(No Model.)

2 Sheets—Sheet 1.

A. F. CURTIN.

BICYCLE.

No. 255,775

Patented Apr. 4, 1882.

Fig. 2.

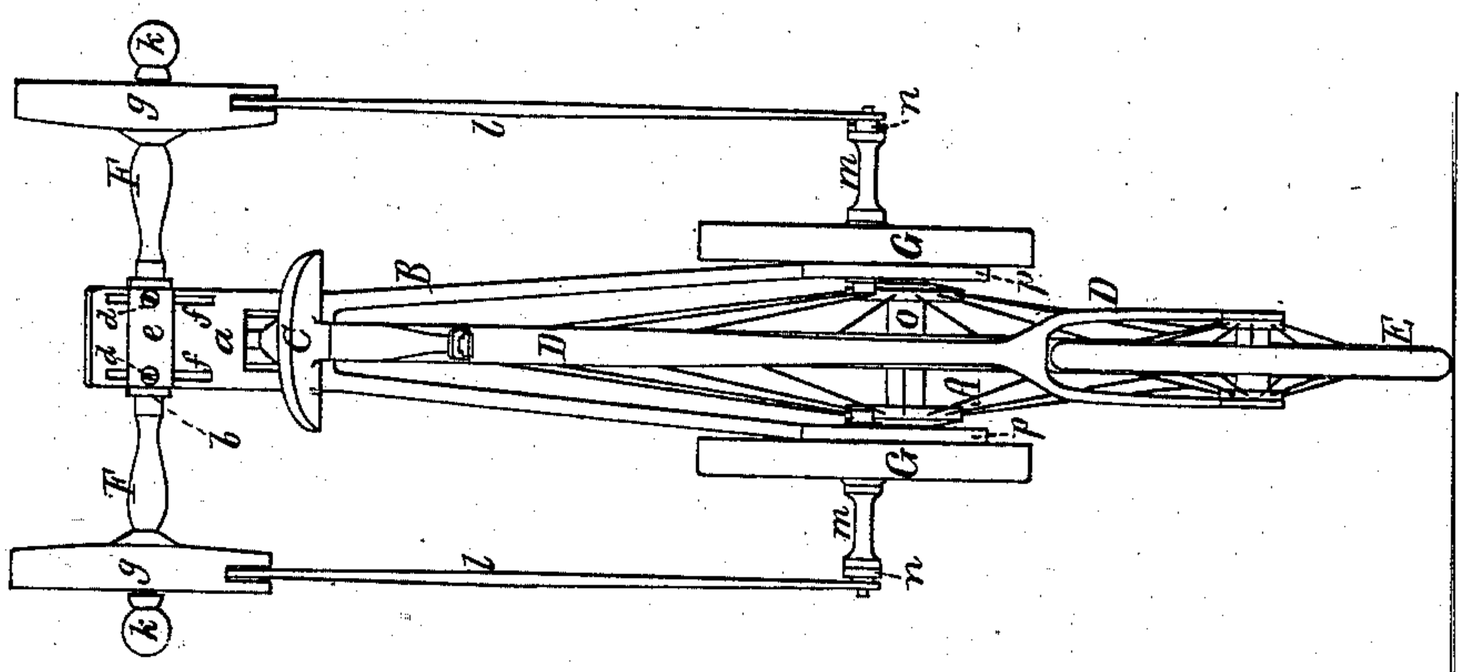

Fig. 5.

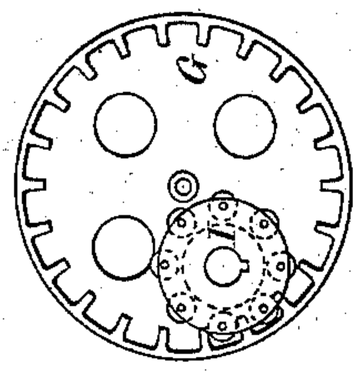

Fig. 1.

Witnesses.

S. N. Piper.

E. L. Pratt

Inventor.

