

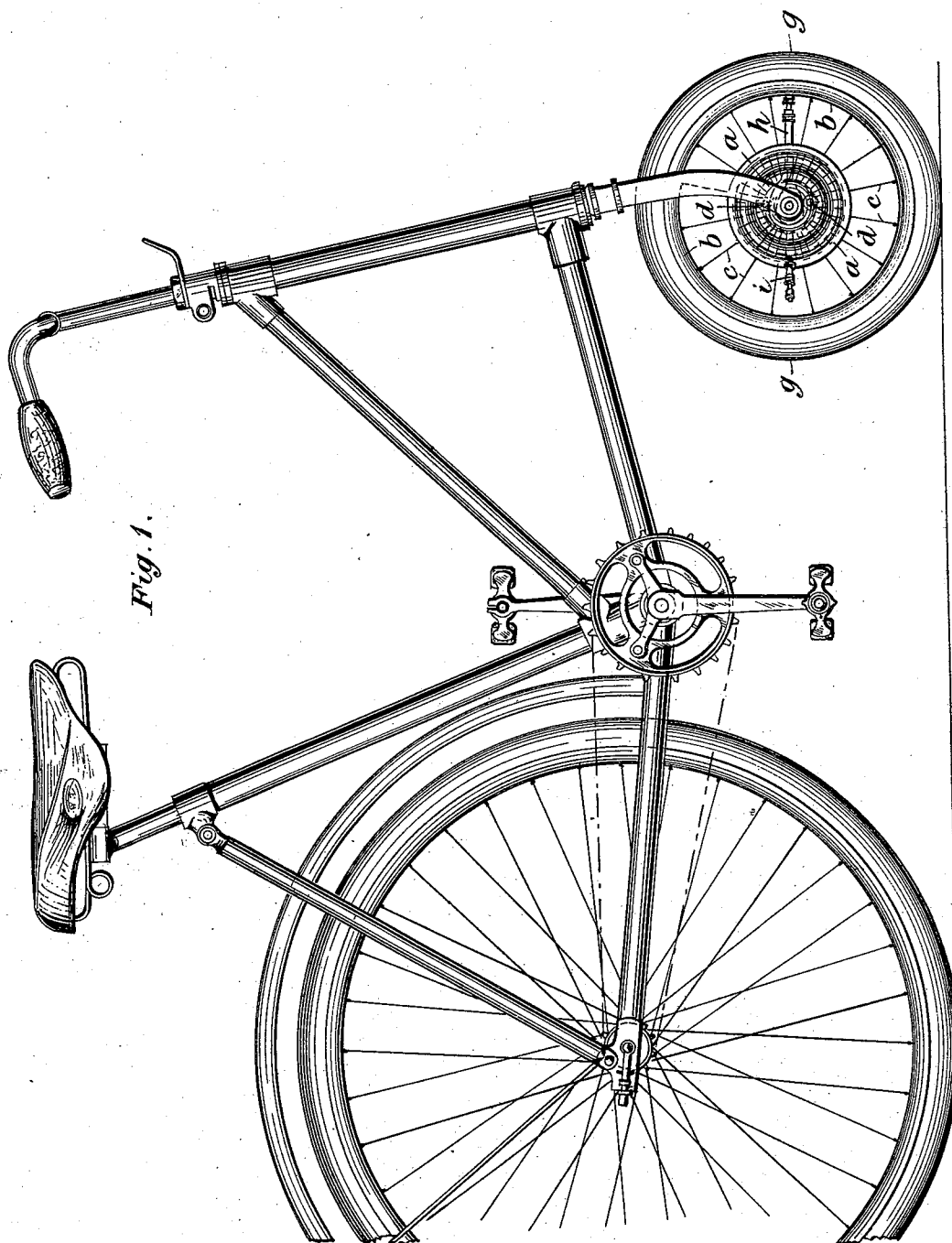
(No Model.)

4 Sheets—Sheet 1.

J. E. HATCH.
WHEEL FOR VEHICLES.

No. 601,141.

Patented Mar. 22, 1898.



Witnesses;—

Richard Skennett
William James Bowler

Inventor;—

James Edgar Hatch.

(No Model.)

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Fig. 2.

