

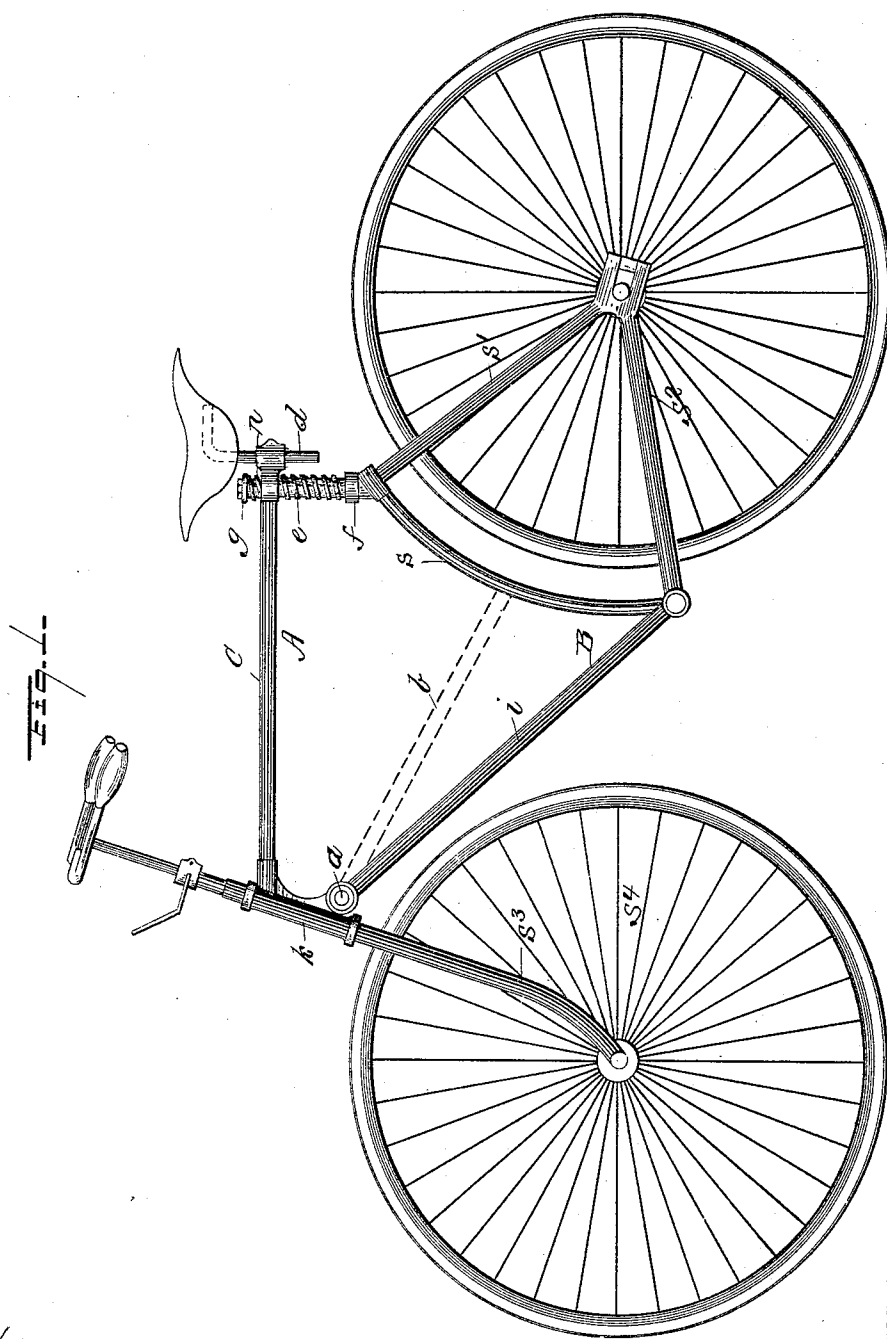
(No Model.)

2 Sheets—Sheet 1.

T. BURTON.
VELOCIPED FRAME.

No. 470,317.

Patented Mar. 8, 1892.



Witnesses

A. J. Haddau

A. M. Melhuish

Inventor

Thomas Burton

by his Attorney A. J. Haddau

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

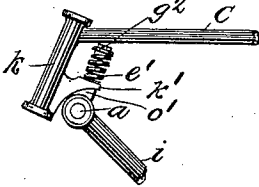


Fig. 3.

