

No. 808,878.

PATENTED JAN. 2, 1906.

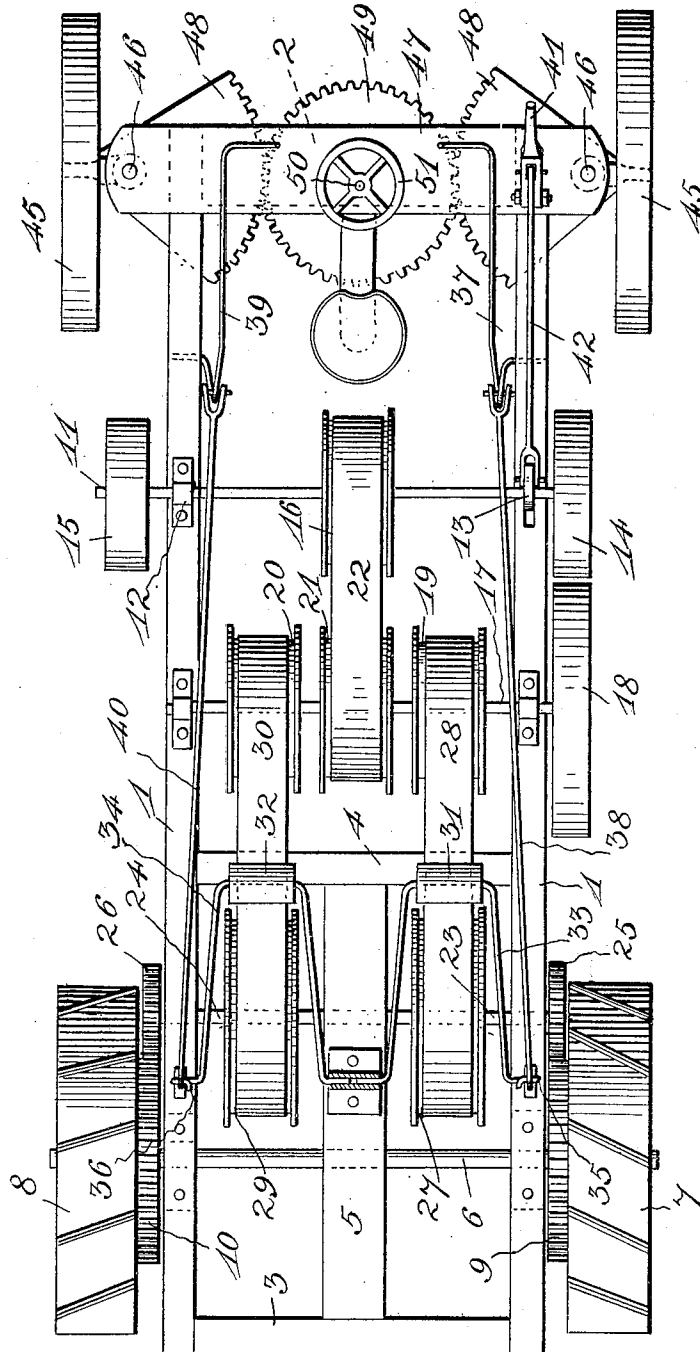
L. O. & F. B. SMITH.

TRACTION ENGINE.

APPLICATION FILED MAY 11, 1905.

2 SHEETS—SHEET 1.

FIG. 1.



Witnesses
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2 SHEETS—SHEET 2.

FIG. 2.