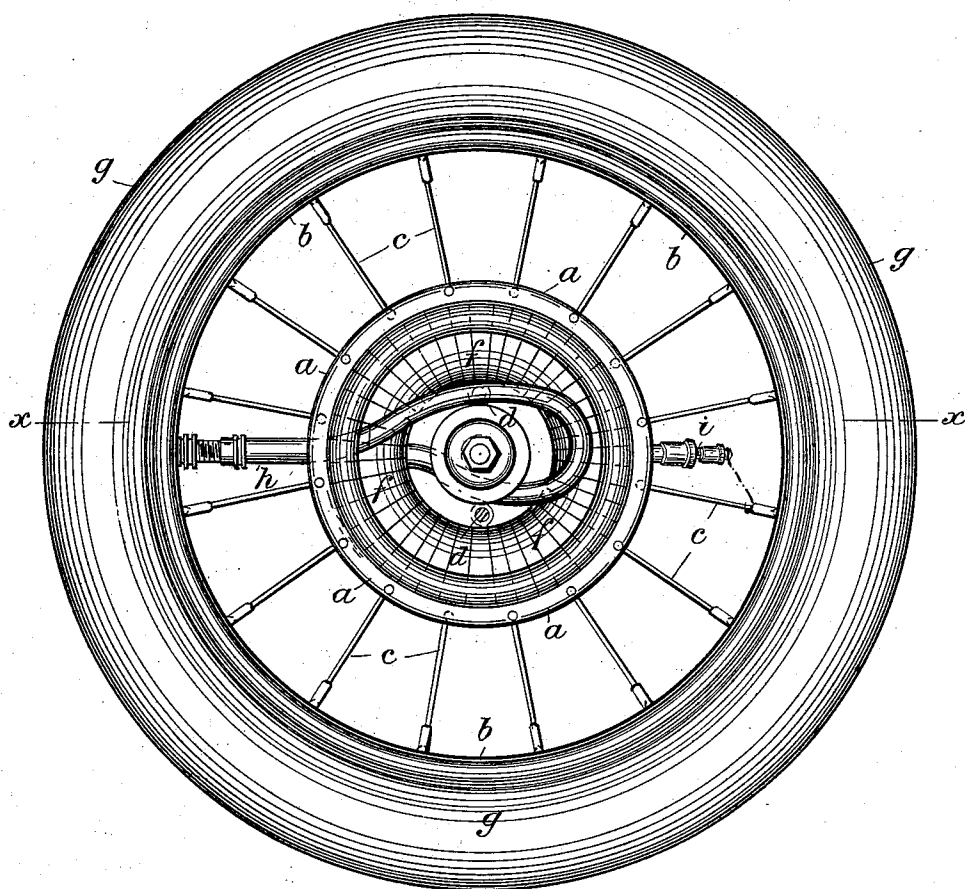
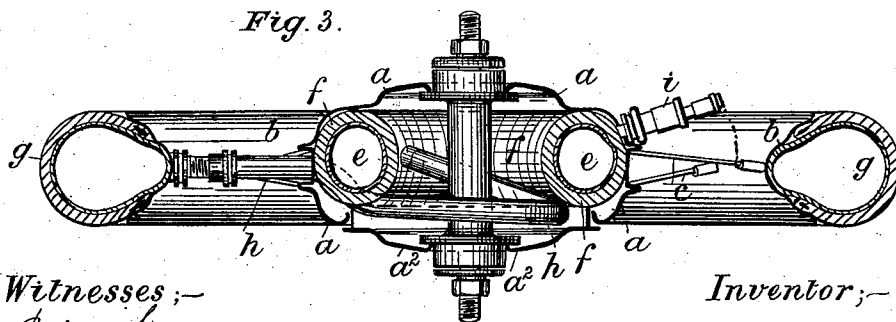


Fig. 3.



Witnesses;—

Richard Skerrett

William James Bowker.

Inventor;—

James Edgar Hatch.

(No Model.)

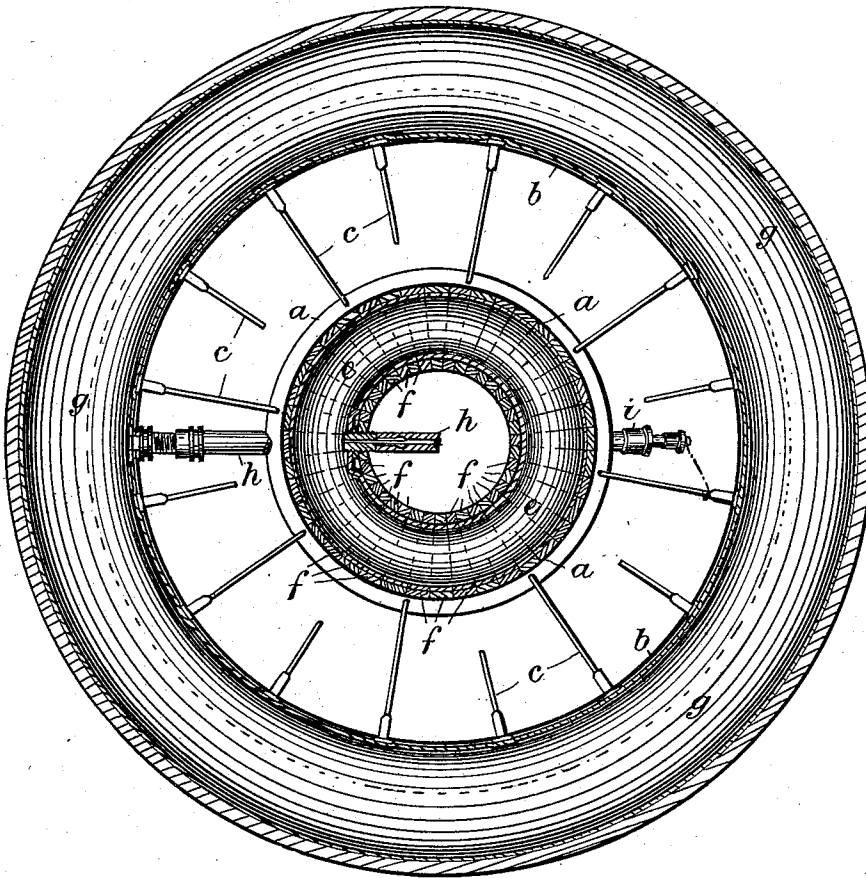
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Fig. 4.



