(No Model.) 2 Sheets—Sheet 1.

G. T. BOOTH & W. SCOTT.

CYCLE PROPELLING MECHANISM.

No. 594,980. Patented Dec. 7, 1897.

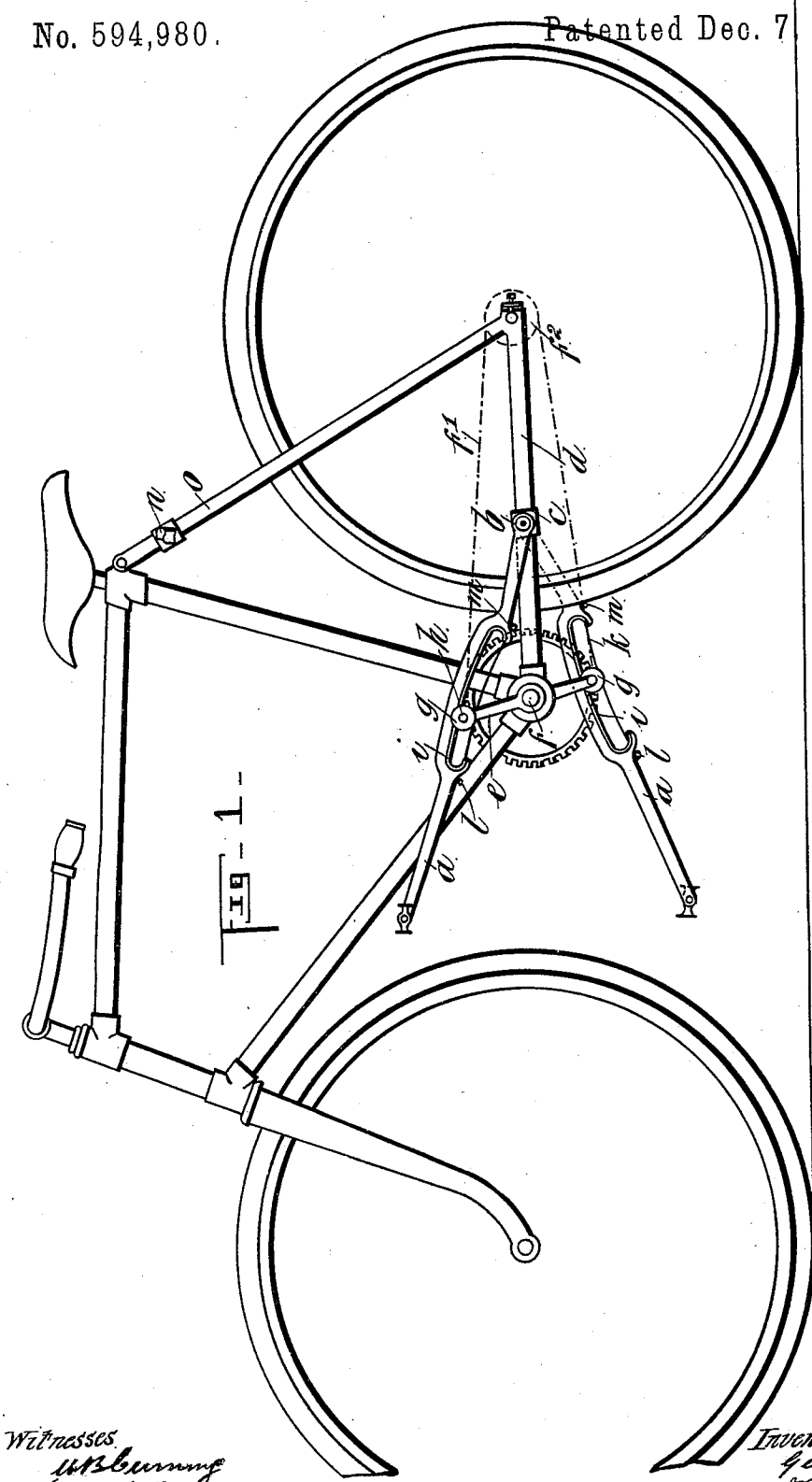


Fig. 1.

Witnesses.
W. B. Benning
Henri H. Rayward.

