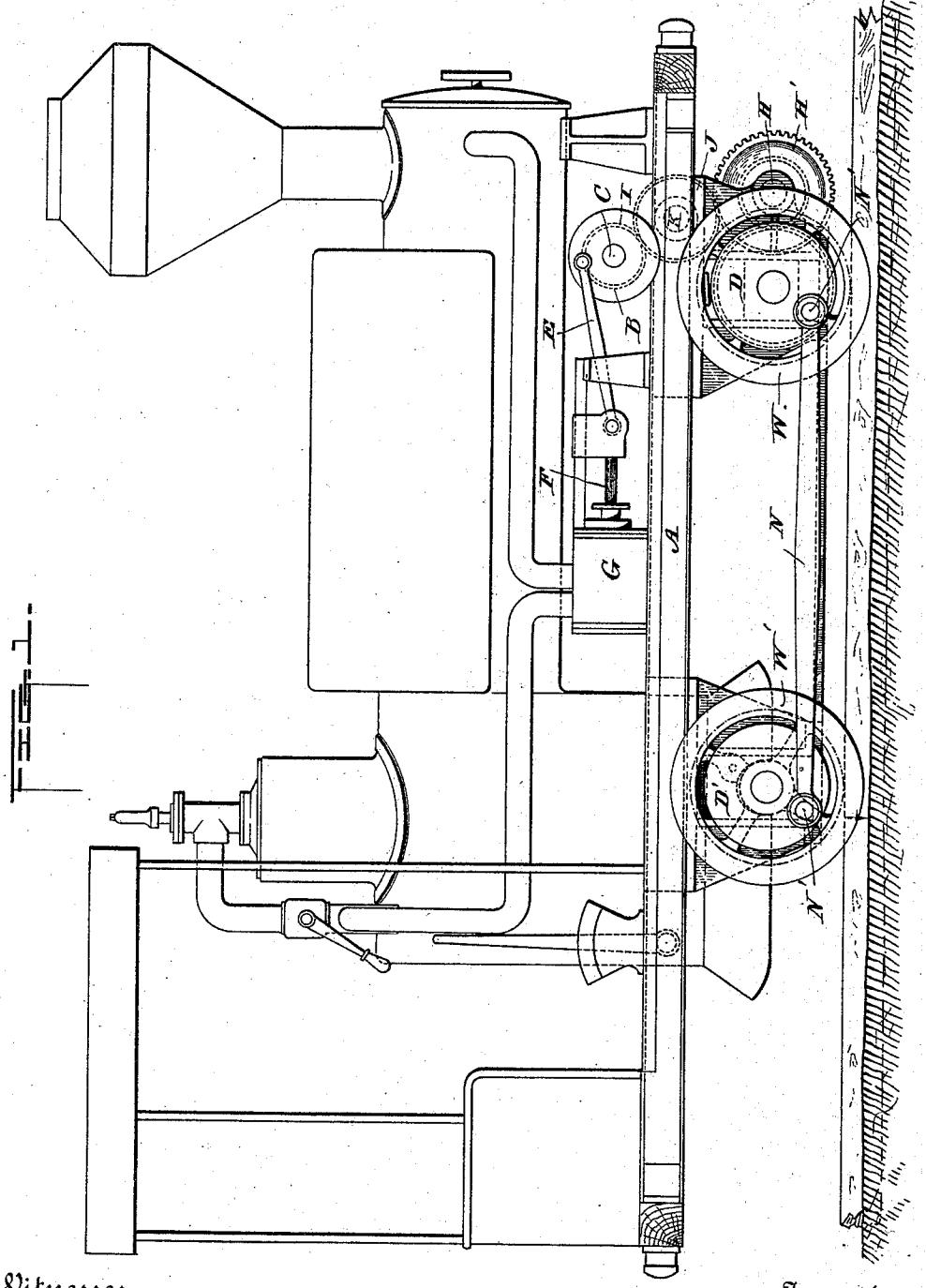
(No Model.) 2 Sheets—Sheet 1.

P. FAITHFULL & W. SIMPKIN.

LOCOMOTIVE.

No. 416,724. Patented Dec. 10, 1889.



Witnesses

L. A. Comer, Jr.

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Inventors:

Peter Faithfull and

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per [signature] their Attorney.

(No Model.) 2 Sheets—Sheet 2.