Witnesses ;—

Richard Skerrett

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Inventor ;—

James Edgar Hatch

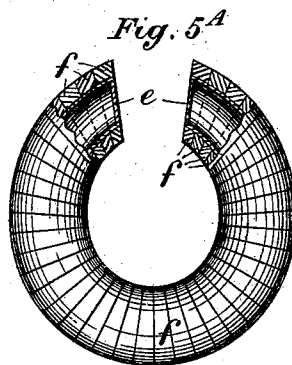
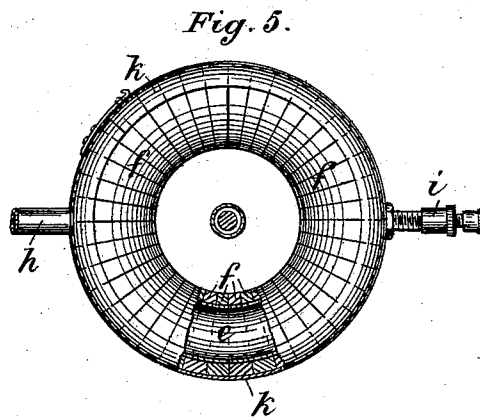
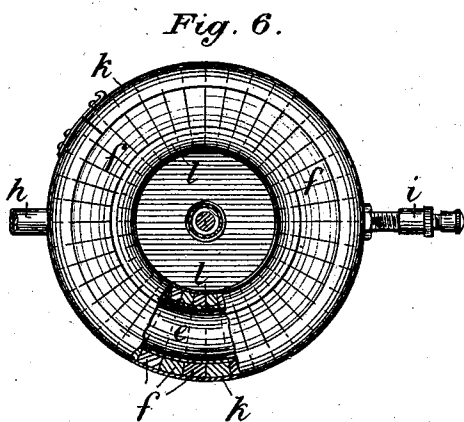
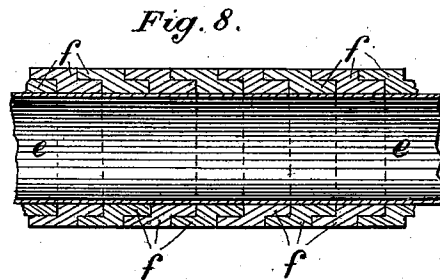
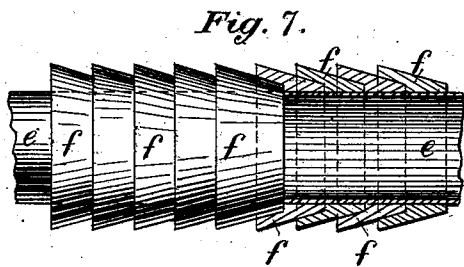
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No. 601,141.

Patented Mar. 22, 1898.



Witnesses:-

Richard Bennett
William James Bowler

Inventor:-

James Edgar Hatch

UNITED STATES PATENT OFFICE.

JAMES EDGAR HATCH, OF WEST BROMWICH, ENGLAND.

WHEEL FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 601,141, dated March 22, 1898.

Application filed August 9, 1897. Serial No. 647,606. (No model.)

To all whom it may concern:

Be it known that I, JAMES EDGAR HATCH, a subject of the Queen of Great Britain, residing at West Bromwich, England, have invented certain new and useful Improvements in or Additions to the Wheels of Bicycles, Tricycles, and other Velocipedes and Like Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of the improvements in or additions to the wheels of bicycles, tricycles, and other velocipedes and like vehicles—such, for example, as motor-cycles hereinafter described—the said improvements or additions having for their object to increase the resiliency of the said wheels, and consequently prevent or largely diminish the vibration or tremulous motion ordinarily produced in the vehicle when traveling over rough or uneven roads or encountering an obstacle in the road—such, for example, as a large pebble or the like.

