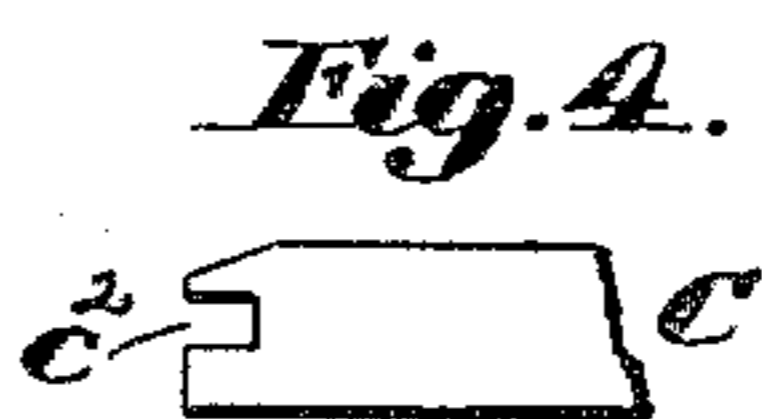
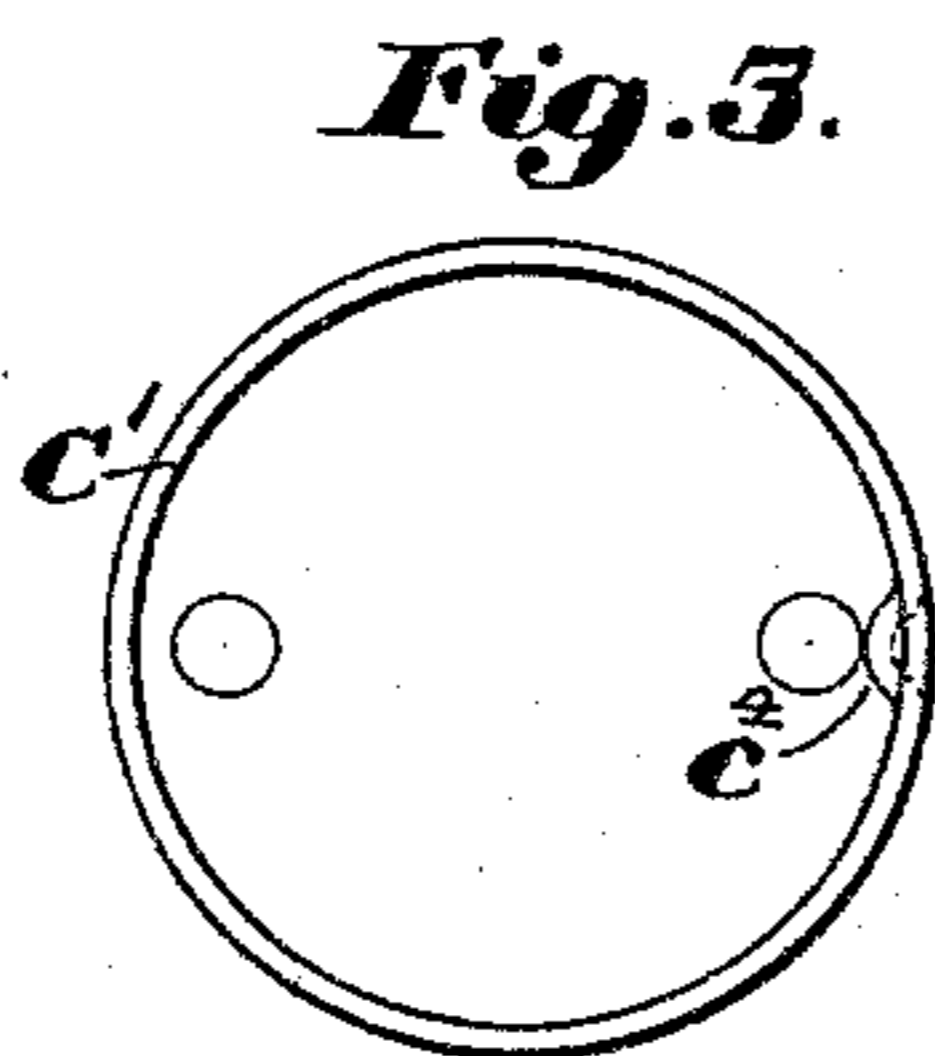
