(No Model.)

4 Sheets—Sheet 1.

W. H. CRAIG.

BICYCLE SADDLE.

No. 606,124. Patented June 21, 1898.

Fig. 1,

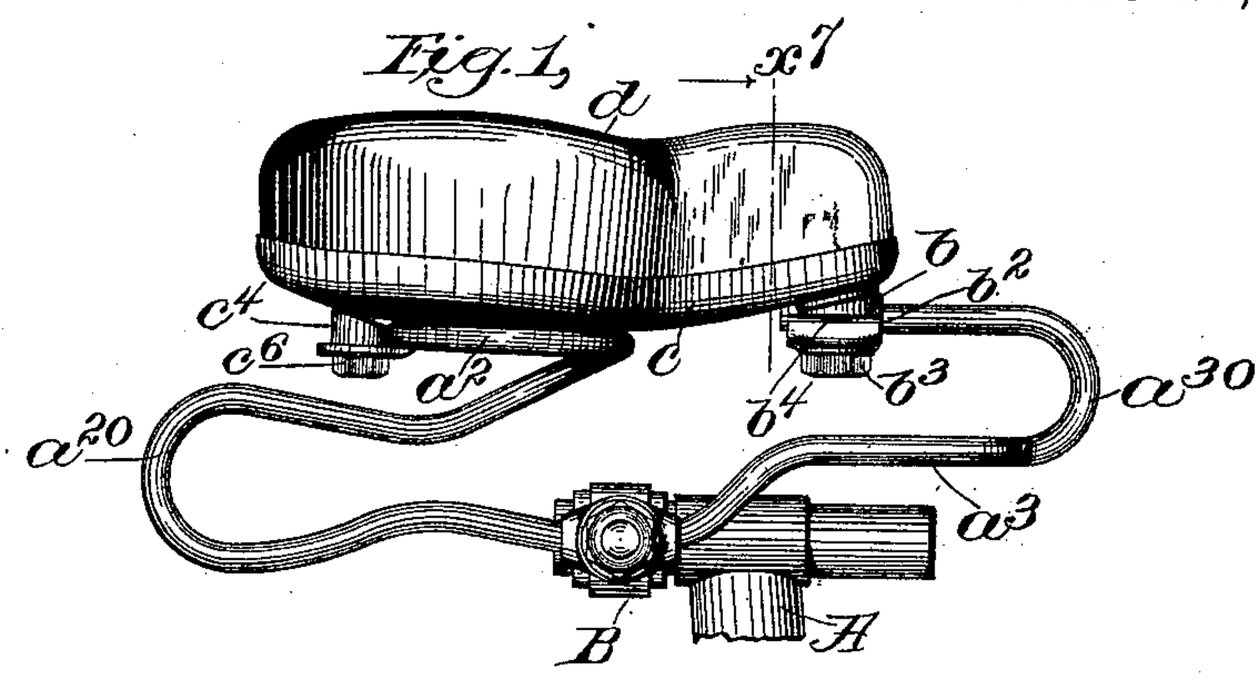


Fig. 2,

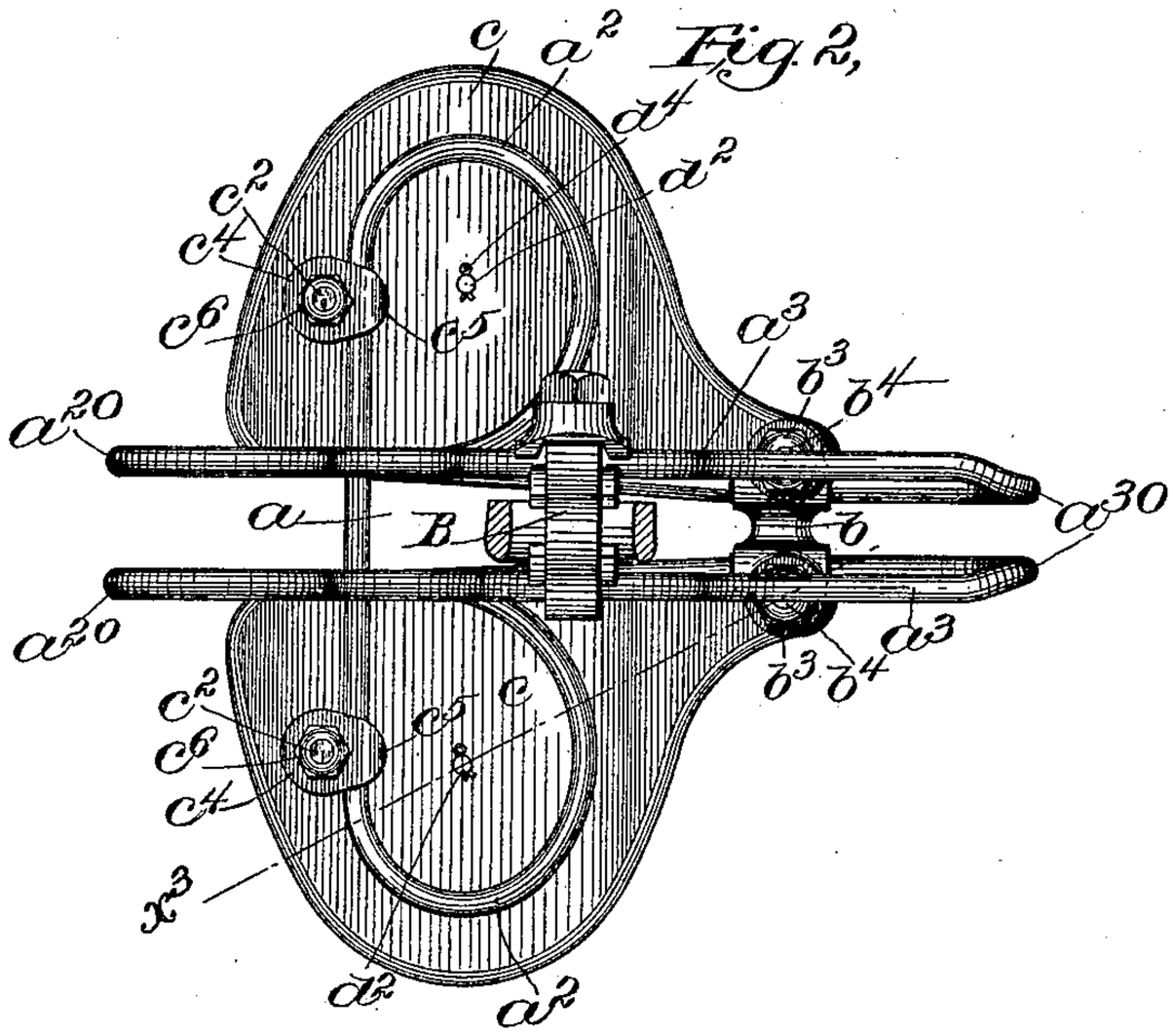
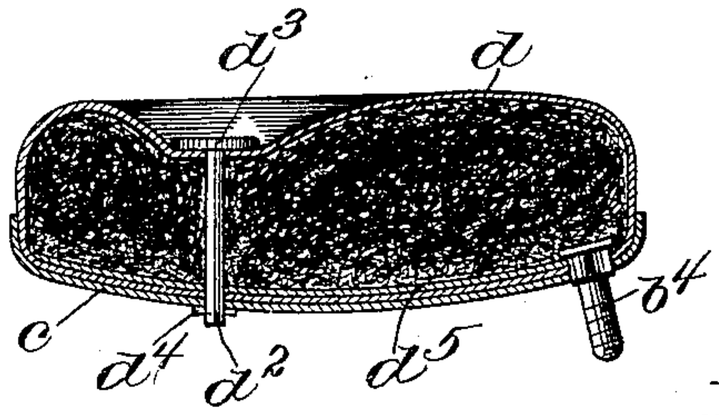


Fig. 3,



