3 Sheets--Sheet 1.

T. AVELING.

Improvement in Steam Road-Rollers.

No. 132,232. Patented Oct. 15, 1872.

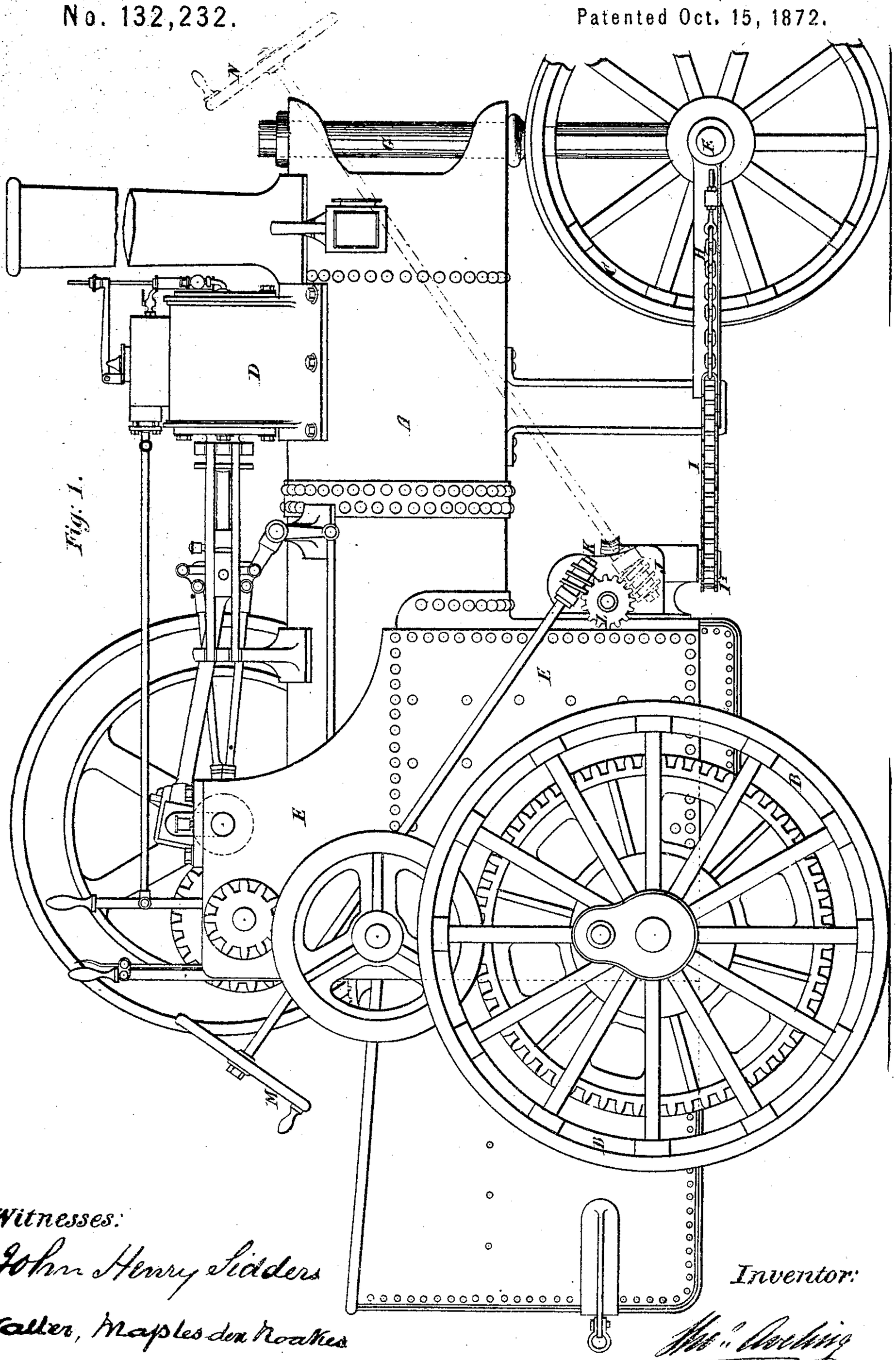


Fig. 1.

