O. C. HOUGHTON.

TRACTION ENGINE.

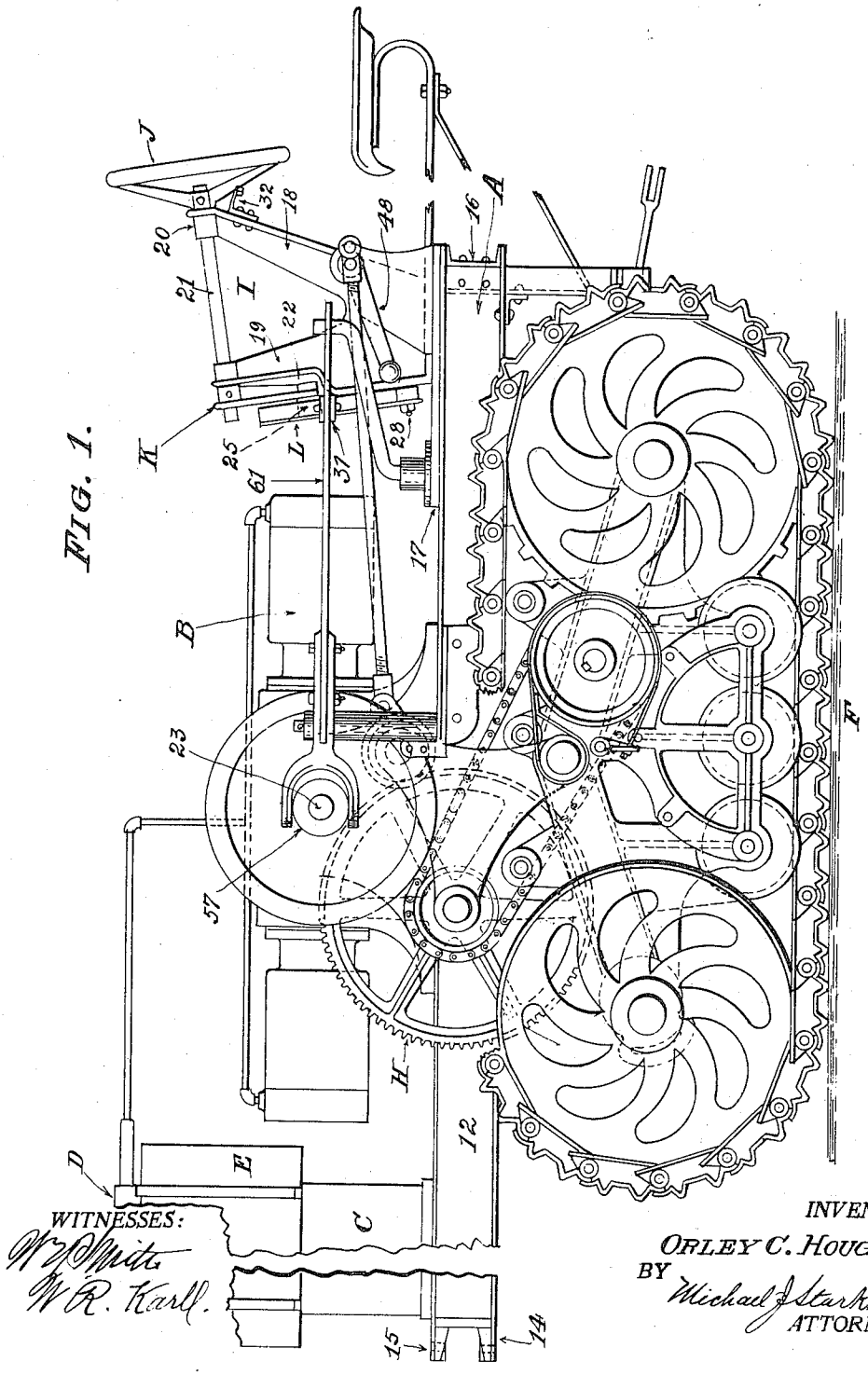
APPLICATION FILED MAY 6, 1915.

