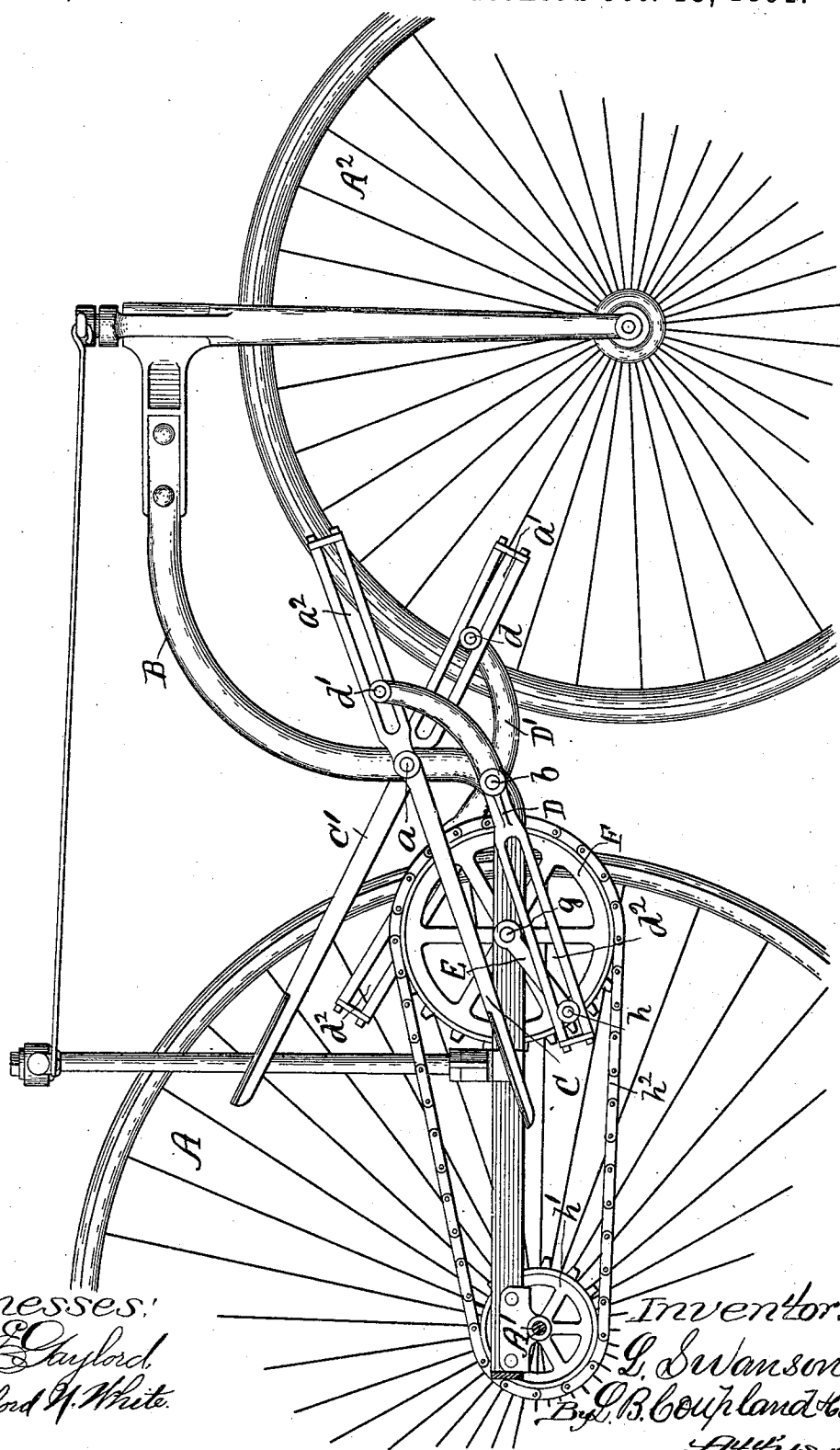


(No Model.)

L. SWANSON.
TRICYCLE.

No. 461,289.

Patented Oct. 13, 1891.



Witnesses:
Ed. C. Gaylord,
Clifford H. White.

Inventor:
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UNITED STATES PATENT OFFICE.

LUDVIG SWANSON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
OTTO ENGWALL, OF SAME PLACE.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 461,289, dated October 13, 1891.

Application filed July 13, 1891. Serial No. 399,356. (No model.)

To all whom it may concern:

Be it known that I, LUDVIG SWANSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tricycles, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawing, forming a part of this specification.

The drawing shows a side elevation and part section of a tricycle embodying my improved features.

This invention relates to tricycles and the like, and has for its object to provide an improved connection between the crank and treadles for the purpose of affording an increased leverage.

Referring to the drawing, A represents one of the main wheels mounted upon the axle A', the companion wheel not being shown; A², the guide-wheel, and B the backbone.

The treadle-levers C C' are pivotally mounted near their longitudinal center on the respective ends of the bearing-rod a, rigidly secured in the backbone and projecting on each side therefrom. The front end of the levers C C' are bifurcated, as shown at a' a², forming an elongated connection or bearing.

The crank-levers D D' are pivotally mounted on the projecting end of the bearing-rod b, rigidly secured in the backbone. The front ends of the crank-levers are slightly curved upwardly and have the friction-rollers d d' journaled therein. These rollers engage with

and move in the forked or bifurcated ends of the treadle-levers. The rear ends of the crank-levers are bifurcated or forked, as at d², in the same manner as the treadle-levers.

The crank-arms E are mounted on the crank-shaft g and set diametrically opposite each other. The companion crank-arm is not shown, but its relative position will be understood from the position of the crank-lever D'. The pins h, inserted in the outer ends of the crank-arms, engage with and traverse the forked end of the crank-lever, as shown.

The sprocket-wheel F is rigidly mounted on the shaft g, and is connected with the smaller sprocket-wheel h' on the main axle by the usual link-belt h². By this arrangement a compound-leverage connection is formed between the treadle and crank attachments.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a tricycle or the like, the combination, with the backbone or other supporting part, of the companion treadle-levers having their front ends forked, the companion crank-levers having their rear ends correspondingly forked and bearing-rollers fixed in the front ends, which engage with the forked ends of the treadle-levers, and the crank-arms engaging with the respective forked ends of the crank-levers, substantially as set forth.

LUDVIG SWANSON.

Witnesses:

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