No. 619,867. Patented Feb. 21, 1899.

I. W. COOK.

STEERING APPARATUS.

(Application filed Oct. 27, 1898.)

(No Model.)

Fig. 1.

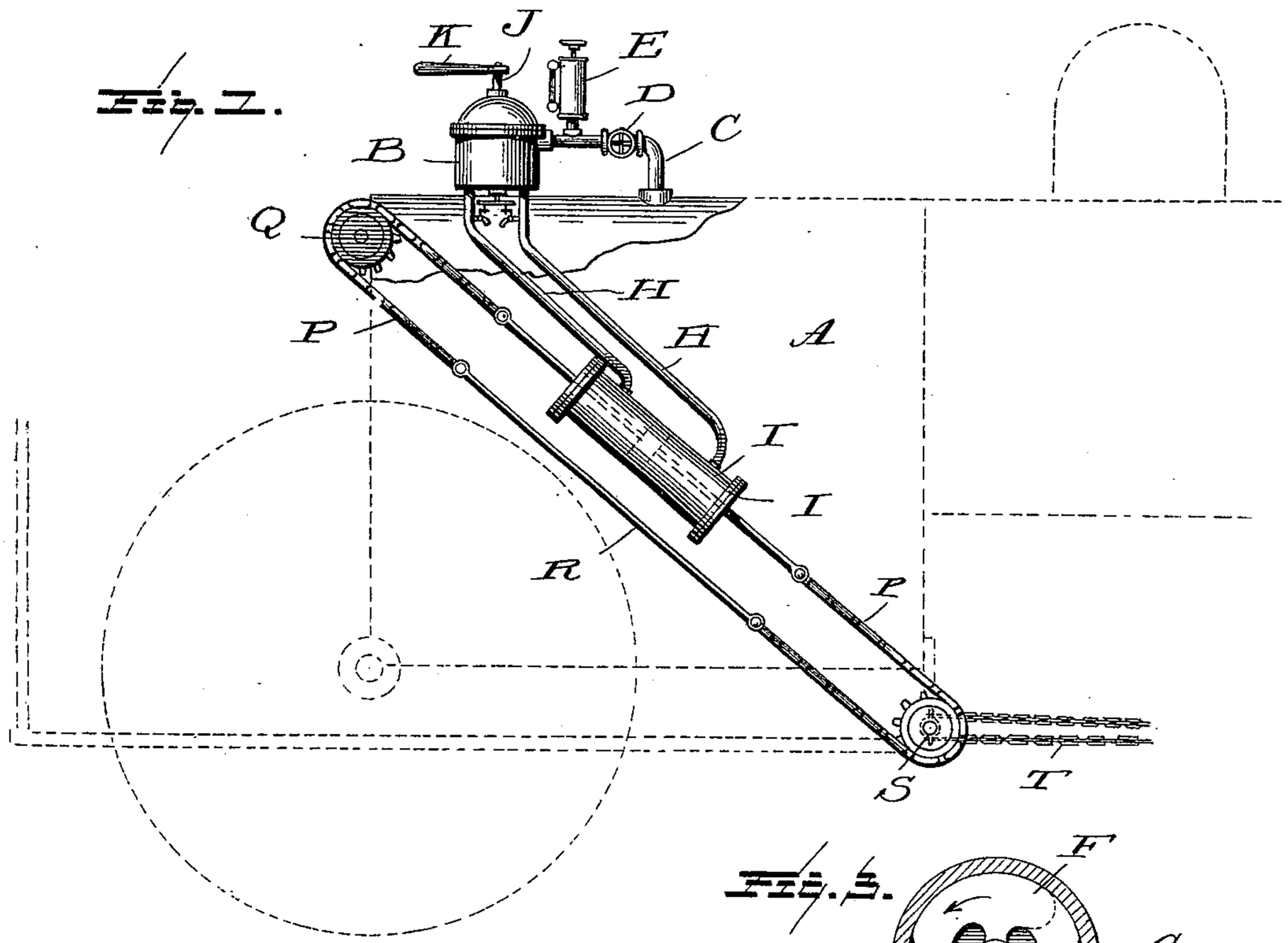


Fig. 2.

