(No Model.) 2 Sheets—Sheet 1.

# J. H. SCHULZE.

## VELOCIPEDE.

No. 342,934. Patented June 1, 1886.

Fig. 1.

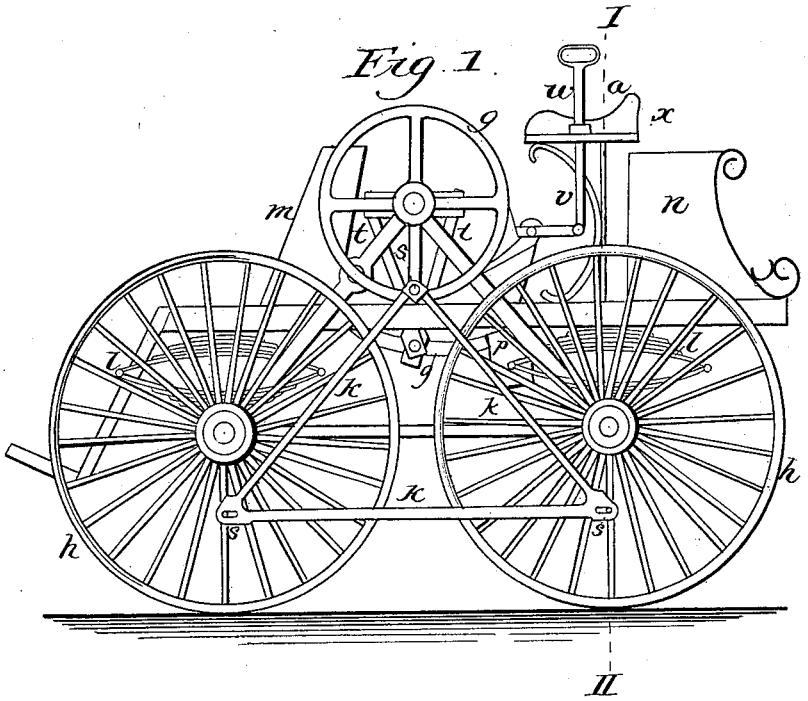
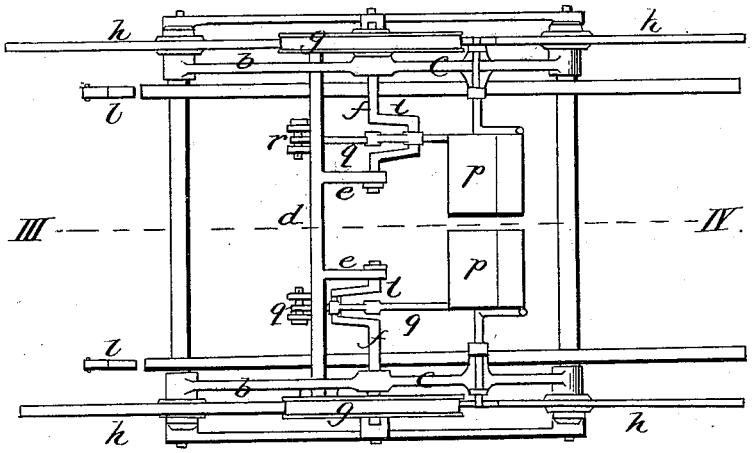



Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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## VELOCIPEDE.

No. 342,934. Patented June 1, 1886.

Fig. 3.

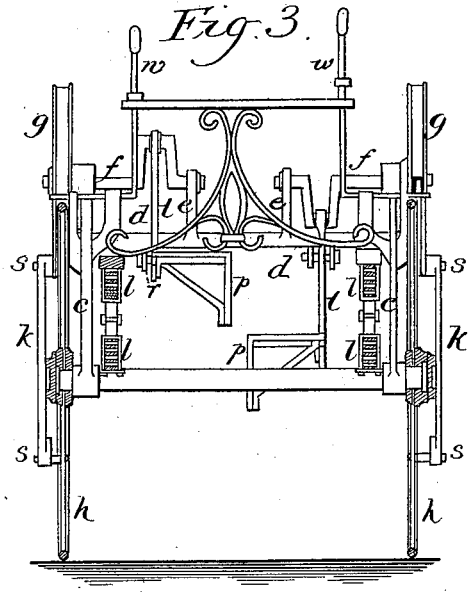
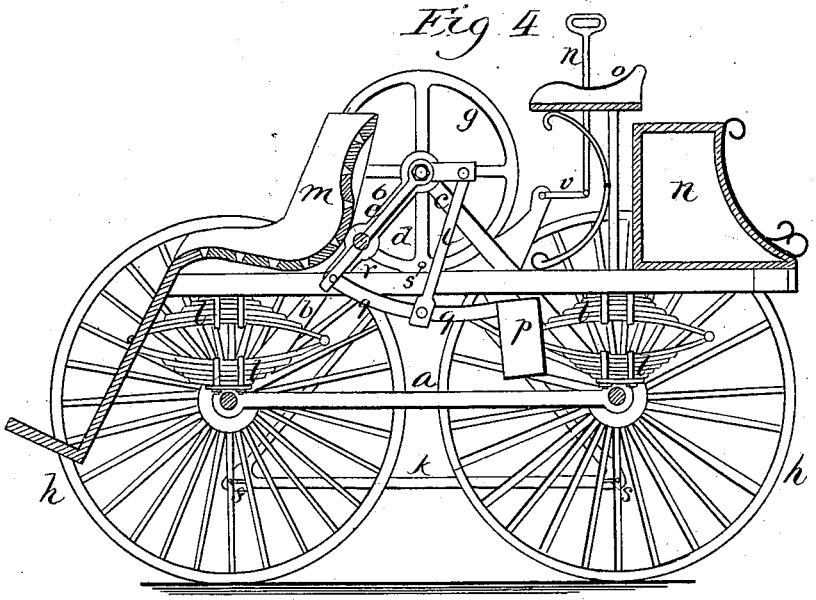



Fig 4

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# UNITED STATES PATENT OFFICE.

