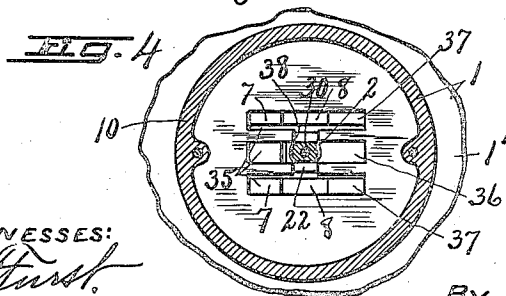
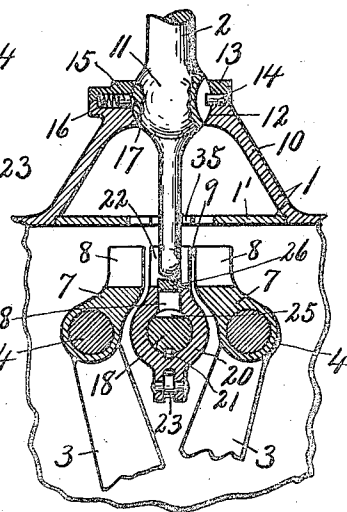
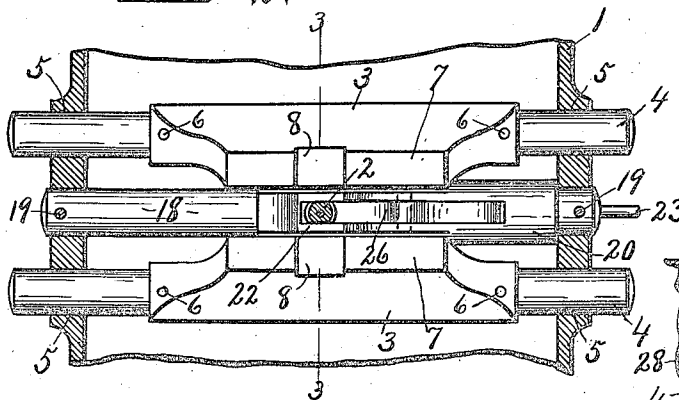
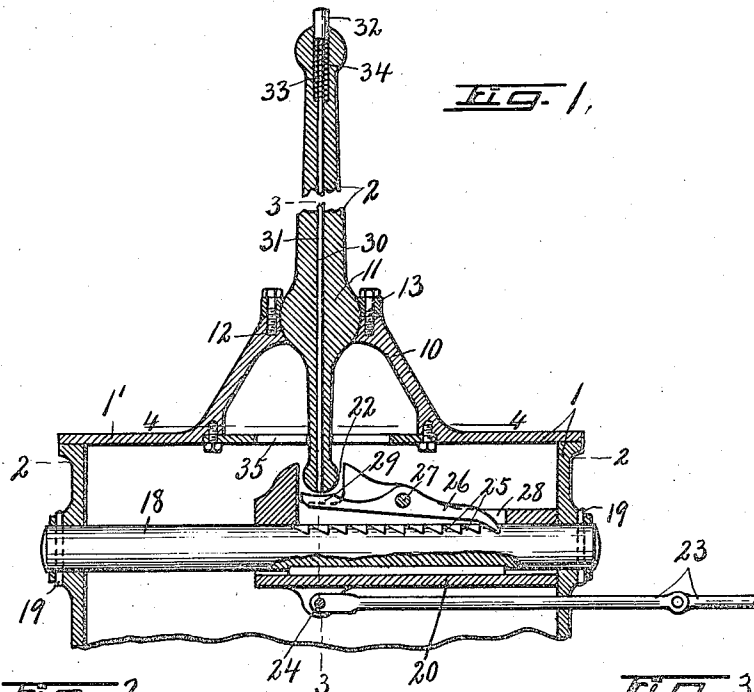


M. W. BLASIER.
 COMBINED GEAR SHIFTING AND BRAKE APPLYING DEVICE.
 APPLICATION FILED MAR. 30, 1917.

1,285,601.

Patented Nov. 26, 1918.



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MORTIMER WILLIAM BLASIER, OF AUBURN, NEW YORK.

COMBINED GEAR-SHIFTING AND BRAKE-APPLYING DEVICE.

1,285,601.

Specification of Letters Patent.

Patented Nov. 26, 1918.

Application filed March 30, 1917. Serial No. 158,620.