1,187,429.

Patented June 13, 1916.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

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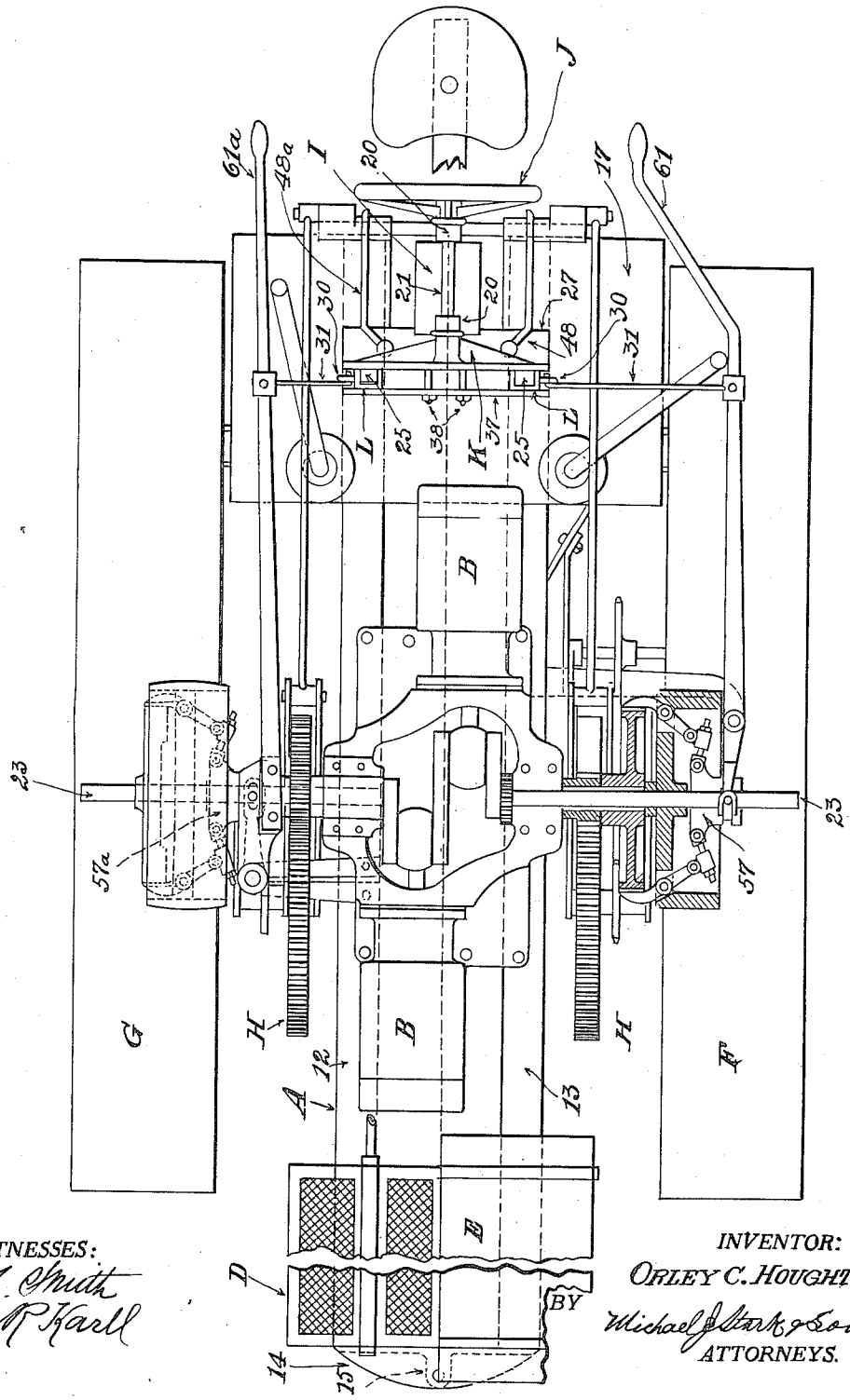
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3 SHEETS—SHEET 2.

