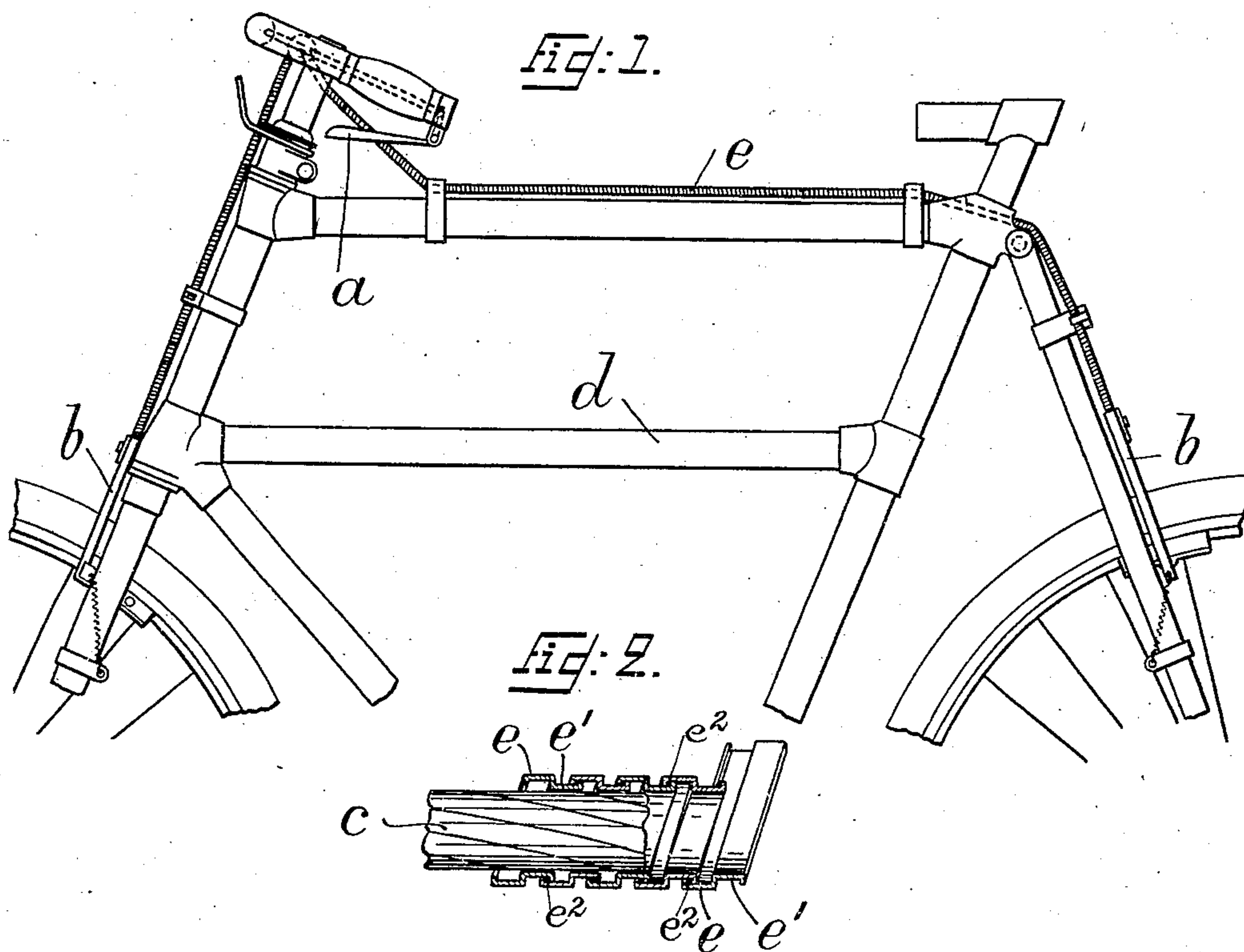


No. 854,776.

PATENTED MAY 28, 1907.

