

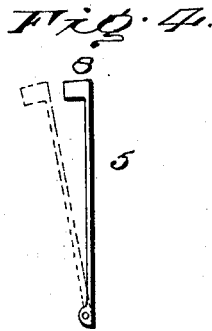
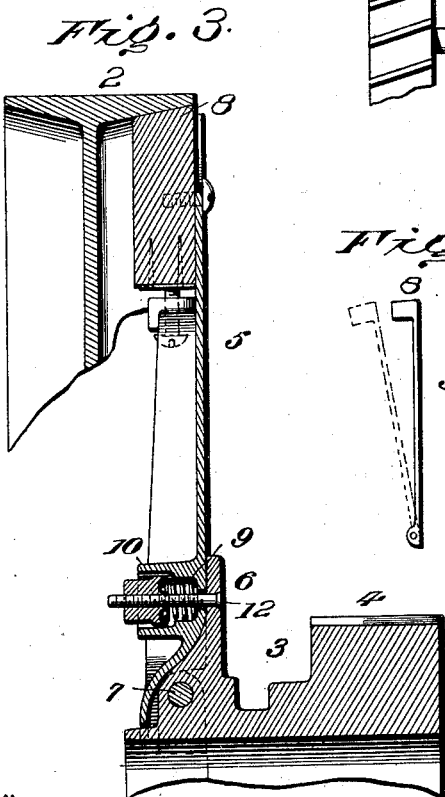
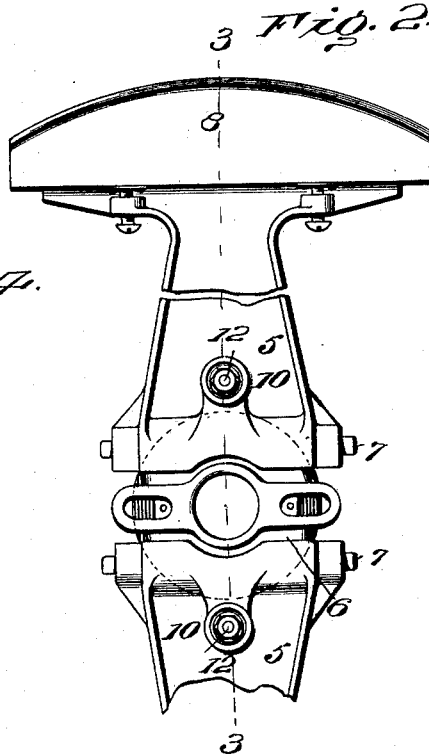
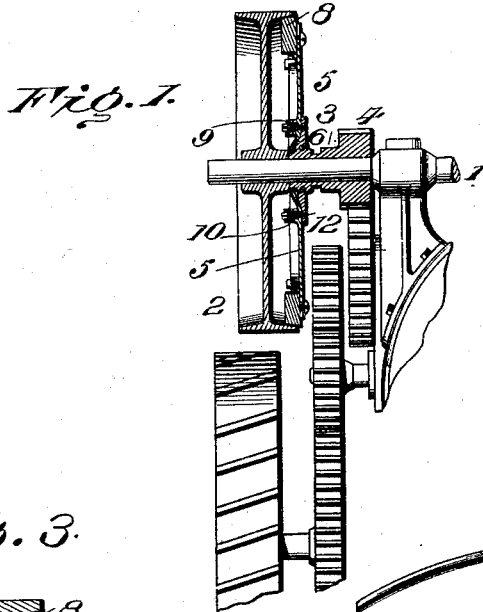
No. 683,357.

Patented Sept. 24, 1901.

M. J. TODD.
CLUTCH FOR TRACTION ENGINES.

(Application filed Aug. 8, 1901.)

(No Model.)



Witnesses.

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By

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UNITED STATES PATENT OFFICE.

MARQUIS J. TODD, OF BUFFALO, NEW YORK.

CLUTCH FOR TRACTION-ENGINES.

SPECIFICATION forming part of Letters Patent No. 683,357, dated September 24, 1901.

Application filed August 8, 1901. Serial No. 71,397. (No model.)

To all whom it may concern:

Be it known that I, MARQUIS J. TODD, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Clutches 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.

This invention contemplates certain new and useful improvements in clutches for traction-engines, and has special reference to that class wherein the shoes are thrown into and out of engagement with the fly-wheel by the longitudinal movement of the sleeve carrying the pinion which meshes with the traction-gearing.

The object of the invention is, primarily, to provide in clutches of this class means for overcoming all binding of the shoes when the clutch is being thrown out of operation.

