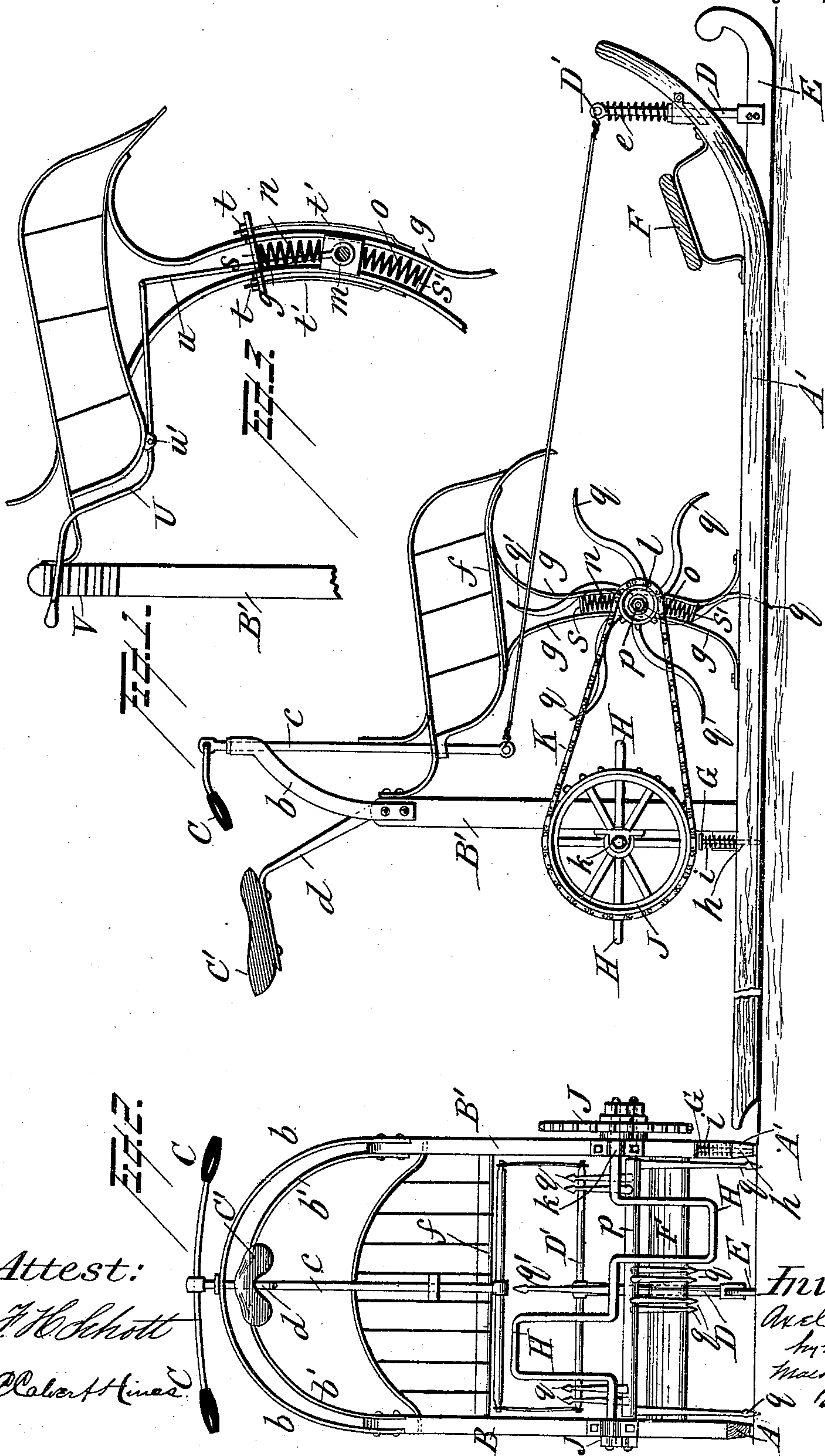


(No Model.)

A. KARLSON.  
ICE VELOCIPED.

No. 500,583.

Patented July 4, 1893.



Attest:

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Robert Hines

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Axel Karlson  
by his Atty.  
Mason Fennick  
Clerk



# UNITED STATES PATENT OFFICE.

AXEL KARLSON, OF DULUTH, MINNESOTA.

## ICE-VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 500,583, dated July 4, 1893.

Application January 13, 1893. Serial No. 458,256. (No model.)

*To all whom it may concern:*

Be it known that I, AXEL KARLSON, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Ice or Snow 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 the same.

My invention relates to ice or snow velocipedes, and it consists in certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved ice or snow velocipede; Fig. 2 a rear elevation of the same, and Fig. 3 a detail view of a vertically movable hub or box having spring tension devices, limitation stops, a supporting shield or housing and means for lowering and raising the traction wheel and axle as required.

A A' in the drawings represent sled runners about nine feet in length, shod with iron or steel and suitably connected.

