

(No Model.)

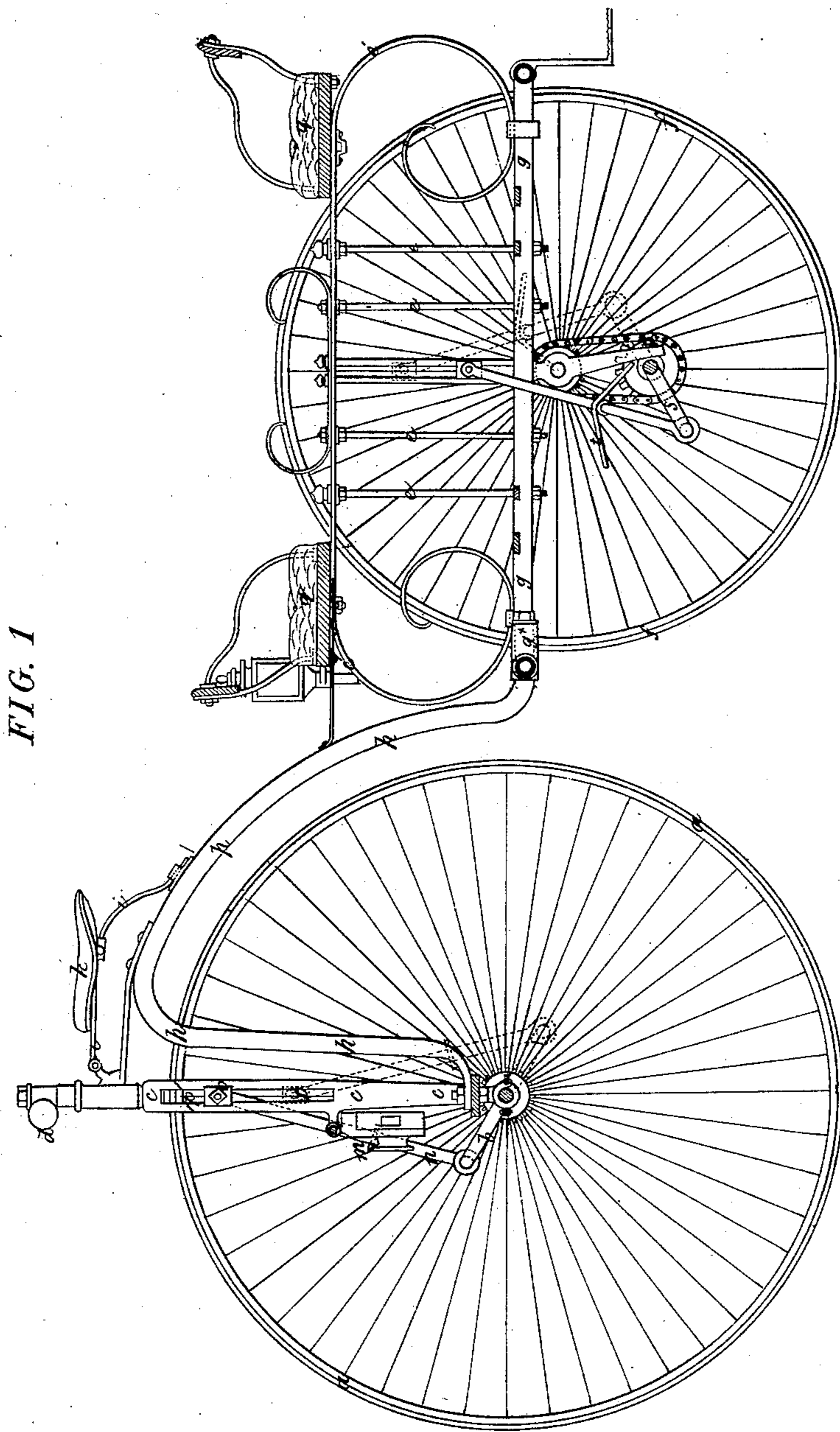
3 Sheets—Sheet 1.