A further object is to take all pressure on end thrust off from the clutch-operating medium and prevent cutting thereof when the clutch is thrown in; and a further object is to reduce the number of parts, simplify the construction, and reduce the cost of manufacture.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view showing in part the traction-gearing. Fig. 2 is a face view, on an enlarged scale, with parts omitted. Fig. 3 is a longitudinal section on line 3-3, Fig. 2. Fig. 4 is a diagrammatic view showing in dotted lines the movement of a clutch-arm in the event of its shoe binding in engaging.

Referring to the drawings, 1 designates an engine crank-shaft, 2 a fly-wheel fast thereon, and 3 a sleeve movable longitudinally on the shaft and formed with a pinion 4, designed to mesh with the gearing by which the traction-wheels are driven.

5 designates two arms extending radially from sleeve 3, to the flanged end 6 of which they are hinged at their inner ends, the means shown being bolts 7. On the outer end of each arm is a shoe 8, designed to en-

gage the inner surface of the rim of the fly-wheel. If such surface is beveled, the shoes are correspondingly beveled, as shown in Figs. 1 and 3, and the arms are each held normally perpendicular, or at right angles to the sliding sleeve, by a spring 9 within a boss 10, encircling a stop 12, secured to end of sleeve 3. In this construction the engagement of the shoes with the wheel-rim is effected by the longitudinal movement of the sleeve. Should there be any binding between the shoes and the rim when it is sought to disengage the clutch, the outward movement of the sleeve will cause the arms to turn on their hinges as against the tensions of springs 9, and thus throw the shoes nearer the axis of the fly-wheel and away from the rim, whereupon the arms will resume their normal perpendicular position under the recoil of springs 9, which were compressed in the temporary deflection of the arms from their true perpendicular. The arms, therefore, are normally perpendicular or at right angles to the shaft and being rigid the end pressure has no tendency to cause them to flex at their centers, thus taking all end thrust from the operating medium and preventing the latter from cutting out when the engine is being run on the road. The arms are deflected only so far as may be necessary in unclutching to release the shoes from the wheel-rim.

When the traction-gearing is to be actuated, the movement of the sleeve toward the fly-wheel causes the wedging of the clutch-shoes against the rim thereof, whereupon the sleeve will rotate with the fly-wheel and communicate motion through its pinion to the traction-gearing. The movement of the sleeve outward will disengage the shoes from the fly-wheel, and if there is any undue binding the same is overcome by the turning of the arm or arms on their hinges. Immediately upon being released the arms will resume their normal positions perpendicular to the sliding sleeve.

It will be noted that I dispense with sliding collars on the sleeve, as well as rods connecting such collars to shoe-supports, and instead the sleeve itself is adjusted to effect the clutching and unclutching of the shoes. The advantages are apparent to those skilled in

the art. It will also be noted that the arms are rigid throughout their lengths and that no flexibility thereof is required to attain an expansive leverage.

5 I claim as my invention—

1. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of arms carried by and perpendicular to said sleeve, the shoes, and means permitting such arms to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel, substantially as set forth.

2. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of the hinged radial arms normally perpendicular to the sleeve, the shoes, and means for normally holding such arms perpendicular to the sleeve and to permit them to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel.

3. The combination with a fly-wheel, its shaft, the sliding sleeve, and the pinion, of the arms carried by and perpendicular to the sleeve, the shoes, and springs for normally holding such arms perpendicular to the sleeve and to permit them to move out of a perpendicular as the shoes are thrown out of engagement with the fly-wheel, substantially as set forth.

4. The combination with the fly-wheel, its shaft, the sliding sleeve, and the pinion, of arms pivotally secured to such sleeve, the shoes, the springs acting on the arms to hold

them in their normal positions relatively to the sleeve, and stops to limit the movements of such arms on their pivots, substantially as set forth. 35

5. The combination with the fly-wheel having its rim beveled on its inner surface, its shaft, the sliding sleeve, and the pinion, of the arms hinged at their inner ends and normally perpendicular to said sleeve, the shoes beveled to conform to the bevel of the wheel-rim, and springs for normally holding the arms perpendicular and to permit them to be moved out of such perpendicular in the disengagement of the shoes from the wheel-rim, substantially as described. 45

6. The combination with the fly-wheel having its rim beveled on its inner surface, its shaft, the sliding sleeve, and the pinion, of the arms carried by said sleeve normally at right angles thereto, pivot-bearings for said arms allowing them to move toward and away from the fly-wheel, springs holding said arms in their normally perpendicular position, stops limiting the deflection of said arms, and beveled shoes on the outer ends of said arms, substantially as set forth. 55

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 60

MARQUIS J. TODD.

Witnesses:

JOHN B. OLMSTED,
A. B. SPRAGUE.