Witnesses
Jas. J. Maloney.
Nancy C. Ford.

Inventor,
Warren H. Craig.
by Jno. P. Livermore
Atty.

(No Model.)

4 Sheets—Sheet 2.

W. H. CRAIG.

BICYCLE SADDLE.

No. 606,124. Patented June 21, 1898.

Fig. 4.

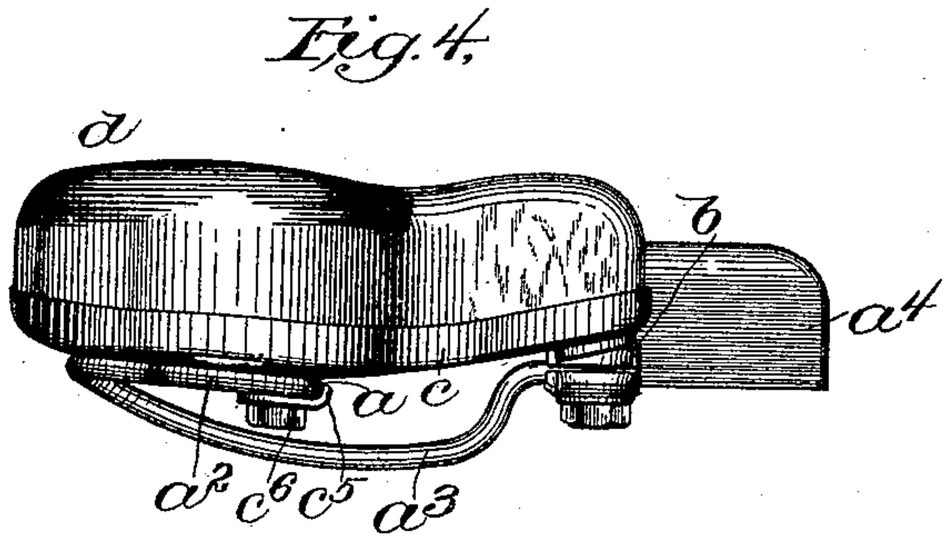


Fig. 5.

