

No. 667,341.

Patented Feb. 5, 1901.

J. E. SAGUE.  
LOCOMOTIVE.

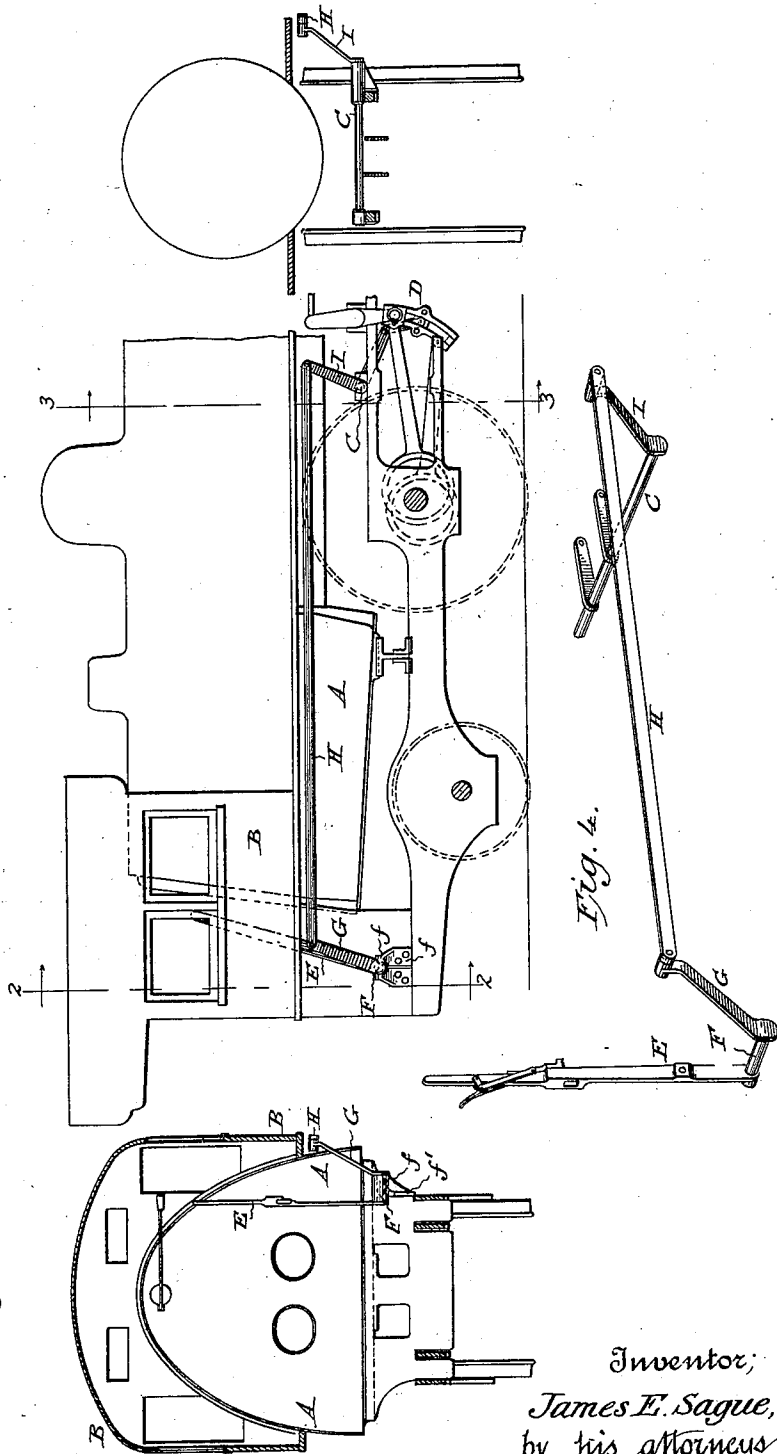
(Application filed Aug. 18, 1900.)

(No Model.)

Fig. 3.

Fig. 1.

Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 667,341, dated February 5, 1901.

Application filed August 18, 1900. Serial No. 27,300. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. SAGUE, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Locomotives, of which the following is a specification.

This invention relates to that class of locomotives in which a fire-box of extra width is employed, extending beyond the frames of the engine outside the wheels. In such locomotives it has been usual to locate the cab near the center of the boiler and in front of the fire-box in order that the reversing-lever might be easily connected with the tumbling-shaft of the link-motion. This arrangement has the objectionable feature that the fireman is separated from the engineer, which is quite undesirable, as in case of an impending accident the two should be near to each other.