Inventors.
Geo. T. Booth
W. Scott.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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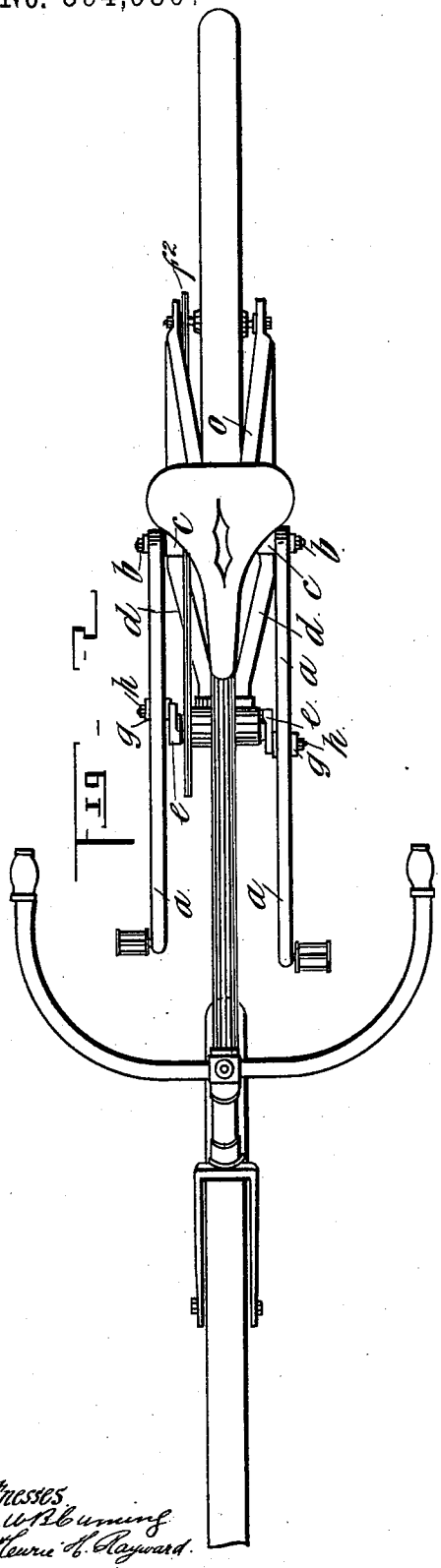


Fig. 1.

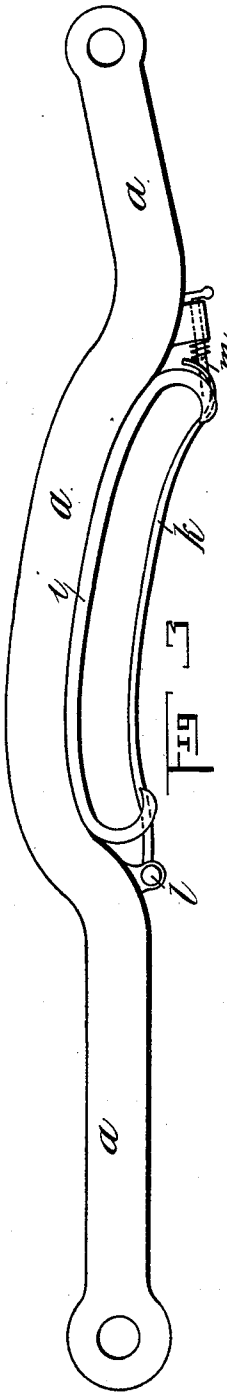


Fig. 3.

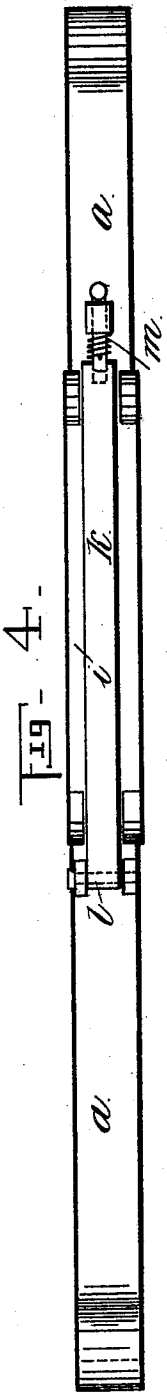


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE T. BOOTH AND WILLIAM SCOTT, OF CHRISTCHURCH, NEW ZEALAND.

CYCLE-PROPELLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 594,980, dated December 7, 1897.