Witnesses:

John Henry Sidders

Walter, Maples & Reakes

Inventor:

Thos. Aveling

3 Sheets--Sheet 2.

T. AVELING.

Improvement in Steam Road-Rollers.

No. 132,232. Patented Oct. 15, 1872.

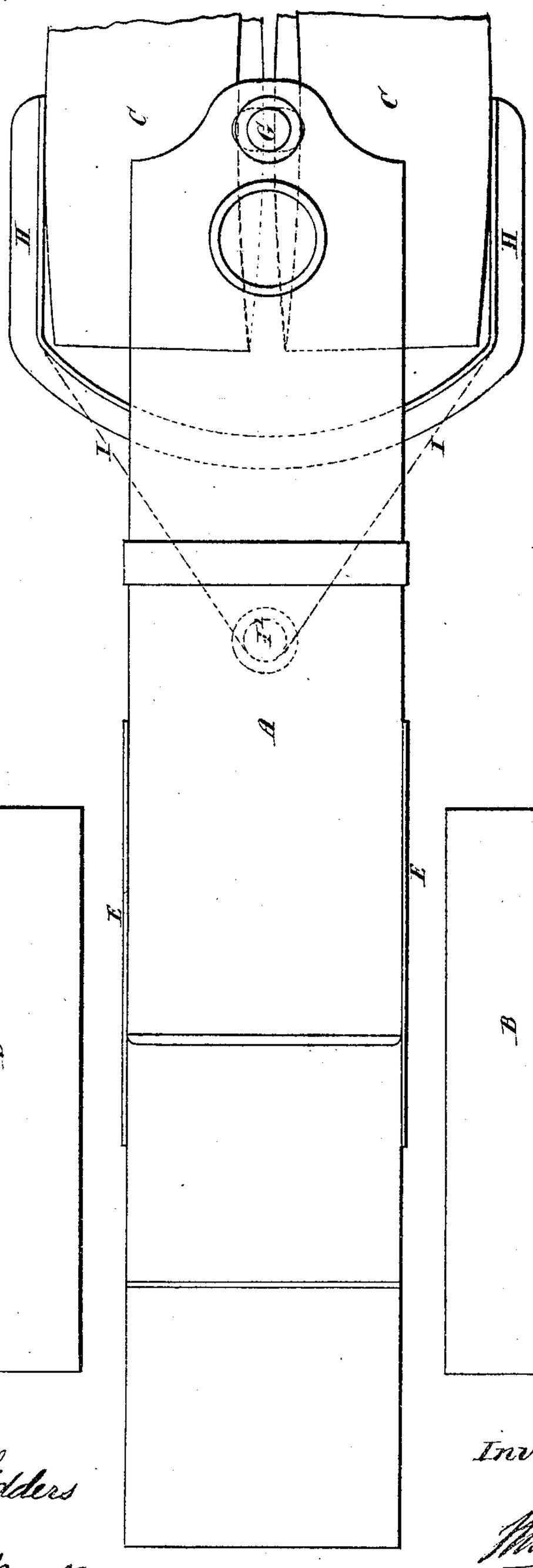


Fig: 2.

Witnesses:

John Henry Sidders

Walter. Maplesden Noakes.

Inventor:

Thos. Aveling

3 Sheets--Sheet 3.

T. AVELING.

Improvement in Steam Road-Rollers.

No. 132,232. Patented Oct. 15, 1872.

Fig. 4.