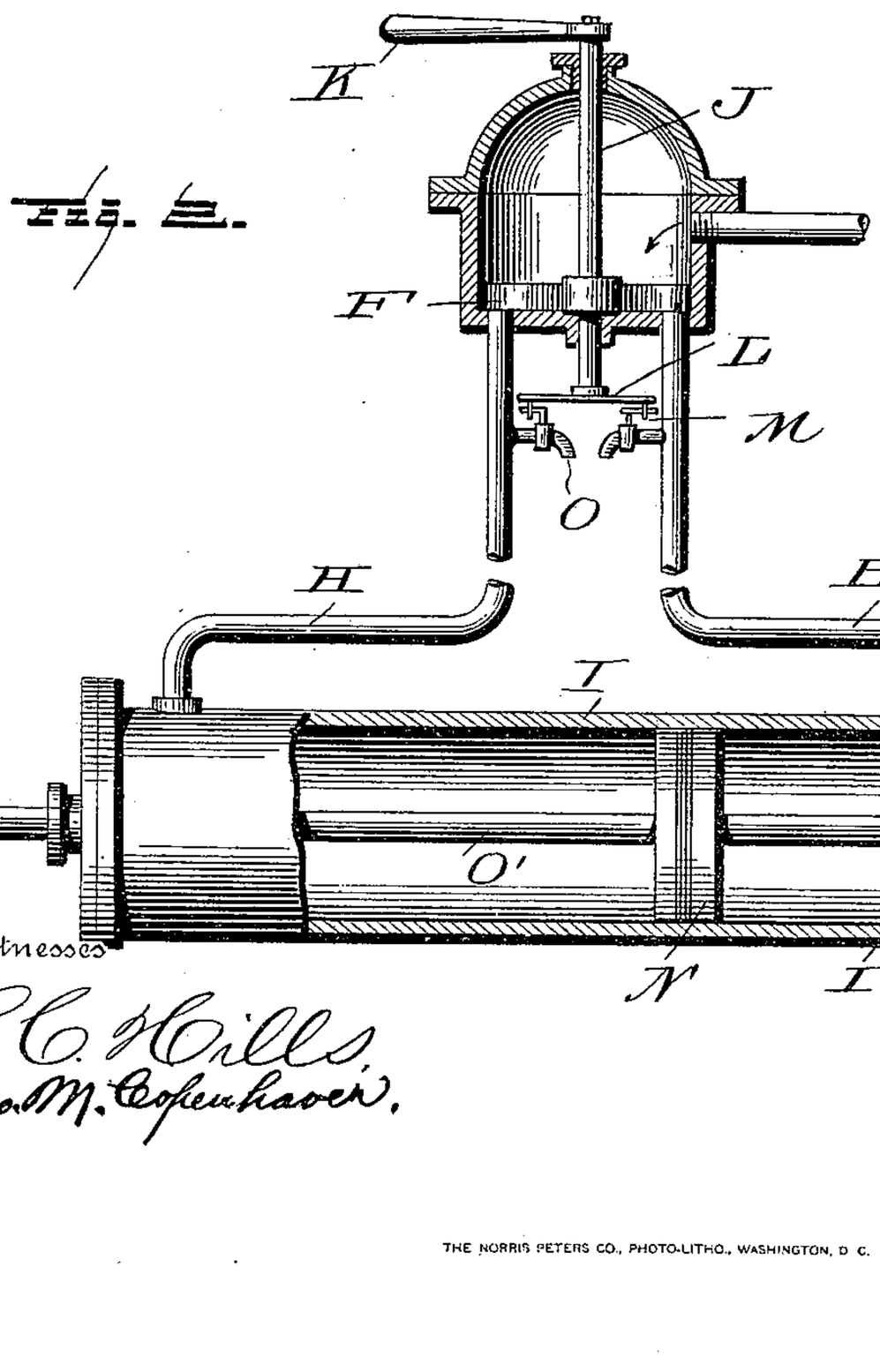


Fig. 3.

