

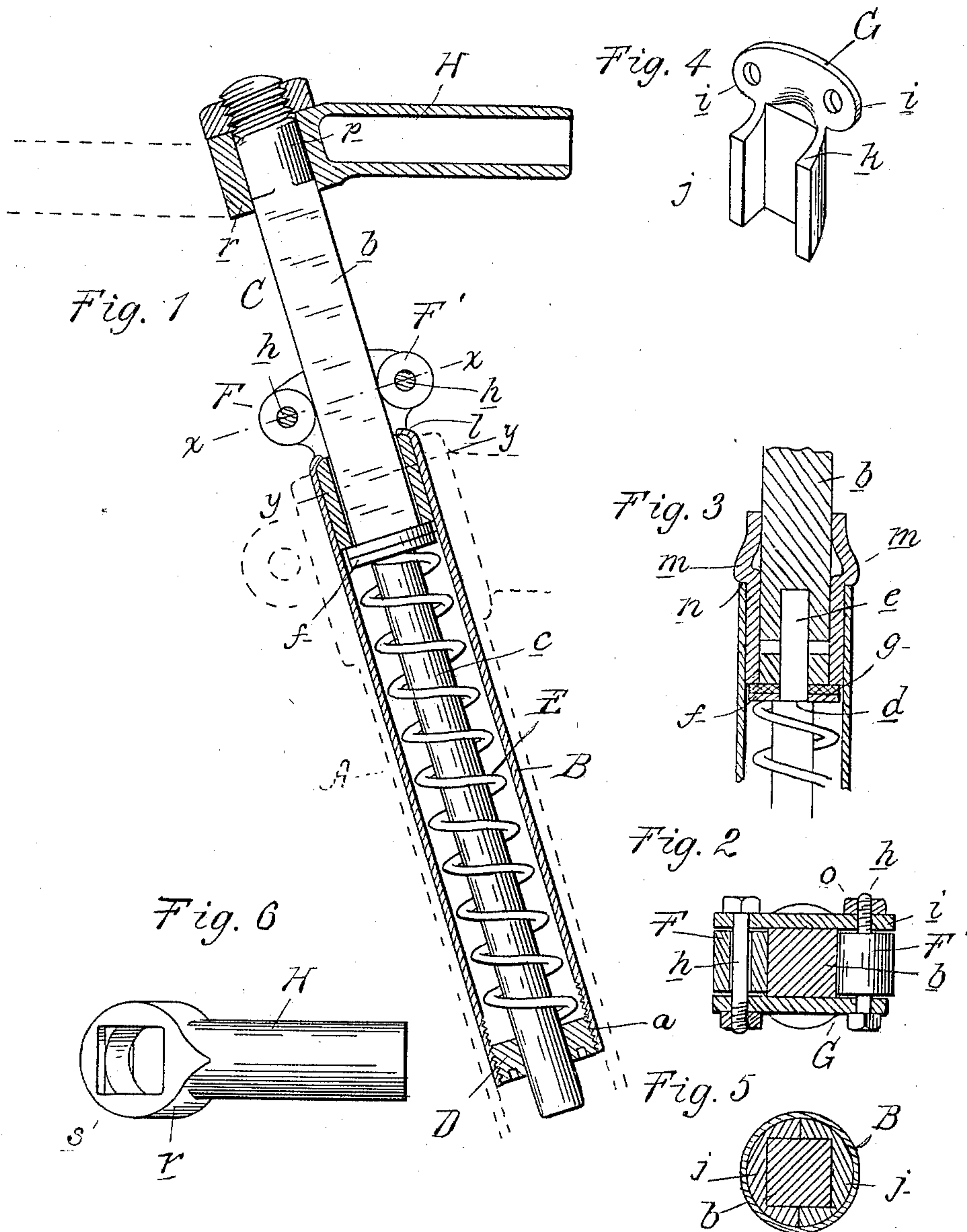
No. 626,396.

Patented June 6, 1899.

J. N. SMITH.
SPRING SEAT POST.

(Application filed June 23, 1897.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH N. SMITH, OF DETROIT, MICHIGAN.

SPRING SEAT-POST.

SPECIFICATION forming part of Letters Patent No. 626,396, dated June 6, 1899.

Application filed June 23, 1897. Serial No. 641,970. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH N. SMITH, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have made a new and useful Invention in Supports or Posts for Bicycle-Seats, of which the following is a specification.