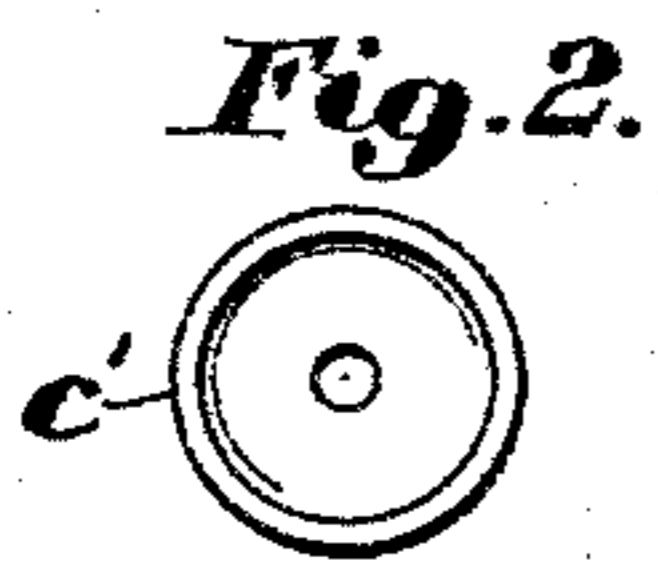
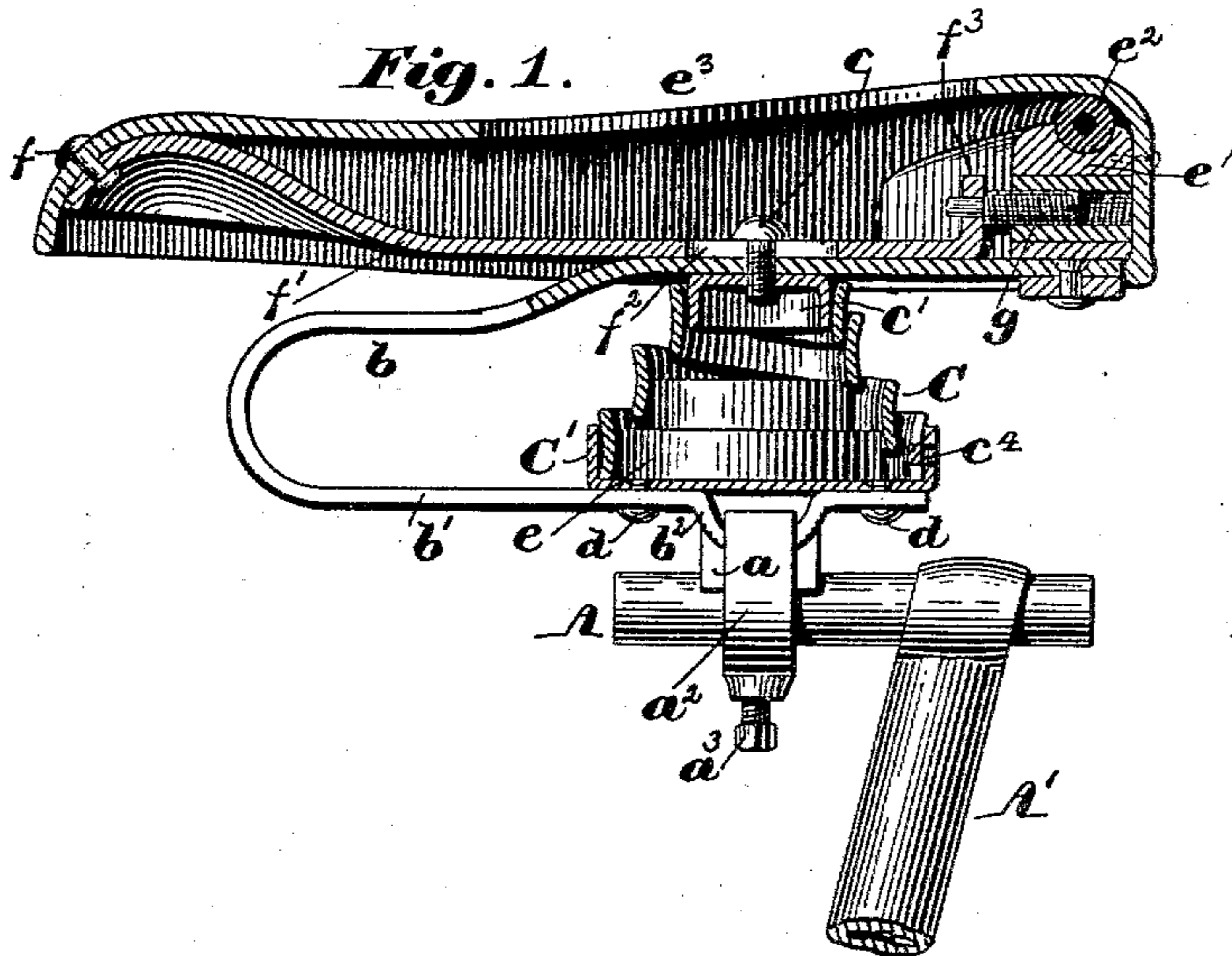