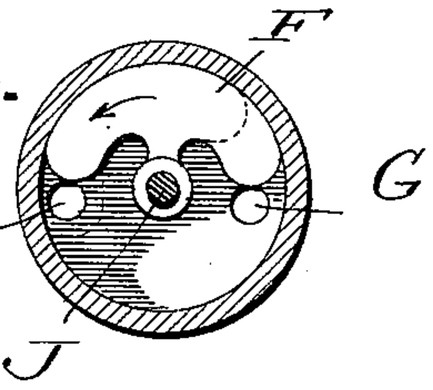
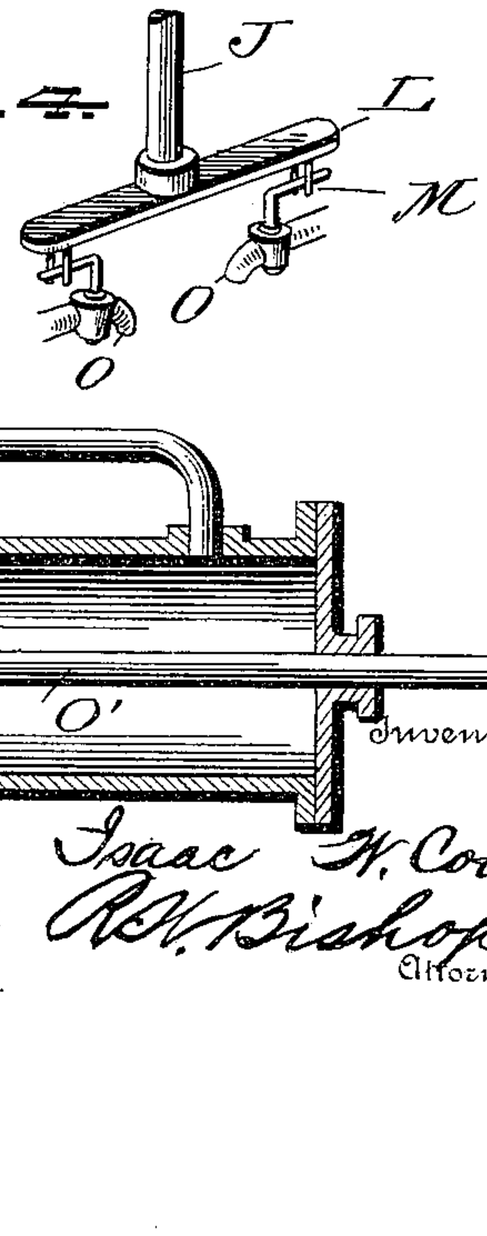


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 619,867, dated February 21, 1899.

Application filed October 27, 1898. Serial No. 694,697. (No model.)

To all whom it may concern:

Be it known that I, ISAAC W. COOK, a citizen of the United States, residing at Oxford, in the county of Talbot and State of Maryland, have invented certain new and useful Improvements in Steering Apparatus, of which the following is a specification.

My invention relates to improvements in steering apparatus for traction-engines; and it consists in certain novel features hereinafter described and claimed.

In the annexed drawings, which fully illustrate my invention, Figure 1 is a side elevation of my improved apparatus in position, so much of a traction-engine being shown as is necessary for a proper understanding of the invention. Fig. 2 is an enlarged sectional view of the operative parts of the apparatus, and Figs. 3 and 4 are detail views.

