No. 705,588. Patented July 29, 1902.

E. HUBER.

COMPENSATING GEARING.

(Application filed Jan. 13, 1902.)

(No Model.) 2 Sheets—Sheet 1.

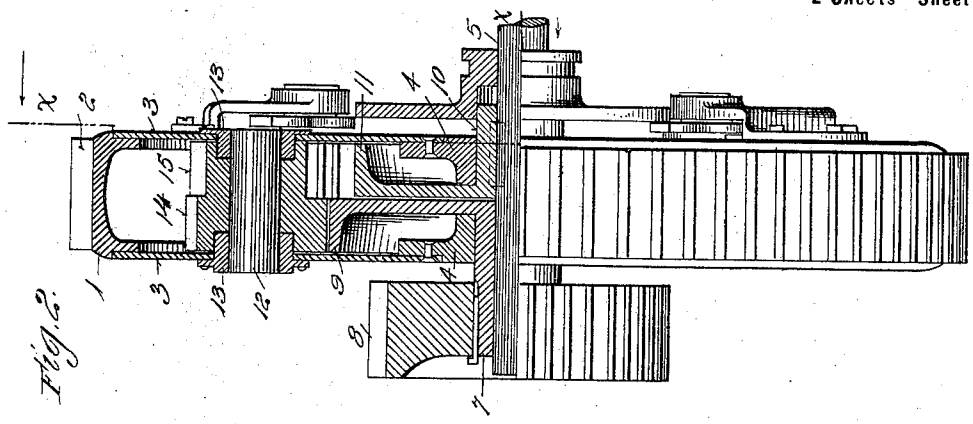


Fig. 2.

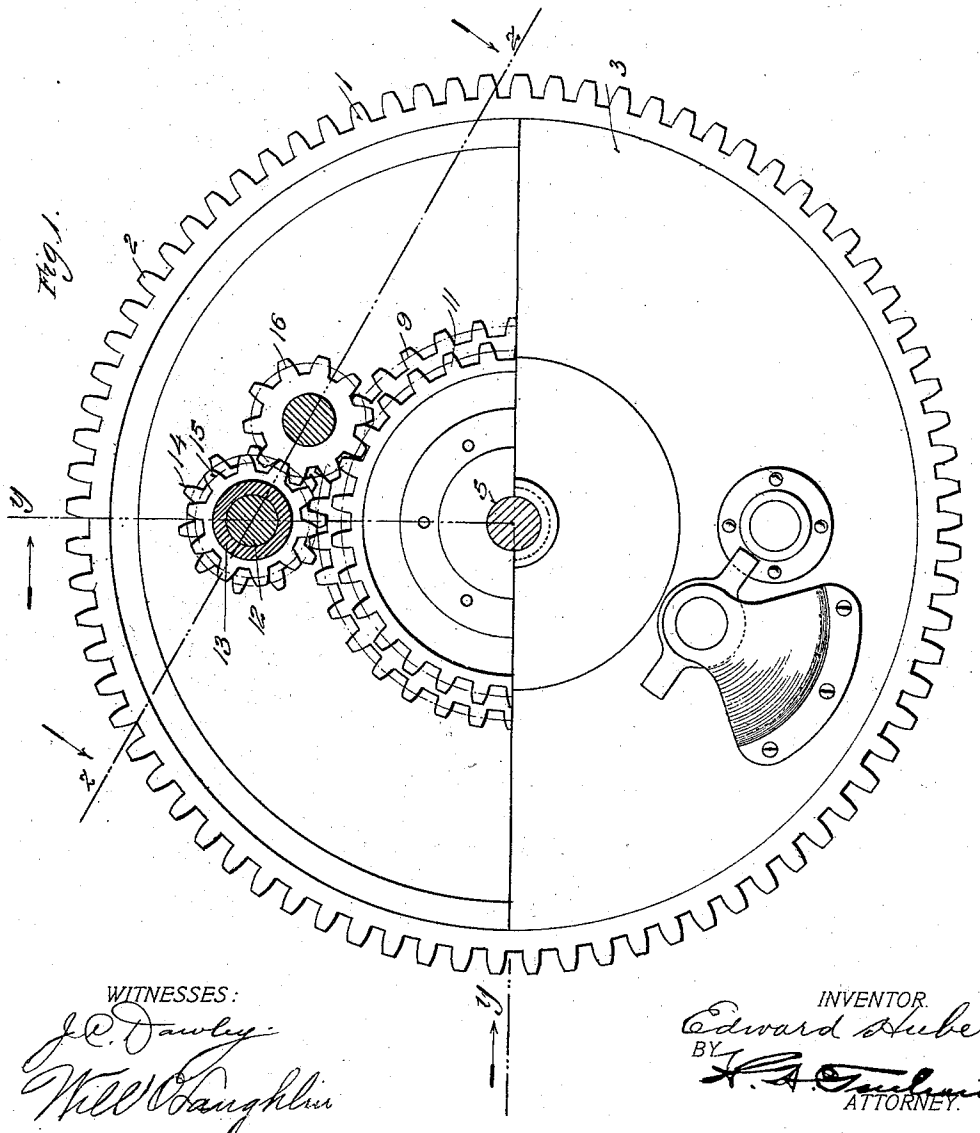


Fig. 1.