My invention relates particularly to improvements in yielding supports or posts for bicycle seats or saddles; and its objects are, first, to minimize as far as possible the amount of friction which ordinarily occurs in the use of this type of seat or saddle supports; second, to provide a seat support or post of the type named which shall be so constructed as to avoid lateral swinging or side movements of the saddle or seat when in use and also in which an adjustment may be effected in such manner as to compensate for any lateral wear due to the movements of the parts; third, to devise a seat support or post of the type named in which the parts may be readily put together and taken apart, and, fourth, to provide a detachable arm for a seat support or post, which may be reversed or applied thereto either in the front or rear to suit the convenience of the rider.

These several objects are accomplished by my improvement, which will be fully understood by referring to the accompanying drawings and to the following specification, the especial points of novelty being particularly pointed out in the claims at the end of this specification.

Figure 1 represents a vertical sectional view of a spring-supported seat-post provided with my improvements and illustrates also in dotted lines the usual manner of attaching it to the seat-supporting tube of a bicycle-frame. Fig. 2 is a transverse sectional view taken through Fig. 1 on the line $x x$, one of the cylindrical friction-rollers being shown in plan view. Fig. 3 is a vertical sectional view taken through a part of the body of the support on a plane at right angles from the sectional view illustrated in Fig. 1. Fig. 4 is a perspective view of one of the cheek-plates and integral semirectangular guideways for the rectangular portion of the post. Fig. 5 is a transverse sectional view taken on the line $y y$, Fig. 1. Fig. 6 is a

plan view of the detachable arm or support for the seat or saddle.

In a prior application filed by me in the United States Patent Office on the 16th day of October, 1896, and bearing Serial No. 609,060, I have described and claimed a seat post or support in which the upper portion of the support is of rectangular form and adapted to move through a rectangular collar or guideway, the lower portion of said post being of cylindrical form and adapted to move through a cylindrical collar or guideway, a spiral spring being provided for yieldingly maintaining the weight of the rider, in combination with a cylindrical roller sustained above the guideway and adapted to bear against the rear face of the rectangular part, all of said parts being held together by a surrounding or inclosing tube. In that application I have fully disclaimed the prior state of the art, and the present invention is directed to improvements upon the invention disclosed in the aforesaid application.

I will now describe my present improvement, reference being had to the drawings in detail, in all of which like letters of reference represent like parts wherever used.

A represents in dotted lines the saddle or seat post sustaining tube and the adjacent parts of a bicycle-frame, and B a short metallic tube or case adapted to telescope therein and be supported thereby, as bicycle-posts are usually supported, through a clamping-bolt at the rear of the frame.

C represents the seat-post, constructed in this instance of two parts, the upper part b being of rectangular cross-section and preferably of hardened steel and the lower part c of cylindrical form, its upper end being secured in an opening in the part b , said parts being held together by screw-threads or a locking-pin or in any preferred manner.

g is a leather washer, and f a metal washer, said washers being held in position between the two parts of the seat-post by a shoulder d near the upper end of the part c .

D is a ring or collar provided with an axial opening of sufficient diameter to act as a guideway for the lower cylindrical part c of the post, said ring or collar being provided with exterior screw-threads adapted to enter

corresponding screw-threads at the lower end of the tube or casing B.

E is a spiral spring surrounding the part *c*, its opposite ends resting, respectively, against the metal washer *f* and the guideway or collar D.

G G are two cheek-plates provided with ears *i i i i* and downwardly-extending integral semirectangular guideways *j j*, said plates being also provided with laterally-extending shoulders *m m*, as clearly shown in Fig. 3 of the drawings, the arrangement of these parts being such that when they are placed in position in the upper end of the tube or casing B they will constitute together a rectangular guideway for the rectangular portion *n* of the seat-post C.

F F' are cylindrical rollers, preferably of hardened steel, journaled between the cheek-plates G G upon bolts *h h*, having heads at one end and screw-threaded at the other, so as to enter corresponding threads in screw-holes in the cheek-plates, said bolts being provided also with detachable set-nuts *o o*. It will be seen on inspection of Fig. 2 of the drawings that these cylindrical rollers F F' are of less length than any one of the sides of the rectangular part *b* in order to prevent any binding action of the cheek-plates upon the ends of the rollers as they are adjusted from time to time.

H represents a detachable arm or support for the saddle, said arm being bent, as clearly illustrated in Fig. 1, so as to lie substantially in a horizontal plane and sustain the seat of the rider on a level with the top tube of the bicycle-frame, as shown in dotted lines. The supporting portion *r* of this arm is provided with a cylindrical opening adapted to fit the corresponding cylindrical portion *p* at the top of the rectangular portion of the seat-post and is also provided on opposite sides with corresponding rectangular openings or shoulders *s s*, adapted to fit the rectangular portion thereof, as clearly shown in Fig. 1, the arrangement being such that the arm may be applied to the upper end of the seat-post at any one of the four sides and also so that it may be reversed in its angular position, so as to adapt it for use in the rear thereof, different riders often requiring different relative positions, as is well understood by those skilled in the art.

t is a nut designed to secure the arm firmly in position after it has been properly located. This feature of adapting the arm H to be applied to any one of the four sides of the rectangular portion of the seat-post is important for that it enables one to change the relative positions of said seat-post, the cheek-plates, and friction-rollers as may be desired from time to time should any undue wear come upon said parts.

