</sup>, which form the arms or opposite end portions of the transverse supporting-bar A<sup>2</sup>, sustain the main body of the seat portion of the frame about midway between front and back, while the horizontally-disposed frame-sections are supported to swing from the bends t<sup>3</sup> t<sup>9</sup> and yield with greatest ease along the center-rail portion.

The loops  $t^7$ , which are supported at the center-rail portions, have an additional independent yielding. At the pommel portion  $A^4$  of the saddle the parts  $t^4$   $t^6$  are preferably, but not necessarily, bent in the upward direction to elevate the bends  $t^5$ , and the back-rails  $t^8$  are bent to extend in a higher plane than the loops  $t^7$  to produce the cantle  $A^5$ .

In practice the weight of the rider is imposed more directly upon the bearing-surfaces afforded by the loops  $t^7$ , and the yielding of these loops is substantially in the vertical plane, with the effect of lowering the center rails  $t^6$ . Thus the least resistance is at those parts of the saddle which by yielding produce practically absolute conformity of the seat to the rider's person and thereby give the greatest comfort and ease.

$D$  is a saddle-covering shaped to conform to the frame-sections  $A^2$   $A^3$  and sufficiently flexible to follow to the desired extent the motions of the springs. I prefer to construct the covering in one piece, as shown, and the material employed is preferably leather. The weight of the rider is about equally balanced upon a transverse line directly over the transverse supporting-bar  $A^2$ , and under any change of position of the rider the saddle may yield at the pommel or cantle ends. The pommel portion of the saddle will prevent the rider from slipping to either side, and is particularly yielding, so that in the event that the rider slips forward the pommel will sink under his weight, and thereby prevent the tendency to injury which more rigid pommels would be apt to inflict. The cantle portion of the saddle being yielding enables a rider to slip off the saddle in the backward direction, in case of emergency, with greater ease than were the cantle rigid. The construction which permits the saddle to rock upon a central transverse line and thus afford a yielding pommel and a yielding cantle is particularly desirable, both for the comfort and safety of the rider, and the yielding pommel is also particularly desirable for the use of ladies, because it renders mounting and dismounting from the saddle much more easy than is the case with rigid pommels. I prefer in practice to secure the spring frame-sections together at the pommel, and for this purpose I provide the clip  $q$ , (shown in Fig. 6,) which connects at opposite ends with the center rails  $t^8$ . The pommel portion of the saddle-cover may be fastened in place by means of a rivet  $q'$  passing through the clip  $q$ , as shown. I also prefer in practice to provide upon each loop  $t^7$  a reinforcing plate or pad  $E$ , which may be of leather, or it may be of thin sheet metal, perforated, as shown in Fig. 7, and provided with lugs or stops  $p$ , which when the plate or pad is imposed upon the loop engage the inner circumference of the latter and prevent shifting of the plate or pad. This manner of attaching the plate or pad renders it removable and replaceable at will, and the material from which it is formed should be suf-

ficiently flexible to dish downward under the weight of the rider and sustain in a measure the flexible seat-covering, to prevent the latter from becoming permanently sagged at the loops in use. The tendency of the plates or pads when used will also be to cause the loops to yield equally throughout under weight imposed upon any part thereof, and they will also operate as supplemental cushions between the rider and the springs.

Though I prefer to construct the transverse bar  $A^2$  in two separate sections, as shown and described, the two parts or sections of the spring seat-frame may be formed integral—as, for example, by forming them both from a single length of wire. The bends at the parts  $t^7$ , which afford the upper support-receiving socket, afford a particularly desirable and simple construction, and in the event that either section of the seat becomes injured it may be replaced, while the other section may remain.

The features of my saddle which render it particularly desirable for comfort and ease while working the pedals are the tendency to yield more readily at the center than at the sides and the readiness with which it will rock to produce the yielding pommel and cantle.

The wire from which the springs are made may be of any desired gage to produce the proper action according to the weight of the rider; and constructed as described the saddle is not only neat in appearance and durable, but it is particularly light and inexpensive to manufacture.

While I prefer to construct my invention throughout as shown and described, it may be modified in the matter of details of construction without departing from the spirit of my invention as defined by the claims.

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

1. In a bicycle saddle, the combination with the saddle-support engaging-block of a transverse seat-supporting bar mounted between its ends at the said block, and a seat frame supported at opposite sides upon the ends of said bar and formed of wire bent to yield more freely at the center than at the sides of the saddle, the seat frame being yieldingly supported between its front and rear ends on the said bar to have an up-and-down rocking motion at said ends, substantially as described.

2. In a bicycle saddle, the combination with the saddle-support engaging-block of a yielding transverse seat-supporting bar mounted between its ends at the said block, and a seat frame supported at opposite sides upon the ends of said bar and formed of wire bent to yield more freely at the center than at the sides of the saddle, the seat frame being yieldingly supported between its front and rear ends on the said bar to have an up-and-down rocking motion at said ends, substantially as described.

3. In a bicycle saddle, the combination with the saddle-support engaging-block of a transverse seat-supporting bar mounted between its ends at the said block, and a seat frame supported at opposite sides upon the ends of said bar and formed of wire bent to yield more freely at the center than at the sides of the saddle and to afford yielding bearing surfaces between the said sides and center, the seat frame being supported between its front and rear ends on the said bar to have an up-and-down rocking movement at said ends, substantially as described.