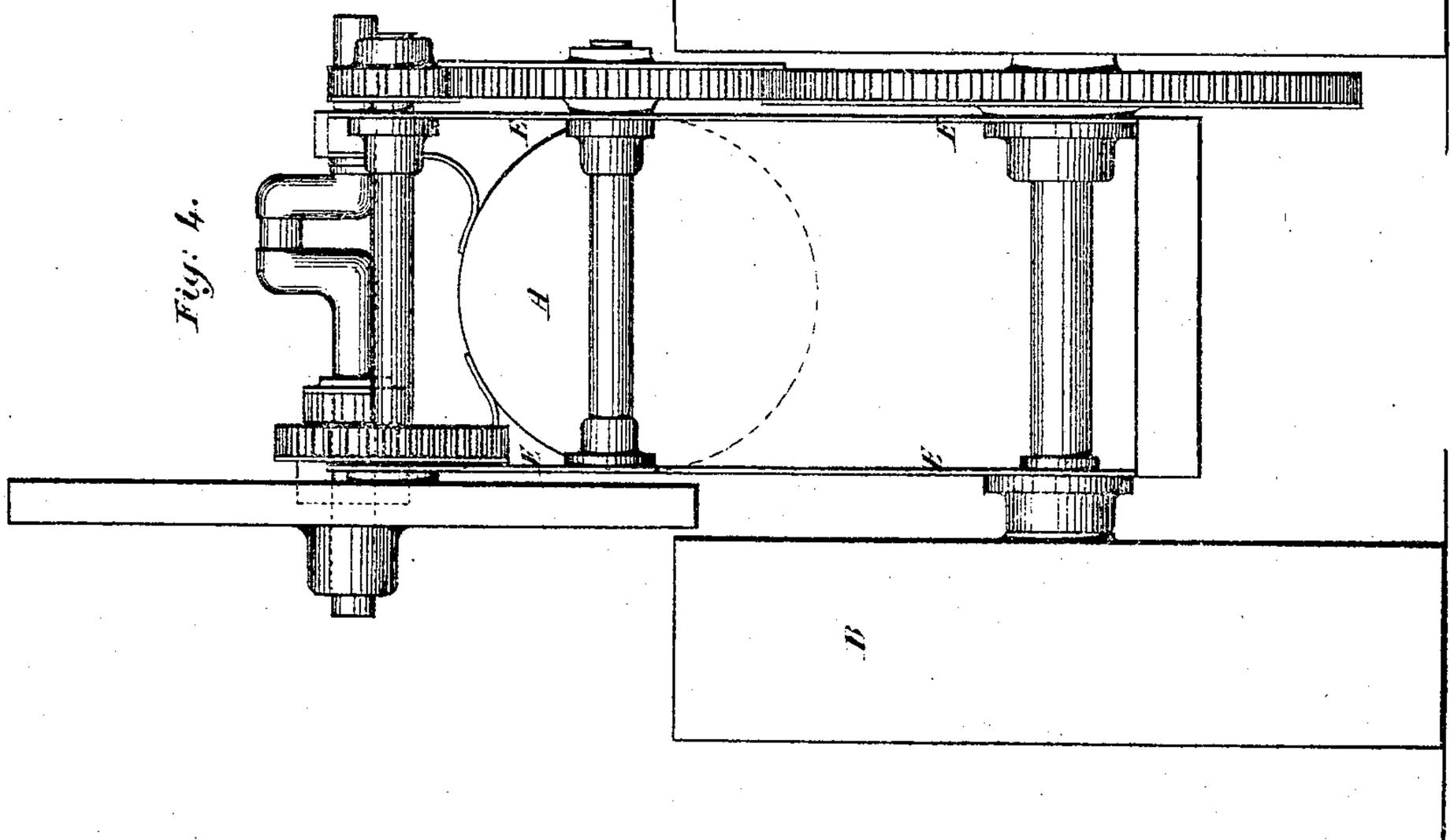