My invention relates to those vehicle-wheels which have a central air-chamber—that is, an annular air-chamber situated within the wheel and concentric with the axis of the same, and has for its principal object to strengthen the walls of the said air-chamber without diminishing, or diminishing but to a slight extent, the elasticity of the same, and, further, to so connect the pneumatic tire of the wheel with the strengthened central air-chamber that on the compression of any part of the said pneumatic tire in passing over asperities in the road air passes from the said pneumatic tire into the central air-chamber and returns to the tire immediately the wheel has passed the said asperities. Thus the tire is relieved of undue pressure.

In order that my invention may be the better understood, I will describe the same with reference to the accompanying drawings, of which—

Figure 1 is a side elevation of a bicycle, the front wheel being constructed according to my invention; and Fig. 2 represents the said front wheel detached, part of the metallic casing around the hub of the wheel being omitted. Fig. 3 represents a section of the

said wheel on the dotted line xx , Fig. 2. Fig. 4 is a vertical section of the said wheel. Figs. 5, 5^A, 6, 7, and 8 represent modifications of my invention hereinafter described. Figs. 2 to 8, both inclusive, are drawn to a larger scale than Fig. 1.

The same letters of reference indicate the same parts in the several figures of the drawings.

In constructing a wheel according to my invention I preferably form around the hub of the wheel a central box-like metallic casing a a^2 , which casing is connected to the ordinary metallic rim b by spokes c c . The side a^2 of the said metallic casing is removable and is kept in place by screw pins and nuts d d . I arrange within the said metallic casing a a^2 an elastic air-tube e of thin vulcanized india-rubber, and I strengthen the said elastic air-tube e externally by strong vulcanized india-rubber rings f f f in close contact with each other, as will be best understood by reference to Fig. 4. The said central strengthened air-tube e is connected to the ordinary pneumatic tire g of the wheel preferably by a flexible pipe h . The central air tube or chamber e and pneumatic tire g are simultaneously inflated by an air-compressing pump connected to an ordinary valve i in connection with the central air tube or chamber e , the compressed air passing from the central air tube or chamber e by the pipe h into the ordinary pneumatic tire.

The action of the said wheel is as follows: On the traveling of the vehicle, Fig. 1, over asperities in the road the part of the pneumatic tire g in contact with the said asperities is compressed and the cubic capacity of the said pneumatic tire consequently diminished. The tire is relieved of the undue pressure which would result from the said diminution in the cubic capacity of the tire by the passage of some of the compressed air into the central air chamber or tube e , which is thereby distended. On the wheel passing off the said asperities the thick wall of india-rubber rings f around the central air-tube e insures the immediate return of the air to the tire and preserves the air within the tire and central air-tube at a practically uniform pressure.

Where a metallic box-like casing a a^2 is

not used, I employ a convex metallic rim *k*,
 (see Fig. 5,) preferably with an open joint
 secured together by a spring-snap or other
 fastening, and I preferably make the central
 5 air-chamber *e* of a tube closed at its two ends,
 as will be best understood by reference to
 Fig. 5^A. When the strengthened india-rub-
 ber tube *e* is placed in the rim *k*, the two
 closed ends of the said tube abut against each
 10 other. (See Fig. 5.) Where it is desired to
 limit the expansion of the inner or central
 air-tube *e*, the hub of the wheel is provided
 with a concave rim or trough *l*, (see Fig. 6,)
 15 between which and the convex rim *k* the air-
 tube *e* when inflated is situated.

Although I have shown and prefer to use
 plain india-rubber rings *fff* around the air-
 tube *e*, conical rings of the kind represented
 in Fig. 7 or rings having the sectional figure
 20 represented in Fig. 8 or other sectional fig-
 ure may be used with the same or nearly the
 same effect, or the strengthening of the air-
 tube *e* may be effected by coiling thereon a

strong band of vulcanized india-rubber, the
 two ends of the said band being secured to- 25
 gether by india-rubber or other cement.

Having now particularly described and as-
 certain the nature of my invention and in
 what manner the same is to be performed, I
 declare that I claim as my invention— 30

In a vehicle-wheel, the combination with an
 outer rim, of an inner concentric rim attached
 to the wheel-axle, spokes connecting said in-
 ner and outer rim, a pneumatic tire surround- 35
 ing the outer rim, an air tube or chamber
 placed within the inner rim, a plurality of
 vulcanized-rubber rings surrounding said air
 tube or chamber, a tubular passage connect-
 ing the said pneumatic tire and air tube or
 chamber, and a valve for admitting air to said 40
 air-tube, substantially as described.

JAMES EDGAR HATCH. [L. S.]

Witnesses:

RICHARD SKERRETT,
 WILLIAM JAMES BOWKER.