

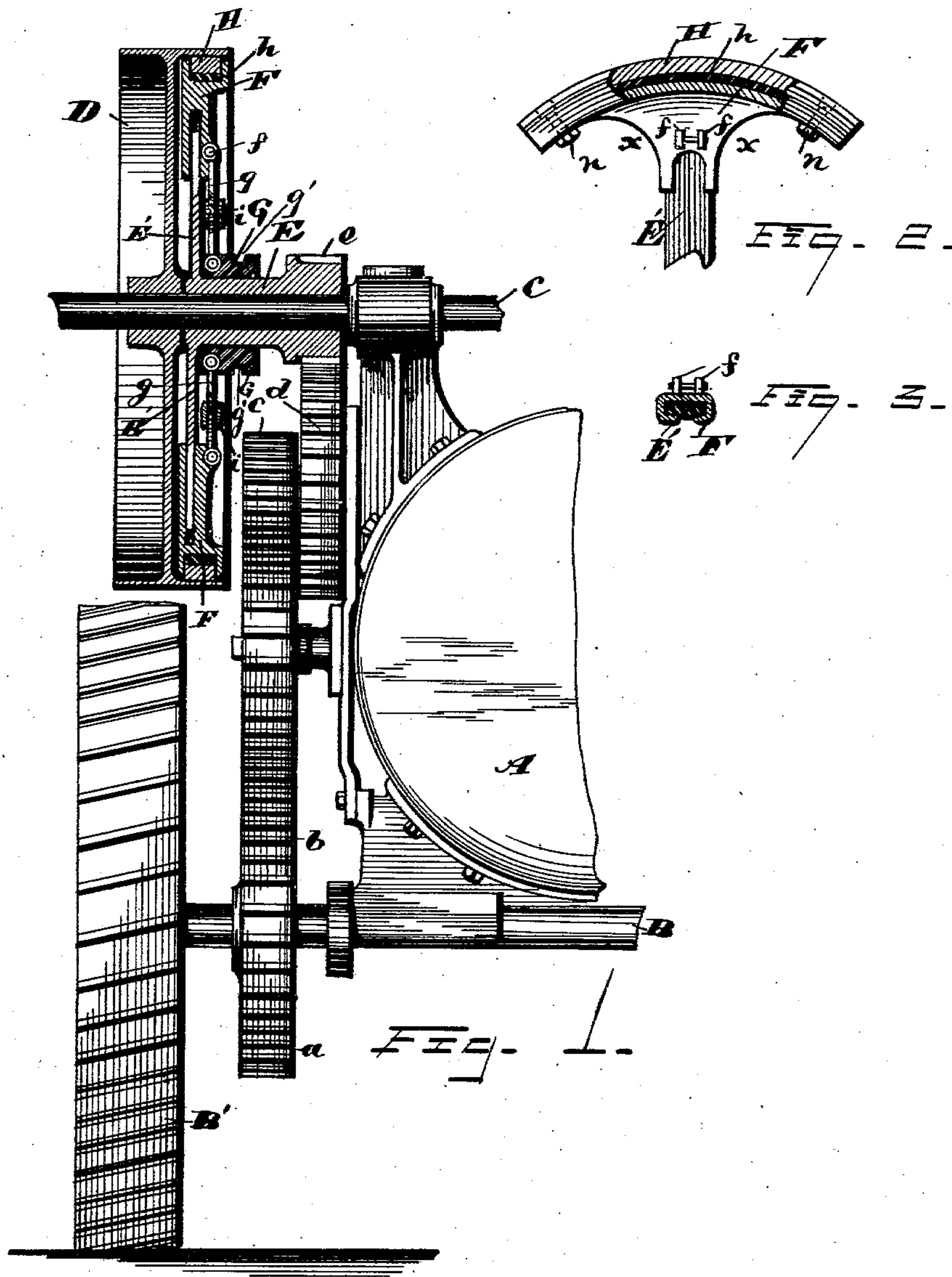
(No Model.)

J. C. TITUS.

# FRICION CLUTCH FOR TRACTION ENGINES.

No. 302,449.

Patented July 22, 1884.



**WITNESSES**

Wm. A. Monroe  
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# UNITED STATES PATENT OFFICE.

JOHN C. TITUS, OF MARION, OHIO.