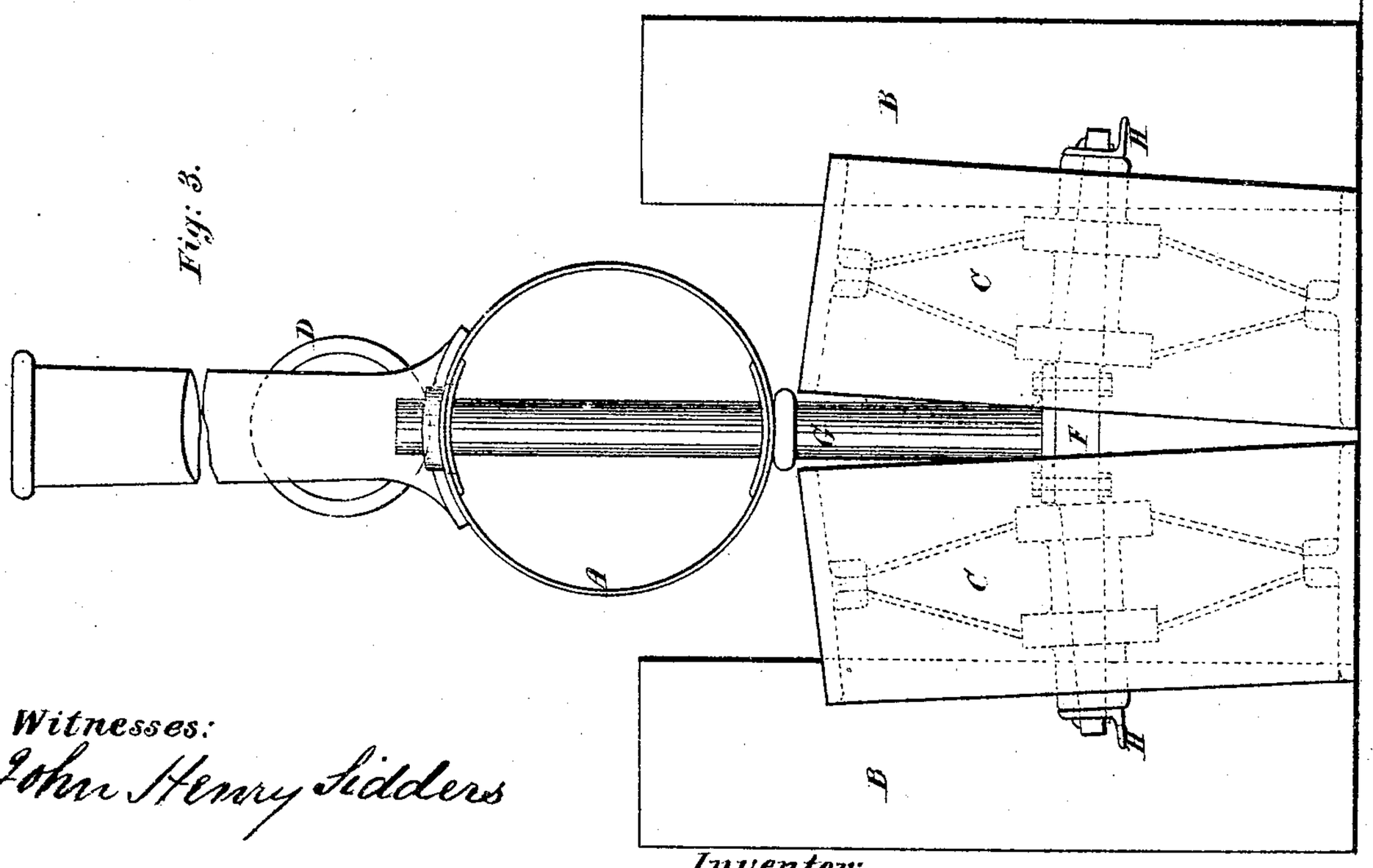