B B' are vertical supports connected together at their upper ends by means of curved braces *b b'* bolted or otherwise suitably secured, the said supports being recessed to receive the ends of the braces which permit the same to lie flush with the outer surfaces of the said supports. The brace *b* extends up and above the brace *b'* and is provided with a hole or slot through which a guide rod *c* passes, while the brace *b'* acts as a support for an arm *d* to which an operator's seat *C'* is suitably secured. The guide rod *c* has at its upper end operating handles *C* and at its lower end is centrally secured to a transverse rod, to which latter ropes or other analogous means are fastened at each of its ends, said ropes connecting with a transverse bar *D'* secured to rod *D*, for causing the swiveling or turning to the right or left of a forward guiding runner *E*, whereby the course of the velocipede can be directed. The rod *D* passes through a transverse brace connecting the front end portions of the runners, and is suitably fastened to the guide runner *E*. A coil spring *e* is provided between the top of the rod and the transverse brace for the purpose of insur-

ing a constant pressure of the guide runner against the surface of the ice or snow. Should the guide runner *E* strike any large substance while the velocipede is in motion, the rod connected with the said runner will be forced upward and thereby allow the guide runner to pass over the said substance, after which the action of the spring *e* will cause the runner to again bear against the surface of the ice or snow.

Just in rear of the guide runner is a foot rest *F* attached to the main runners *A A'* by suitable supports.

A seat *f* adapted to receive an extra passenger, goods or parcels, is suitably secured at its rear by means of arms to the vertical supports *B B'*, and is further supported at its seat portion by a housing *g*, hereinafter described.

In rear of the vertical support *B'*, the velocipede is provided with a pointed brake *h* normally held up by means of a spring *i*, and adapted to be pressed down upon the ice or snow by the operator pressing his foot upon a push rod or lever *G*.

In practice, the velocipede is set in motion by the operator working the treadles *H* journaled at *j* and *k*, and thereby revolving a driving sprocket wheel *J* engaging with a drive chain *K*, which latter operates a smaller sprocket wheel *l* on an axle *p* to which latter are secured especially constructed spring traction fingers *q* for propelling the velocipede. The supporting housing *g* of the velocipede has its upper outwardly curved ends connected with the under side of the seat *f* and its lower similarly curved ends connected with the runners, the central portion of the device serving as a shield or housing to receive a vertically sliding hub or box *m* and coil springs *n* and *o*, the latter serving, when the box is moved upward or downward, for increasing or diminishing the tension of the fingers, hereinafter described, upon the surface of the ground. The tension of the springs is regulated by nuts *t* which can be screwed up or down on rods *t'* arranged on the outside of the housing *g*, and which bear upon a stop *s* and cause the same to move down or up as the nuts are screwed down or up. Another limitation stop *s'* is provided below the spring *o*. These stops, together with the springs *n*



and *o*, hold the hub box steady and return it to its normal position after the traction wheel has passed over an obstruction. If it is desired to raise the axle hub or box *m* and the traction fingers *q* carried thereby it can be accomplished by removing the lever *U* from the top notch in the standard *B'* and placing it in one of the lower notches *V* thereof. The lever *U* is provided with a suitable handle as shown and is pivoted to the seat at *u'*. A rod *u* is pivotally connected at its upper end to the lever *U* and at its lower end is connected with the axle, whereby, by operating the lever *U*, as heretofore stated, the axle and the spring traction fingers connected therewith can be raised or lowered to any extent desired. On the axle *p*, the serpentine traction fingers *q* are so arranged in relation to each other that two of them strike the surface of the ground simultaneously with one exception, that the central finger *q'* strikes the surface of the ground singly. In carrying out this arrangement I prefer to employ eleven fingers. These fingers are constructed of the best spring steel, by the elasticity of which an additional forward impetus is given to the velocipede as the fingers leave the surface of the ground. Owing to the peculiar construction of these fingers, clogging cannot possibly take place, as would be the case if a driving wheel provided with spiked projections projecting from its peripheral edge were used; also it will be seen that by reason of the vertically sliding box or hub and its adjacent springs, and the fact that the traction fingers are constructed of spring metal, the velocipede is peculiarly adapted for traveling over rough or uneven surfaces. Should any large objects be encountered by the traction fingers while in motion, breakage of the same would be prevented by reason of their elasticity, but should the obstruction be very large the axle carrying the traction fingers will be forced up a sufficient distance to clear said obstruction and thereby avoid breaking the fingers or the lifting lever *U* can be employed, and when said obstruction is passed, the axle will be forced to its normal position by the coil spring *n*.

What I claim as my invention is—

1. In an ice or snow velocipede, the combination of suitable runners, a supporting frame, a propelling axle provided with traction fingers, a supporting housing, and tension springs arranged in said housing above and below the hub box of the axle, substantially as described.
2. In an ice or snow velocipede, the combination of suitable runners, a supporting frame, a propelling axle provided with traction fingers, a supporting housing, tension springs arranged in said housing above and below the hub box of the axle, and means for regulating the tension of the springs upon said hub box, substantially as described.
3. In an ice or snow velocipede, the combination of suitable runners, a supporting frame, a propelling axle provided with traction fingers, a supporting housing, tension springs arranged in said housing, and a spring tension regulating device comprising rods arranged on the outside of the supporting housing, stops connected with said rods and nuts adapted to be screwed up or down on the rods and cause a stop to compress or relax said springs, substantially as described.
4. In an ice or snow velocipede, the combination of suitable runners, a supporting frame, a propelling axle provided with traction fingers, a supporting housing, tension springs arranged in said housing, a lever pivoted to the auxiliary seat and connected with a rod secured to the axle, and a standard having notches adapted to receive and hold the handle of the lever, whereby the axle and traction fingers connected therewith may be raised or lowered at will and held in such position, substantially as described.
5. A traction device comprising an axle provided with a suitable number of comparatively long serpentine shaped spring fingers, substantially as described.

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

AXEL KARLSON.

Witnesses:

ALBERT BALDWIN,  
O. E. MILLER.