

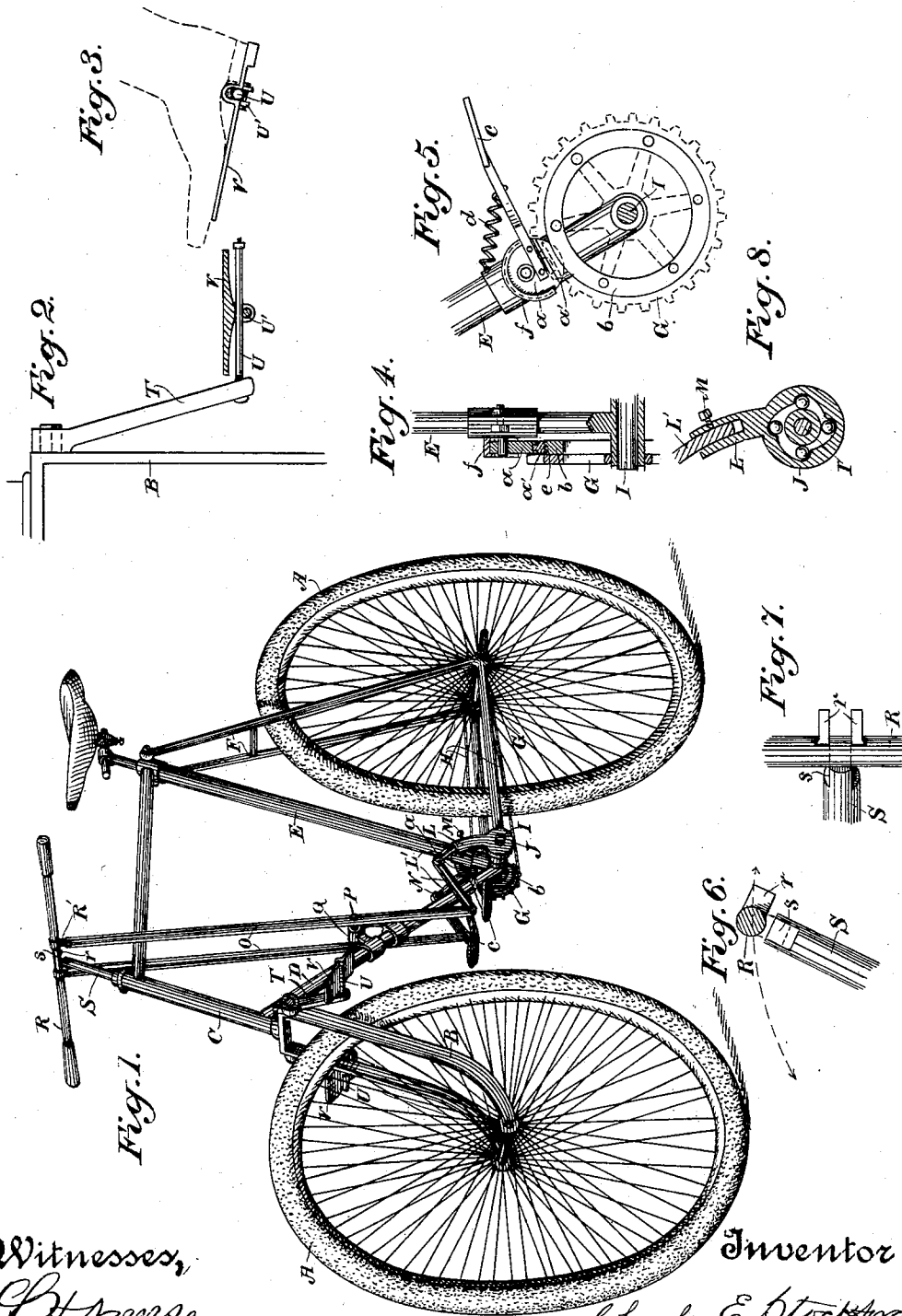
No. 608,350.

Patented Aug. 2, 1898.

C. E. STOCKFORD.
BICYCLE.

(Application filed May 21, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES E. STOCKFORD, OF SULPHUR CREEK, CALIFORNIA.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 608,350, dated August 2, 1898.

Application filed May 21, 1897. Serial No. 637,531. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. STOCKFORD, a citizen of the United States, residing at Sulphur Creek, county of Colusa, State of California, have invented an Improvement in Bicycle Attachments; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in bicycles.

It consists in details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of a bicycle, showing the attachment. Figs. 2 and 3 are views of the supplemental steering device. Figs. 4 and 5 illustrate the brake mechanism. Figs. 6 and 7 are views showing the means of connecting the handle-bars with the steering-post or disconnecting them therefrom. Fig. 8 is a form of clutch mechanism adapted for the propulsion of the machine.

A A are the wheels of a bicycle, and B the front forks, turnable in the usual manner in the steering-head C.

D is the lower diagonal bar of the frame, extending from the steering-head to the sprocket-shaft.

E is the saddle-post, and F F' are the horizontal and inclined rear forks of the frame, between which the rear wheel is journaled to travel.

The front and rear sprocket-wheels G and G' have a chain H passing around them, by which power is communicated from the front-sprocket-wheel shaft. Upon the ends of this shaft are suitable collars I, and J are clutch boxes or casings which fit over the said collars, having inclined grooves or channels made interiorly, with balls or rollers which will move within the inclined grooves, so that when the casings J are turned in one direction these clutches will engage and turn the shaft and when turned in the opposite direction they will allow the shaft to move freely without them.

I do not especially claim any particular form of clutch, but may employ any well-known or suitable form, the one here shown simply illustrating one form which can be employed.