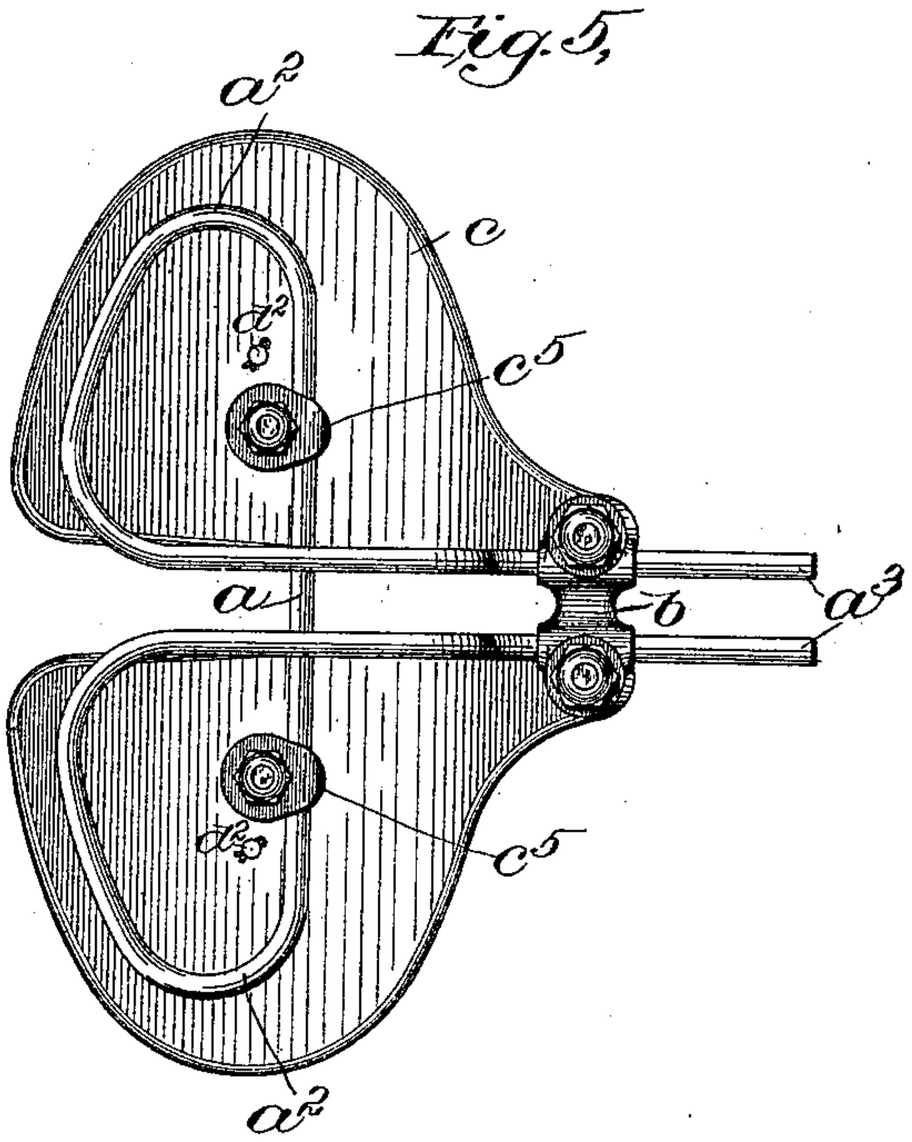


Fig. 6.

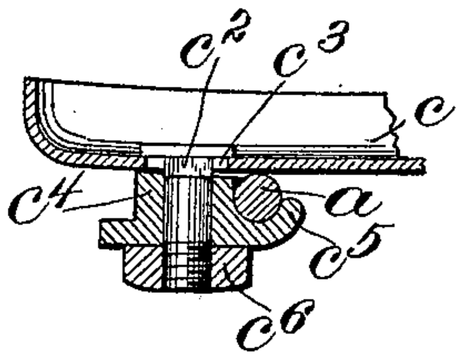
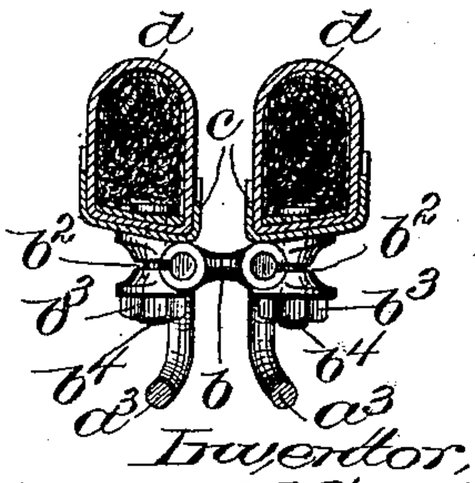


Fig. 7.



Witnesses.
Jas. J. Maloney.
Nancy C. Ford.

Inventor.
Warren H. Craig.
by Jos. P. Livermore
Atty.

(No Model.) 4 Sheets—Sheet 3.

W. H. CRAIG.

BICYCLE SADDLE.

No. 606,124. Patented June 21, 1898.