To all whom it may concern:

Be it known that I, MORTIMER W. BLASIER, a citizen of the United States of America, and resident of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Combined Gear-Shifting and Brake-Appling Devices, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a combined gear shifting and brake-applying device for motor-driven vehicles of the internal combustion engine type, and refers more particularly to the connections between the gear-shifting lever and brake-operating member or members, whereby the brake may be applied and released by said lever when in a certain position of adjustment, as for example, in its neutral position.

The main object is to control the emergency brake and speed-changing gears through the medium of a single hand-lever.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings—

Figure 1 is a longitudinal vertical sectional view of a gear case adapted to receive the speed-changing gears, not shown, together with the gear-shifting lever, brake-operating rod and means for transmitting motion from said lever to the brake rod.

Figs. 2, 3 and 4 are sectional views, taken respectively, in the planes of lines 2-2, 3-3, and 4-4, Fig. 1.

The device shown comprises a gear case —1— of any suitable or well-known construction adapted to contain the usual set of speed-changing gears (not shown), but preferably of the sliding transmission type, adapted to be shifted at will by a hand lever —2— through the medium of one or more gear-shifting arms —3—, portions of which are shown in Fig. 3.

Aside from the hand lever —2—, the particular system of speed-changing gears and means for transmitting motion from the lever —2— of said gears is immaterial and forms no part of my present invention, but in order that my device may be clearly understood, I have shown the gear-shifting arms —3— mounted upon parallel rods

—4— which are slidable endwise in guide openings —5— in the opposite end walls of the gear case —1— some distance apart and in parallelism.

The upper ends of the arms —3— are preferably keyed by pins —6— to their respective rods —4— and are provided with longitudinally elongated heads —7— having transverse slots or recesses —8— for receiving the lower end of the lever, the recessed portions of the heads —7— being separated to form an intervening lengthwise space —9— with which the lower end of the lever —2— is normally registered when in its neutral position, or when not registered with either of the recesses —8—.

It, therefore, follows that when the lever is in this neutral position, it may be rocked forwardly and rearwardly without affecting the operation of either of the arms —3— or gears to which they are connected.

This backward and forward movement of the lever when in its neutral position is utilized for operating the usual emergency brake (not shown) through the medium of suitable mechanism hereinafter described.

The lever —2— is fulcrumed intermediate its ends in a hollow standard —10— on the top of the case so as to be capable of lateral and longitudinal rocking movement, and for this purpose is provided with an enlarged ball or spherical portion —11— seated in a socket —12— and held in place by a cap section —13— and suitable pins —14— and —15—, one of which, as —15—, is spring-pressed by a spring —16— into a recess —17— to constitute yielding means for frictionally locking the lever in its neutral position, at the same time permitting it to be shifted in any direction about the center of the ball and socket joint.

This lever may be shifted laterally into registration with the recess —8— of either of the arms —3— and then moved longitudinally for shifting said arms to change the position of the corresponding gear, or it may be brought to the neutral position, as shown in Fig. 3, for registration with the space —9— and also moved backwardly and forwardly for operating the brake.

For this latter purpose, I have provided a lengthwise rod —18— parallel with and midway between the rods —4— and having

its ends secured by pins —19— or equivalent fastening means to the end walls of the case —1—.

A sleeve —20— is slidably mounted upon the rod —18— and held against turning by a key —21—, Fig. 3, the upper side of the sleeve being provided with a transversely extending slot or recess —22— normally registering with the recesses —8— in the upper ends of the arms —3— for receiving the lower end of the lever —2— when the latter is in its neutral position.

A brake-operating member —23— is connected at one end by a pin —24— to the lower side of the sleeve —20—, the opposite end being adapted to be connected by any suitable mechanism to the usual emergency brake (not shown) for setting and releasing the same as the lever —2— is rocked forwardly and rearwardly.

The upper side of the rod —18— is provided with a lengthwise series of teeth —25— adapted to be engaged by a pawl or detent —26— which is pivoted intermediate its ends at —27— to the upper side of the sleeve —20— to work in a lengthwise slot —28— in said sleeve.

The heel of the pawl, as —29—, lies in the same transverse plane as the recess —22— directly under the lower end of the lever —2— and a tripping bolt —30—.

This tripping bolt —30— is guided in an opening —31— extending centrally through and lengthwise of the lever —2— and terminates at its upper end in a finger-piece —32— which normally projects slightly above the upper end of the lever —2— to play in an enlarged portion —33— in the upper end of said lever against the action of a retracting spring —34—.

The lower end of the lever extends through an opening —35— in the top wall, as —1'— of the case —1—, said opening consisting of a central lengthwise slot —36— and a pair of opposite parallel slots connected to the central slot by a transverse slot —38—.