From the clutch-casings J curved lever-

arms L extend, and these are made hollow or have sockets into which the extension-arms L' are adapted to enter. These extension-arms are adjustable within sockets of the arms L and are fixed at any desired point by set-screws M, so that the lever-arms can be lengthened or shortened to increase or decrease the power.

The lever-arms L' are connected by links N with vertically-disposed vibrating levers O. These levers are fulcrumed, as shown at P, to a clamp Q, which is fixed upon the lower diagonal frame-bar D, this clamp having a suitable fulcrum arrangement about which the levers O are movable. Across the upper ends of the levers O extends a handle-bar R. This handle-bar, when detached from the upper end of the steering-post S, may be oscillated backward and forward, as previously shown by the dotted line in Fig. 6, and this oscillation about the fulcrum P acts through the links N to move the levers L L', and thus communicate a semirotary oscillation to the clutch-cases J, which, acting through the clutches in one direction, serve to turn the sprocket-wheel shaft, and thus communicate motion to the rear wheel of the machine.

The lengthening and shortening of the lever L L' allow of an adjustment to suit the stroke desired by different people and to give more power for heavy work.

For the purpose of steering the machine I have shown short levers T fixed to the forked sides B, as shown in Figs. 1 and 2, and having pedal-pins U projecting outwardly from the lower end. Upon these pedal-pins are mounted the foot-pieces V. These foot-pieces are fulcrumed so as to turn upon the pedal-piece U, and they are also so mounted by transverse pins, as shown at U', that they can have a little rocking motion from side to side to adjust themselves to various movements of the rider's feet. By varying pressure upon these pedals the front fork and wheel may be turned to steer the machine. The levers T are secured to the forked sides B by hexagonal or other polygonally-shaped pins, to which they are secured by nuts, the polygonal shape allowing the levers to be put on in different positions, so as to lengthen or shorten the distance between the saddle and the steering-pedals V by either turning the arms T for-

ward or backward upon the pins and then securing them. By these means the operator propels the machine by the oscillations of the handle-bar R and steers it by the movement of the foot-pedals V. These pedals are made of sufficient length to fully support the feet of the operator and make a comfortable position in sitting upon the saddle.

In some cases, as when descending hills or where a machine is running without power being applied, it may be found convenient to temporarily use the handle-bar for such slight steering as may be needed. For this purpose the handle-bar R is provided with projecting rectangular lugs *r*, as shown in Figs. 6 and 7. These lugs may be made to clasp the flattened sides *s* at the top of the steering-post S by simply turning the handle-bar until the lugs *r* engage the top of the steering-post, when the two will be locked together. The elasticity of the lever-arms O, by reason of the distance from the fulcrum-point P to the handle-bar, will be sufficient for such slight movements as will be necessary to keep the machine on a straight course under such conditions, and in addition to this the handle-bar is fixed to rods or extensions R', which slide into the tubular levers O and may have a slight amount of play to increase the movement of the handle-bar, if necessary, the small movement thus obtained being sufficient to keep the machine on its course when running in a comparatively straight line, as above described.

In order to control the movement of the machine and apply a brake when necessary, I have shown an eccentrically-mounted disk *a* pivoted upon the seat-post and having a movable shoe *a'*, which can be renewed when worn out and which forms contact when the brake is applied with a smooth rim or disk *b*, which is fixed to one side of the sprocket-wheel G.

c is a forked lever secured to the disks *a* and projecting forwardly on each side of the frame-bar, as shown plainly in Figs. 1 and 5, so that the operator can place his foot upon the lever and by depressing it turn the eccentric-disk until sufficient friction is produced between it and the rim *b* to check or arrest the motion of the machine. When the foot is removed, the lever is immediately lifted and the eccentric disengaged from the disk by the action of a spring *d*. (Shown in Fig. 5.)

In order to insure a strong frictional pressure between the eccentric and the disk, I have shown the disk and the shoe of the ec-

centric formed with V-shaped grooves, (plainly shown at *e*, Fig. 4,) and these grooves engage when the eccentric is brought into contact with the disk.

To resist the upward pressure upon the eccentric when the brake is applied, I have shown a segmental cap *f*, fixed to the seat-post E and partially encircling the eccentric-shoe *a*, so that it serves to resist upward pressure.

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

1. In a bicycle, an adjustable propelling mechanism consisting of a clutch mechanism fixed to the sprocket-wheel shaft, arms extending from the clutch-casings and provided with sockets, other arms entering the sockets of the first-named arms and means for adjustably securing them therein, substantially parallel levers fulcrumed to the frame and having their upper ends connected with a handle-bar, links connecting the lower portions of said levers with the outer ends of the adjustable arms and means whereby the handle-bar may be detachably connected with the steering-post and thereby be used for steering the machine.

2. A bicycle attachment consisting of a hand propelling mechanism and a foot steering mechanism consisting of many-sided pins projecting from the front fork, levers adjustably fitted to said pins, pedal-pins projecting from the lower ends of the levers and foot-pieces turnable on said pedal-pins and having a rocking motion from side to side.

3. A bicycle attachment consisting of friction-clutches adapted to engage and rotate the sprocket-wheel shaft, said clutches having adjustable levers fixed to them, links connecting the levers with the lower ends of vertically-disposed parallel levers fulcrumed to the lower frame-bar and extending above upon each side of the steering-post, a handle-bar turnably connected with the upper ends of said levers having lugs projecting from the central portion and a steering-post having the upper end flattened and adapted to fit between the handle-bar lugs when the latter is turned to so engage them.

In witness whereof I have hereunto set my hand.

CHARLES E. STOCKFORD.

Witnesses:

S. H. NOURSE,
GEO. H. STRONG.