4. In a bicycle saddle, the combination with the saddle-support engaging block, of a spring seat frame formed with a transversely extending arm, supported toward its center at the said block, and with a horizontally disposed spring wire seat carried by the outer ends of said arm and formed between its center and opposite sides with bearing loops, substantially as described.

5. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a seat-frame formed of longitudinally extending sections supported at their outer sides upon the ends of said bar, substantially as described.

6. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a seat-frame formed of longitudinally extending downwardly yielding sections supported at their outer sides upon the ends of said bar, substantially as described.

7. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a seat-frame formed of wire bent to produce a pommel and supported at opposite sides between its ends upon the ends of said bar, to render the saddle readily yielding at the pommel, substantially as described.

8. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a seat-frame formed of wire bent to produce a cantle, and supported at opposite sides between its ends upon the ends of said bar, to render the saddle readily yielding at the cantle, substantially as described.

9. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a seat-frame formed of wire bent to produce a pommel and a cantle, and supported at opposite sides between its ends upon the ends of said bar to rock thereon and thus render the saddle readily yielding at the pommel and cantle, substantially as described.

10. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a

transverse seat-supporting bar mounted between its ends at the said block, and a skeleton seat-frame formed of parallel longitudinally extending sections separated from each other at the seat-portion, and supported at their outer sides upon the ends of said bar to yield more readily along the center of the saddle than at the sides thereof, substantially as described.

11. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a skeleton-frame in two parallel longitudinally extending sections forming together seat and pommel frame-portions of the saddle, and supported at their outer sides upon the ends of said bar to yield more readily along the center of the saddle than at the sides thereof, substantially as described.

12. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a skeleton-frame in two parallel longitudinally extending sections forming together seat and pommel frame portions of the saddle separated at the seat-portion and connected together at the pommel-portion, and supported at their outer sides upon the ends of said bar to yield more readily along the center of the saddle than at the sides thereof, substantially as described.

13. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a skeleton-frame in two parallel longitudinally extending sections forming together seat and pommel frame-portions of the saddle, and supported at their outer sides between their ends upon the ends of said bar to yield more readily along the center of the saddle than at the sides thereof, and to rock on said bar to render the pommel yielding, substantially as described.

14. In a bicycle-saddle, the combination with the saddle-support engaging-block, of a transverse seat-supporting bar mounted between its ends at the said block, and a skeleton-frame in two parallel longitudinally extending sections forming together seat, pommel and cantle frame-portions of the saddle, and supported at their outer sides between their ends upon the ends of said bar to yield more readily along the center of the saddle than at the sides thereof, and to rock on said bar to render the pommel and cantle yielding, substantially as described.

15. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with spring wire skeleton frame-sections extending transversely through the block, and supported to yield more freely along the center of the seat than at the sides thereof, substantially as and for the purpose set forth.

16. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with two sections each comprising a transversely extending arm supported toward its inner end at the said block, and an inward extending horizontally disposed seat-portion carried by the outer end of said arm, substantially as and for the purpose set forth.
17. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with two sections each comprising a transversely extending arm supported toward its inner end at the said block and an inward extending horizontally disposed seat-portion carried by the outer end of said frame and formed with an outward extending loop supported at the inner side to the seat-portion, substantially as and for the purpose set forth.
18. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with two sections, each comprising a transversely extending arm supported toward its inner end at the said block and an inward extending horizontally disposed seat-portion carried by the outer end of said arm, the said transverse arms overlapping each other at the said block, substantially as and for the purpose set forth.
19. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with two sections, each comprising a transversely extending arm supported toward its inner end at the said block and an inward extending horizontally disposed seat-portion carried by the outer end of said arm, the said transverse arms overlapping each other at the said block, and being bent coincidentally at their overlapping portions to form a support receiving socket, substantially as and for the purpose set forth.
20. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame comprising two sections, each formed of a length of wire bent to produce the transverse supporting-arm, outer forward rail  $t^4$ , center-rail  $t^6$ , loop  $t^7$  and back-rail  $t^8$ , substantially as described.
21. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame comprising two sections each formed of a length of wire bent to produce the transverse supporting-arm, outer forward rail  $t^4$  and center-rail  $t^6$  having the elevated free end-portion forming the pommel, loop  $t^7$ , and back-rail  $t^8$  having the upwardly bent cantle-portion, substantially as and for the purpose set forth.
22. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame formed with two sections each comprising a transversely extending arm supported toward its inner end at the said block, and an inward extending horizontally disposed seat-portion carried by the outer end of said arm, a reinforcing-plate or pad on each said section, and a seat covering of flexible material fastened upon the frame over the said reinforcing-plate or pad, substantially as and for the purpose set forth.
23. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame comprising two sections each formed of wire bent to produce the transverse supporting-arm, outer forward rail, center-rail, loop and back-rail, and a reinforcing-plate or pad fitted upon the said loop, substantially as described.
24. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring-seat frame comprising two sections each formed of wire bent to produce the transverse supporting-arm, outer forward rail, center-rail, loop and back-rail, and a clip connecting the center-rails of the sections toward their forward ends, substantially as described.
25. In a bicycle-saddle, the combination with the saddle-bar engaging-block, of a spring seat-frame comprising two sections each formed of wire bent to produce the transverse supporting-arm, outer forward rail, center-rail, loop and back-rail, a clip connecting the center-rails of the sections toward their forward ends, and a seat-covering of flexible material fastened to the said clip, substantially as described.

ARTHUR J. EDDY.

In presence of—

J. W. DYRENFORTH,  
J. H. LEE.