No. 621,607. Patented Mar. 21, 1899.

G. P. HOLDEN.

BICYCLE SADDLE.

(Application filed Jan. 4, 1898.

(No Model.)

FIG. 4.

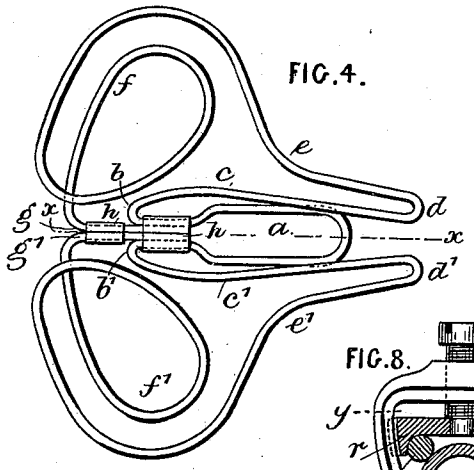


FIG. 2.

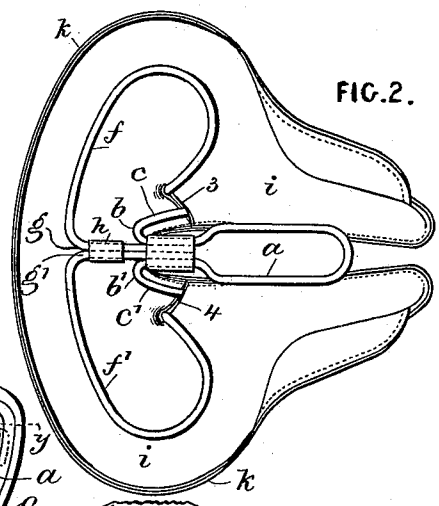


FIG. 8.

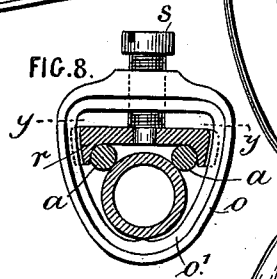


FIG. 5.

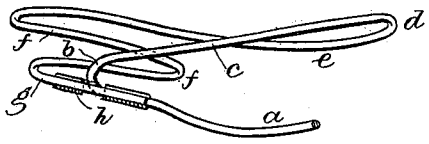


FIG. 1.

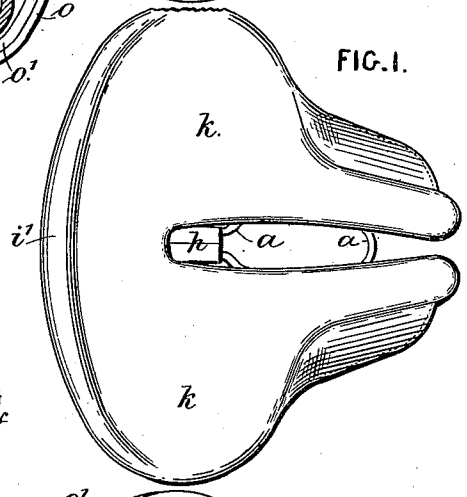


FIG. 3.

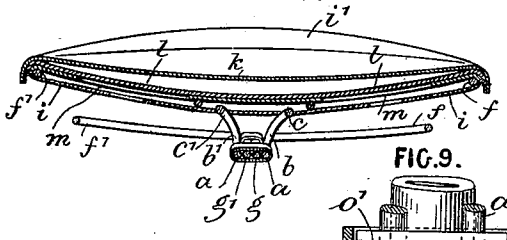


FIG. 9.

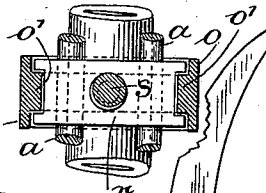


FIG. 6.

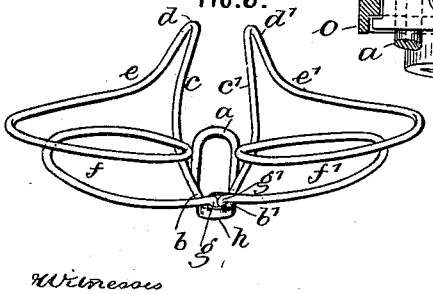


FIG. 7.

Witnesses
Chas. R. Smith
J. Stair

Inventor
George Parker Holden
by L. W. Serrell & Son
attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE PARKER HOLDEN, OF KINGSTON, NEW YORK.

BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 621,607, dated March 21, 1899.

Application filed January 4, 1898. Serial No. 665,582. (No model.)

To all whom it may concern:

Be it known that I, GEORGE PARKER HOLDEN, a citizen of the United States, residing at Kingston, in the county of Ulster and State of New York, have invented a new and useful Improvement in Bicycle Seats or Saddles, of which the following is a specification.