FIG. 2.



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3 SHEETS—SHEET 3.

FIG. 5.

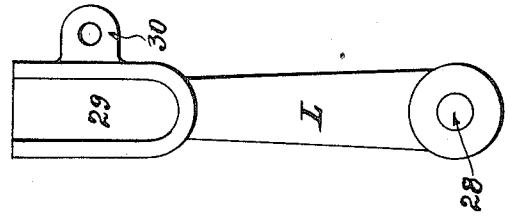


FIG. 4.

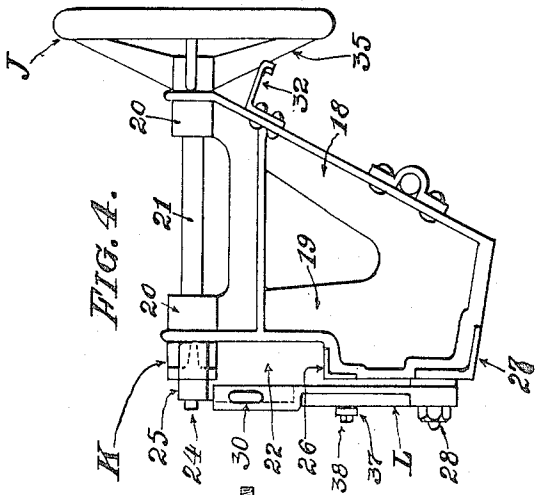


FIG. 3.

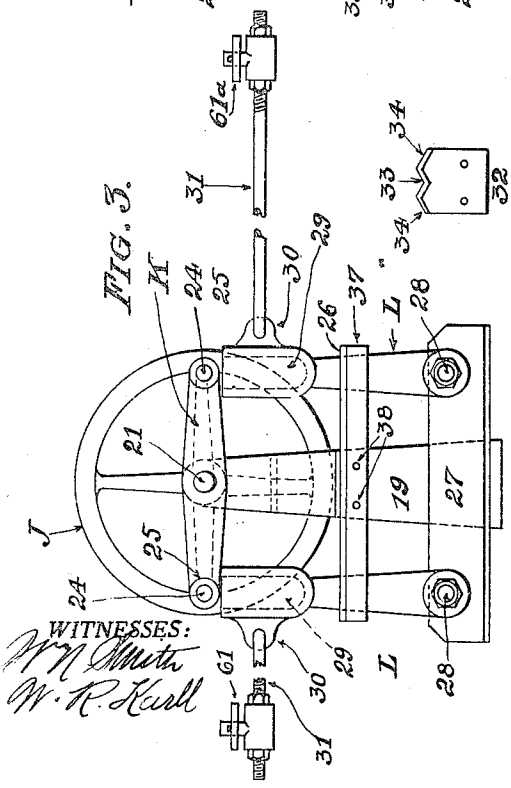
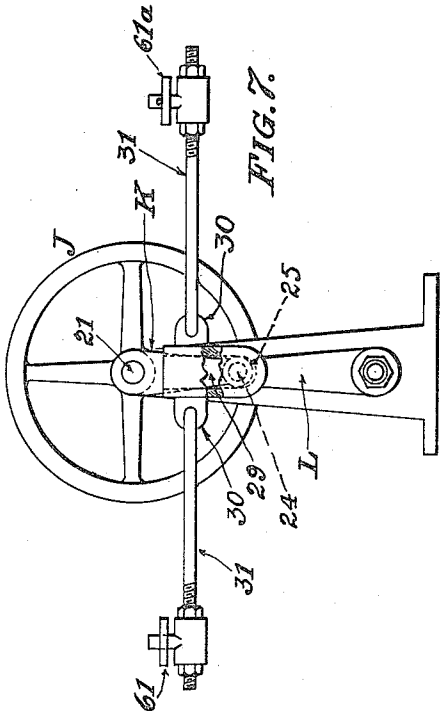


FIG. 6.