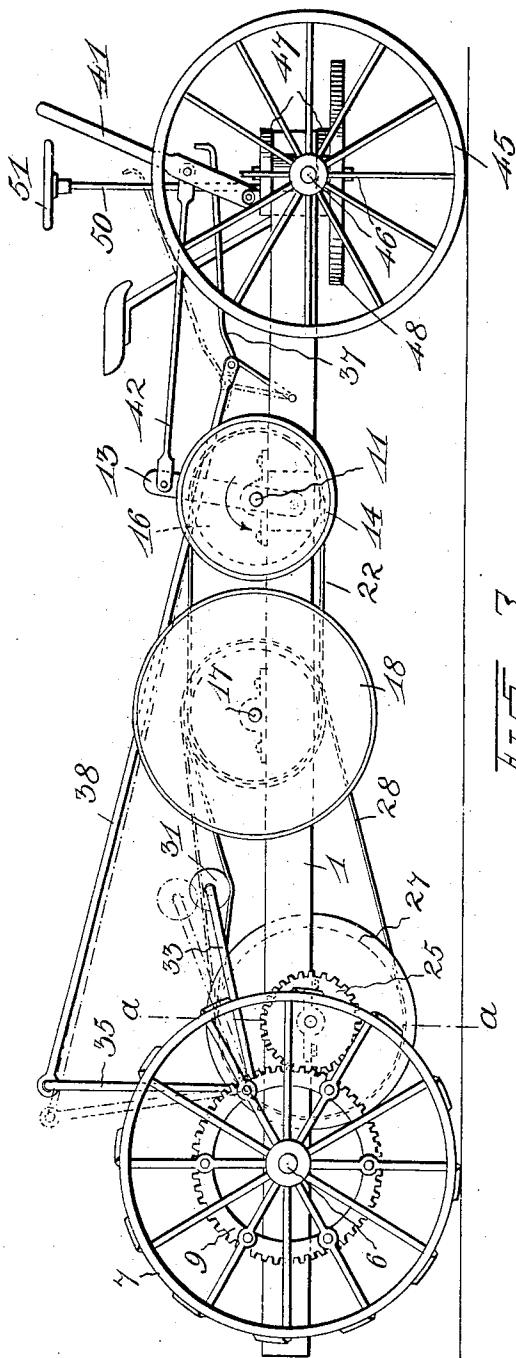
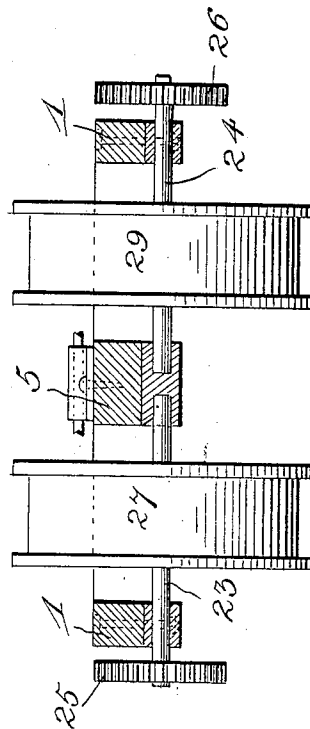


FIG. 3.



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UNITED STATES PATENT OFFICE.

LEVI O. SMITH AND FRANCIS B. SMITH, OF SOUTH STERLING,
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TRACTION-ENGINE.

No. 808,878.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed May 11, 1905. Serial No. 259,924.

To all whom it may concern:

Be it known that we, LEVI O. SMITH and FRANCIS B. SMITH, citizens of the United States, residing at South Sterling, in the county of Wayne and State of Pennsylvania, have invented certain new and useful Improvements in Traction-Engines; and we do 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.

Our invention relates to improvements in traction-engines; and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a traction-engine embodying our improvements. Fig. 2 is a side elevation of the same, and Fig. 3 is a transverse sectional view taken on the plane indicated by the line *a a* of Fig. 2.

The frame of our improved traction-engine may be of any suitable construction. It is here shown as comprising side bars 1, front and rear cross-bars 2 3, an intermediate cross-bar 4, and a longitudinal bar 5, which connects said bars 3 and 4. On the axle 6 are mounted a pair of independently-revoluble traction-wheels 7 8, which are respectively provided on their inner sides with spur-gears 9 10.