The object of my invention is to provide a saddle for bicycles affording security, ample support, and comfort to the rider without the use of a rigid pommel, a saddle free from undue chafing and wherein the liability of injury from pressure or bruising is reduced to a minimum, a saddle wherein the principal weight of the body is borne upon the tuber ischii or natural support of the body in a sitting posture, free from perineal pressure, a saddle flexible and yielding more at the front than at the back, so as to conform to the shifting and alternating action of the buttocks and movement of the limbs in pedaling, and which at the same time sets low and largely absorbs vibration.

In carrying out my invention I provide a spring formed from a single length of spring-steel wire, bent so that the structure is alike at opposite sides of the central line, but reversed. In forming the spring the single length of wire is bent double to form a base-loop, each member of which is then bent double and continued forward and upward, bent double again and inclined downward and continued backward and outward, and formed into ovoidal spirals with the smaller convolutions thereof downward and the ends parallel and side by side and in line with the parts of the base-loop, and which ends, together with the parts of the base-loop, are connected and rigidly held by a metal plate-clip. As a covering for the spring I employ top and bottom pieces of leather whose edges are sewed together around the boundary of the members of the spring and with intermediate pads of felt. The leather cover conforms to the spring-outline, with an open center and with forward flaps and with a back edge rib tapering in both directions to the sides of the saddle. The under leather is cut for the covered and exposed parts of the spring at their horizontal plane of intersection, the forward elevated parts of the spring and the upper part of the ovoidal convolutions being between the parts of the leather seat. A clip fastens the base-loop to the bicycle saddle-post.

In the drawings, Figure 1 is a plan view representing my improved saddle. Fig. 2 is an inverted plan of the same. Fig. 3 is a cross-section of the saddle and spring, looking to the rear of the saddle. Fig. 4 is a plan of the single-piece steel-wire saddle-spring. Fig. 5 is an elevation and partial section of said spring, taken through the longitudinal center. Fig. 6 is a rearward perspective view of the spring. Fig. 7 is an inverted plan of the intermediate felt pads. Fig. 8 is an elevation and partial section of the clip as securing the base-loop of the spring to the seat-post of the bicycle, and Fig. 9 is a sectional plan at $y\,y$ of Fig. 8.

The spring-frame of the bicycle-saddle is constructed of a single length of spring-steel wire of suitable diameter and temper bent double to form the base-loop a and then shaped to form the bends $b\,b'$, the forward-extending and rising portions $c\,c$, the double downward-inclined bends $d\,d'$, the backward outward-curved portions $e\,e'$, the ovoidal spirals $f\,f'$, with the smaller convolutions downward, and the ends $g\,g'$ of said ovoidal spirals parallel and side by side and extending between portions of the base-loop a. The metal clips h extend over and grip the ends $g\,g'$ and also the parts of the base-loop and the intermediate ends $g\,g'$ to hold the base parts of the spring firmly together adjacent to the portion that is secured to the seat-post of the bicycle.

The covering of the spring comprises the under leather i, the surface leather k, the upper pad of felt l and the under pad of felt m. These parts conform generally to the outline of the spring, with an open center, and the leather portions are preferably sewed together outside of the boundary of the spring, with the pads between the leather portions and their edges extending slightly over the edges of the spring. The under pad is preferably made with two openings, as shown in Fig. 7, which openings provide for the saddle shaping to the figure of the rider and also as a means of ventilation to the saddle.

The rear portion of the upper pad of felt l is preferably larger than the under pad, and the same is rolled over to form the inside of

the rib *i'*, this rib being largest at the center and tapering to nothing at the two sides of the saddle, the leather being sewed through the felt and the leathers sewed together at the back, so as to make a form that will maintain its shape.

It will be noticed from the drawings that the structure is alike at opposite sides of the central line, but reversed. This structure is adapted to yield more at the front than at the back of the saddle, and because of the open center each front portion has a yielding action independent of the other, and when the rider is seated upon the saddle the rear rib *i'* is covered and is more or less sat upon throughout its length, and the same forms a steadying-point to help the rider keep his seat and assist in guiding the cycle as effectively, but more desirably, than was the case with the pommel of the old rigid saddle, and at the same time the forward portions of the saddle are adapted to yield independently with the movements of the limbs of the rider in pedaling and to move alternately without any injurious effect to the saddle, and thus to assist the comfort of the rider.

In the structure of the saddle the intermediate felt pads set over the wire spring, so that the rider does not feel the pressure of the spring, and the saddle being open through the greater part of the center obviates any tendency to perineal pressure.