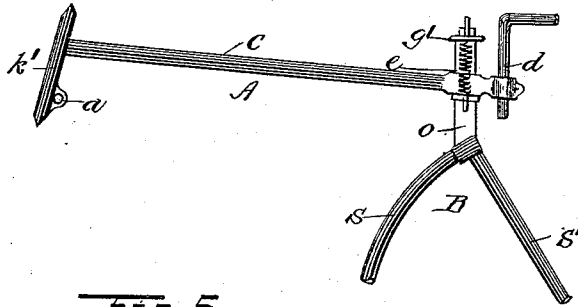


Fig. 5.

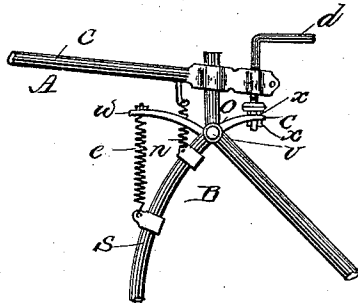


Fig. 4.

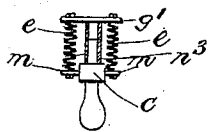


Fig. 6.

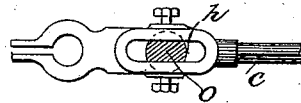


Fig. 7.

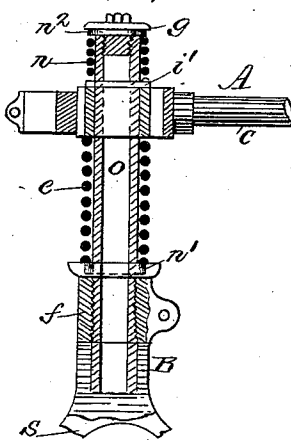
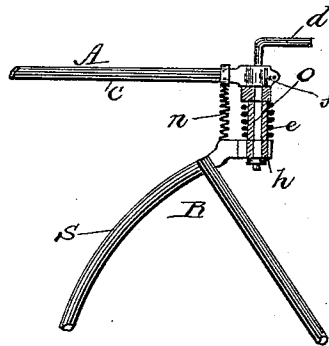


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS BURTON, OF CLOUGHFOLD, RAWTEUSTALL, ENGLAND.

VELOCIPED-FRAME.

SPECIFICATION forming part of Letters Patent No. 470,317, dated March 8, 1892.

Application filed May 14, 1891. Serial No. 392,766. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BURTON, a subject of the Queen of Great Britain, residing at Cloughfold, Rawteustall, England, have invented a certain new and useful Improvement in Velocipede-Frames, of which the following is a specification.

This invention relates to velocipede-frames; and the object of the invention is to provide a spring diamond or other similar shaped frame which is simple and effective in absorbing the vibration incidental to its passage over rough or uneven ground and at the same time free from all side play or rock common to former spring-frame velocipedes.

Reference being made to the accompanying drawings, Figure 1 is a side elevation of the improved spring-frame velocipede. Fig. 2 is a modification of part of the frame thereof. Fig. 3 is a side elevation of another part of the frame, showing a modification thereof. Fig. 4 is an end view of Fig. 3. Fig. 5 illustrates another modification of the same part. Fig. 6 is a detail view of part of Fig. 1 on a larger scale. Fig. 7 is a detail view, in vertical section, of part of Fig. 1 slightly modified and also on a larger scale. Fig. 8 shows a further modification of part of the frame.

The improved frame consists, mainly, of a backbone made rigid with the bearing which carries the head of the front forks and also carrying the saddle or the pin or support for said saddle, so that, except so far as the purpose of steering is concerned, these parts form with regard to the remainder of the frame one integral part A, and, secondly, of a frame or backbone made rigid with the forks carrying the back wheel, so that this second frame also forms in itself a rigid and integral part B, the second frame B being hinged with a rigid or a resilient hinge to the former A at or near the steering-bearing or socket thereof to vibrate on said hinge in the plane of the frame and in contact with and suitably guided at or near the rear end of the former-frame to have sliding movement at this point solely in the plane of the frame and supported and held in a normal position at this point by means of a spring or springs, which term includes, also, rubber pads, air-cushions, or the like, form-

ing resilient cushions tending to hold the two frames by elastic pressure in their normal relative position.

In the form of frame shown in Fig. 1 the back fork s' , central tube s , running from the top of the fork s' to the bottom bracket s^3 , and central tube i , extending from (or in close proximity to) the bottom bracket s^3 up to the hinge a at the lower projection (or in close proximity thereto) of the steering neck or socket k , are all rigidly connected or brazed together. At the junction of the back fork s' with the upper end of the central tube or tubes s I arrange or fix a continuation, projection, or tube o , which may be straight or curved in an arc of a circle the center of which is the hinge a , and accurately finish this projection or tube to slide in the slot h in the backbone c , or, in some cases, into a bush i' , fitted into the slot, as in Fig. 7. The shape of the slot h in the backbone c , as seen in Fig. 6, is to allow of or to compensate for the slight longitudinal motion produced by the whole bottom frame swiveling, sliding, or turning upon the hinge a , constructed at the upper extremity of the central tube or tubes i , if the part o should not be curved to an arc of the circle the center of which lies in the hinge a .