J. HOPWOOD.

VELOCIPÈDE.

No. 245,829.

Patented Aug. 16, 1881.



Witnesses
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Harry Smith

Inventor.
John Hopwood
by his Attorneys.
Howson and Son

(No Model.)

3 Sheets—Sheet 2.

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FIG. 2

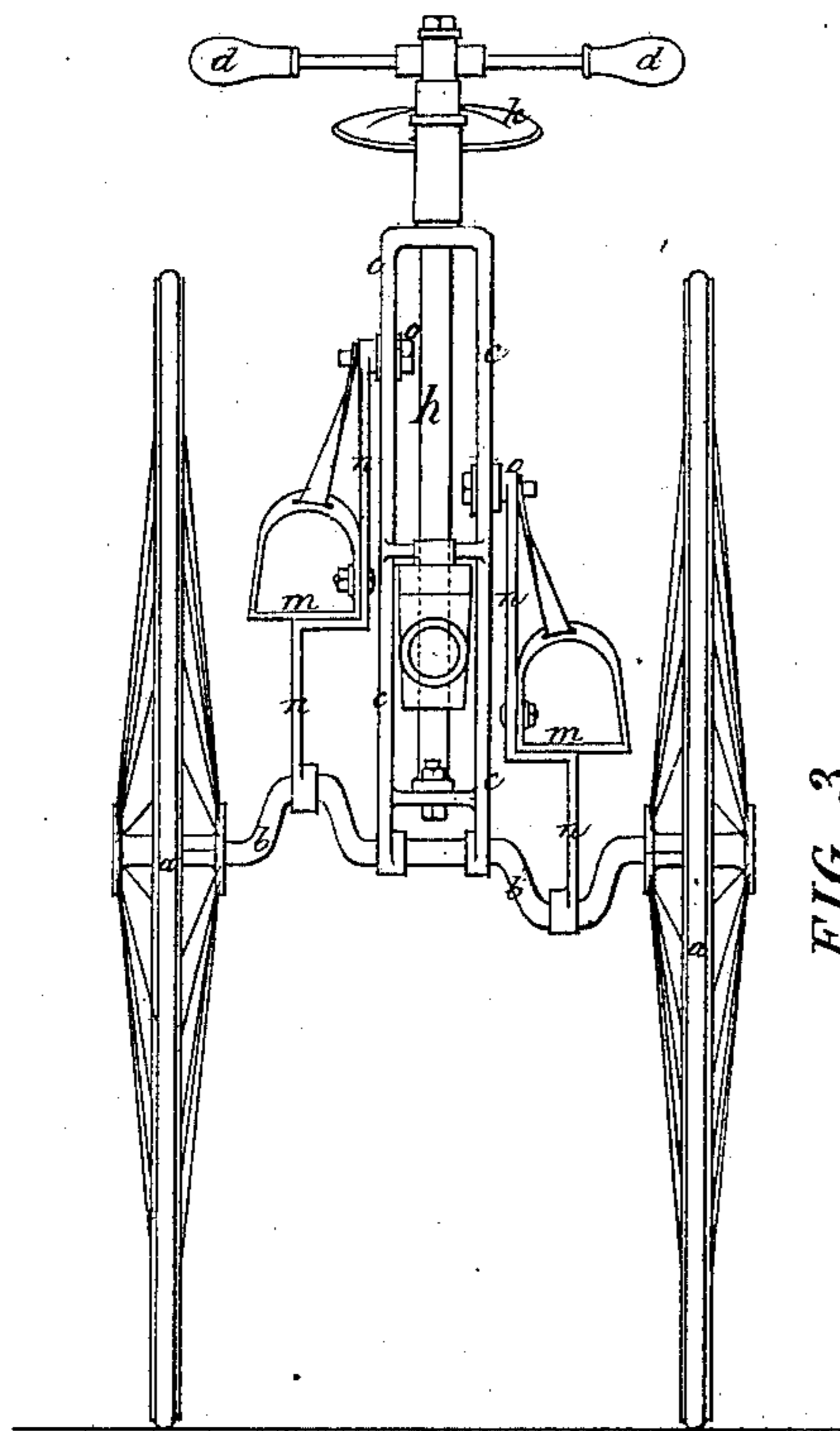
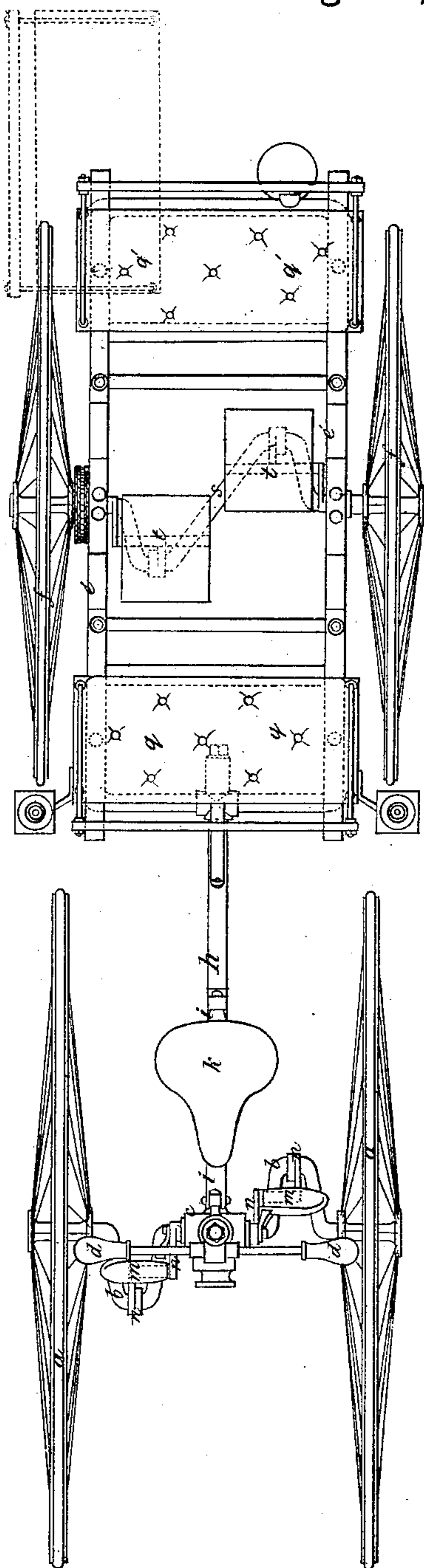


