UNITED STATES PATENT OFFICE.

FLORENS KITTEN, OF FERDINAND, INDIANA.

GEARING FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 477,057, dated June 14, 1892.

Application filed February 2, 1892. Serial No. 420,085. (No model.)

To all whom it may concern:

Be it known that I, FLORENS KITTEN, of Ferdinand, in the county of Dubois and State of Indiana, have invented certain new and useful Improvements in Gearing for Traction-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in gearing for traction-engines; and it consists in certain novel features of construction, which will be fully described hereinafter, and more particularly referred to in the claims.

The object of my invention is to construct an improvement in that class of gearing which is adapted to give to the engine two different rates of speed from a given amount of power.

Referring to the accompanying drawings, Figure 1 is a sectional view of my improved gearing, showing its position on the counter-shaft of the engine. Fig. 2 is a detached elevation of the wheel H.

A represents the axle of the engine, upon which the same is supported by means of suitable boxes arranged thereon, and B C the traction-wheels, which are loosely mounted on the axle. Secured to or made integral with the inner sides of these wheels are the gears B′ C′.

D represents a counter-shaft, which is supported beneath the engine in any suitable manner and upon which the improved gearing is mounted. Loosely mounted on the end D′ of this shaft is the bevel-gear E, to the outer side of which is bolted the projecting pinion F, which engages the gear B′.

G represents a second bevel gear-wheel, which is keyed to the shaft D a short distance inward from the wheel E. The beveled cogged peripheries of these wheels face each other, as shown.

Mounted loosely on the shaft D between the wheels E G is the large wheel H, having a peripheral flange I formed thereon, which projects over the said wheels E G. The hub H′ of the wheel H projects outward and forms the bearing for the gear E, and extending from the hub H′ to the peripheral flange I are the spokes J, and arranged between these spokes are the cross-webs K, as shown. The said webs, together with the flange I, form bearings for the pivots L, upon which are mounted the pinions N. These pivots consist of headed bolts, which are inserted in place from the outer side of the wheel and which are held in place by the pins L′ at their lower ends. The pinions are preferably four in number, and their axial lines are in line with the center of the shaft D. The opposite sides of these pinions are engaged by the wheels E G, respectively, as shown in Fig. 1.

Mounted on the outer end of the shaft D is the pinion N, which engages the gear C′ of the traction-wheel C. A suitable mechanism is employed for locking this pinion to the said shaft or disengaging it therefrom at the will of the operator.

O represents a gear-wheel, which is secured to the flange I and to one side of its center, so as not to interfere with the pivotal bolts L, as shown in Fig. 1. This wheel may be made integral with the said flange or cast separate, as may be desired.

In operation power is communicated to the gearing through the cogged wheel O from the engine. When the same is put in motion, if the pinion N is rigid with the shaft D and in engagement with the gear C′, the pinions M within the large revolving wheel H will be held from turning by the gears E G; but while being so held by the said gears the latter will be locked together by the said pinions, so that the wheels E, H, and G will turn in unison, as if all were keyed to the shaft D. If, however, it is desired to increase the speed of the engine, the pinion N is disengaged from the shaft D, thus turning thereon instead of therewith. The shaft D is then locked in its bearings on the engine by any suitable means, thus holding stationary the wheel G. The wheel H, continuing its revolution, carries with it the pinions M; but as the wheel G is rigid the said pinions must necessarily revolve to enable the wheel H to continue its movement. The pinions M are therefore revolved at a high rate of speed by passing in contact with the rigid gear G, and the said pinions engaging the loose wheel E revolve it rapidly, which in turn communicates the motion through the pinion F, which is keyed to it, to the gear B′ on the in-

ner side of the wheel B. Thus it will be seen that the wheel B is given a much greater rate of speed than when both driving-wheels are receiving the power. The width of the flange I is a little greater than the combined width of the wheels E, H, and G, and as the peripheries of the wheels E and G almost touch the said flange it will be seen that the space between the said wheels is inclosed, and by this arrangement dirt and grit is effectually excluded from the gearing. The wheel O being to one side of the center of the flange I, the pivots L may be removed when worn and new ones inserted.

Having thus described my invention, I claim—

1. In a gearing of the character described, the combination, with the wheel H and a peripheral flange thereon, of a cogged wheel on the outer side of the said flange and to one side of the flange center, for the purpose substantially as shown and described.

2. In a gearing of the character described, the combination, with the wheel H, of an outwardly-projecting hub thereon, for the purpose substantially as shown and described.

3. In a gearing of the character described, the combination, with the wheel H, the spokes formed therein, and a peripheral flange, of webs which connect the said spokes, the said webs, together with the peripheral flange, forming bearings for the pivotal bolts L, substantially as shown and described.

4. In a gearing of the character described, the combination, with the wheels E, H, and G, of a peripheral flange on the wheel H, the said flange being of greater width than the combined width of the said three wheels, for the purpose described.

5. In a gearing of the character described, the combination, with the shaft D and bevel-gear G, keyed thereto, of wheel H, loose on said shaft, a projecting hub made integral with said last-named wheel, bevel-wheel E, adapted to revolve on said hub, and pinion F, secured to said last-named gear, substantially as shown and described.

