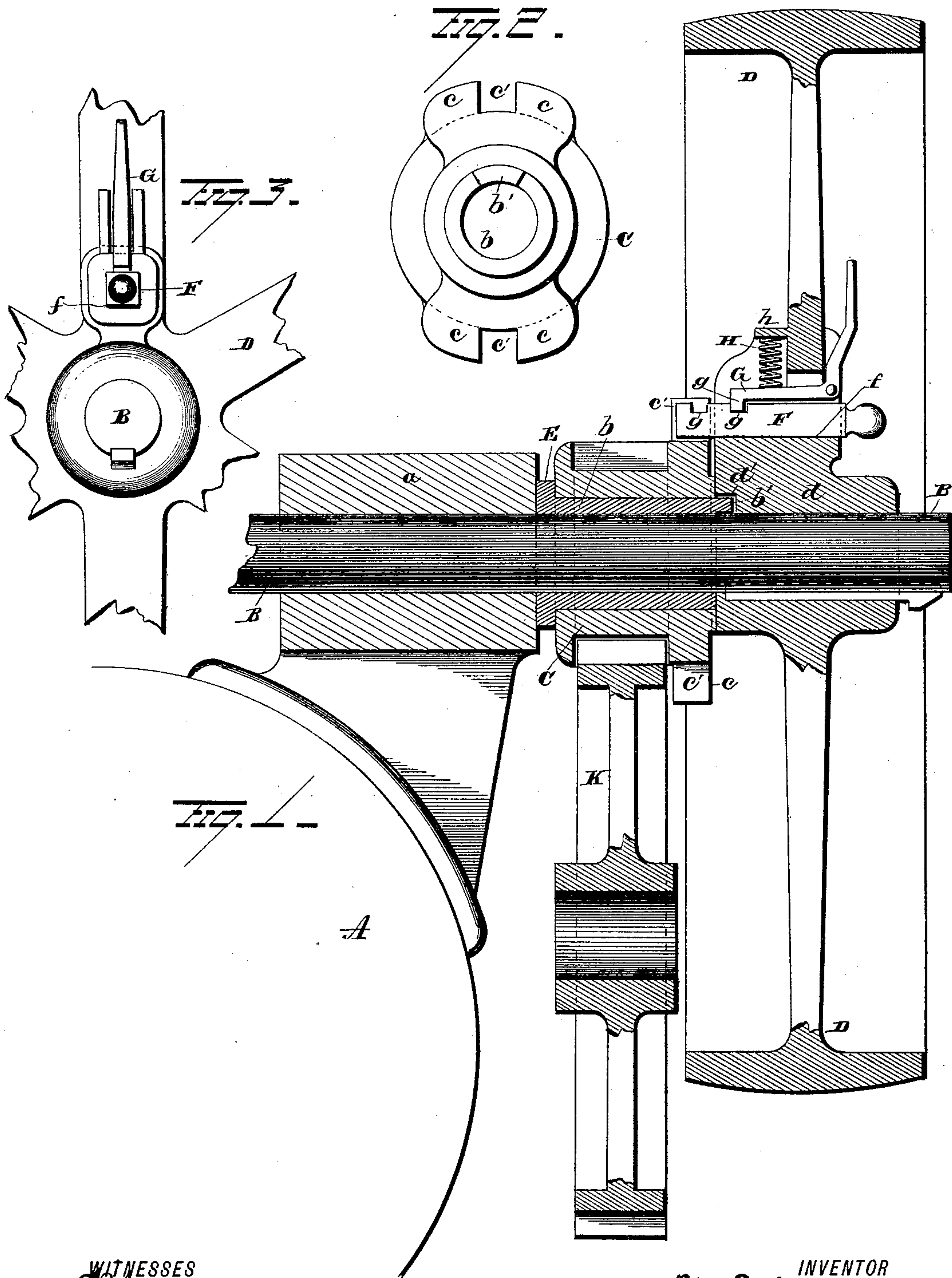


(No Model.)

M. LAFEVER.
TRACTION ENGINE GEAR.

No. 326,994.

Patented Sept. 29, 1885.



WITNESSES
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MINARD LAFEVER, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE CASE
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TRACTION-ENGINE GEAR.

SPECIFICATION forming part of Letters Patent No. 326,994, dated September 29, 1885.

Application filed March 3, 1885. (No model.)

To all whom it may concern:

Be it known that I, MINARD LAFEVER, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Gear 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 appertains to make and use the same.

My invention relates to an improvement in gear for traction engines.

In transmitting the motion of the engine-shaft to the drive-wheels and to machinery to be actuated by the shaft it is of the highest importance that the pinion which actuates the drive-wheel gear and the band or fly wheel should both be as near as possible to the pillow-block, which forms one of the supports of the shaft. As ordinarily constructed, the drive-wheel pinion is thrown in and out of gear with the main shaft by being slid on the shaft, which requires a space between the pillow-block and fly-wheel hub of twice the thickness of the pinion, at least; and in the few instances where the pinion is keyed to the fly-wheel by other means than by sliding on the shaft the pinion is seated directly on the shaft, and when idle, as it is a great share of the time, serves to wear the shaft, and thereby effect serious damage.