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by R. N. Eddy atty

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

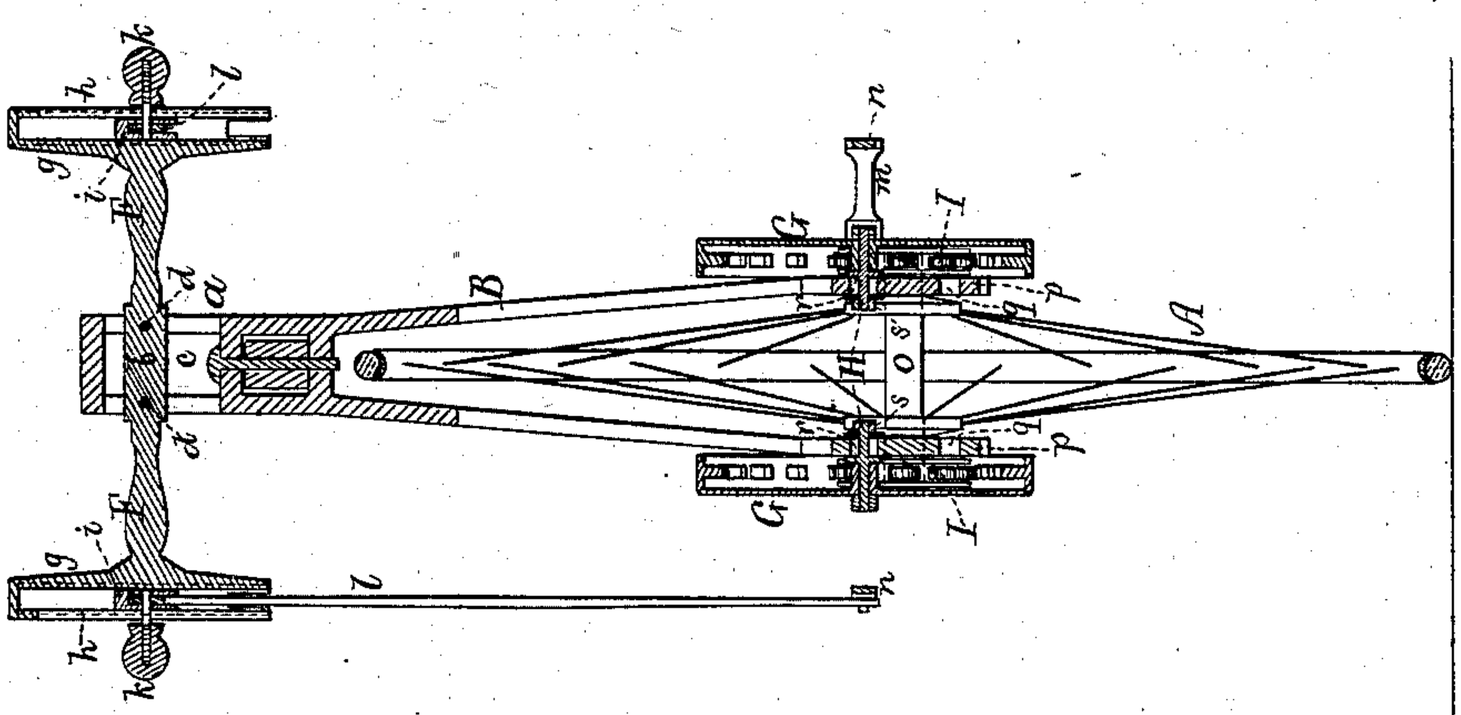
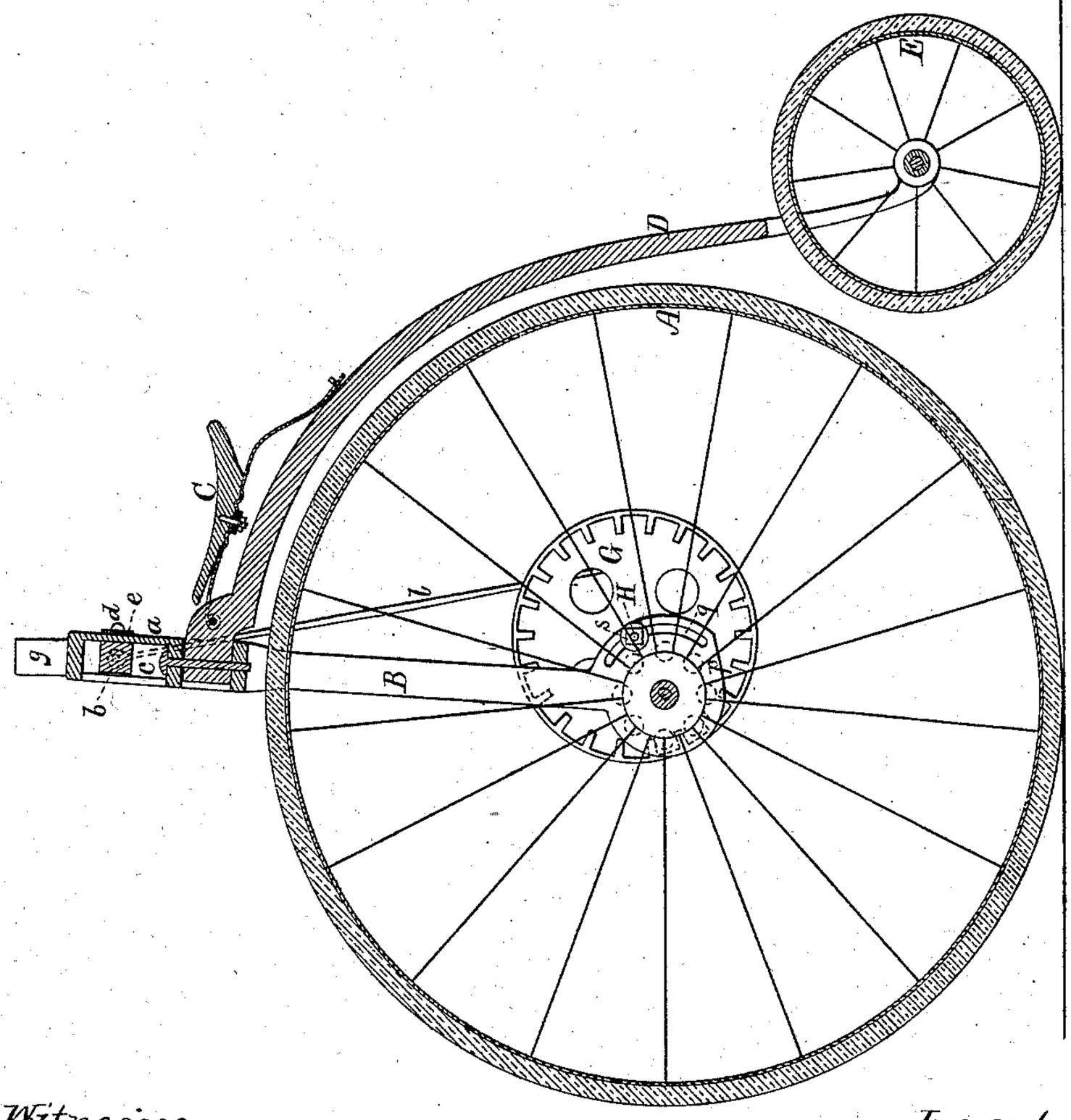