FIG. 3



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3 Sheets—Sheet 3.

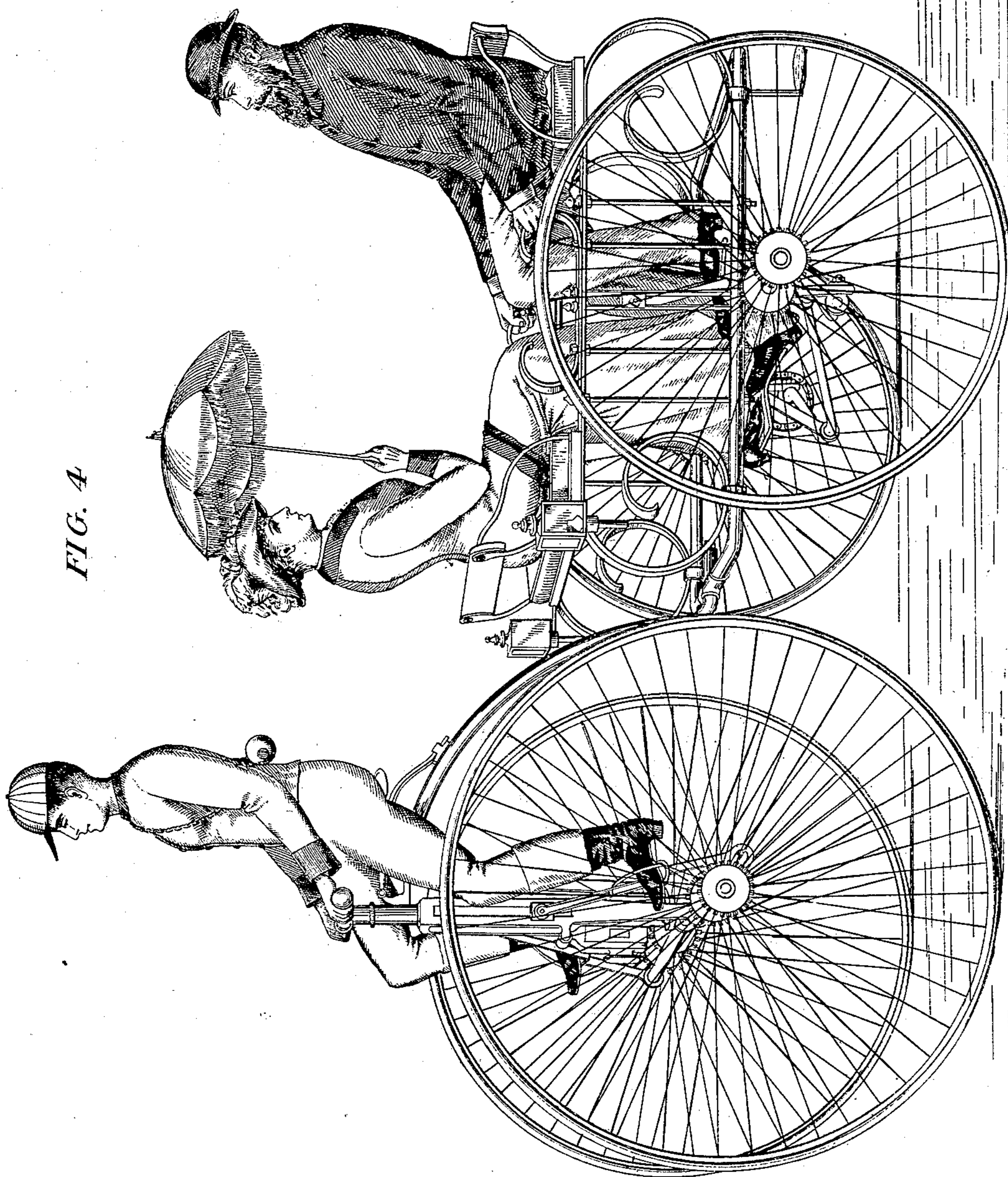
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FIG. 4



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UNITED STATES PATENT OFFICE.

JOHN HOPWOOD, OF HEATON NORRIS, COUNTY OF LANCASTER, ENGLAND.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 245,829, dated August 16, 1881.

Application filed May 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOPWOOD, a subject of the Queen of Great Britain and Ireland, and residing at Heaton Norris, in the county of Lancaster, England, have invented certain Improvements in the Construction of Velocipedes, of which the following is a specification.

This invention relates to the construction of a velocipede or pedomotive machine to carry three persons, and to be driven or propelled by one, two, or all three, as occasion may require.

The construction of the machine will be readily understood on reference to the three sheets of drawings hereunto annexed, and the following description thereof.

Figure 1 is a longitudinal section through about the center of the machine. Fig. 2 is a front view, and Fig. 3 a plan view, of the same. Fig. 4 is a perspective view with the driver and passengers in their places.

The machine is carried upon four wheels. The two front wheels, *a a*, are mounted direct upon the front cranked axle, *b b*, which supports a vertical fork, *c c*, provided with suitable bearings, and having steering-handles, *d d*, either straight or cranked, attached to its upper end in the ordinary manner, so that the fore carriage is steered like an ordinary bicycle.