Fig. 3.



Witnesses:

John Henry Sidders

Walter Maplesden Noakes.

Inventor:

Thos. Aveling

UNITED STATES PATENT OFFICE.

THOMAS AVELING, OF ROCHESTER, ENGLAND.

IMPROVEMENT IN STEAM ROAD-ROLLERS.

Specification forming part of Letters Patent No. **132,232**, dated October 15, 1872.

To all whom it may concern:

Be it known that I, THOMAS AVELING, of Rochester, in the county of Kent, England, have invented certain new and useful Improvements in Steam Road-Rollers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

The object of this invention is to construct a light and efficient steam road-roller with horizontal boiler. To this end I so modify the construction of the roller as to avoid the necessity for the heavy framing heretofore employed.

In carrying out my invention I adopt the general arrangement of the ordinary traction-engine, converting the driving-wheels into rollers, and the space left by these rollers I cover by a pair of front rollers, which serve also as steering-wheels. These rollers I prefer to make conical or "dished," in order that on the ground-line they may be close together, while at and above their axle there is space for a vertical shaft standing up from their axle, and which serves as a front support for the boiler. This support I so connect to the shell of the horizontal boiler as to allow of its receiving a slight lateral (as well as an axial) motion, which lateral motion is required to permit of the rollers adjusting themselves to their work. The front rollers are mounted loosely on a dead-axle to which is bolted the lower end of the vertical shaft or support. To the extremities of this axle a horizontal forked or saddle piece is attached to receive and act as a guide for the steering-chain. The chain passes rearward to a chain-wheel, by turning which the steering of the rollers will be effected, their axle being free to swivel and oscillate with the vertical support attached thereto.

In the accompanying drawing, Figure 1 is a side elevation of the improved road-roller; Fig. 2 is a diagram plan of the same, illustrating the steering arrangement; Fig. 3 is a front elevation, showing the mode of carrying the forward end of the boiler; and Fig. 4 is a back elevation of the road-roller.

A A are a boiler and furnace, supported in the rear by a pair of driving-wheels, B, and in front by a pair of steering-wheels, C. The driving-wheels receive motion as usual through gearing from the crank-shaft of the engine, the cylinder of which is mounted on the shell of the boiler, as shown at D. The axle of the wheels B is carried by side plates E, which also carry the axles for the gearing and likewise the crank-shaft of the engine, as described in the specification of my patent bearing date November 7, 1871, No. 120,611. The driving-wheels B are formed with broad flanges, (see Fig. 4,) in order that they may act as road-rollers while propelling the engine forward. The portion of road which lies within the lines of progress of these driving-wheels is acted upon by the steering-wheels C, which together serve to cover this intervening space. The wheels C are made slightly conical, and are mounted loosely on a dead-axle, F, the ends of that axle being depressed so as to throw the wheels sufficiently out of the vertical to allow of a shaft, G, (Fig. 3,) being interposed between them. This shaft is formed with a flange at its lower end to allow of its being made fast by bolts and nuts to the dead-axle F. The vertical shaft G is furnished with shoulders at its upper part, which embrace slotted projections of the shell of the boiler. This shaft serves to carry the weight of the forward end of the boiler, and the slots through which it passes are so formed as to allow for a slight lateral play while the shaft is free also to turn on its axis. By this mode of mounting the boiler, not only are the wheels or rollers allowed to adjust themselves to any irregularity of the ground, but the boiler is supported without the employment of the heavy framing heretofore required. Fitted to the opposite ends of the axle F and extending rearward is a flanged, forked, or saddle piece, H, to which the opposite ends of a steering-chain, I, are attached. This chain passes rearward around a chain-wheel, I′, the axle of which is carried by a bracket, J, bolted to the front wall of the furnace. Keyed to the upper end of the chain-wheel axle is a worm-wheel, K, into the teeth of which gears a worm on the axle of a worm-wheel, L, which axle is also carried by the bracket J. By turning the worm-wheel L an axial motion is given to the chain-wheel I′, and thus through this chain I

the wheels or rollers C are steered, the axle F being free to swivel on the axis of the vertical shaft G.

The steering may be effected either at the back or front of the steam road-roller by means of a worm operated by a hand-wheel, as shown in two positions at M and N respectively, in Fig. 1. By keeping the driving-wheels B behind, as is usual in traction-engines, instead of placing them in front, as is common to steam road-rollers, the utmost bite of these wheels in moving up steep inclines and in traversing soft ground will be insured, and thus the disadvantages at present experienced will be avoided.

Having now set forth the nature of my invention, and explained the manner of carrying the same into effect, I wish it to be understood that I claim—

The steering-wheels C, dead-axle F, shaft G, saddle-piece H, chain I, wheel I′, and worm-wheels K, combined with boiler A, as described, to allow the steering-rolls to adjust themselves, while the use of heavy frames is avoided.

In testimony whereof I have hereunto set my hand and seal the 22d day of January, A. D. 1872.

THOS. AVELING. [L. S.]

Witnesses:

JOHN HENRY SIDDERS,
WALTER MAPLESDEN NOAKES,
Both of Rochester, Kent.