In some instances a slight modification of the connection at the back of the frame may be preferred, such as forming the slot h in a piece upon the upper member of the back forks s' or central tube or tubes s and securing the projection o , fitting and sliding therein, upon or near to the end of backbone c . Such an arrangement is shown in Fig. 8, in which the seat-pin d is utilized, so that its lower end constitutes the projection o .

If a double vertical or curved tube s —that is to say, two parallel tubes—is employed, as in some diamond frames, then the above construction of slot h and projection o may be doubled—that is to say, there may be two slots h in the one member and two corresponding projections o on the other. Modifications of detail relating to this sliding connection may be necessary to suit the various diamond and like pattern frames; but in all cases the upper frame is constructed in one piece with the steering neck or socket, and

consequently acts as one piece (in its sliding or swiveling) with the whole front fork s^3 and wheel s^4 .

Springs are applied at the sliding connection of the frames A and B—namely, a comparatively strong spring e , so applied as to tend to lift the upper frame A from the lower frame B, and a comparatively weak spring n , so applied that the tendency of its pressure is to force the frame A downward onto the frame B.

In the construction shown in Fig. 1 the spring e encircles the before-mentioned vertical tube projection o and has its upper end in contact with the lower surface of the backbone c or of the bush i' , sliding therein. The spring or buffer n encircles the projection o at its top extremity between the upper face of the backbone c or the bush i' , and a collar or screw g , with projecting flange fastened on the end of the projection o , and cushions or buffers n' of rubber or similar substance, may be used. The lower compression-spring e is adjusted by the action of a nut or screwed clip f , turning upon a thread formed on the lower part of the projection or tube o . The vibration communicated to both wheels by coming in contact with obstacles or of passing over rough or uneven ground is taken up or absorbed by the action of the backbone and forks or upper and lower frame A B turning or sliding upon the joint a , and thereby actuating the spring or springs e n , as one or more springs may be used and these of any material suitable, and either tension or compression singly, or both, as the various modifications of frames and circumstances may necessitate.

In the modification shown in Figs. 3 and 4, in place of one spring e encircling the projection o , two springs in tension are employed, connected at their upper ends to the cross-head g' , which is fixed on the upper end of the projection o , and connected at their lower ends to lugs m on the sides of the backbone c . The spring n is retained, as before mentioned, and in addition thereto a rubber buffer n^3 is shown.

In Fig. 5 the spring e is connected to the tube s of the frame B at one end and at the other end to the end of the lever w , pivoted at some suitable point v to the frame B and

connected at the other end to the seat-pin d of the frame A, being adjustable thereon between the two set-nuts x x on the screw-threaded end of the seat-pin d . The spring n is attached at one end to a hook or lug on the frame A and at the other end in a similar manner to the frame B. In this construction the springs e and n each act in tension.

In Fig. 8 the spring e is a compression-spring surrounding the projection o and adjusted by the collar f , while the spring n is in tension connected to lugs or hooks on the frames A and B.

In place of making the hinge a rigid on the steering socket or bearing k , the frame B may be hinged to the sliding piece o' , passing through a lug k' on the steering socket or bearing k , as shown in Fig. 2, the hinge being held against the lug by means of the spring e' , surrounding the piece o' between the lug k' and the flanged head g^2 of the said piece, or otherwise applied to hold the hinge a against the lug k' .

Having described my invention, I claim and desire to secure by Letters Patent—

1. In a velocipede-frame, the combination of the steering-socket k , the backbone c , fixed thereto and carrying the seat, the frame B, hinged at a to the steering-socket, the projection o , and the slot h , respectively, the one on the backbone c and the other on the frame B, the lifting-spring e , and the depressing-spring n , serving to retain the backbone c and frame B in a normal relative position, substantially as and for the purpose set forth.

2. In a velocipede-frame, the combination of the steering-socket k , the backbone c , fixed thereto, the slot h therein, the frame B, hinged at a to the steering-socket, the projection o in said frame guided in said slot h , the lifting-spring e , and the depressing-spring n , surrounding the said projection o , the flanged head g , and the set-nut f , substantially as set forth.

In witness whereof I have signed this specification in presence of two witnesses.

T. BURTON.

Witnesses:

H. A. E. ROTHWELL,
FRED H. VETTER.