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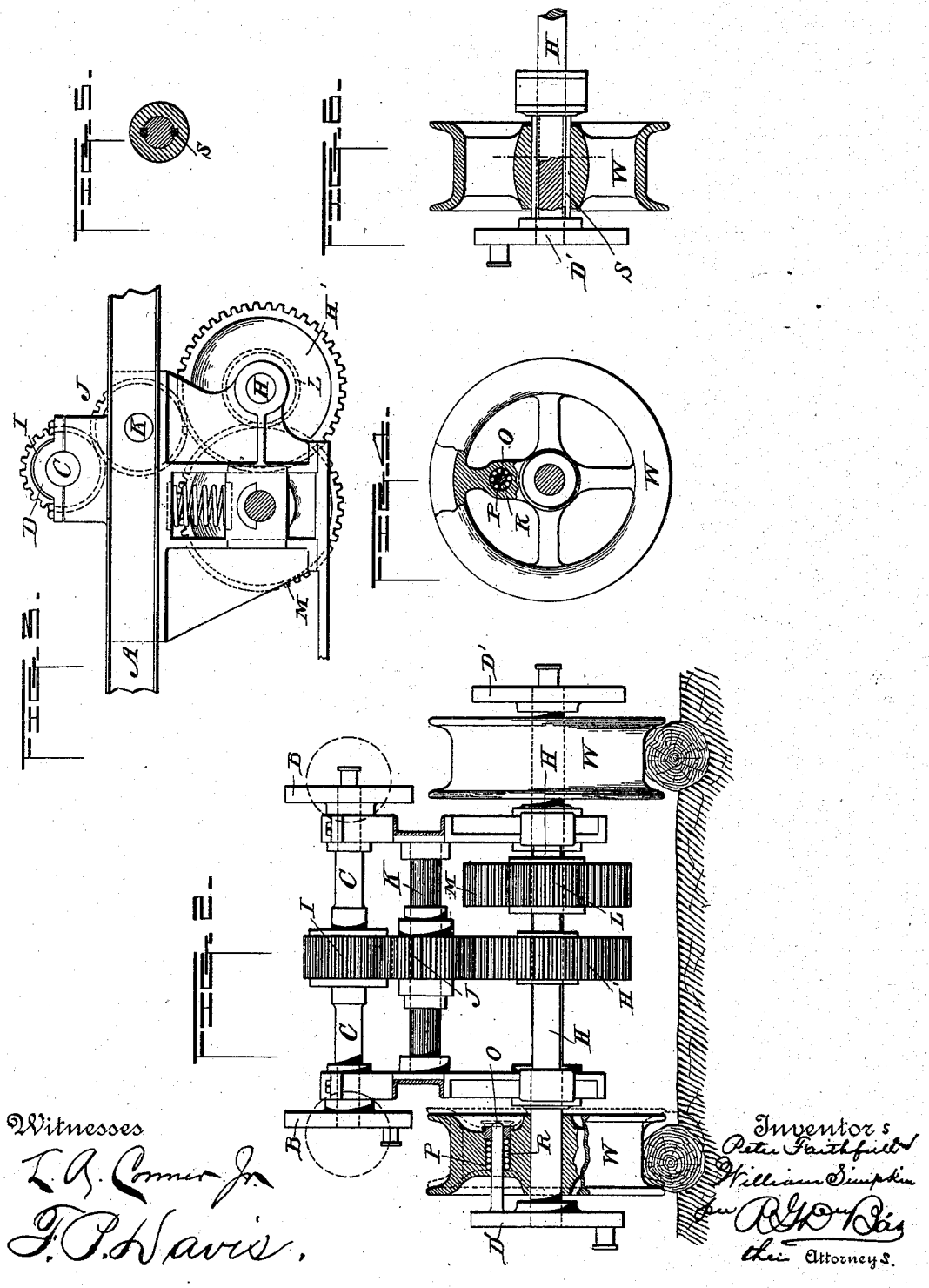

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UNITED STATES PATENT OFFICE.

PETER FAITHFULL AND WILLIAM SIMPKIN, OF RICHMOND, VIRGINIA.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 416,724, dated December 10, 1889.

Application filed May 4, 1889. Serial No. 309,579. (No model.)