## FRICTION-CLUTCH FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 302,449, dated July 22, 1884.

Application filed March 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. TITUS, of Marion, in the county of Marion and State of Ohio, have invented certain new and useful Improvements in a Friction-Clutch 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 the same.

My invention relates to friction-clutches for traction-engines, the object being to transmit the power of the engine to the gearing that drives the traction-wheels by means of a friction-clutch. A further object is to so arrange the parts that the sleeve that operates the clutch will remain in the position that engages or closes the clutch without the aid of the shifting-lever. A further object is to provide an elastic backing for the friction-blocks, by means of which the traction machinery may be more gradually set in motion and less strain had on the parts than with devices heretofore used.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of the friction-clutch, and in elevation the gearing, traction-wheel, and portions of the boiler and attachments. Fig. 2 is a side elevation of the arm, slide, friction-block, and elastic backing. Fig. 3 is a transverse section on the line of *x x*, Fig. 2.

A represents the boiler resting in part on the axle B, to which are attached the traction-wheels B'. The train of gears *a b c d*, transmitting the power from the pinion *e* to the shaft B of the traction-wheels, may be varied as required, or chain-gearing substituted therefor, if preferred.

C is the crank-shaft of the engine, to which is attached the fly-wheel D, the overhanging rim of which on one side is bored and engages the friction-blocks.

E is the sleeve journaled on the shaft C, and has attached the pinion *e* and the radial arms E'.

F are the friction-block supporters that em-

brace and slide on the arms E', and are provided with ears *f*, to which are pivotally attached one end of the rods *g*, the other ends of which are pivotally attached to sleeves G, that slide on the sleeve E. The outer end of the parts F are provided, respectively, with pockets, in which are inserted, first, the elastic backing *h*, preferably of rubber, and, next, the friction-block H, that projects beyond the side walls of the pockets and engages the rim of the wheel D. The sleeve G is provided with an annular groove, *g'*, in which operates the forked end of a lever (not shown) for sliding the sleeve. The sleeve G and the rods *g* form a knuckle-joint, that actuates the parts F in a manner well understood.

By means of the elastic backing *h* the engagement of the friction-blocks with the wheel D is not so positive as with ordinary friction-clutches, so that less strain is had on the parts and the traction machinery is more gradually set in motion.

By the arrangement of parts, when the sleeve G is slid up against the arms E', the rods *g* will have been carried a trifle past a straight line with each other, and will remain in this position without the aid of the shifting-lever, and by means of the elastic backing the parts will not be strained as the rods *g* pass the said straight line, and the pressure on the friction-blocks would not be materially lessened when the rods are a trifle past the said line. The screw-bolts *n* pass loosely through the bottom of the pockets and the backing *h* and engage the blocks H, by means of which the blocks may be drawn down and held on the rubber and the rubber more or less compressed, confining its elasticity to given limits, but without interfering with a still further compression of the rubber by the action of the blocks H. The rods *g* should be in two pieces, respectively, with right and left hand threads engaging the sleeve *i*, by means of which the length of the rods may be adjusted to take up the wear of the friction-blocks.

By means of this improved construction the machine may be gradually started or stopped, or run at any speed less than its normal speed when the engine is in full motion. The engine therefore may be controlled by a governor,



leaving the operator to give his attention entirely to operating the traction machinery.

What I claim is—

1. In a friction-clutch for traction-engines,  
5 the combination, with a crank-shaft, a traction-wheel, and intermediate gearing, of a fly-wheel rigidly secured to the shaft and having a laterally-projecting rim, the sleeve loosely mounted on the shaft and provided with a  
10 pinion, friction-blocks connected to said sleeve and resting on yielding bearings, and devices, substantially as described, for moving the blocks in contact with the rim of the wheel, substantially as set forth.
- 15 2. The combination, with the crank-shaft, a traction-wheel, and intermediate gearing, of the fly-wheel, sleeve E, provided with a pin-

ion and with arms E', block-supports guided on said arm, friction-blocks, and devices, substantially as described, for moving the blocks in contact with the wheel, substantially as set forth.

3. The combination, with the shaft, the wheel, and sleeve, of the sleeve G, the block-supports, the blocks, and links g, all of the above parts combined and adapted to operate as described.

In testimony whereof I sign this specification, in the presence of two witnesses, this 10th day of March, 1884.

JOHN C. TITUS.

Witnesses:

S. P. KEENER,  
F. H. CAMPBELL.