

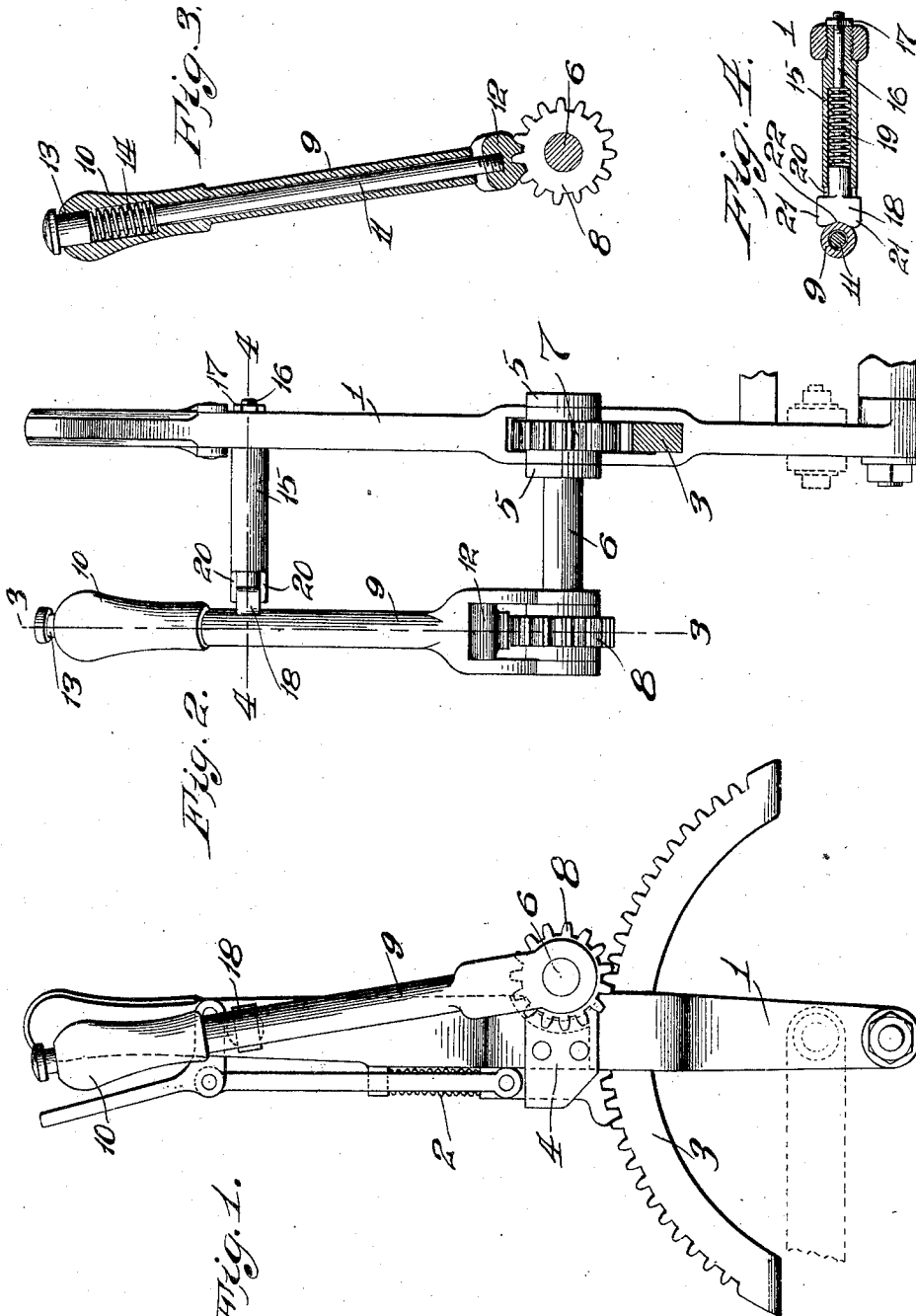
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REVERSE LEVER.

APPLICATION FILED MAY 20, 1909.

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Patented Aug. 23, 1910.



attest.
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UNITED STATES PATENT OFFICE.

GRAVES R. MAUPIN AND JOHN W. FAESSLER, OF MOBERLY, MISSOURI.

REVERSE-LEVER.

967,947.

Specification of Letters Patent.

Patented Aug. 23, 1910.

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To all whom it may concern:

Be it known that we, GRAVES R. MAUPIN and JOHN W. FAESSLER, citizens of the United States, and residents of Moberly, Missouri, have invented certain new and useful Improvements in Reverse-Levers, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to reverse levers for locomotives, its object being to provide an auxiliary set for reverse levers whereby when the reverse lever is free to move over the quadrant the auxiliary set lever is arranged to move the reverse lever a comparatively short distance in either direction and hold the reverse lever over the quadrant until the reverse lever pawl is set.

To the above purposes, our invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully described, pointed out in the claims and illustrated in the accompanying drawings, in which:

Figure 1 is an elevation of a reverse lever having our auxiliary set applied thereto; Fig. 2 is an elevation of the reverse lever and auxiliary set taken at right angles to Fig. 1; Fig. 3 is a vertical sectional elevation of the auxiliary set lever taken on the line 3—3 of Fig. 2; and Fig. 4 is a detailed sectional plan taken on the line 4—4 of Fig. 2.

In the construction of the levers as shown, the numeral 1 designates a reverse lever. 2 a spring actuated pawl, and 3 a quadrant over which the pawl and lever ride. These parts are of ordinary construction except for the housing 4, which is provided at its forward end with integral perforated ears 5.