FIG. 7.



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UNITED STATES PATENT OFFICE.

ORLEY C. HOUGHTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO BULLOCK TRACTOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TRACTION-ENGINE.

1,187,429. Specification of Letters Patent. Patented June 13, 1916.

Application filed May 6, 1915. Serial No. 26,343.

To all whom it may concern:

Be it known that I, ORLEY C. HOUGHTON, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, (whose post-office address is at Nos. 1801–1825 Diversey Parkway, Chicago, Illinois,) have invented certain new and useful Improvements in Traction-Engines; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which my said invention appertains to make and use the same.

This invention has general reference to traction engines, and it is especially directed to novel and peculiar means for steering the machine by a multiplicity of steering devices.

The object of this invention is the production of a traction engine that shall be comparatively simple in construction; that can be readily operated by a single attendant; that shall be capable of turning within a very confined space, and that can be manufactured and sold at a comparatively low price.

To attain these desirable objects I construct this tractor in the preferred embodiment of my invention, substantially as shown in the drawings already mentioned, in which—

Figure 1 is a side-elevation of the machine. Fig. 2 is a plan of the same, a portion of the driving mechanism being shown in horizontal section. Fig. 3 is a front-elevation of part of the steering mechanism. Fig. 4 is a side-elevation of the same, and Fig. 5 is a detail view of one of the slotted arms employed in this device, the latter figure being drawn on a slightly increased scale. Fig. 6 is a detail view of the resilient detent. Fig. 7 is a front-elevation of a modified form of the auxiliary means for engaging and disengaging the clutch mechanism.

Like parts are designated by the same characters and symbols of reference in all the figures.

The essential features of this tractor are embodied in an application for Letters Patent of the United States filed by me on the 8th day of January, 1915, Serial No. 1205 of 1915, to which reference may be had for a full disclosure of the construction and operation of this machine. For the purpose of this present application I shall, therefore, described only briefly this portion of the machine, but specifically the novel and peculiar combination of parts and details of construction, which are embraced in this present application, and are pointed out in the subjoined claims.

A in the drawings designates the frame or chassis of this machine which frame is, preferably, constructed of two I-beams, 12, 13, which are connected at their forward ends by a substantial casting 14, transversely disposed and having medially punctured lugs 15, whereby connection may be established with any vehicle or implement for towing or pushing purposes. At the rear extremities the two I-beams 12, 13, are connected by a, preferably, channel bar 16; and upon these I-beams at said rear end there is located a platform 17.

Medially upon the I-beams there is mounted a, preferably, internal combustion motor B of any approved design, but preferably of the two opposed cylinder type, whose crank-shaft 23, is located between the opposing cylinders and which traverses the frame A and extends considerably beyond the two sides thereof. This engine or motor is supplied with a water tank C, a cooler, or condenser, D, and a fuel tank E, all located at the forward end of the frame A and properly piped to the motor in any approved manner. This main frame with its motor and other appurtenants mentioned, is mounted on two trucks F, G, each of which is fitted with an endless track band on which the tractor moves, said track bands being operatively connected to the motor B by transmission and friction gearing H, all as fully described in the parent application heretofore cited.

In this device as therein described the hand-levers 61, 61^a, that move the clutch members 57, 57^a, longitudinally on the crank shaft 23, to connect and disconnect the entire transmission and traction mechanisms from the motor, are the only means to perform this function, which requires both hands of the operator to accomplish this result. It is, however, desirable, and frequently necessary that the operator has at least one hand for steering; and to accomplish this object I construct and place on the tractor the following mechanism: I, designates a stand-

ard erected at the rear end of the tractor on the platform 17. This standard includes two members, 18, 19, each of which has a bearing 20, at its upper extremity, wherein is rotatably mounted a shaft 21. At the rear end, this shaft carries a hand-wheel J; and at its front extremity there is mounted a rocking arm K, which is constructed to swing in a gap 22, formed in the forward flank of the member 19. This rocking arm J has at its extremities studs 24, on which there are mounted rollers 25.