To all whom it may concern:

Be it known that we, PETER FAITHFULL and WILLIAM SIMPKIN, citizens of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Locomotives; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to that class of locomotives used upon pole-roads for lumbering and other purposes where only a temporary road is required.

Our purpose is to dispense with much of the gearing hitherto employed, thereby overcoming friction and reducing the expense of manufacture and maintenance. We accomplish this object by mounting the traction-wheels upon their axles so that they will turn with the axle and at the same time have free lateral play thereon, in combination with a crank, also secured to turn with the axle, together with other peculiar features and combinations of parts, as will appear more fully hereinafter.

In the accompanying drawings, Figure 1 represents a side elevation of a locomotive in which our complete device is employed; Fig. 2, a front elevation of the driving mechanism, the left traction-wheel being shown in cross-section through line *x x* of Fig. 3; Fig. 4, a detail of one of the traction-wheels, and Figs. 5 and 6 detail views of modifications.

The reference-letter A denotes the main frame, on which the boiler and its auxiliaries are located. The main driving-disks B are keyed to the shafts C, the latter being mounted in housings D and driven by the driving-rods E, attached to the piston-rods F, which rods are driven from the steam-cylinder G. The master-shaft H is provided with a gear-wheel H′, and is journaled just in front of and on a horizontal plane with the axis of the front traction-wheels W. This master-shaft is driven through the medium of the driving-gear I, keyed to the drive-shaft C, and the idle-gear wheel J, mounted upon the shaft K. A pinion L is keyed to the master-shaft H and meshes with a gear-wheel M upon the shaft of the front traction-wheels W W, whereby the latter are actuated. The front and rear traction-wheels W and W′ are connected by single driving-rods N, attached to the wrist-pins N′, upon crank-disks or other similar devices D′, and these crank-disks are secured to rotate with the axles.

The traction-wheels W and W′ are loosely centered upon their axles and have free lateral play thereon, in order to accommodate themselves to variations in the width of the track. The wheels are locked to the crank-disk in such a manner as to revolve with the axle by means of a laterally-projecting pin O, which passes through an opening P in the spokes of the wheel. This opening is provided with balls or other suitable anti-friction devices, in order to create as little friction as possible between the pin and wheel during the lateral play of the latter upon its axle. Instead of the perforated spoke and laterally-projecting pin, it may sometimes be convenient to employ a feather-key S, fitting within a transverse recess in the hub of the wheel, as in Figs. 4 and 5; but the former construction is preferable, as it creates less friction.

The driving or traction wheels W W′ are actuated through the medium of the idle-gear wheel J, the master-gear H′, pinion L, and gear-wheel M, and as the locomotive moves along the wheels, by reason of their lateral play, will readily adapt themselves to the variations in the width of the track by coming closer together or spreading farther apart.

By locking the traction-wheels W W′ with the driving crank-disks D′ they are secured to turn with the axle, but are not permitted to rotate on the axle; hence each crank-disk, traction-wheel, and its axle are locked to turn in unison together.

This construction greatly simplifies the mechanism hitherto used in these engines by allowing the use of driving gear and rods such as previously described, whereby the engine can be built and maintained at reduced expense.

It is obvious that our invention can be varied in numerous slight ways which might suggest themselves to a skillful mechanic. Therefore we do not confine ourselves to the precise construction herein shown; but

What we do claim as new, and desire to secure by Letters Patent, is—

1. In a locomotive, a traction-wheel having

free lateral play upon its axle, in combination with a pin or key in loose frictional engagement with the wheel and turning with the axle, in the manner and for the purpose substantially as described.

2. In a locomotive, a traction-wheel having free lateral play upon its axle, in combination with a crank-disk secured to turn with the axle and a laterally-extending pin projecting from the disk into and in engagement with the wheel, in the manner and for the purpose set forth.

3. In a locomotive, the combination of a traction-wheel and axle, a crank-disk secured to turn with the axle, and a laterally-projecting plug passing into the wheel and in engagement therewith, in the manner and for the purpose substantially as described.

4. In a locomotive, a traction-wheel having free lateral play upon and secured to turn with its axle, in combination with a driving-crank secured to and turning with the axle, in the manner and for the purpose substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

PETER FAITHFULL.
WILLIAM SIMPKIN.

Witnesses:
GEO. J. ROGERS,
C. F. J. CONOCRISTI.