

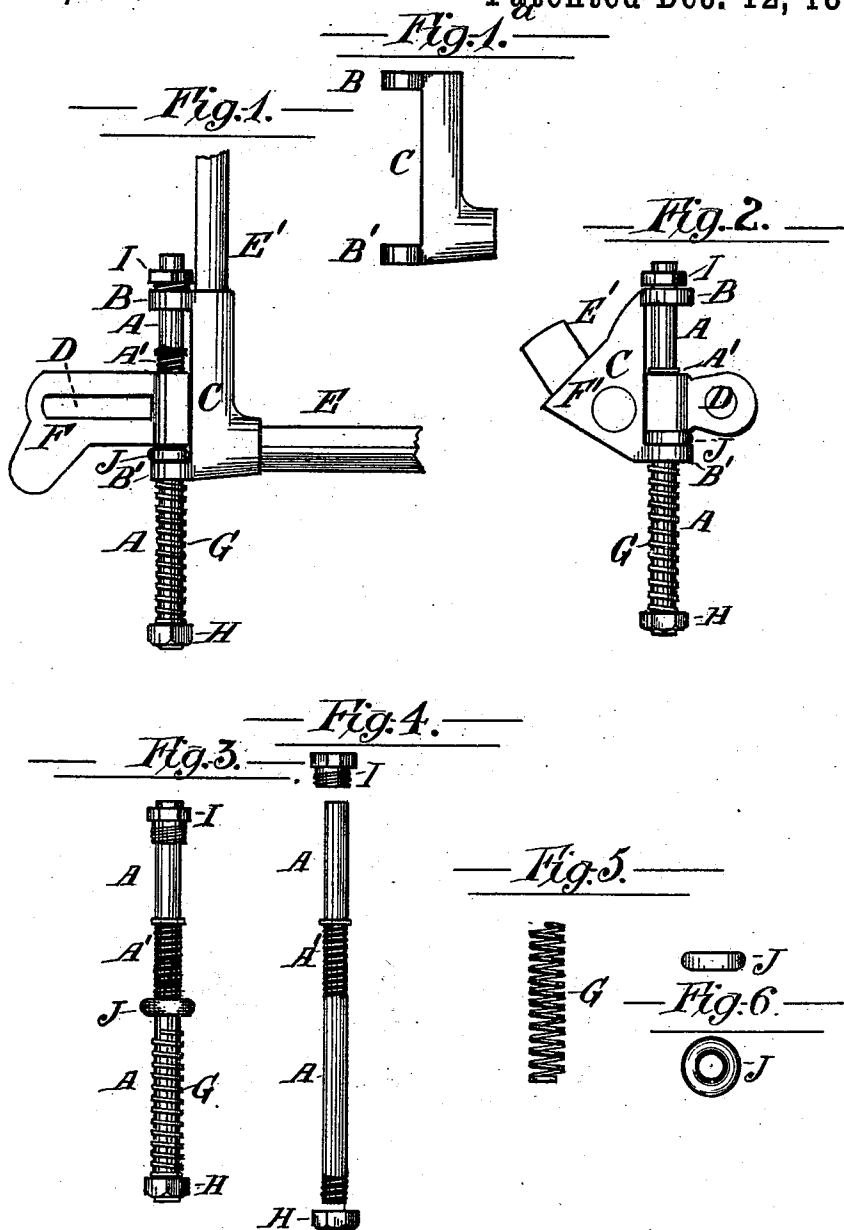
(No Model.)

WILLIAM E. HART, THE ELDER & WILLIAM E. HART,
THE YOUNGER.

SPRING ATTACHMENT FOR THE WHEELS OR OTHER PARTS OF CYCLES
OR OTHER VEHICLES.

No. 510,538.

Patented Dec. 12, 1893.



Witnesses:
E. H. Sturtevant.
A. S. Büsing

Inventors:
Wm. Edward Hart, the elder
Wm. Edward Hart, the younger
Richardson
attys.

UNITED STATES PATENT OFFICE.

WILLIAM EDWARD HART THE ELDER AND WILLIAM EDWARD HART THE YOUNGER, OF WOLVERHAMPTON, ENGLAND.

SPRING ATTACHMENT FOR THE WHEELS OR OTHER PARTS OF CYCLES AND OTHER VEHICLES.