JOHANN HEINRICH SCHULZE, OF BERLIN, GERMANY.

## VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 342,934, dated June 1, 1886.

Application filed May 1, 1885. Serial No. 164,093. (No model.) Patented in England April 23, 1885, No. 5,021.

*To all whom it may concern:*

Be it known that I, JOHANN HEINRICH SCHULZE, a subject of the King of Prussia, residing at Berlin, in the Kingdom of Prussia, in Germany, have invented certain new and useful Improvements in Velocipedes; and I do hereby 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 it, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

A serious disadvantage in all the systems of velocipedes heretofore used consists in their not attaining on uneven ground the velocity required of them, and therefore not being serviceable for practical use whenever speed is the main point, for war purposes, conveyance of the post, &c. By means of the present construction the inventor endeavors to remove these deficiencies, and the present construction is based on the principle of introducing a fly-wheel, the purpose of which is similar to that of fly-wheels in locomotives and steam-engines.

In the accompanying drawings, Figure 1 represents a side view of a velocipede constructed after the present system. Fig. 2 is a view from above of Fig. 2. Fig. 3 is a section on line I II through Fig. 1. Fig. 4 is a section on line III IV through Fig. 2.

Similar letters refer to similar parts throughout the several views.

Two-wheel axles with wheels of equal diameter running loose on them are connected by means of two stays, *a a*, which allow the axles sufficient play both backward and forward and keep them parallel with each other, so as to form a sliding frame. Within the frame thus formed supports *b b* and *c c* project upward from each end of the shafts *a a*, and with the stays *a* each forms a triangular carriage. The two supports *b* and *b* are held together by a strong cross-connection, *d*, which allows the supports a certain backward and forward motion. From this cross-connection two arms, *e e*, rise slanting, and in the upper ends of these arms on the one side and in the connecting-point of supports *b* and *c* on the other side a crank-axle, *f*, is bedded in each, and carries each on its extreme end a fly-wheel, *g*. On each side of the velocipede the fly-wheel *g* and the two carriage-wheels *h* and *i* are connected on equally long crank-arms by means of crank-pins *s s s*, and by the three connecting-rods *k k k*, which are in the shape of a triangle, and thus form a crank-triangle together. On the wheel-axles are springs *l*, and on them rests the carriage-body itself, which can, according to requirement, be of different shapes. For instance, in Fig. 1 *o* represents the driver's seat, *m* and *n* being two raised casings arranged, respectively, at the front and rear of the frame. These casings may be utilized for holding provisions or parcels. The feet of the driver operate treadles *p*, Figs. 1 and 2, which are on forks *q*, which are fastened to the cross-connection *d* in hinge-joints *r r*, and from these latter the connecting-bars *t t'* extend up to the cranks *f f*. The person driving the conveyance will, by alternate treading with each leg, set the mechanism on each side of the vehicle in motion. The two mechanisms, which are made alike and symmetrical, are independent of each other. By placing a brake-strap round the rim of each fly-wheel the latter can be turned into brake-wheels.

By means of the lever *v*, Fig. 1, the brake-strap can be made to operate by lifting the handle *w*. The handles *w* are on both sides of the vehicle at a convenient height and close to the saddle, and the person driving rests during the drive on both sides with hand and arm on these handles *w*, which are fitted into the guide-strap *x*, fastened to the saddle. If the person driving treads uniformly with both feet on steps *p p*, the vehicle moves forward in a straight direction, provided the wheel-systems on both sides revolve in the same direction. Should the driver wish to turn to one side, then he lifts the corresponding handle on the right or the left, and thus causes the brake to operate and check the motion of the mechanism on the side in question. The mechanism stops altogether as soon as he leaves off treading on that side. When checked in this manner the axles and the frame on that side slide back to a certain degree, and all the four wheels *h h h h* get into a slanting position; but on the other side of the

vehicle the motion continues, and is kept up by continued treading. In consequence of this the vehicle will move forward in a curved direction and the center of this curve is formed by the side of vehicle onto which the brake has been put.

Turning in short curves is effected by putting on the brake quickly on either side. By immediate quick treading after that the backward motion is brought about, which the driver checks again when the turning is effected and converts into a forward motion again.

In order to stop the vehicle quickly, both brakes must of course be put on at the same time.

What I claim, and desire to secure by Letters Patent of the United States, is—

In combination with the frame of a velocipede, the driving-wheels and treadles, the fly-wheels arranged on each side, and the connecting-rod, triangles, and cranks, whereby said fly-wheels may be operated as brakes, substantially as set forth.

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

JOHANN HEINRICH SCHULZE.

Witnesses:
G. H. SMITH,
B. ROI.