Fig. 8,

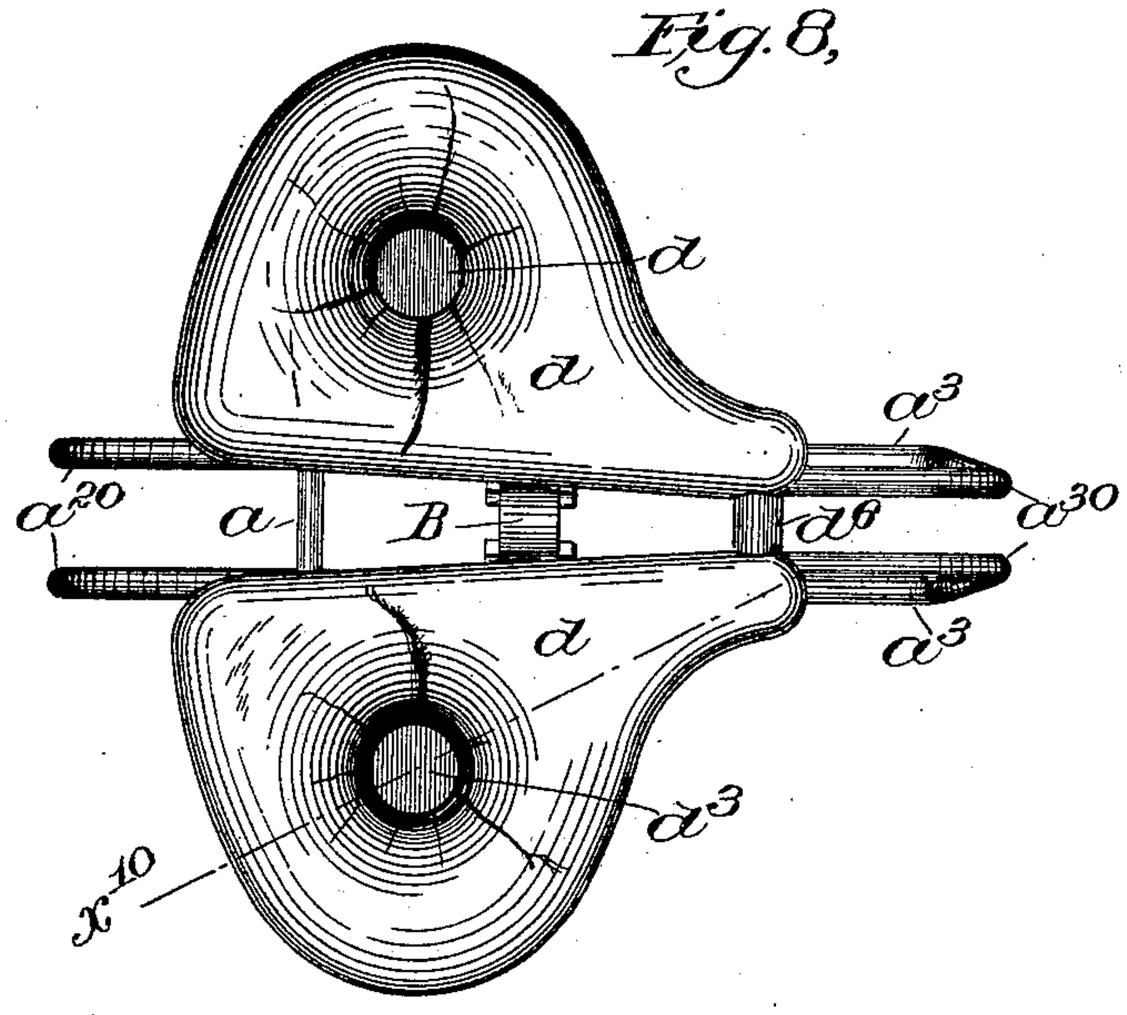


Fig. 9,

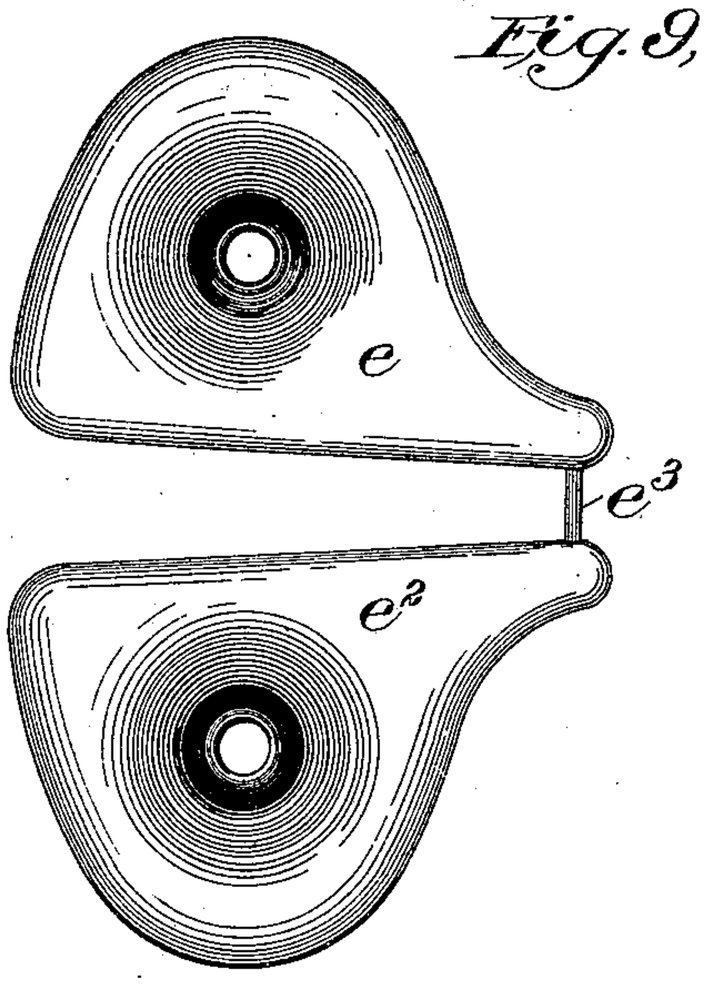
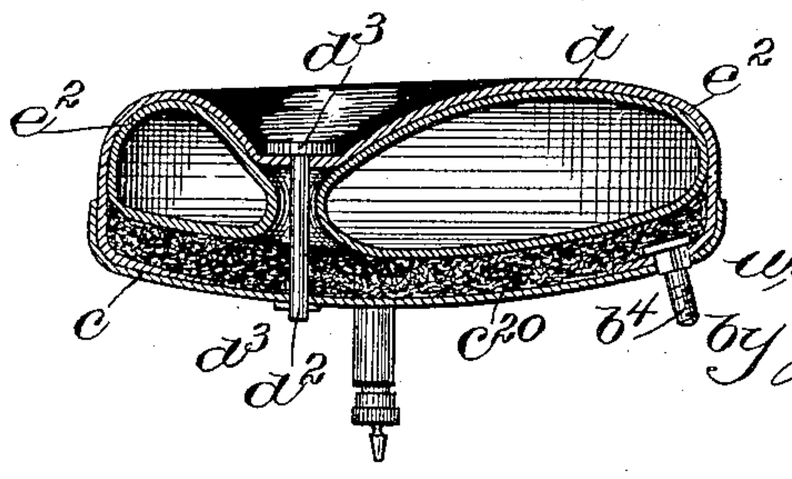


Fig. 10,



Witnesses