Application filed August 12, 1897. Serial No. 648,009. (No model.) Patented in New South Wales April 22, 1897, No. 7,416; in Victoria April 23, 1897, No. 14,121; in Queensland April 26, 1897, No. 3,855; in South Australia April 26, 1897, No. 4,794; in Tasmania May 10,1897, No. 1,902, and in Canada July 28, 1897, No. 56,836.

To all whom it may concern:

Be it known that we, GEORGE THOMAS BOOTH and WILLIAM SCOTT, engineers, subjects of Her Majesty the Queen of Great Britain and Ireland, and residents of 71 Cathedral Square, Christchurch, in the provincial district of Canterbury, in the Colony of New Zealand, have invented a new and useful Improved Cycle-Propelling Mechanism, of which the following is a specification.

This invention has been patented in the following countries: Victoria, No. 14,121, dated April 23, 1897; Queensland, No. 3,855, dated April 26, 1897; South Australia, No. 4,794, dated April 26, 1897; New South Wales, No. 7,416, dated April 22, 1897; Tasmania, No. 1,902, dated May 10, 1897, and Canada, No. 56,836, dated July 28, 1897.

Our invention relates to the class of cycle-driving gear employed to actuate chain-and-sprocket gearing; and our object is to provide mechanism in which the power of the rider is employed for a longer period per revolution of the sprocket driving-wheel than in ordinary gearing. This condition entails a quick return stroke of the pedal-levers, and we are able to so arrange the parts that dead-centers are avoided.

In our invention vibrating pedal-levers upon either side of the cycle are pivotally connected to the chain stay members of the frame at the rear of the bottom bracket. Ordinary chain-gearing is employed, and the spindle carrying the driving sprocket-wheel is provided upon each end with cranks the pins of which carry rollers engaging in arc-shaped slots formed in brackets integral with or adjustably secured to the pedal-levers.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 a plan, of a bicycle provided with our mechanism. Fig. 3 is a side elevation, and Fig. 4 an inverted plan, of one of the pedal-levers, drawn to a larger scale.

Similar letters of reference indicate the same parts in all the figures.

The pedal-levers *a* are severally journaled at one end upon pins *b*, carried upon brackets *c*, secured to the chain-stays *d*. Cranks *e* are fixed upon the sprocket-wheel spindle *f*, and a chain *f'* connects the sprocket-wheel with a pinion f^2 upon the driving-wheel. The cranks *e* carry flanged rollers *g* upon crank-pins *h*. The under side of each lever *a* carries a curved bracket *i*, which rests upon and forms a traveling way for one of the rollers *g* when the lever is operated. The curve of each of the brackets *i* is proportioned so that the pedal-lever carrying it is at the top of its stroke slightly in advance of the crank *e* upon which it operates, and so that the pedal-lever does not arrive at the bottom of its stroke until the crank *e* has passed over the bottom center. Thus power tending to revolve the spindle *f* can be brought to bear upon the respective cranks slightly before they arrive at their top and slightly after they pass their bottom centers. A guard *k*, following the curve of the bracket *i*, (to which it is secured at one end by a hinge-joint *l* and at the other by a bolt *m* upon the lever taking into a hole in the guard,) is employed to insure smoothness in running, the effect of the guard being to form, with the bracket, a slot for the roller to run in.

For convenience in traveling the machine when the rider has dismounted and for cleaning and other purposes the bolt *m* may be withdrawn and the guard thereby released, permitting the lever to be raised clear of the roller and turned up into engagement with a spring-clip *n*, secured to the top of the back-stays *o*.

Having now particularly described and ascertained the nature of our invention and in what manner the same is to be performed, we declare that what we claim is—

1. In combination with a bicycle, a pair of levers having their rear ends pivoted to the rear forks of the bicycle-frame and their forward ends provided with foot-pedals, curved guides secured to the intermediate portions of said levers and having forked or divided ends, flanged rollers carried by the cranks adapted to travel in said guides, guards *k* pivoted to the levers at one end and passing through between the forked or divided ends of the guides and spring-bolts for detachably

securing the opposite ends of the guards in place, substantially as described.

2. In combination with a bicycle, a pair of treadle-levers pivoted to the rear forks of the bicycle-frame, rollers journaled upon the cranks adapted to be pressed upon by the levers, guards for the rollers adapted to be removed to permit the levers to be raised from contact with the rollers and clips carried by the frame for holding the levers in their raised position, substantially as described.

Dated this 27th day of March, 1897.

GEO. T. BOOTH.
W. SCOTT.

Witnesses:
P. E. HUGHES,
A. S. COLLINS.