At the end of the gap 22 there is secured transversely, an angle-bar 26; and at the base of the member 19 there is another transverse bar 27. This latter bar has, in spaced relation, corresponding to the lineal distance between the centers of the studs 24 on the rocking arm K, two studs 28, on each of which there is oscillatably mounted an arm L, the upper end of which is provided with a groove 29, constructed to receive the roller 25.

There is projecting from adjacent the upper end of each arm L a punctured lug 30, wherewith one end of a connecting rod 31 engages, the other end of said connecting rod being pivotally connected to the hand-lever 61. In front of the upper angle bar 26 and in front of the two arms L, there is located a bar 37, secured to the angle bar 26, by stud-bolts 38, which bar, in conjunction with the angle-bar 26, serves to guide the two arms L adjacent to their upper ends.

Adjacent to the shaft bearing 20 on the rear member 18 of the standard I, there is located a resilient detent 32, shown in detail in Fig. 6. This detent has a notch 33, and adjacent this notch there are inclined planes 34, said notch 33 being constructed to engage one of the spokes 35, Fig. 4, of said hand-wheel J, and to retain said hand-wheel in normal position. This normal position is illustrated in Figs. 3 and 4, wherein the rocking arm K is horizontally disposed and the two rollers 25 thereon just clear of the upper extremities of the arms L. In this normal position the two hand-levers 61, 61ª, may be manipulated to cause the disengagement of the clutches on the crank shaft, which is necessary when starting the motor to relieve it from its load, and after starting the motor to engage the clutches to connect the motor to the transmission and the endless track bands. When thus connected, the upstanding arms L, which, while the hand-levers 61, 61ª, are being manipulated move with said hand-levers, have returned to their normal position so that if now the hand-wheel J is rotated in either direction from its normal position, the corresponding roller 25 on the rocking arm K will enter the groove 29 of the proper upstanding arm L and move the same, and with it, the corresponding hand-lever 61 to slacken, and finally to disengage that one of the clutches that is controlled by said hand-lever. A reverse rotation of said hand-wheel J returns the parts affected to normal position. It will thus be observed that by rotating this hand-wheel as described, one or the other of the endless track bands is caused to slacken its movement and that thereby, the direction of movement of the tractor to the right or the left, is entirely controlled by said hand-wheel, to the exclusion of the hand-levers, which are thus only employed when starting and stopping the motor.

The manipulation of the hand-wheel J requires but one hand of the operator, leaving his other hand to manipulate one or the other of the hand-levers 48, 48ª, Figs. 1 and 2, by which the movements of the endless track-bands are reversed, as fully described in my co-pending application #1,205 of 1915.

It will be further noticed that this construction as described, embodies two entirely independent means for steering the tractor, and that, therefore, there is only a very remote possibility of the tractor being ever incapacitated owing to failure of its steering mechanism to properly perform its function.

I have heretofore shown and described the clutch operating mechanism applied to two independently operating devices for connecting the motor to the endless track bands. In some traction engines there is, however, but one clutch mechanism to perform this function, and in this case I modify my device as illustrated in Figs. 1 and 7, *i. e.*, I shall use but one upstanding arm L, and provide the rocking arm K with but one member engaging the upstanding arm and connect this latter arm to the hand-lever 61; or where two hand levers are employed, to both of these hand-levers, as shown in Fig. 7.

I have hereinbefore described the preferred embodiment of my said invention but I desire it to be understood that I am well aware of the fact that many changes in the details of construction and the peculiar combination of parts as shown, may be made without departing from the scope of my said invention as defined in the subjoined claims.