The object of my present invention is to provide a gear which will admit of the band or fly wheel being set as closely as possible to the pillow-block and at the same time to provide means for preventing the drive-wheel pinion from wearing the shaft, a further object being to provide improved means for keying the said pinion to the fly-wheel and hence to the shaft; and with these ends in view my invention consists in certain features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an end view of the boiler with drive-wheel gear and band or fly wheel in vertical cross-section. Fig. 2 is an end view of the pinion for actuating the drive-wheels; and Fig. 3 is an end view of the engine-shaft, fly-wheel

hub, and key for locking the drive-wheel pinion to the fly-wheel.

A represents a boiler; B, the driving-shaft; C, the pinion for actuating the drive-wheels, and D the band or fly wheel.

The drive-shaft B is journaled near one end in suitable bearings in the pillow-block *a*, the shaft projecting beyond the block *a* a distance equal to the thickness of the pinion C and hub of the fly-wheel D. On the shaft B, in close proximity to the pillow-block, a sleeve *b*, is loosely mounted and provided with a lug or projection, *b'*, on one end, which is adapted to fit within a recess, *d'*, in the end of the hub *d* of the fly-wheel D.

The band or fly wheel D is mounted on the shaft B in close proximity to the sleeve *b*, and keyed to the shaft by feather and groove or other suitable means. Thus the sleeve *b*, locked to the wheel D by the key *b'* and recess *d'*, and the fly-wheel D, keyed to the shaft, are caused to rotate with the shaft.

The pinion C is loosely mounted on the sleeve *b*, and held against lateral play thereon by its bearings against the hub *d* and a collar, E, secured on the shaft at the end of the pillow-block. The pinion C is provided on its end toward the fly-wheel with projections *c*, in which are formed recesses *c'* for the reception of a sliding key, F. The key F is located in an elongated channel or suitable perforation, *f*, in the hub *d*, and is locked in a sliding adjustment in the channel by a spring-actuated dog, G. The dog G is preferably constructed in the form of an angle-lever, pivoted to the hub at the vertex of the angle, one arm extending along over the key F, and provided with a tooth or downwardly-projecting end, *g*, adapted to engage recesses or notches *g'* in the side of the key, and the other arm extending outwardly and upwardly, forming a convenient handle for operating the dog. A spiral spring, H, is interposed between the back of the horizontal arm of the dog and a projection, *h*, on one of the spokes of the wheel, the tension of which spring tends to hold the dog in contact with the key.

The pinion C is locked to the fly-wheel and hence to the shaft B by sliding the key F into one of the recesses *c'*, the key being locked

therein by the dog G in engagement with one of the notches *g'*. This manner of locking the pinion C to the drive-shaft admits of constructing the pinion with webs I on both edges, thereby rendering it much stronger, and, in particular, forming additional supports for the teeth at each end.

K is a gear-wheel, meshing with the pinion C, for transmitting motion to the drive-wheels.

By the above construction the wear of the pinion C, when idle, will be on the sleeve *b*, which may be renewed from time to time at a slight expense, and the pinion and fly-wheel are located as nearly as possible to the pillow-block, thereby reducing the cutting or cramping of the shaft in its bearings.

It is evident that slight changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. In gear for traction-engines, the combination, with a driving-shaft and a band or fly wheel secured thereon, of a sleeve loosely mounted on the shaft between the fly-wheel and pillow-block and a non-sliding pinion loosely mounted on the sleeve for transmitting power to the drive-wheels, substantially as set forth.

2. In gear for traction-engines, the combination, with the driving-shaft projecting beyond

the pillow-block and having a band or fly wheel secured on its outer end, of a sleeve loosely mounted on the shaft between the fly-wheel hub and pillow-block, and caused to rotate with the fly-wheel, a non-sliding pinion loosely mounted on the sleeve for actuating the drive-wheels, and means for locking the pinion to the fly-wheel and releasing it therefrom at pleasure, substantially as set forth.

3. In gear for traction-engines, the combination, with the drive-wheel actuating-pinion and the fly-wheel secured on the drive shaft in close proximity to the pinion, of a sliding key located in the hub of the fly-wheel and adapted to engage a notch or recess in the pinion and a spring-actuated dog for holding the key in sliding adjustment, substantially as set forth.

4. In gear for traction-engines, the combination, with the drive-wheel actuating-pinion loosely mounted on a sleeve, the latter being loosely mounted on the drive-shaft and locked to the hub of the fly-wheel, of recessed projections formed on the pinion, a sliding key located in the hub of the fly-wheel and adapted to engage the recess in the pinion, and a spring-actuated dog for holding the key in the desired adjustment, substantially as set forth.

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

MINARD LAFEVER.

Witnesses:

B. T. SKINNER,
ALFRED G. HIGHAM.