SPECIFICATION forming part of Letters Patent No. 510,538, dated December 12, 1893.

Application filed November 26, 1892. Serial No. 453,196. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM EDWARD HART the Elder, cycle manufacturer, and WILLIAM EDWARD HART the Younger, clerk, trading as The Hart Cycle Company, of Wolverhampton, in the county of Stafford, England, have invented certain new and useful Spring Attachments for the Wheels or other Parts of Cycles and other Vehicles; and we do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form a part of this specification.

Figure 1 is an elevation of one of our improved spring attachments to be applied to the axle of the back wheel of a cycle and also to the frame of the machine; Fig. 1^a a bracket piece disconnected for attachment thereto. Fig. 2 is an elevation of a spring attachment as applied to the axle of the front wheel and to the fork end of the frame of the machine. Fig. 3 represents the vertical spindle, spiral spring, washer, and nuts, disconnected from the bracket piece. Fig. 4 represents the spindle, and nuts, alone; Fig. 5 the spiral spring; Fig. 6 the washer.

The same letter indicates the same part in all the figures.

It is sufficient for the purpose (to aid the description) to illustrate one of each method of attachment to the back, and front wheels, of a cycle, though be it understood that duplicates will be used in each case.

The object of this invention is to provide a spring attachment applicable to the axles and frame or other parts of cycles and other vehicles by means of which all jarring or jolting of the cycle or other vehicle when in motion or when encountering any obstacle in its track is entirely obviated.

As applied to a cycle the invention consists in providing a vertical spindle A which spindle passes through, and is carried by eyelets B, B', upon brackets C, connecting the arrangement to the axles D, and to the frame, and forks E, E', of the machine. In connection with the back wheel the usual adjustable

sliding arm or bracket piece F, is used which is wormed for the spindle A, to screw into, the same being screw threaded on its upper part to admit of this. The vertical spindle A, is prolonged beyond the bracket C, and encircling this prolonged part is a spiral spring G, kept in place and to its bearing under the lower eyelet B', upon the bracket C, by a screw-nut H, on the end of the spindle. The top of the spindle is also provided with a screw nut I, having a neck and screw thread thereon, to screw into the eyelet B, which is wormed to receive the same, to adjust the spindle to the bracket and to keep it rigid. A washer J, of india rubber or other suitable material is situated between the lower eyelet B', on each bracket, and the arm piece F, F', so as to prevent any rattling or noise, and to provide against possible friction of the parts.

As the construction and arrangement of our improvements, and the relation that the several parts bear to each other, will be readily understood from the foregoing description and by reference to the accompanying drawings, we will therefore proceed to describe the action which is as follows: Assuming that the cycle is in motion and comes in contact with, and has to pass over stones or other impediments in its track, the connecting arm F, and F', being housed by means of the worm and thread to the spindle A, and also to the axles D, will cause the wheels to lift or rise in their movable bearings by reason of the compression of the spiral spring G, which is brought into action, and bears, against the eyelet B', when the wheel or wheels, come in contact with the obstruction in their track, the axles D, of the wheels obviously bearing upward, on the movable arm piece and thereby bringing about the above result, as the arms F, F', attached to the axles, and to the spindles rise and fall with such spindles by the compression and relaxation of the spirals G. The above or a similar arrangement may be adapted for other parts of the cycle or vehicle when and where found desirable.

We do not limit ourselves to the exact arrangement herein set forth, as the same may be varied without any departure from the principle of our invention.

What we claim as our invention is—

1. In combination, the frame, the bracket C having the eyes B, B', the spindle rod A, passing through said eyes to slide up and down, said rod being screw threaded at its middle
5 portion, the bearing bracket F for the shaft having an eye screw threaded to fit the thread on the spindle and the spring G about the spindle bearing on the eye B'.

2. In combination the frame, the bracket
10 having the eyes B, B', the upper one of which is screw threaded, the nut I having a shank screw threaded to fit the upper eye, the spindle A, passing through the lower eye and the

nut I, the bracket F, on the spindle to support the shaft, the spring G, about the spindle and bearing on the eye B' and the washer J, interposed between the eye B' and the bracket F, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

WILLIAM EDWARD HART THE ELDER.

WILLIAM EDWARD HART THE YOUNGER.

Witnesses:

JOHN FEGAN,

H. G. MILLS.