In constructing my novel seat-post I first place the two semirectangular guideways *j j* in position within the upper end of the tube B in the manner shown in Fig. 3, so that the

shoulders *m m* rest upon the top of the tube B at the points *n*. I then turn inward with a hammer or otherwise the front and rear edges *l* of the tube over the corresponding front and rear edges *k* of the rectangular portion *j* of the guideway. (See Fig. 1.) I then secure the friction-rollers F F' in position by inserting the bolts *h h* therethrough. The two parts *b c* of the seat-post are now secured together, with the leather and metal washers *g* and *f* in position, and the rectangular portion of the seat-post is inserted from below through the rectangular guideway already described. The spiral spring E is now put in place and the lower guideway or collar D passed over the lower end of the cylindrical part *c* and secured in the lower end of the tube B at such position as will give the desired support according to the weight of the rider using it. The arm H is now put in place and secured by the nut *t*. The bolts *h h* are turned until the desired pressure is obtained between the cheek-plates and the lateral faces of the rectangular part *b*, after which the set-nuts *o o* are firmly secured. By providing two cylindrical friction-rollers F F' for the front and rear sides of the rectangular portion *b* I am enabled to minimize the friction and also provide a means whereby the entire post may be reversed, so that the friction-roller F' may take the place of F should the latter become unduly worn by reason of the weight that this part is called upon to carry, and by providing adjustable cheek-plates G G' I am enabled to compensate for any wear due to lateral movements of the saddle—a feature which is found to be very prevalent with all bicycle-saddles by reason of the alternate movements of the legs of the rider. After the proper adjustments have been made to adapt the post to the weight of the particular rider who desires to use it the several parts are properly oiled and the post is secured in the manner indicated in Fig. 1 of the drawings.

I am aware that spring-supported seat-posts have heretofore been provided with means for preventing the movement of the saddle from side to side under the swinging motion of the rider, such a device being shown and described in United States Patent to Holland, No. 567,314, granted September 8, 1896; but I am not aware that any one has heretofore applied means directly to the seat-post itself for compensating for the wear thereof and in such manner as to absolutely prevent lateral movement, and my claims in this particular are to be construed as of the most generic nature.

I am also aware that it is not new with me to provide a bicycle seat-post with a detachable arm, and I make no claim hereinafter broad enough to include such a structure, my most generic claim in this particularly being directed to a detachable arm provided with means for preventing it from twisting or turning under the weight and movement of the rider, the specific means herein shown

for this purpose being the rectangular openings or shoulders *s*, adapted to fit the corresponding rectangular portion of the seat-post.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is--

1. A rectangular-shaped seat-post provided with two guideways and yielding means of support, in combination with cylindrical friction-rollers journaled upon bolts, said bolts having nuts and heads adapted to bear against the outer faces of the guideways, so as to compensate for wear between the seat-post and the guideways, substantially as described.

2. A seat-post composed of a tubular casing, two guideways secured thereto, a post one part of which is of rectangular cross-section, a spring adapted to sustain said post within the casing, two cheek-plates integral with the guideways and provided with means for clamping them upon opposite faces of the rectangular portion, and two friction-rollers sustained between said cheek-plates and adapted to bear upon the remaining faces of the rectangular portion, substantially as described.

3. A seat-post composed of a tubular casing, a rectangular spring-supported post and

two guideways therefor secured within the casing, one of said guideways being composed of two semirectangular parts having integral cheek-plates, in combination with cylindrical friction-rollers secured between said cheek-plates, substantially as described.

4. A seat-post of rectangular cross-section having its upper end of cylindrical cross-section, in combination with a detachable arm having a cylindrical opening and rectangular shoulders or openings adapted to fit the rectangular portion of the post, together with means for securing it thereto, substantially as described.

5. A rectangular-shaped seat-post provided with a cylindrical portion *p* at its upper end, in combination with a detachable arm *H* having a corresponding cylindrical opening and rectangular-shaped openings or shoulders *s s* adapted to fit the rectangular-shaped portion of the seat-post proper, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH N. SMITH.

Witnesses:

M. B. O'DOHERTY,
OTTO F. BARTHEL.