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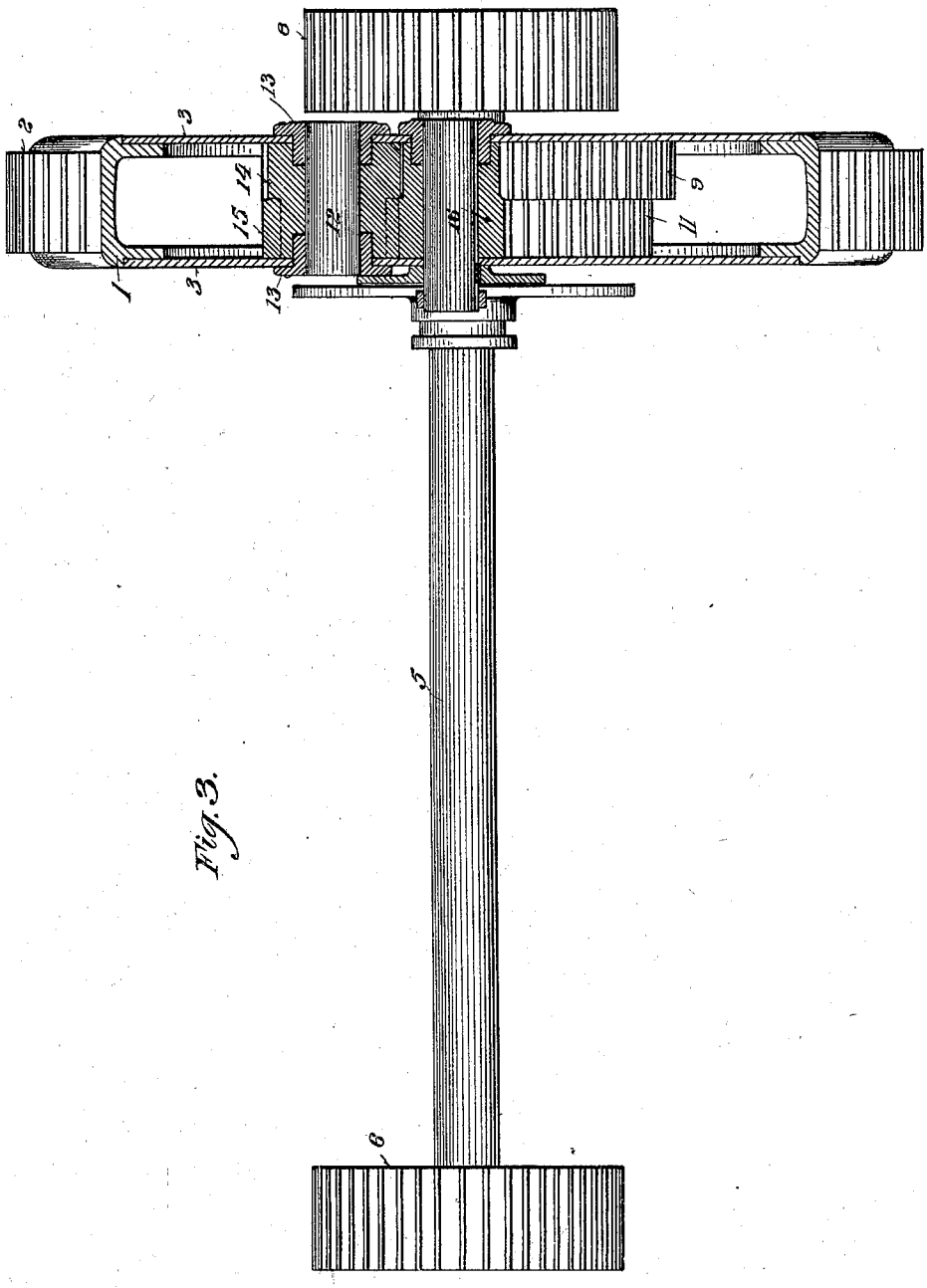


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD HUBER, OF MARION, OHIO.

COMPENSATING GEARING.

SPECIFICATION forming part of Letters Patent No. 705,588, dated July 29, 1902.

Application filed January 13, 1902. Serial No. 89,391. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HUBER, a citizen of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in Compensating Gearing, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to compensating gearing, and is devised more particularly for use in connection with traction-engines, being in the nature of an improvement upon the construction set forth in Letters Patent No. 271,464, granted me January 30, 1883.