Jas. J. Maloney.
Nancy C. Ford.

Inventor:
Warren H. Craig.
by Jos. P. Livermore
Atty.

(No Model.)

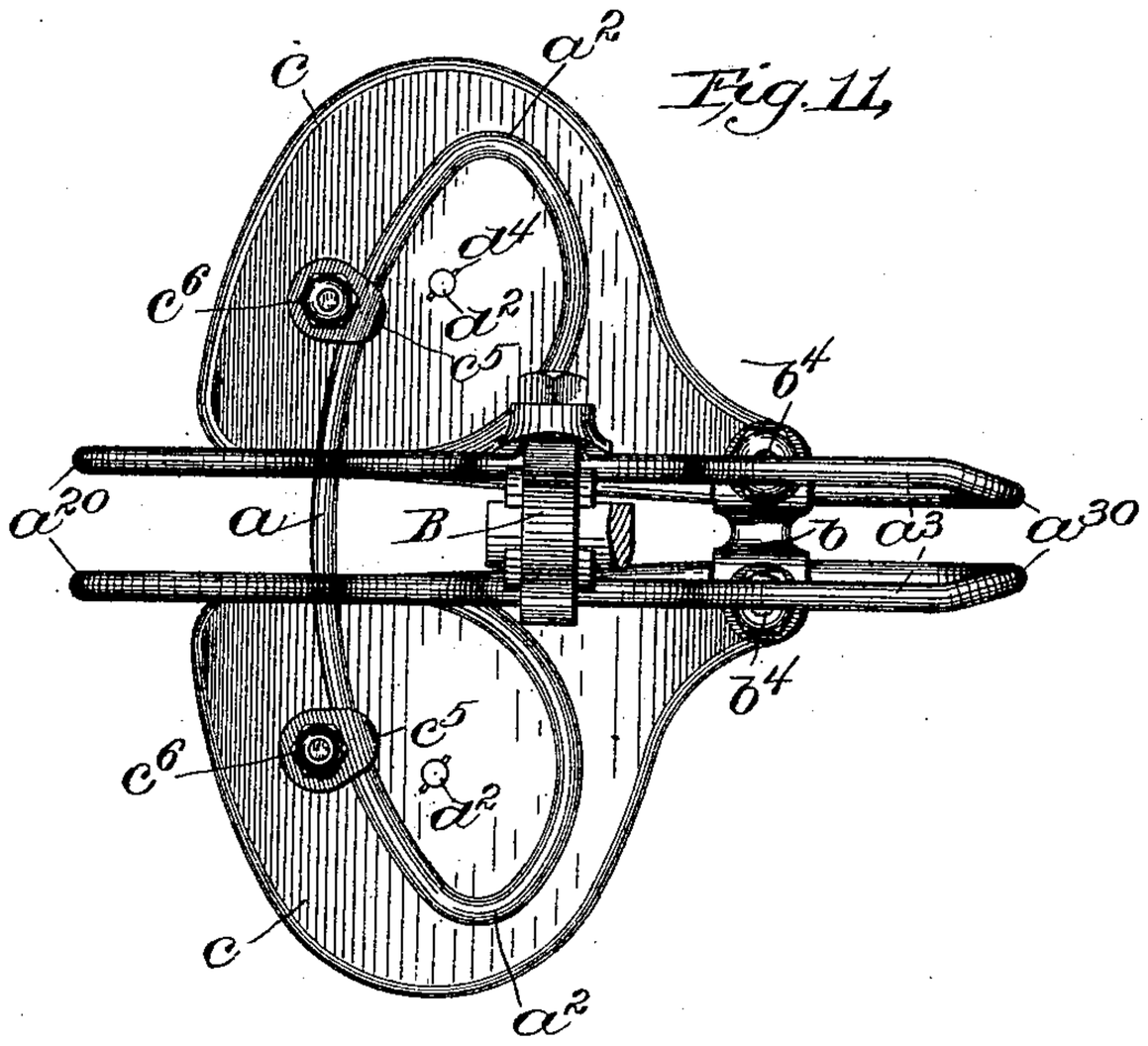
4 Sheets—Sheet 4.