Near the front end of the frame 1 is a power-shaft 11, which has a bearing, as at 12, on one of the side bars of the frame and is also journaled in a lever 13, mounted on the opposite side of the frame, which lever forms a shiftable bearing for one end of said shaft. The latter has a friction-wheel 14 at one end and a pulley 15 at the opposite end to receive a driving-belt from a gasolene or other suitable engine or motor, (not here shown,) and the said shaft 11 is provided at an intermediate point with a pulley 16. At a suitable distance from the shiftable shaft 11 is a shaft 17, which is provided at one end with a friction-wheel 18, adapted to be engaged and disengaged by the friction-wheel 14. Said shaft is further provided with pulleys 19 20 and with a pulley 21, which is disposed between them. The pulley 21 is connected to the pulley 16 by an endless driving-belt 22. In suitable bearings with which the frame is provided are mounted a pair of independently-revoluble shafts 23 24. The former has a

spur-pinion 25, which engages the spur-wheel 9. The shaft 24 has a pinion 26, which engages the wheel 10. Said shaft 23 has a pulley 27, connected to the pulley 19 by an endless belt 28, and the shaft 24 has a pulley 29, which is connected to the pulley 20 by a similar belt 30. Said belts 28 30 are normally slack. Belt-tightening pulleys 31 32 for said belts 28 30, respectively, are mounted in rocking yokes 33 34, which are respectively provided with rock-arms 35 36. A foot-lever 37 is mounted near the front end of the traction-engine and is connected to the rock-arm 35 by a link-rod 38. A similar foot-lever 39 is connected to the rock-arm 34 by a link-lever 40. A hand-lever 41 is mounted at the front end of the frame and is connected to the lever 13 by a link-rod 42.

In operation the shaft 11 is rotated in the direction of the arrow in Fig. 2. When the friction-wheel 14 is out of engagement with the friction-wheel 18, power is transmitted from the shaft 11 to the shaft 17 by means of the pulleys 16 21 and the belt 22. Power is transmitted from said shaft 17 to the shafts 23 24 by the pulleys 19 20 27 29 and endless belts 28 30. The pinions revolved by said shafts 23 24 by engagement with the spur-gears 9 10 revolve the traction-wheels 7 8, and hence propel the engine forwardly. Either of the traction-wheels may be thrown out of gear by slackening the belts 28 or 30, as the case may be. In order to reverse the engine, the shaft 11 may be shifted by means of the levers 13 41, or either of them, to engage the friction-wheel 14 with the friction-wheel 18 and slacken the belt 22.

The front wheels 45 are independently mounted on angle-axles 46, which have the bearings for their vertical portions in brackets at the front corners of the frame, said brackets being here shown as formed by a pair of plates 47, bolted to the upper and lower sides of the front end of the frame. The said angle-axles are respectively provided with segment-gears 48, which are engaged by a pinion 49, disposed between them and carried by a steering-shaft 50, mounted in a bearing in the front end of the frame and having a hand-wheel 51 at its upper end. By the provision of the means hereinbefore described for throwing either of the traction-wheels out of gear at will the engine is rendered entirely manageable and so that it may

be readily guided in any direction when running.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A traction-engine having a driving-shaft, means to shift the same, a counter-shaft, pulleys and a belt connecting said driving-shaft and counter-shaft, gears to connect them when the driving-shaft is shifted to slacken the belt, so that the counter-shaft may be driven in either direction from the driving-shaft without reversing the latter, traction-wheels, and means to convey power to them from the said counter-shaft.

2. A traction-engine having a driving-shaft, means to shift the same, a counter-shaft, pulleys and a belt connecting said driving-shaft and counter-shaft, gears to connect them when the driving-shaft is shifted to slacken the belt, so that the counter-shaft may be driven in either direction from the driving-shaft without reversing the latter, traction-wheels, independently-revoluble shafts, gears respectively connecting them to the respective traction-wheels, pulleys on said independently-revoluble shafts and on said counter-shaft, slack belts connecting said pulleys, and means to tighten either or both of said slack belts at will, so that either or both of the traction-wheels may be driven simultaneously from the counter-shaft.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

LEVI O. SMITH.
FRANCIS B. SMITH.

Witnesses:

E. D. DUNNING,
CHAS. EDWARDS.