The object of my present invention is to provide improved means for connecting the reversing-lever with the tumbling-shaft of the link-motion in such manner that the cab may be located at the rear end of the locomotive. This is accomplished by connecting the lower end of the reversing-lever to a short shaft or fulcrum-pin, to which is also attached an arm extending upwardly therefrom and at its upper end jointed to a reach-rod, the front end of which is jointed to an arm extending upwardly from the tumbling-shaft of the link-motion. Preferably the arm on the fulcrum-pin is inclined, so as to extend both upwardly and outwardly therefrom, and the arm on the tumbling-shaft is also preferably inclined, so as to extend both upwardly and outwardly therefrom.

In the accompanying drawings, Figure 1 shows a side elevation of so much of a locomotive as is necessary to illustrate the manner of applying my invention. Fig. 2 shows a transverse section on the line 2 2 of Fig. 1. Fig. 3 shows a transverse section on the line 3 3 of Fig. 1, some of the parts being omitted; and Fig. 4 is a perspective view of the devices for connecting the reversing-lever with the tumbling-shaft.

It will be observed that the fire-box A is of extra width and extends beyond the side frames of the locomotive and outside the

wheels, while the cab B is located at the rear end of the locomotive, behind the fire-box. The reversing-lever E within the cab is in rear of the fire-box, and hence the tumbling-shaft C of the link-motion E could not be connected with the reversing-lever by the ordinary connecting devices. To overcome this difficulty, the lower end of the reversing-lever is attached to a short shaft or fulcrum-pin F, turning in bearings *f* of a bracket *f'*, attached to the frame which supports the cab. The outer end of the fulcrum-pin has attached to it an arm G, which, as shown, extends upwardly and outwardly from the fulcrum-pin, its upper outer end being outside the fire-box and jointed to a reach-rod H, which is connected at its front end to an arm I, projecting from the end of the tumbling-shaft C. This arm, as shown, extends both upwardly and outwardly from the shaft, the reach-rod being held by the arms G and F, usually in approximately a horizontal position, as shown in Fig 1. Of course if the fulcrum-pin G were extended outwardly far enough it would not be necessary to incline the arm G outwardly, and, in like manner, if the tumbling-shaft C were extended far enough outward it would not be necessary to incline outwardly the arm I. The tumbling-shaft C is connected to the link-motion D in the usual way. The link-motion being of ordinary construction need not therefore be described in detail.

I am enabled by the mechanism shown to locate the reversing-lever in the cab in its usual position in rear of the fire-box and at a sufficient distance from the side of the cab to enable the engineer to pass between the lever and the side of the cab, and the arrangement is such that the reversing-lever may be connected with the tumbling-shaft in such manner as to properly actuate the link-motion, while the presence of an extra wide fire-box in no way interferes with the operation of the mechanism.

I claim as my invention—

1. The combination of the locomotive-frame, the wheels, a fire-box extending beyond the line of the locomotive-frame and the wheels, the cab in rear of the fire-box, a reversing-lever within the cab, an arm connected with the lower end of the reversing-

- lever, and extending upwardly therefrom, the tumbling-shaft of the link-motion, an arm connected therewith and extending upwardly therefrom, and a reach-rod arranged along the side of the fire-box in a vertical plane, outside the vertical plane of the locomotive-frame and the wheels, and connecting the arm attached to the reversing-lever with the arm attached to the tumbling-shaft.
2. The combination of the locomotive-frame, the wheels, a fire-box extending beyond the line of the locomotive-frame and the wheels, the cab in rear of the fire-box, a reversing-lever within the cab, a fulcrum-pin attached to the lower end of the reversing-lever, an arm attached to the outer end of the fulcrum-pin and extending upwardly therefrom, the tumbling-shaft of the link-motion, an arm extending upwardly therefrom, and a reach-rod arranged along the side of the fire-box, in a vertical plane outside the vertical plane of the wheels and locomotive-frame, and connecting the arm on the fulcrum-pin with the arm on the tumbling-shaft.
3. The combination of the fire-box, the cab in rear of the fire-box, a reversing-lever in the cab, an arm connected with the lower end of

the reversing-lever and extending upwardly and outwardly therefrom, the tumbling-shaft of the link-motion, an arm attached thereto and extending upwardly and outwardly therefrom, and a reach-rod connecting the arm attached to the reversing-lever with the arm attached to the tumbling-shaft.

4. The combination of the locomotive-frame, the wheels, a fire-box extending beyond the line of the locomotive-frame and the wheels, the cab in rear of the fire-box, the reversing-lever in the cab back of the fire-box, and at a sufficient distance toward the center of the locomotive to permit room for the engineer between the reverse-lever and the side of the cab, the reach-rod at the side of the fire-box outside the vertical plane of the wheels, the tumbling-shaft of the link-motion, and connections between the tumbling-shaft of the link-motion and the reversing-lever.

In testimony whereof I have hereunto subscribed my name.

JAMES E. SAGUE.

Witnesses:

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