6. In a gearing of the character described, the combination, with the wheel H, the spokes therein, a peripheral flange, and webs which connect the said spokes, of pivotal headed bolts, which extend down through the said flange and webs to form pivots for the pinions N, the said bolts extending in a line with the center of the shaft D, upon which the wheel H is mounted, substantially as shown and described.

7. The combination, with an axle, drive-wheels mounted thereon, tires for the said wheels, and internal gear-wheels formed by bending the inner edges of the tires downward and inward, of a counter-shaft and gearing, of the form shown and described, mounted thereon, which engages the said gears formed by the wheel-tires, substantially as set forth.

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

FLORENS KITTEN.

Witnesses:

THEODOR PETERS,

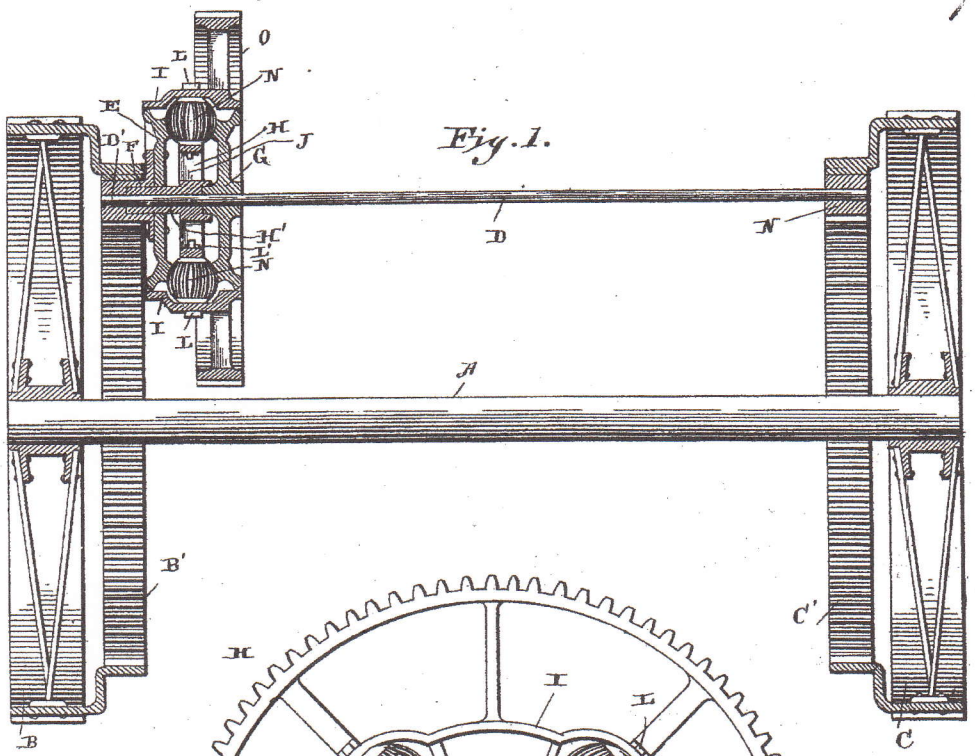
FRANK HOGE.

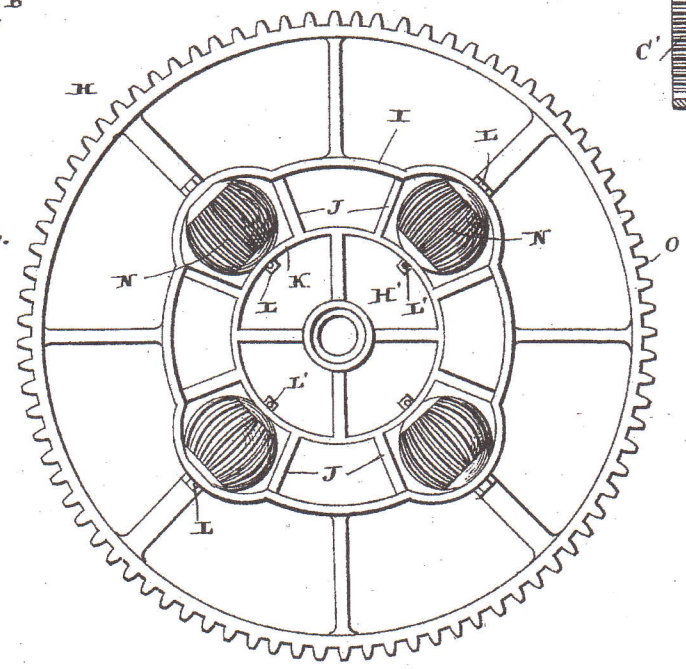
(No Model.)

F. KITTEN.

GEARING FOR TRACTION ENGINES.

No. 477,057. Patented June 14, 1892.





WITNESSES—

Geo. E. Fuchs

Wol. A. Fitzgerald

INVENTOR—

Florenz Kitten

By Lehmann Patterson & Neaf

attys.