When the lever —2— is in its neutral position, its lower end is registered with the lengthwise slot —36— and transverse slot —38— and may then be moved into registration with the recess —8— of either of the gear-shifting arms —3— for selectively operating the desired gear, according to the speed required for forward driving or for reverse driving.

The sleeve —20— constitutes one of the members of the brake-operating mechanism.

In machines of this character, it is customary to employ at least two levers, one for shifting the transmission gears to the desired position for driving the machine, and the other for applying the emergency brake so that in case it becomes necessary to suddenly slacken the speed or stop the machine, the operator must not only operate the brake

lever, but must also throw the gear-shifting lever to neutral position in order to secure the utmost safety, thus necessitating two distinct operations.

In applicant's device, however, both of these operations are accomplished through the medium of a single lever,—that is, when it becomes necessary to slacken the speed of or stop the machine, the lever —2— is simply shifted to its neutral position and then rocked longitudinally, as for example in the present embodiment of my invention, the upper end of the lever is rocked rearwardly, thereby shifting the sleeve —20— forwardly and imparting a similar movement to the brake-operating rod —23— for applying the brakes, during which the pawl —26— automatically engages one or the other of the teeth —25— to hold the brake in its adjusted position.

In releasing the brake, it is simply necessary to depress the finger-piece —32— by hand to release the locking pawl —26— from holding engagement with the teeth —25—, whereupon the lever may be restored to its normal or neutral position ready for adjustment to engage one or the other of the arms —3— for shifting the desired transmission gear.

It will be evident from the foregoing description that various modifications of the means for transmitting motion from the lever —2— to the brake-operating member, as —23—, may be employed without departing from the spirit of my invention, and, therefore, I do not wish to limit myself to the precise construction herein illustrated and described.

What I claim is:

1. The combination with a gear-shifting member and a brake-operating member, of a single hand lever adjustable to one position for operating the gear-shifting member, and to another position for operating the brake-operating member.

2. The combination with a gear-shifting member of a speed-changing gear and a brake-operating member, of a hand lever adjustable laterally into and out of engagement with said members and having an independent movement for operating either member independently of the other.

3. In a motor-driven vehicle, the combination with a gear-shifting member of a speed-changing gear and a slidable brake-operating member, of a lever adjustable to one position for engaging and operating the gear-shifting member and to another position for engaging and operating the brake-operating member.

4. In a motor-driven vehicle, the combination with a gear-shifting member of a speed-changing gear and a brake-operating member, of a hand lever adjustable to one position for engaging and operating the gear-

shifting member and to another position for engaging and operating the brake-operating member, and movable means for holding the brake-operating member in its adjusted position.

5. In a motor-driven vehicle, the combination with a gear-shifting member of a speed-changing gear and a brake-operating member, of a hand lever adjustable to one position for engaging and operating the gear-shifting member and to another position for engaging and operating the brake-operating member, movable means for holding the brake-operating member in its adjusted position, and means on the lever for tripping said holding means.

6. In a combined gear-shifting and brake-operating device, the combination of a gear-shifting member and a slidable brake-operating member, a hand lever adjustable to one position for engaging and operating the gear-shifting member and to another position for engaging and operating the brake-operating member.

7. In a combined gear-shifting and brake-operating device, the combination of a guide, a brake-operating member slidable thereon, a gear-shifting member at one side of the brake-operating member, a hand lever movable in the same plane into and out of engagement with each of said members and having an independent movement for operating the member engaged thereby independently of the other member, said guide being

provided with a toothed rack, a pawl on the brake-operating member for engaging the teeth of said rack, and means on the lever for tripping the pawl.

8. The combination of a speed changing gearing and an operating lever therefor, normally in a neutral position and having a forward and rearward movement independently of said gearing when in said neutral position, and a brake-operating member in the path of said movement.

9. The combination with a speed changing gearing and an operating lever therefor having a forward and rearward movement when in its neutral position, and brake-applying means having operative connection with said lever only when the latter is in its neutral position.

10. The combination with a speed changing gearing and an operating lever therefor having a forward and rearward movement when in its neutral position, and brake-applying means having operative connection with said lever only when the latter is in its neutral position, and means for holding said means in its braking position when adjusted by said lever.

In witness whereof I have hereunto set my hand this 26 day of March, 1917.

MORTIMER WILLIAM BLASIER.

Witnesses:

WM. J. PERKINS,
GEO. H. LEONARD.