(No Model.)

A. E. HARDY.  
SEAT FOR BICYCLES.

No. 597,674.

Patented Jan. 18, 1898.



**Witnesses:**  
Walter E. Lombard.  
Thomas Drummond;

**Inventor:**  
Alvah E. Hardy,  
by Crosby & Gregory  
Attys.

# UNITED STATES PATENT OFFICE.

ALVAH E. HARDY, OF EVERETT, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
TO ROBERT B. LINCOLN, OF WALTHAM, MASSACHUSETTS.

## SEAT FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 597,674, dated January 18, 1898.

Application filed April 30, 1897. Serial No. 634,509. (No model.)

*To all whom it may concern:*

Be it known that I, ALVAH E. HARDY, of Everett, county of Middlesex, State of Massachusetts, have invented an Improvement in  
5 Seats for Bicycles, &c., of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the pro-  
10 duction of a novel seat for bicycles and the like, I having aimed to provide a seat which will readily adapt itself to the weight of the rider and carry him safely.

My improved seat is mounted on a two-  
15 armed yielding seat-spring, the ends of the said arms being separated by a convolute spring, the latter resting on a support at one end of one arm of the spring, the said spring being so constructed and applied to the seat-  
20 pin as to enable the spring-arm and the support to be adjusted in the arc of a circle to insure the proper tip or angle for the seat. The upper arm of the spring has an attached guide which coacts with the upper end of the  
25 convolute spring, thus preventing any side-wise displacement of the spring-arm.

The flexible face of the seat is connected at its wider rear end with a cantle-piece, and its pommel or front end is connected with a  
30 convexed surface of a short spring, which rests upon and is made longitudinally adjustable over the seat-spring. To adjust this short spring back and forth on the seat-spring, I have shown a set-screw.

35 The flexible seat may be stretched more or less, as desired, by an adjusting-screw movable on the cantle and acting against a turned end of the short spring. The cantle-bar is cushioned at its upper end.

40 Figure 1 is a partial sectional elevation of my invention. Fig. 2 shows the guide which coöperates with the small end of the convolute spring. Fig. 3 shows the support for the convolute spring detached and in top view,  
45 and Fig. 4 is a detail showing one end of the convolute spring.