W. H. CRAIG.

BICYCLE SADDLE.

No. 606,124. Patented June 21, 1898.

Fig. 11.



Witnesses.
Jas. J. Maloney
Nancy P. Ford.

Inventor,
Warren H. Craig.
by Jn. P. Livermore
Atty.

UNITED STATES PATENT OFFICE.

WARREN H. CRAIG, OF LAWRENCE, MASSACHUSETTS.

BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 606,124, dated June 21, 1898.

Application filed October 25, 1897. Serial No. 656,255. (No model.)

To all whom it may concern:

Be it known that I, WARREN H. CRAIG, of Lawrence, county of Essex, and State of Massachusetts, have invented an Improvement in Bicycle-Saddles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a bicycle-saddle and is embodied in a saddle of that type now commonly known as the "hygienic" saddle, in which the weight of the rider is supported wholly above the pommel or forward projection, which may be omitted, if desired, but is commonly used as a lateral guide-support for the rider and also as a means for obtaining a longer saddle-support, so as to obtain a sufficiently long and flexible spring.

The object of the present invention is to simplify the construction of a saddle of this class and to so construct the saddle that the seat or cushion portion is practically independent of the supporting portion to which it is secured, and which in turn is adapted to be secured to the seat-post of the bicycle. The supporting portion aforesaid is arranged to constitute a spring-support for the seat or cushion and is herein shown as having a transverse member extending crosswise and curved to form a substantially horizontal loop which constitutes the main seat-support, and a longitudinal member extending lengthwise of the saddle to afford a support for the front portion of the seat, and, if necessary, a forward extension or guide portion corresponding to what is commonly known in bicycle-saddles as the "pommel," the said forward extension being provided with a cushion, or not, as it may be desired. The said longitudinal member is also adapted to be secured to the seat-post. As herein shown, the supporting portion consists of a single integral piece of wire having at about the middle thereof a substantially straight portion adapted to extend transversely across the saddle and underlie the seat portion thereof, the wire being bent around and curved around until it crosses said straight portion and thereby forms the loop aforesaid at each end thereof, and then being curved downward and toward the front of the saddle, where the ends are secured in a clamping-piece, which may also, as will be described, constitute the fastening device for the seat portion at the front end thereof and the means for connecting together two separate seat portions or cushion-holders. The said seat portion preferably consists of two such cushion-holders, each containing a cushion and each being similar in shape to one side of the seat portion of an ordinary saddle, so that together they form a seat having a longitudinal middle space to afford ventilation. The said cushion-holders, which may be of sheet metal dished or upset along the edge to form pockets for the cushions, are shown as secured at their forward ends to the support by means of bolts, the heads of which may also be within the material which forms the bottom of the cushion, so that the cushions, cushion-holders, and support are all clamped together at this point by a single bolt. The main portions of said cushion-holders lie upon the transverse supporting-loops aforesaid, which are of sufficient size to afford adequate support for said cushion-holders, the said parts being curved or shaped to conform to each other, while the holders are clamped or otherwise secured thereto in any suitable or usual way.

Figure 1 is a side elevation of a saddle embodying the invention; Fig. 2, an underneath plan view of the same; Fig. 3, a vertical sectional detail showing one of the cushion-holders and its cushion, the section being taken on the line x^3 of Fig. 2; Fig. 4, a side elevation of a modification; Fig. 5, an underneath plan view of the same with the pommel-cushion removed; Fig. 6, a sectional detail showing a clamp for securing the cushion-holders to the transverse portion of the support; Fig. 7, a sectional elevation on line x^7 of Fig. 1, looking in the direction indicated by the arrow; Fig. 8, a top plan view showing also a construction adapted for use with a pneumatic cushion; Fig. 9, a top plan view of the cushion-chambers employed in the saddle shown in Fig. 8; Fig. 10, a section on line x^{10} of Fig. 8, and Fig. 11 an underneath plan view showing a further modification of the spring-support.

