(No Model.)

G. C. W. & W. A. D. HIPPERLING.

CYCLE.

No. 572,544. Patented Dec. 8, 1896.

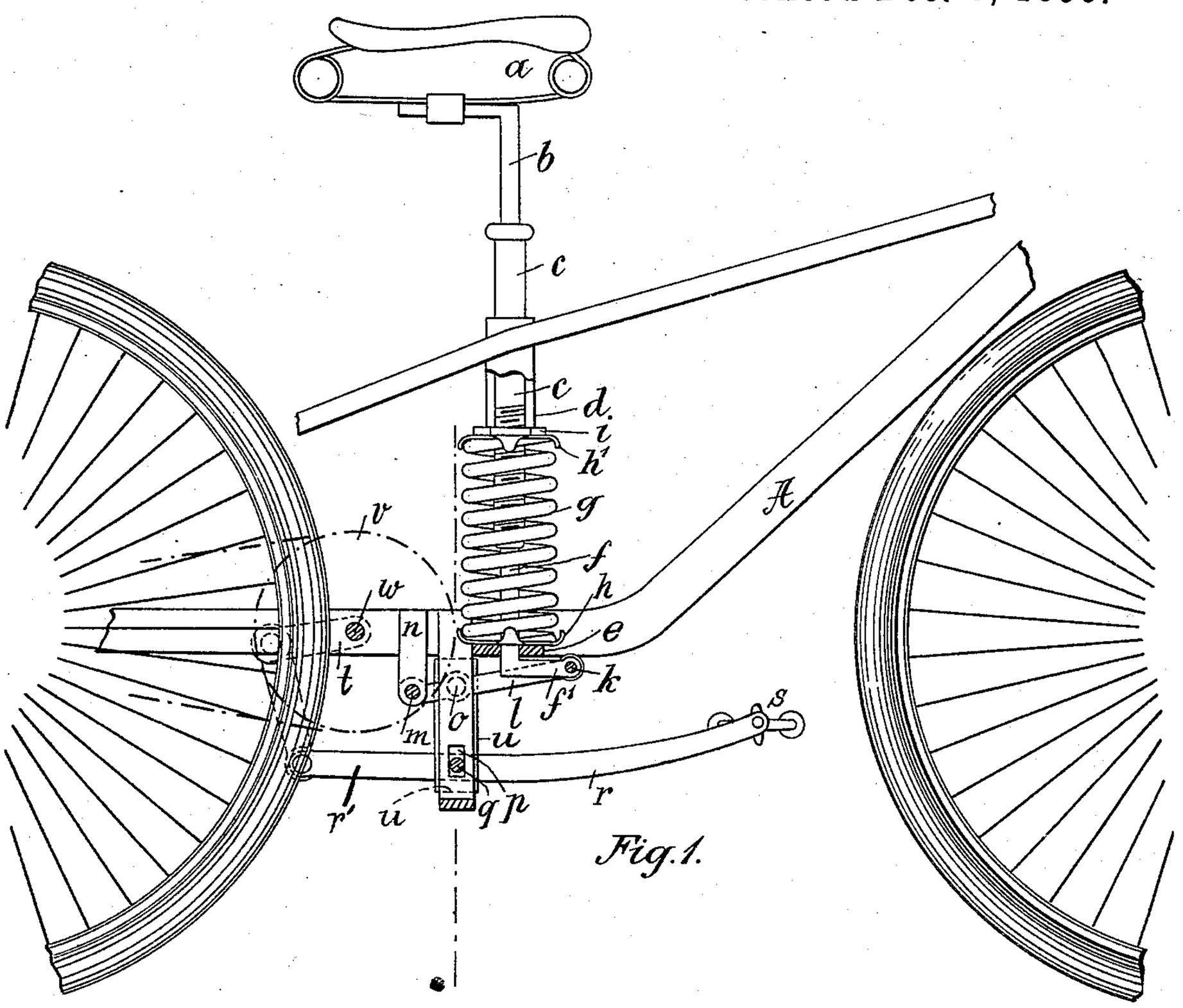

Fig. 1.