The body *e e* of the machine is carried upon the two hind wheels, *f f*, and the frame *g g*, which supports the body, is provided with or attached to a curved perch or backbone, *h h*, the front part of which is divided into two branches, the lower one of which is connected to the lower end of the fork *c c*, so as to work on a pivot or turn-plate, and the upper end of the perch or backbone *h h* is similarly connected with a pivot or spindle working in the upper end of the fork *c c*, as in a bicycle, and thus by having a bearing both at the top and bottom of the fork great stability is obtained, and at the same time it will be seen that in steering the front axle, *b b*, can turn on its vertical axis to any necessary angle, the top curve of the backbone *h h* being sufficiently high for the front wheels, *a a*, to "lock" under it. On this part of the backbone *h h* is mounted (on a spring, *i i*) the saddle *k k* for the driver, who, in order to gain room for mounting, turns the fore carriage slightly round. The tail end

of the backbone is not rigidly connected to the frame *g g*, but is so mounted in a socket, *g^x*, as to be capable of a small fixed amount of movement on its horizontal axis, so as to give a slight flexibility thereto.

The driver works the cranks by means of pedals or stirrups *m m*, which are adjustable on connecting-rods *n n* to suit the length of leg of the driver, the said connecting-rods being cranked and having their lower ends fitted with suitable bearings working on the cranks of the axle *b b*. The upper ends of the connecting-rods *n n* work on pins fitted in blocks *o o*, sliding in vertical slots *p p*, or upon rods fixed on each side of the fork *c c*, or forming part thereof.

The body of the carriage is provided with seats *q q'*, for two passengers, who sit facing each other, one being back to the driver, the curved parts *e' e'* acting as springs, and the upright rods *e e* working through holes or sockets made in or attached to the frame *g g*, the back-seat *q'* being so mounted as to be capable of being turned to one side, so as to allow the passengers to mount and dismount, and fitted with a catch or bolt to hold it in position when adjusted. This part of the machine is carried on the two hind wheels, *f f*, and is provided with a cranked axle, *s s*, fitted with connecting-rods, slides, and pedals, similar to the front axle, the pedals *t t* being sufficiently broad and so arranged and fitted that either one or both passengers can assist in driving the machine.

The cranked axle *s s* is shown in the drawings as connected to the driving-wheel by means of two stud-pulleys and an endless chain, as in an ordinary tricycle; but, if preferred, the axle on which the wheels are mounted may be carried across from one side to the other, and the cranks be made sufficiently wide for two feet to work on each, in which case the lower axle, with the stud-pulleys, chain, connecting-rods, and slides, may be dispensed with.

In order to allow every facility for steering and turning the machine, only one wheel is fast on each axle, and is the driving-wheel, it being preferable to make the right-hand wheel the driving-wheel on one axle, and the left-hand wheel on the other; or, if preferred, all the wheels may be drivers, an arrangement being applied whereby either the right or the

left hand pair, or both, can be thrown loose on the axle when required for turning corners or when otherwise required.

5 The carriage is fitted with brakes, lamps, mud-guards, or other conveniences, and is so arranged that a portmanteau, box, hamper, or other luggage can be carried beneath each seat.

I claim as my invention—

10 1. The combination of the front wheels of a velocipede with a perch or backbone having pivot-connections with the fork at both the upper and lower ends of the latter, substantially as set forth.

15 2. The combination of the two front wheels of a velocipede with a perch or backbone having pivot-connections with the fork at both the upper and lower ends of the latter, the said perch or backbone being curved to allow a "lock" of the front wheels for steering.

20 3. The combination of the wheels of a veloci-

pede and cranked axle, with connecting-rods *n*, slides, and fork and stirrups adjustable on said rods *n*, substantially as described.

4. A velocipede having front and rear axles, the front axle to be operated by the driver, 25 and the rear axle being provided with cranks and pedals, to be operated by a passenger or passengers, all substantially as described.

5. A velocipede having front and rear cranked axles, a forward saddle for the driver, 30 and two seats facing each other over the rear axle, for passengers, all substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of 35 two subscribing witnesses.

JOHN HOPWOOD.

Witnesses:

CHARLES DAVIES,

GEORGE DAVIES.