The seat-sustaining pin A, it occupying a substantially horizontal position in the seat-  
50 post A' of the bicycle-framework, is and may be as common. The pin A has on it a

block *a*, concaved at its under side to fit the pin and concaved at its upper side at right angles to the concavity at its under side to receive the curved part *b*<sup>2</sup> of the lower arm *b*' of the two-armed seat-spring *b b*', the said  
55 curved part *b*<sup>2</sup> and the concavity entered by it being preferably corrugated finely, as shown in Fig. 1, to prevent said curved part from turning or sliding in the block *a*, the curved part *b*<sup>2</sup> being kept on the block *a* by a metal-  
60 lic loop *a*<sup>2</sup> and screw *a*<sup>3</sup>. When the screw is slack, the block *a* may be slid on the pin or the part *b*<sup>2</sup> may be tipped on the block *a*.

The seat-spring is made as a C-shaped  
65 spring-arm *b b*'. The arm *b* has connected to it by a suitable set-screw a box or hub *c*', it entering the open top or recess at the upper end of a strong convolute spring C, preferably made of a ribbon of steel, the lower  
70 end of said spring, notched, as at *c*<sup>2</sup>, entering a box-like or flanged support C', attached in suitable manner to the arm *b*', as by suitable screws, as at *d*.

The slotted end of the spring C inside the box-like support engages a projection *c*<sup>4</sup>,  
75 shown as inturned from the vertical wall of the box-like support, the projection preventing the spring from jumping or rising vertically from the said support. Inside the spring I have mounted and may use, if desired, an  
80 india-rubber block *e*, the top of which may be struck by one round of the spring after the latter has been partially compressed. A spring of this sort is capable of sustaining  
85 easily a great weight, and it will yield gradually to any weight applied to it.

The flexible portion or top *e*<sup>3</sup> of the seat has its wider rear portion suitably connected with a cantle *e*', the said top resting on an india-  
90 rubber or other flexible body, as *e*<sup>2</sup>, laid on the cantle. The narrower front or pommel end of the top *e* is suitably riveted at *f* to the convex top of a spring *f*', having a slot *f*<sup>2</sup> and resting on the upper arm *b* of the seat-spring, the screw *c* confining it in position.  
95 The rear end of the spring *f*' is turned, as at *f*<sup>3</sup>, and is entered by the stud-like end of an adjusting-screw *g*, screwed into a threaded block located in the cantle, and as the said screw is turned in its shoulder by acting on  
100

the end of the spring effects the stretching of the top, so that it may be made stiffer or slacker.

The spring-arm *b b'* may be of such strength as to carry more or less of the weight of the rider, and the spring C coöperates to sustain any extra desired weight, and for a very heavy rider the spring C may be removed and a stiffer one be substituted.

10 This invention is not necessarily limited to securing the convolute spring in or on its support by the notched end and the leg, and instead I may use any equivalent device.

The free end of the spring *f'* is concavo-convex in cross-section, the convexed portion receiving the top and giving to it the shape required for the pommel. This shape of the front end of the spring enables it to be made light in weight.

20 Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The two-armed seat-spring made C shape, a convolute spring located between the arms of said seat-spring, a support connected with one of said arms to sustain one end of said convolute spring, a hub carried by the other of said arms to engage the opposite end of said convolute spring, the free end of said arm being extended beyond the said convolute spring, and a cantle attached to the said extended arm, a flexible top attached to said cantle, combined with a slotted spring mounted on the uppermost arm of said C-

shaped spring, said slotted spring being connected at its outer end with the pommel part of said flexible top, and being connected also adjustably with the said C-shaped spring by a screw *c*, substantially as described. 35

2. The two-armed seat-spring made C shape, a convolute spring located between the arms of said seat-spring, a support connected with one of said arms to sustain one end of said convolute spring, a hub carried by the other of said arms to engage the opposite end of said convolute spring, the free end of said arm being extended beyond the said convolute spring, and a cantle attached to the said extended arm, a flexible top attached to said cantle, combined with a spring mounted on the uppermost arm of said seat-spring and connected at its outer end with the pommel part of said flexible top, substantially as described. 40 45 50

3. In a bicycle-seat, a seat, a box-like support, and a convolute spring between them, said spring being notched to fit over a projection in said support, whereby the spring is quickly removable from its support, substantially as described. 55 60

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

ALVAH E. HARDY.

Witnesses:

GEO. W. GREGORY,  
THOMAS J. DRUMMOND.