The support for the saddle is herein shown as consisting of a single integral piece of sufficiently heavy wire, having a transverse por-

tion a extending across the saddle substantially at a right angle to the longitudinal median line thereof, the wire then being curved at a^2 and the ends thereof being finally carried around to a position substantially parallel with the longitudinal median line of the saddle to afford the main longitudinal portion of the spring-support, (indicated by the reference-letter a^3.) As shown, each of the said curved portions lies in substantially the same plane as that of the transverse portion a and crosses the same, thus forming a horizontal supporting-loop conforming approximately to the shape of the seat portion supported thereon and of such size as to constitute a firm support therefor. The ends of the said wire are shown as secured together by means of a clamp b, the said clamp having two longitudinal openings for the said ends and being split, as indicated at b^2, so that the upper and lower walls of said bores can be drawn together upon the ends of the wire which forms the support by means of nuts b^3, secured to bolts b^4, to complete the supporting portion of the saddle. (See Fig. 7.) The seat portion of the saddle, which is adapted to be secured to and supported by said supporting portion, is shown as comprising the cushion-holders c, containing the cushions d, which may be of any suitable construction or material, the cushion-holders being secured at their forward ends to the support, as by means of the clamping-bolts b^4, and being supported at the rear of their forward points upon the transverse horizontal loops above described. To hold the said cushion-holders in place, any suitable fastening devices may be employed, the said holders being herein shown as provided with bolts c^2, extending downward through openings c^3 in the bottoms of said holders and each having a clamp member c^4, provided with a projection c^5, adapted to engage the wire a, and a nut c^6, which clamps the said transverse portion a of the wire between the bottom of the cushion-holder and the clamping-piece, as best shown in Fig. 6.

The specific shape and construction of the support a a^2 a^3 may obviously be varied without departing from the invention, the form shown in Figs. 1 and 2 being especially desirable where a very springy and easy saddle is desired. In this instance the curve a^2, after the horizontal loop is formed, is carried downward and rearward, as shown at a^{20}, and thence forward of the clamp b and curved, as shown at a^{30}, to the rear, the ends of the longitudinal members a^3 entering the openings in the said clamp b from the front thereof. In this way a flexible and easy spring is obtained, the effective length of the spring being very long, so that there is sufficient strength without excessive stiffness. Where a more rigid saddle is desired, moreover, and one which will stand closer to the seat-post or frame of the machine, the curve a^2 may be turned to the rear of the transverse portion a to form the loop, as shown in Figs. 4 and 5, the longitudinal portions a^3 extending forward directly from the general curve a^2, being bent downward, as shown in Fig. 4, only far enough to clear the straight transverse portion a and then being bent upward and entering the clamp b from the rear. The rods may, if desired, terminate within the said clamp, or they may, as shown, extend forward through the same to form a forward pommel or guide projection, the said pommel being shown in Fig. 4 as provided with a cushion a^4, adapted to be secured to the projecting ends of longitudinal members a^3. In Fig. 11 the transverse portion a is shown as curved, so that the width of the seat may be adjusted by loosening the nuts c^6 and swinging the said seat portions on the bolts by which they are connected at their forward ends as pivots.

In any form it will be seen that the seat proper is mainly supported on two substantially horizontal spring-loops integral with the longitudinal member of the support, thus affording a substantially universal spring adapted to yield in any direction with a movement of the rider's body, but at the same time forming a broad support for each cushion, so that the same cannot materially tip sidewise.

As shown in Fig. 3, the heads of the bolts b^4 are preferably within the cushion d, so as to overlie the material which constitutes the lower surface of the cushion-pad, so that the cushion, cushion-holder, and support are all fastened together at this point by means of the said bolt.

To secure the pad of the cushion to the cushion-holder, the said pad is provided with a pin or fastening device d^2, having a head d^3, adapted to rest upon the surface of the cushion, while the said pin d^2 extends downward through the same and through an opening in the bottom of the cushion-holder c, where it is held by a fastening device d^4, which extends through a transverse opening in the said pin, so as to engage the bottom of the cushion-holder. By this device the cushion is firmly held in position in the holder, while an indentation is made at about the middle of the cushion, so that the surface of the saddle conforms better to the person. The cushion and holder are then substantially one part, the fastening devices having been previously inserted, and said "seat portion," as it may be called, is ready to be secured to the support.

It will be seen that the fastening device b^4 constitutes a retaining projection or shoulder which prevents the upward movement of the pin d^2, but does not prevent the downward movement thereof, so that while the cushion is securely held in the cushion-holder it is free to yield under the rider's weight without any liability of the head of the pin coming in contact with the rider's person.

As shown in Fig. 3, the cushion may be provided with a plate d^5, of any suitable material, to strengthen the same and afford a rest for the head of the bolt b^4, such plate, however, forming no essential part of the

structure, since the cushion-holder itself may obviously form the bottom of the pocket for the cushioning material, the upper or flexible portion being firmly secured thereto by the fastening device d^2.

While the cushioning material used for the seat portion of the saddle may be varied without departing from the invention, it is practicable and in some cases desirable to use a pneumatic cushion, and a pneumatic cushion especially adapted for this purpose is herein shown, the construction illustrated forming a feature of the invention.

Referring to Fig. 8, the flexible covering portions for the seat are shown as connected together by a tube d^6, and the pneumatic cushion used in this instance consists of two separate chambers e and e^2, each shaped to conform to one side of the saddle and connected together by a tube e^3 to afford a restricted air-passage from one chamber to the other. The said cushions are adapted, as best shown in Fig. 10, to be inserted between the cushion-holder c and the flexible cover, there being preferably inserted a layer c^{20} of felt or other suitable material between the bottom of the chamber and the surface of the cushion-holder c.

