

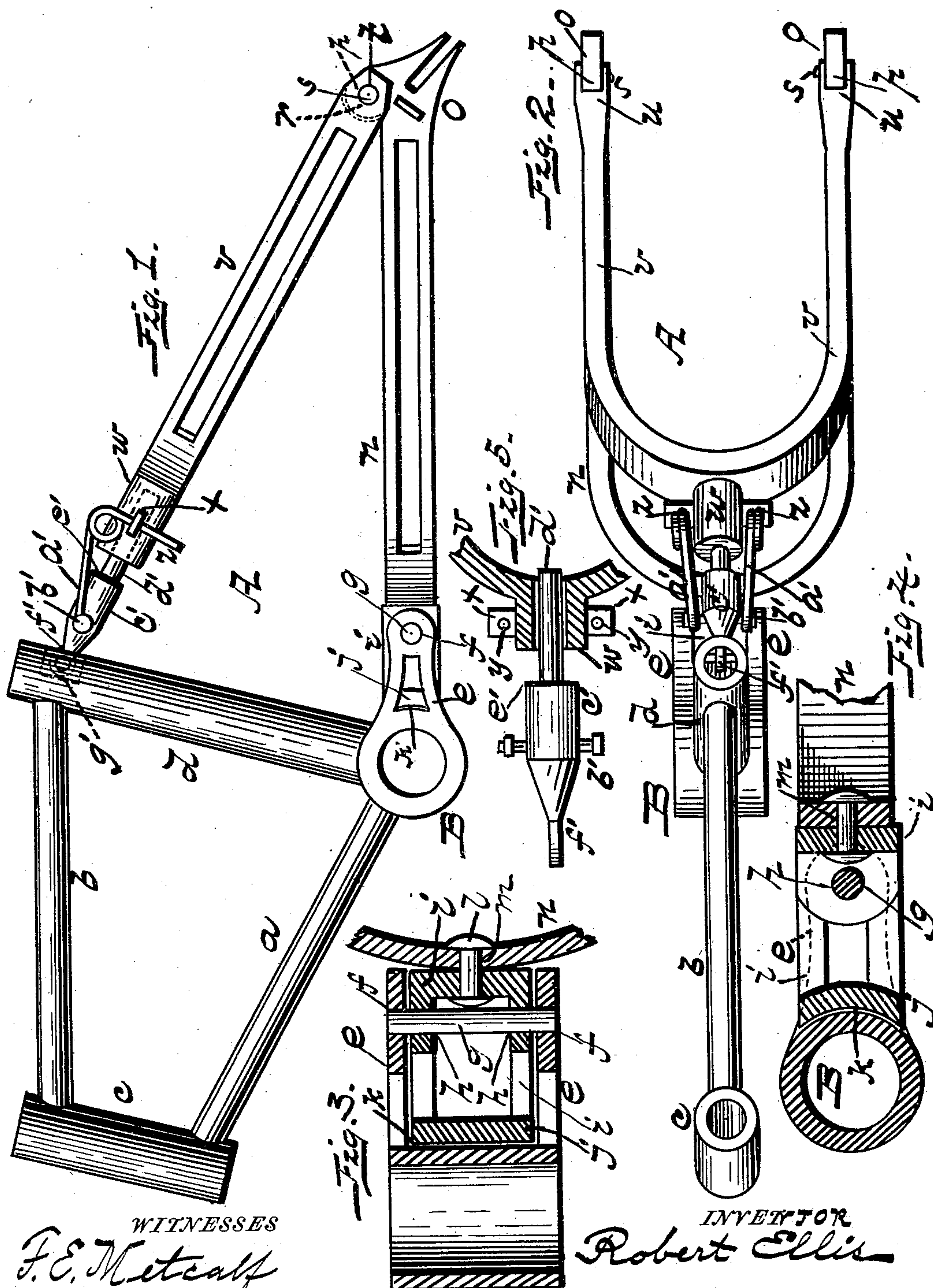
No. 712,784.

Patented Nov. 4, 1902.

R. ELLIS.  
BICYCLE FRAME.

(Application filed Sept. 10, 1902.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## BICYCLE-FRAME.

SPECIFICATION forming part of Letters Patent No. 712,784, dated November 4, 1902.

Application filed September 10, 1902. Serial No. 122,802. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT ELLIS, a citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Bicycle-Frames; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has relation to improvements in bicycles; and it consists in the novel construction and arrangement of the frame, whereby a yielding motion is imparted thereto, all as will be hereinafter fully explained, and particularly pointed out in the appended claim.

The annexed drawings, to which reference is made, fully illustrate my invention, in which—

Figure 1 represents a side view of my device. Fig. 2 is a plan view of the same. Fig. 3 is a detail sectional view of the hub, block, and part of the frame *n*. Fig. 4 is a vertical detail sectional view of the same, and Fig. 5 is a detail of the front portion of the frame *v*.

Referring by letter to the accompanying drawings, A designates the bicycle-frame, comprising the usual forward brace-bar *a*, upper bar *b* and sleeve *c*, and vertical seat-post *d*.

B represents the hub, which is provided with two rearwardly-projecting arms *e e*, having openings or bearings *f f* in their ends to receive the arms or journals *g g*, extending from one side of said hub to the other side and which passes through an opening *h* in the block *i*, thereby pivoting said block to the side arms of the hub. The end *j* of this block is curved, as at *k*, corresponding with the exterior of the hub, and at the opposite end of said block is a lug or pin *l*, that enters an opening *m* in the U-shaped skeleton

frame *n*, thus pivoting said frame to said block. At the outer ends *o o* of the U-shaped frame *n* are provided lug *p p*, having openings *r r*, through which pins *s s* pass, which also pass through openings *t t* in the bifurcated ends *u u* of a second U-shaped frame *v*, thus pivoting the two U-shaped frames to one another at this point. The forward end of this frame *v* is provided with a sleeve *w*, having on each side thereof lugs *x x*, provided with openings *y y* to receive the ends *z z* of a pair of springs *a' a'*, which are pivoted to lugs *b' b'*, extending on each side of bar *c'*, said bar being constructed with a narrow stem *d'*, that engages the sleeve *w*, and having the shoulder *e'* and forward end *f'*, that is pivoted to the seat-post in the slot *g'*.

Thus it will be seen from the above description, when taken in connection with the accompanying drawings, that by the construction of my device the rear portion of the bicycle-frame is yielding and affords elasticity thereto through the medium of the springs aforesaid, and a bicycle constructed as herein described is durable, light, easy-riding, and at the same time cheap to manufacture.

What I claim is—

In a bicycle, the frame comprising the bars *a, b*, sleeve *c*, post *d* and pivoted upper and lower frames *v, n* the upper frame provided with the sleeve *w*, having the side perforated lugs *x, x*, the bar *c'*, constructed with the reduced portion *d'* engaging said sleeve, and shouldered as at *e'* and the forward end pivoted to the seat-post, the springs *a', a'* pivoted on each side of the bar and having their ends *z, z*, engaging the eyes in the side lugs, the block *i* pivoted to the side arms of the hub and to the forward end of the lower frame, the whole adapted to operate substantially as described.

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

ROBERT ELLIS.

Witnesses:

HORACE BLACKBURN,  
MILDRED JOHNSON.