The traction-engine A may be of any of the usual or preferred forms and constitutes no part of my invention. Upon the boiler within convenient reach of the operator I place a reservoir or steam-chest B, which communicates with the steam-space of the boiler through a pipe C, as will be readily understood. This steam-pipe is of course provided with an ordinary cut-off valve D, and a lubricator E is mounted on the pipe, so as to facilitate the lubrication of the controlling-valve of the steering apparatus. In the bottom of the reservoir B, I provide two diametrically opposite ports G, from which pipes H extend to the opposite ends of a cylinder I, mounted on the side of the engine-boiler. The ports G may be closed or covered by a gate or valve F, secured to and operated by a stem J, which is journaled centrally in the top and bottom of the reservoir within steam-tight boxes, the upper end of the stem extending above the top of the reservoir and being provided with a handle or lever K. The lower end of the stem depends below the reservoir and is provided with a cross-bar L, which may be formed integral with the stem or secured thereto and is constructed at its ends with the depending yokes M, as shown most clearly in Fig. 4. These yokes M extend to and engage over the handles of the valves in faucets O, projecting from the steam and exhaust pipes H, as clearly shown.

Within the cylinder I is a piston N, from the opposite sides of which rods O′ extend through the ends of the cylinder. The ends of these rods are connected to chains P, which pass around sprocket-wheels Q and are connected by a rod R. The sprocket-wheels are mounted on the engine at convenient points near or at the top and bottom of the same and the journal of the lower sprocket forms a shaft extending across the engine below the boiler, as will be readily understood on reference to Fig. 1. At the center of this shaft I provide the crank-arms S, which are connected through chains T with the front or steering axle of the engine.

In the normal position of the parts—that is, when the engine is traveling in a straight line—the handle K extends directly backward toward the operator and both ports G are open, as shown in full lines in Fig. 3, while both faucets are then closed. Should it be desired to turn to one side, the handle K is thrown to the side by the operator, so as to swing the valve or slide F over one of the ports G. Simultaneously with this movement of the controlling-valve the cross-bar L will be rotated, so as to open the faucet or exhaust-port in that pipe the port G to which is closed. The steam in the pipe H, which is closed, will now escape through the opened exhaust faucet or cock, and the steam passing through the other pipe H will drive the piston N toward one end of the cylinder I. The movement of the cylinder carries with it the rods O′ and the connected chains, thereby rotating the shaft on which the lower sprocket is secured, and consequently drawing the front axle to an angle and causing the engine to turn.

It will be seen at once from the foregoing description, taken in connection with the accompanying drawings, that I have provided a device of a simple construction by which the operator is enabled to turn the engine quickly and easily, the manual labor required to shift the controlling-valve being very slight, while the active work of turning the engine being done by the steam-pressure will be done positively and rapidly.

While for convenience I have described the device as being operated by steam-pressure, it will be readily understood that the device may be operated by compressed air or other fluid-pressure.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, the combination of the steam and exhaust pipes, a single valve controlling the entrance of steam to both said pipes, exhaust-faucets on both said pipes, and means for closing one of said exhaust-faucets and simultaneously opening the other of said exhaust-faucets.

2. In an apparatus of the character described, the combination of the steam and exhaust pipes provided with exhaust faucets or cocks, a single valve controlling the entrance of steam to both said pipes, and means for closing the exhaust-faucet of either pipe simultaneously with the admission of steam to that pipe.

3. In an apparatus of the character described, the combination of the steam and exhaust pipes, exhaust faucets or cocks on both said pipes, a single valve controlling the admission of steam to both said pipes, and connections between said valve and the exhaust-faucets whereby when the valve is shifted to admit steam to either pipe the exhaust-faucet on the said pipe will be closed.

4. The combination of the steam-chest or reservoir, steam and exhaust pipes leading from said reservoir and provided with exhaust-faucets, a single valve within the reservoir controlling the admission of steam to both said pipes and having its stem extended below the reservoir, and a cross-bar on the lower end of the stem provided at its extremities with yokes connected with the exhaust-faucets.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC W. COOK.

Witnesses:

CHAS. F. STEWART,

GEO. W. WILSON.