J. THOMAS.
MEANS FOR IMPARTING MOTION OR POWER.
APPLICATION FILED JUNE 6, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN THOMAS, OF NEAR COVENTRY, ENGLAND.

MEANS FOR IMPARTING MOTION OR POWER.

No. 854,776.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 6, 1905. Serial No. 263,948.

To all whom it may concern:

Be it known that I, JOHN THOMAS, a subject of the King of Great Britain and Ireland, and a resident of Caludon House, near Coventry, Warwickshire, England, have invented certain new and useful Improved Means for Imparting Motion or Power, (for which I have filed an application for British patent, No. 16,651, dated July 28, 1904;) and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to means for imparting motion or power from one part, hereinafter, by way of example, referred to as a lever, to another part, hereinafter, by way of example, referred to as a brake-shoe, at a distance, whether or no the connecting means, hereinafter referred to as the operating wire, be taut or loose between such parts, and has for its object to sheath the operating wire by metallic means which, while being compressible and extensible endwise and flexible all ways, will act as a cover to the wire and also as a guide thereto if not otherwise guided which will protect it from the access of wet dust and other influences liable to interfere with its working and from abrading adjacent parts in its working and will not be subject to the liability of getting crushed or catching fire and other disadvantages incidental to inextensible and incompressible sheathing means composed of gutta-percha or celluloid.

To this end, the invention consists in the combination with such means and parts for imparting motion and power, and so as to inclose said wire, of a flexible compressible and extensible coiled metallic tube having a metallic interior and exterior and being impervious to wet and dust at its convolutions, and hereinafter further referred to as the metallic tube.

On the accompanying drawings. Figure, 1, represents part of a cycle frame, shown, by way of example, as means for locating the prime mover and the part to be operated, and showing an arrangement in which the operating wire is stretched taut between a brake lever and a brake shoe and is supported at the bends it has to negotiate by clips or the like. Fig., 2, is a detail view of such arrangement, showing the operating wire inclosed by the metallic tube.

a, represents the brake lever, *b*, the brake shoe, *c*, the operating wire, and *d*, a cycle-

frame to which such parts are represented as applied.

e, is the metallic tube, which is composed of a ribbon of metal rolled from a flat strip to a double inverted or reversed alternating channel formation, *e*, *e*¹, and helically coiled so that the convolutions overlap and interlock, and may have a yielding packing *e*² between them.

In the arrangement shown in the drawing, the metallic tube serves as a cover guide and protective sheath to the taut brake operating wire.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In means for transmitting motion, in combination, a taut operating wire and an axially compressible metallic tube formed of a strip having a double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, the wire being movable axially within said tube.

2. In means for transmitting motion, in combination, a taut operating wire, an axially compressible metallic tube formed of a strip having a double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, and a yielding packing located between abutting points of the convolutions of the strip, the wire being movable axially within said tube.

3. In means for transmitting motion, in combination, a taut operating cable and a flexible and axially compressible and extensible metallic tube made of a strip having a double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, said cable being movable axially within the tube.

4. In means for transmitting motion, in combination, a taut operating cable, a flexible and axially compressible and expansible metallic tube made of a strip having a double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, and a yielding packing located between the abutting points of the strip, said cable being movable axially within said tube.

5. In means for transmitting motion, in combination, a prime moving part, a part to

be operated, a taut operating cable having its ends respectively connected to said parts and a flexible and axially compressible and extensible metallic tube made of a strip having a double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, said cable being movable axially within said tube.

10 6. In means for transmitting motion, in combination, a prime moving part, a part to be operated, a taut operating cable having its ends respectively connected to said parts, a flexible and axially compressible and exten-

sible metallic tube made of a strip having a 15 double alternate channel formation and helically coiled so that the outer parts of adjacent convolutions overlap and underlap one another respectively, and a yielding packing located between said outer parts, said cable 20 being movable axially within said tube.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN THOMAS.

Witnesses:

CHARLES AUBREY DAY,
ARTHUR WALTER DAY.