Positioned for rotation within the perforated ears 5 is a shaft 6, which is embraced by a pinion 7, and arranged for rotation with the shaft between the perforated ears 5. On the inner end of the shaft 6 is a second pinion 8 of substantially the same diameter and having the same number of teeth as the pinion 7, which pinion is also arranged to rotate with the shaft 6. A lever 9, having a handle portion 10 formed on its outer end, a bore formed longitudinally thereof, the upper end of the bore being larger than the remaining portion, and a perforated lower end portion having transverse perforations is arranged to embrace the inner end of the

shaft 6 and pinion 8. Seated within the lever 9 is a rod 11 of a length somewhat greater than the lever 9, and threaded to the lower end of the rod 11 is a pawl 12. The upper end portion of the rod is provided with a head 13, and positioned within the bore impinging the lower end of the head 13 and the shoulder formed by the enlarged portion of the bore, is an expansive coil spring 14 embracing the rod 11.

A threaded aperture is formed in the reverse lever near its upper end into which aperture is seated an arm 15. A bore is formed within the arm with its outer end portion of a greater diameter than its inner end portion. Arranged within the bore is a rod 16 having a nut 17 seated on its one end portion and an integral head 18 formed on its opposite end. Impinging against the inner face of the head 18 and against the shoulder formed by the enlargement of the bore within the arm 15, is an expansive coil spring 19 embracing the rod 16. The outer end of the arm 15 is slotted to form guides 20 for the head 18 of the rod 16, and the head is provided with lateral extensions 21 arranged to slide in the guides 20. A depression 22 of the same general transverse contour as the lever 9 is formed in the head 18 and arranged to be held against the lever to hold it in an inoperative position when desired.

To persons familiar with the art to which our invention belongs, it will be understood that the reverse lever is a part of a mechanism by which the valve is operated in locomotives or similar engines which acts as a variable cut-off or reverses the steam, or renders the valve inactive, which valve being acted upon by steam under high pressure makes the positioning of the reverse lever to open the valve to supply the desired amount of steam to the cylinder, an operation requiring no little manual effort or skill. In the employment of our auxiliary lever set the engineer or operator grasps the reverse lever 1 in his right hand and lifts the pawl 2 out of engagement with the quadrant 3. At this time when it is found difficult to move the reverse lever, the engineer grasps the auxiliary lever 9 in his left hand and with his thumb depresses the head 13 of the rod 11 and seats the pawl 12 into engagement with the pinion 8. The lever 9 is then rocked over the arm 6 of the reverse lever in the direction of the desired

movement by the reverse lever. This causes the pinion 8 and shaft 6 to rotate and move the pinion carried by the lever 1 over the quadrant 3.

5 It is obvious that a reverse lever having an auxiliary lever positioned to rock on an arm carried by the reverse lever and arranged to move a pinion engaging the quadrant is an operation requiring much less
10 physical effort than the reverse lever now commonly employed. In addition to the more easily operated reverse lever by the employment of our auxiliary lever, we have found that by the use of a pinion arranged
15 to be rocked in any position over the quadrant, which rocking is done without releasing the grip on the lever, (as is necessary to lift or drop the pawl in common use) we can much more readily control the movement of the reverse lever. In other words,
20 by the use of the common reverse lever, assuming the lever to be in advance of the vertical center of the quadrant, or in a "forward" position, and it is desired to
25 move the lever toward "center" a short distance, and then instantly "forward" again, the engineer in the act of moving the pawl must open or release his grip from the lever. By the employment of our auxiliary lever
30 having a pawl operated by the thumb of the hand grasping the lever and engaging with the rotating pinion at the will of the engineer, a positive action at all times between the lever and quadrant is obtained.

35 We claim:

1. In combination with a reverse lever a segment for locomotives, a shaft carried by the reverse lever, pinions carried by the shaft and an auxiliary lever pivotally
40 mounted on said shaft for rotating the pinions, each of said levers being provided with means to prevent their movement relative to the segment.

2. In combination with a reverse lever
45 and segment for locomotives, a pawl carried

by the reverse lever, a shaft carried by the reverse lever, pinions carried by the shaft, an auxiliary lever pivotally carried by the shaft and means carried by the auxiliary lever to engage at times with one of the pinions whereby when the auxiliary lever is
50 rocked the pinions are rotated.

3. In combination with a reverse lever and segment for locomotives, a pawl carried by the reverse lever, a shaft carried by the
55 reverse lever, pinions carried by the shaft, an auxiliary lever pivotally carried by the shaft having a spring actuated detent arranged to engage one of the pinions.

4. In combination with a reverse lever
60 and segment for locomotives, a spring actuated pawl carried by the reverse lever, a shaft carried by the reverse lever, pinions arranged on the shaft, an auxiliary lever pivotally carried by the shaft having a
65 spring actuated rod within its body portion, a portion of which rod projects beyond the top of the lever and a detent fixed to its lower end to engage one of the pinions.

5. In combination with a reverse lever a
70 segment for locomotives having a spring actuated pawl, a shaft carried by the reverse lever, pinions arranged on the shaft, an auxiliary lever pivotally carried by the shaft a spring actuated rod within the body
75 portion of the auxiliary lever, which projects beyond the top of the lever, a detent fixed to the lower end of the rod to engage one of the pinions and means connected with the reverse lever for holding the auxil-
80 iary lever substantially parallel with the reversing lever at times.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses.

GRAVES R. MAUPIN.
JOHN W. FAESSLER.

Witnesses:

GEORGE BESTEN, Jr.,
PAT McDONALD.