Having thus fully described this invention, I claim as new and desire to secure to myself by Letters Patent of the United States—

1. In a motor vehicle, the combination of a chassis, a motor mounted on said chassis, a truck at each side of said chassis, traction means on each of said trucks, two, independently operable sets of transmission gearing connected to said motor, one set of said transmission gearing being connected to one of said traction means, and the other set being connected to the other of said traction means, two independently operable mechanisms constructed to engage and dis-

engage said transmission gearings from said motor, and auxiliary means connected to the independently operable mechanisms, constructed to actuate one or the other of said independently operable means, but not both of said latter means at the same time.

2. In a motor vehicle, the combination, of a chassis, a motor mounted on said chassis, a truck at each side of said chassis, traction means on each of said trucks, two independently operable sets of transmission gearing connected to said motor, one set of said transmission gearing being connected to one of said traction means, and the other set being connected to the other of said traction means, two independently operable mechanisms constructed to engage and disengage said transmission gearings from said motor, and auxiliary means connected to the independently operable mechanisms constructed to actuate one or the other of said independently operable means, said auxiliary means including a standard, a shaft rotatably mounted on said standard, a hand-wheel at one extremity of said shaft, a rocking arm at the other end of said shaft, a pair of upstanding arms constructed to connect to said rocking arm and means constructed to connect said upstanding arms to the two independently operable mechanisms.

3. In a motor vehicle, the combination, of a chassis, a motor mounted on said chassis, traction means on each side of said chassis, two independently operable sets of transmission gearings connected to said traction means, said transmission gearing including a friction clutch mechanism for each set of transmission gearings, a hand-lever for each friction clutch constructed to engage and disengage said friction clutch independently of the other of said friction clutches, and auxiliary means connected to said hand-levers constructed to operate one or the other of said hand-levers.

4. In a motor vehicle, a chassis, a motor on said chassis, a transmission shaft connected to said motor, a friction clutch device adjacent to the ends of said transmission shaft, a hand-lever for each friction clutch device, constructed to engage and disengage its respective friction clutch device, and auxiliary mechanism connected to the two hand-levers and constructed to operate one or the other of said hand levers, but not both hand levers at the same time.

5. In a motor vehicle, a chassis, a motor on said chassis, a transmission shaft connected to said motor, a friction clutch device adjacent to the ends of said transmission shaft, and means constructed to engage and disengage said friction clutch devices, said latter means including a standard, an oscillatable shaft mounted on said standard, means constructed to actuate said shaft, a rocking arm on said shaft having two members, two upstanding arms in spaced relation, pivoted at one end to said standard, means on said upstanding arms constructed to engage the two members of said rocking arm, and mechanism constructed to connect one of said upstanding arms to one of said friction clutch devices, and the other of said upstanding arms to the other of said friction clutch devices.

6. In a motor vehicle, a chassis, a motor mounted on said chassis, a transmission shaft connected to said motor, a friction clutch device on said transmission shaft, and means constructed to engage and disengage said friction clutch device from said transmission shaft, said latter means including a standard, a shaft rotatably mounted on said standard, means constructed to actuate said shaft, a rocking arm on said shaft, an upstanding arm pivoted at one end to said standard, means on said upstanding arm constructed to connect with said rocking arm, and mechanism constructed to connect said rocking arm to said friction clutch device.

7. In a motor vehicle, a chassis, a motor mounted on said chassis, a transmission shaft connected to said motor, a friction clutch device on said transmission shaft, means constructed to engage and disengage said friction clutch device from said transmission shaft, said latter means including a standard, a shaft rotatably mounted on said standard, means constructed to actuate said shaft, a rocking arm on said shaft, an upstanding arm pivoted at one end to said standard, means on said upstanding arm constructed to connect said arm to said rocking arm, and means constructed to retain said rocking arm in normal position.

In testimony that I claim the foregoing as my invention I have hereunto set my hand, in the presence of two subscribing witnesses.

ORLEY C. HOUGHTON.

Witnesses:
MICHAEL J. STARK,
J. M. HEDLUND.