In order that the cushions may be properly secured to the holders, each chamber has an open tubular passage extending substantially through the middle of the same and the pin d^2 is passed through the flexible cover substantially as herein described and through the said passage from one side of the air-chamber to the other and then through the cushion-holder c, where it is secured substantially as shown and described in connection with the cushion shown in Fig. 3. By this construction the whole seat portion can be inflated at once and the pressure equalized in both chambers, while means are afforded for properly securing the cushions to the holders and for properly shaping the upper surface of the seat.

The saddle as a whole is adapted to be secured to the seat-post A of the bicycle by any suitable or usual clip B, the clip herein shown being substantially like that shown and described by me in a prior application filed July 24, 1897, Serial No. 645,793.

It is not intended to limit the invention to the specific construction herein shown and described, since modifications may be made without departing from the invention.

I claim—

1. In a bicycle-saddle, the combination with the seat portion, of a support for said seat portion comprising an integral spring extending transversely across the saddle at the rear and having the ends of the transverse portion curved in a substantially horizontal plane toward the middle of the saddle and crossing said transverse portion to afford supporting-loops and then forward, the seat portion being mainly supported on said transverse portion and secured at its forward end to the ends of said spring, substantially as described.

2. In a bicycle-saddle, the combination with the cushioned seat portion, of a support for said seat portion comprising an integral spring extending transversely across the saddle at the rear and having the ends of the transverse portion curved in a horizontal plane toward the middle of the saddle and crossing said transverse portion to afford horizontal supporting-loops and thence downward and forward substantially parallel with the longitudinal median line of the saddle and upward, the ends of said spring being secured to the said seat portion at the front end thereof, the said seat portion being mainly supported upon the supporting-loops aforesaid, substantially as described.

3. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each having a cushion, a spring-support having two horizontal supporting-loops substantially conforming in shape to the said cushion-holders, and of sufficient size to afford an adequate support therefor, the ends of the spring extending, after said loops are formed, substantially parallel with the longitudinal median line of the saddle; and a clamping-piece to receive and connect the said ends, the said clamping-piece being also adapted to receive and secure the forward ends of said cushion-holders and connect them together and to the said support, substantially as described.

4. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each provided with a cushion, of a fastening device at the forward end of each cushion-holder, a single clamp coöperating with said fastening devices to thereby connect the said cushion-holders together, an integral spring-support for said cushion-holders having a transverse portion at the end of the saddle and being curved around and across said transverse portion to afford a horizontal supporting-loop for each cushion-holder, the ends of said spring-support extending longitudinally toward the front of the saddle after the loops are formed, and means for securing the said ends to the said clamp, substantially as described.

5. In a bicycle-saddle, the combination with the seat portion comprising two separate cushioned portions, of a spring having horizontal supporting-loops of sufficient size to afford an adequate support for said cushioned portions, said spring extending transversely across the saddle and curved to form said loops, the ends of said spring extending, after said loops are formed, in a direction substantially parallel with the longitudinal median line of the saddle, a clamping-piece to receive and connect the said ends and to receive and secure the forward ends of said cushioned portions and connect them to said support, and clamping devices for securing the said portions to the

transverse portion of the spring, the said clamping devices comprising bolts extending through the cushioned seat portions at the bottom thereof, clamping members having engaging projections to engage the transverse portion of the support, and nuts coöperating with said bolts and clamping members to secure the said transverse portion between the under side of the cushioned seat portions and the said clamping members, substantially as described.

6. In a bicycle-saddle, the combination with a seat portion comprising two separate cushion-holders each provided with a cushion, of a fastening device at the forward end of each cushion-holder, a single clamp coöperating with said fastening devices, said fastening devices and said clamp being arranged to afford a pivotal connection for said cushion-holders, an integral spring-support for said cushion-holders having a transverse portion curved coaxially with the aforesaid pivotal connections, means for securing the ends of said spring-support to the clamp aforesaid, and clamping devices for adjustably securing the said cushion-holders to the curved transverse portion of the spring-support, substantially as described.

7. In a bicycle-saddle, the combination with a support, of a pair of cushion-holders mounted on said support one at each side of the longitudinal median line of the saddle, a cushion-casing on each cushion-holder, a pneumatic cushion-chamber in each casing having an open passage extending from the upper to the lower surface thereof, and a fastening device to connect each cushion-casing to its cushion-holder consisting of a pin extending through said casing, said open passage, and said cushion-holder; and retaining projections at each end of said pin to engage respectively with the outer surface of the cushion-casing and the outer surface of the cushion-holder, substantially as described.

8. In a bicycle-saddle, the combination with a suitable support, of a pair of cushion-holders mounted on said support, each cushion-holder being dished or upset along its edges to receive a cushion-casing containing cushioning material, and a fastening device for securing said cushion-casing to said cushion-holder, consisting of a piu extending through said casing and having a head at the outer surface thereof, an opening for said pin through the cushion-holder, and a retaining projection or shoulder at the outside of said cushion-holder for said pin, the pins thus being adapted to form indentations one in the upper surface of each cushion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WARREN H. CRAIG.

Witnesses:
H. J. LIVERMORE,
N. P. FORD.