The present invention has for its object to obviate certain disadvantages attendant upon the construction set forth in my prior patent aforesaid; and to these ends it consists in certain novel features which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is an elevation, partly in vertical section along the line *x x* of Fig. 2 and looking in the direction of the arrows, of a compensating gearing embodying my invention in one form. Fig. 2 is an end elevation of the same, partly in vertical section along the line *y y* of Fig. 1 and looking in the direction of the arrows; and Fig. 3 is a sectional view taken on the line *z z* of Fig. 1 and looking in the direction of the arrows.

In the said drawings, 1 indicates the main driving-gear, to which the driving power is applied and which comprises in the present instance a peripheral annular portion 2, carrying the gear-teeth, side plates 3, between which the major portion of the compensating gearing is inclosed, and a divided hub 4, mounted loosely on the bearing or support of the main wheel, so that the latter is free to turn thereon.

5 indicates a shaft or axle, in the present instance a counter-shaft, having at one end thereof a pinion 6, by means of which one of the driving-wheels of the traction-engine is driven. Upon this counter-shaft is loosely mounted a sleeve 7, which has secured thereon a pinion 8, by means of which the other driving-wheel of the traction-engine is driven. The sleeve 7 has secured to its inner end a gear 9, located within the space between the side plates 3 of the main driving-gear.

10 indicates a second sleeve secured on the shaft 5 and carrying or having formed thereon a second gear 11, also located within the space between the side plates 3 and immediately adjacent to the gear 9. The two gears 9 and 11 differ somewhat in diameter, as in the construction set forth in my prior patent hereinbefore referred to, the gear 9 in this case being of somewhat larger diameter than the gear 11.

The two sleeves 7 and 10 form the bearing upon which the divided hub 4 of the main gear rotates.

Upon a shaft 12, mounted in suitable bearings 13 in the side plates 3, there is mounted a double pinion, composed of two pinions 14 and 15, preferably formed integrally with each other, as shown, although they may be constructed in any way which will cause them to rotate in unison. These pinions differ from the corresponding pinions of my prior patent in that the pinion 14, which meshes with the larger gear 9, is proportionately larger than the pinion 15, which latter meshes with a pinion 16 of the same size as the pinion 15, said pinion 16 in turn meshing with the gear 11. The pinion 14 bears the same proportion to the gear 9 that the pinion 16 does to the gear 11, so that the power transmitted from the main gear 1 through the intermediate gearings to the two driving-wheels will be equal. Preferably I employ two sets of these systems of pinions, arranged diametrically opposite each other, as in my said prior Letters Patent.

In practice it has been found by experience that where gearing of the type set forth in my said prior Letters Patent is employed, in which more power is transmitted to one driving-wheel than to the other, it would frequently occur that the wheel receiving more power would slip or rotate freely, while the other wheel would remain stationary and not rotate at all. This would occur most frequently when the wheel having more power would get into a mud-hole or other slippery depression. By means of the construction which I have devised, in which equal power is imparted to both driving-wheels, this difficulty is over-

come, while at the same time the wheels are free to rotate to different extents in passing around curves or the like.

It is obvious that various modifications in the details of construction may be made without departing from the principle of my invention. For instance, although I have shown my improved gearing as arranged to drive the driving-wheels of the engine through the medium of the counter-shaft it is obvious that the driving-wheels may be driven directly, as in my prior patent hereinbefore referred to. Various other modifications will readily suggest themselves, and I therefore do not wish to be understood as limiting myself to the precise details of construction hereinbefore described, and shown in the accompanying drawings.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a compensating gear, of a loosely-mounted main driving gear-wheel, a relatively large gear-wheel adapted to be operatively connected with one driving-wheel, a relatively small gear-wheel adapted to be operatively connected with the other driving-wheel, a relatively large pinion carried by the main driving gear-wheel and meshing with the larger gear-wheel, a relatively small pinion also carried by the the main driving gear-wheel, meshing with the smaller gear-wheel, and bearing the same proportion thereto as does the larger pinion to the gear-wheel with which it meshes, and a third pinion meshing with the smaller pinion and united with the larger pinion to rotate in unison therewith, substantially as described.

2. The combination, in a compensating gear, of a loosely-mounted main driving gear-wheel having diametrically opposite systems of gears journaled thereon near its periphery, each system consisting of two pinions of different sizes so united as to rotate in unison, and a third pinion of the same size as the smaller of the two other pinions, and meshing therewith, a large gear-wheel meshing with the two larger pinions, and a smaller gear-wheel meshing with the third pinion of each system, and bearing the same relation thereto as does the larger gear-wheel to the pinion with which it meshes, said gear-wheels being respectively adapted to be connected to the two driving-wheels, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD HUBER.

Witnesses:
J. R. CURTIS,
JOHN J. CRAWLEY.