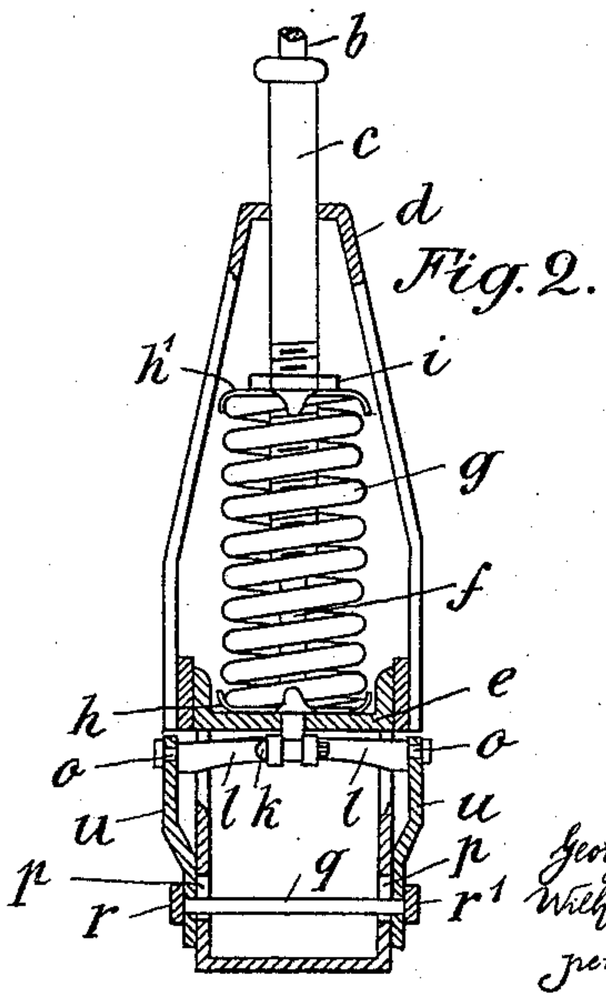

Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORG CHRISTIAN WILHELM HIPPERLING AND WILHELM ANTON DIETRICH HIPPERLING, OF WANDSBECK, GERMANY.

CYCLE.

SPECIFICATION forming part of Letters Patent No. 572,544, dated December 8, 1896.

Application filed May 4, 1896. Serial No. 590,240. (No model.)

To all whom it may concern:

Be it known that we, GEORG CHRISTIAN WILHELM HIPPERLING and WILHELM ANTON DIETRICH HIPPERLING, subjects of the Emperor of Germany, and residents of Wandsbeck-Hamburg, in the Empire of Germany, have invented new and useful Improvements in Cycles, of which the following is a specification.

This invention has for its object a contrivance for retaining constant, irrespective of the weight, the distance between the saddle and the pedals on such cycles as have a spring arranged for carrying the saddle as a substitute for the pneumatic tires.

On the drawings, Figure 1 shows a side view of the contrivance, partly in section; Fig. 2, a front view, partly in section.

The saddle *a* is fastened on the right-angled rod *b*, by which it can be fixed at any desired height in the tube *c*. The upper part of the tube *c* is inserted into the frame *d* and its lower part into the cross-piece *e* by means of the rod *f*, bent forward below the latter. Around the tube *c* a strong spiral spring *g* is placed, the lower end of which presses against the plate *h*, resting on the cross-piece *e*, and the upper end against the plate *h'*. The latter abuts against the nut *i*, which can be screwed up and down on the tube *c*, which is here provided with a thread in order to give the spring *g* tension in proportion to the weight on the saddle *a*. This spring *g* serves for taking up the jolting and renders pneumatic tires superfluous.

The forwardly-bent angle-arm *f'* of the rod *f* is, by means of a bolt *k*, linked to the like operating-levers *l l*. The points of support of these levers are formed by the bolts *m m'* of the arms *n n*, fastened on the frame A, while the bolts *o o* lie in such manner between the bolts *m m* and the common bolt *k* that $\frac{mo}{ok}$ forms a proper fraction, that is, *mo* must be shorter than *ok*. The bolts *o* of the levers *l l* are linked with the common bolt *q*, lying in the slots *p* in the connecting-rods *u*. This bolt *q* forms at the same time the fulcrum for the treadle-levers *r r'*. The ratio of the free longer arm to the short arm of each of these treadle-levers is likewise $\frac{mo}{ok}$. It is therefore obvious that with any weight operating on the saddle in consequence of the above-described lever transmission the distance between the saddle *a* and pedal *s* always remains the same.

The shorter lever-arm of the treadle-lever *r* (or *r'*) is connected in any known manner with the crank *t*, which is mounted on the shaft *w* of the chain-wheel *v*.

What we claim is—

In a contrivance for retaining constant the distance between the saddle and the pedals of cycles the combination of the two levers *l l*, linked to the saddle-rod, with the bolt *k*, the spring *g*, the stationary bolt *m*, on which the levers *l l* are turned, the bolts *o*, the connecting-rods *u*, the bolt *q*, which on the yielding of the saddle *a*, yields as much as the bolts *o*, so that as the lever-arms of the lever *l* have the same proportion, as the treadle-lever arms, the pedal *s* always remains equidistant from the saddle, as described.

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