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW F. CURTIN, OF MEDFORD, MASSACHUSETTS.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 255,775, dated April 4, 1882.

Application filed February 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, ANDREW F. CURTIN, of Medford, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Bicycles; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a side elevation, Fig. 2 an end view, Fig. 3 a transverse section, and Fig. 4 a longitudinal section, of a bicycle provided with my invention, the nature of which is defined in the claims as hereinafter presented. Fig. 5 is an inner side view of one of the internal gears and its friction-wheeled lantern-pinion, to be described.

In these drawings, A denotes the driving-wheel; B, the front fork; C, the saddle; D, the backbone or rear fork, and E the rear wheel, carried by the said rear fork.

F F are the handles, which in this case are applied to the head *a* of the front fork so as to be adjustable vertically therein. To this end the handles project from a median connection or slide, *b*, arranged and adjustable in a vertical slot, *c*, in the head. Clamp-screws *d d*, going through a plate, *e*, and slots *f f*, arranged in the head in manner as shown, screw into the slide *b* and hold it in position. Each handle has to its outer end a tubular head, *g*, which has in its side a slot, *h*, arranged to extend lengthwise of the head. Within each of the heads *g* is a slide, *i*, provided with a knob, *k*, whose shank is in the slot *h*. Each slide *i* has a rod, *l*, jointed to it, such rod being extended downward to the next adjacent foot-crank *m* and jointed thereto or to an auxiliary long crank, *n*, projecting from the said foot-crank, in manner as represented.

From the above it will be seen that a rider with his feet on the foot-cranks can revolve the driving-wheel in the usual way, and by applying his hands to the knobs *k* he can by manual power move the slides *i* upward or downward, so as to revolve or aid in turning the driving-wheel. In case the rods *l* are jointed to the main cranks he will push the slides or their handles downward; but when the rods are jointed to the auxiliary cranks he will pull the knobs upward in order to effect the turning of the wheel. Thus it will be seen that by means as described a rider not only can revolve the driving-wheel by his feet, but by his hands.

In the drawings the main foot-cranks are shown as projecting outward from two internal gears, G, each of which revolves on a journal, H, which is eccentric to the driving-wheel axle *o*, and is supported by one of the prongs of the front fork, B. Such prong, at its lower part, terminates in a flat disk, *p*, having within it an arcal slot, *q*, through which the journal H extends, and is provided with a shoulder, *r*, and also with a nut, *s*, to screw on it the said journal, the whole being so as to clamp the journal to the disk. The arcal slots enable the internal gears to be adjusted in height in order to bring the foot-cranks to the desirable altitude to be reached by a person with his feet while he may be astride of the saddle.

With the handles F F and the foot-cranks, adjustable as described, the vehicle can be adapted for use either by a tall or a short person, which is not the case with bicycles as ordinarily constructed. Furthermore, to engage with each of the internal gears, and fixed on the driving-wheel axle, is a lantern-pinion, I, having on each of its teeth a friction-roller to engage with the teeth of the internal gear, formed as represented. On revolving the internal gears by their foot-cranks the lantern-pinions will be revolved, and will revolve the driving-wheel with greater speed. The front fork is pivoted, as usual, to the backbone or rear fork.

In riding the bicycle a person can place his hands on the two handles and his feet on the main foot-cranks, and can steer the vehicle in the ordinary way, or, in case he may be desirous to exert the power of his arms in effecting or aiding in producing revolution of the driving-wheel, he can do so by seizing the knobs with his hands and either pressing said knobs downward or drawing them upward. At the same time he can turn the front fork so as to steer the bicycle as may be required.

I claim in the bicycle—

1. The combination of the knobbed slides *i* and the connection-rods *l* with the front fork, B, the driving-wheel A, and its foot-cranks *m*, all being substantially as set forth.

2. The combination of the auxiliary cranks

n with the driving-wheel A and its foot-cranks *m*, the front fork, B, the connection-rods *l*, and knobbed slides *i*, all being arranged and to operate substantially as set forth.

3. The combination of the handles F, provided with the tubular heads *g*, and adapted to the front fork, B, so as to be adjustable therein, as explained, with the knobbed slides *i* and connecting-rods *l*, and with the foot-crank sustaining internal gears, G, adapted to the front fork so as to be adjustable therewith, as specified, all being substantially and to operate as explained.

4. The combination of the internal gears, G, and the lantern-pinion I, provided with friction-wheels, as described, with the front fork, B, the driving-wheel A, the knobbed slides *i*, and their connecting-rods *l*, adapted to the handles and the foot-cranks, as explained, the said foot-cranks being projected from the internal gears, as shown and described.

ANDREW F. CURTIN.

Witnesses:
R. H. EDDY,
E. B. PRATT.