It will be noticed, especially from Fig. 2, that the under leather *i* of the saddle is cut at 3 4 from the edge inward, so as to receive the members of the spring at their horizontal plane of intersection, the lower portion of the ovoidal spirals coming out from between the leathers of the seat and the rising portions *c c'* going in between said leathers.

I have shown the following portions, comprising a clip, for securing the base-loop of the wire spring to the seat-post of the bicycle. This clip is composed of a yoke *o*, with a lower internal rib *o'* and with an interiorly-threaded opening in the upper portion to receive the clamp-screw *s* and a cross-bar *r*, against which the end of the screw bears.

The parts of the base-loop *a* of the spring are received beneath the clip and upon the seat-post, and the pressure of the screw clamps the parts firmly in place, the function of the rib *o'* being to prevent the rotation of the clip upon the seat-post. I, however, do not limit myself to the employment of this clip.

I claim as my invention—

1. In a bicycle-saddle, a supporting-spring formed from a single length of spring-steel wire bent double and comprising a base-loop, adjacent bends, forward-extending and rising portions, double downward-inclined bends at the forward end, backward outward-curved portions, ovoidal spirals with the smaller convolutions downward and the ends thereof parallel, and means for connecting the ends together and to the members of the base-loop, substantially as set forth.

2. In a bicycle-saddle, a supporting-spring formed from a single length of spring-steel wire bent double and comprising a base-loop, adjacent bends, forward-extending and rising portions, double downward-inclined bends at the forward end, backward outward-curved portions, ovoidal spirals with the smaller convolutions downward and ends that are parallel and extend side by side and between portions of the base-loop, and clips embracing the ends and parts of the base-loop for clamping them together, substantially as set forth.

3. In a bicycle-saddle, a spring formed of a single length of spring-steel wire bent double to form a base-loop and having bends and forward-extending and rising portions with two forward bends and backward outward-curved portions and ovoidal spirals with the smaller convolutions downward and the ends parallel, and a means for securing the ends together and to the base-loop, the leather surface-covering for the springs and the leather under covering united together by sewing around the boundary of the springs and at the opposite edges of the forward-extending portions to form an open center at the pommel, and intermediate pads between said leathers, the saddle structure being alike at opposite sides of the central line, but reversed, substantially as and for the purposes set forth.

4. In a bicycle-saddle, a spring having ovoidal spirals at the seat portions and separate pommel portions independently yielding with the movement of the limbs of the rider, and a covering divided at the pommel to conform to the spring and comprising an under leather, a surface leather and a lining of felt, and having a rib projecting above the surface at and conforming to the back edge or cantle and tapering from the center in opposite directions to nothing at the two sides of the saddle, substantially as and for the purposes specified.

5. In a bicycle-saddle having a leather and felt covering centrally divided at the pommel, a spring or skeleton frame formed from a single length of spring-steel wire into two approximately parallel horizontally-disposed sections alike at opposite sides of the central line, but reversed, and having separate pommel portions and ovoidal spirals extending out of the pommel portions with the smaller convolutions downward and forming seat-sections with parallel ends connected together but independently yielding in each pommel-half to provide for the movements of the limbs of the rider in pedaling, substantially as described.

6. In a bicycle-saddle, a skeleton wire spring composed of a single length of spring-steel bent double to form a base-loop and having bends, and forward-extending and rising portions with double downward-inclined bends

at the front or pommel portion of the saddle, and backward outward-curved portions, ovoidal spirals with the smaller convolutions downward and the ends parallel and side by side, clips engaging the said ends and also the parts of the base-loop, a covering comprising an under leather, a surface leather and intermediate felt strips, the upper one of which strips is formed into a roll along the cantle of the saddle and over which the surface leather is stretched to form a rib, the coverings being divided at the pommel to coincide with the spring so that the structure is alike at opposite sides of the central lines but reversed, substantially as set forth.

7. In a bicycle-saddle, a supporting-spring formed from a single length of spring-steel wire and comprising a base-loop whose ends are bent over double and continued forward and then bent double and continued backward to form approximately parallel and adjacent but independent pommel portions, said wires then being bent outward and around and slightly upward and returned at the cantle portion to form the seat and the ends then bent downward and forward and parallel and connected together and to the portions of the said base-loop, substantially as specified.

8. In a bicycle-saddle, the combination with the saddle-support-engaging clip, of a longitudinal forward-extending seat-supporting base-loop mounted at or near its front end at the said clip, and a skeleton frame formed of wire bent to produce a pommel in lateral looped halves with outer rails which are continuous and with horizontal resilience-coils connecting said pommel outer rails posteriorly with the posterior side of said base-loop, substantially as described.

GEO. PARKER HOLDEN.

In presence of—
JOSEPH M. SCHAEFFER,
H. NEVILLE DE LISSER.