

Z. RIDER.

Steam Plowing Machine &c.

Plate 1.

PATENTED JUL 18 1871

117113

Fig. 1.

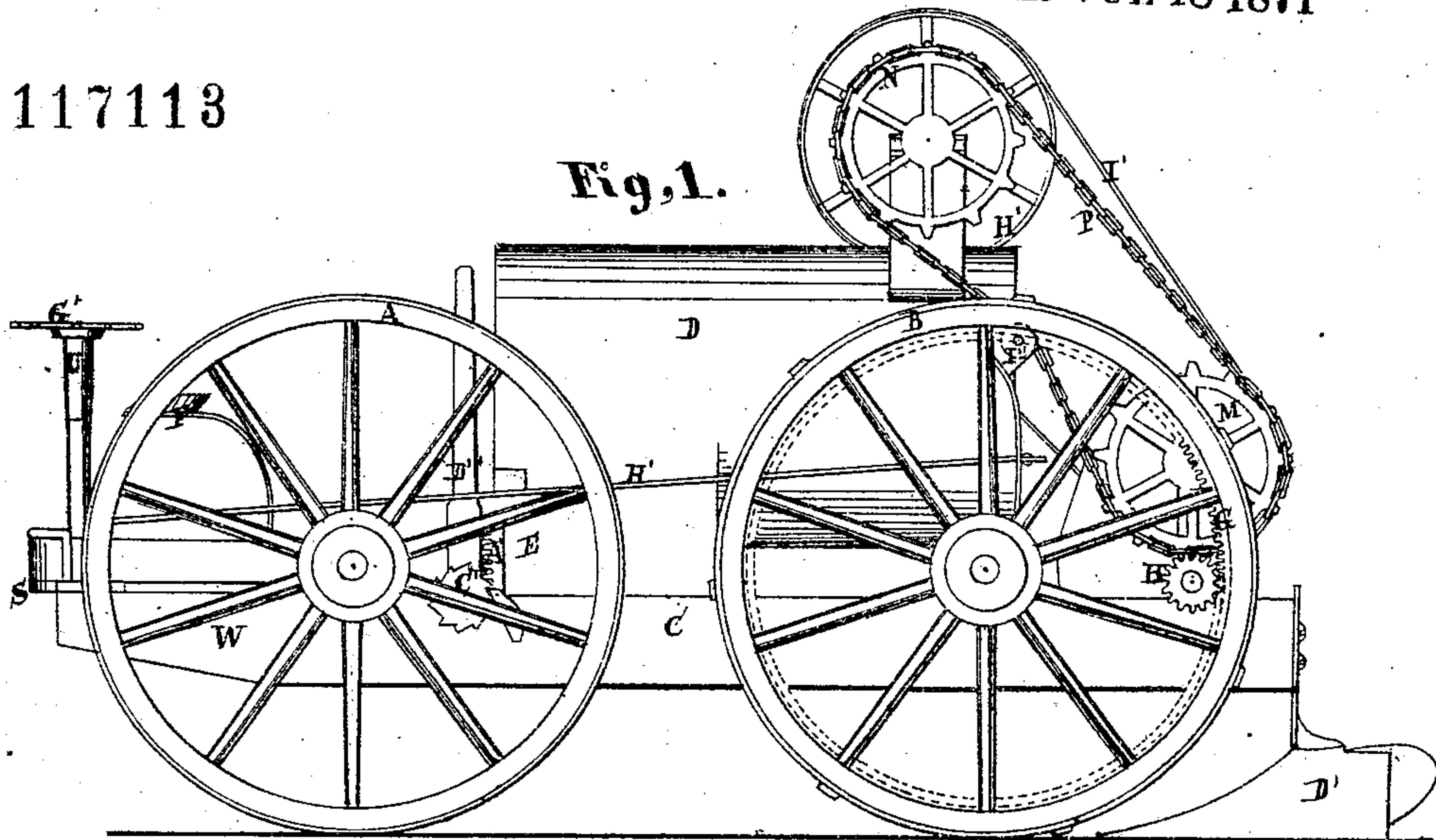
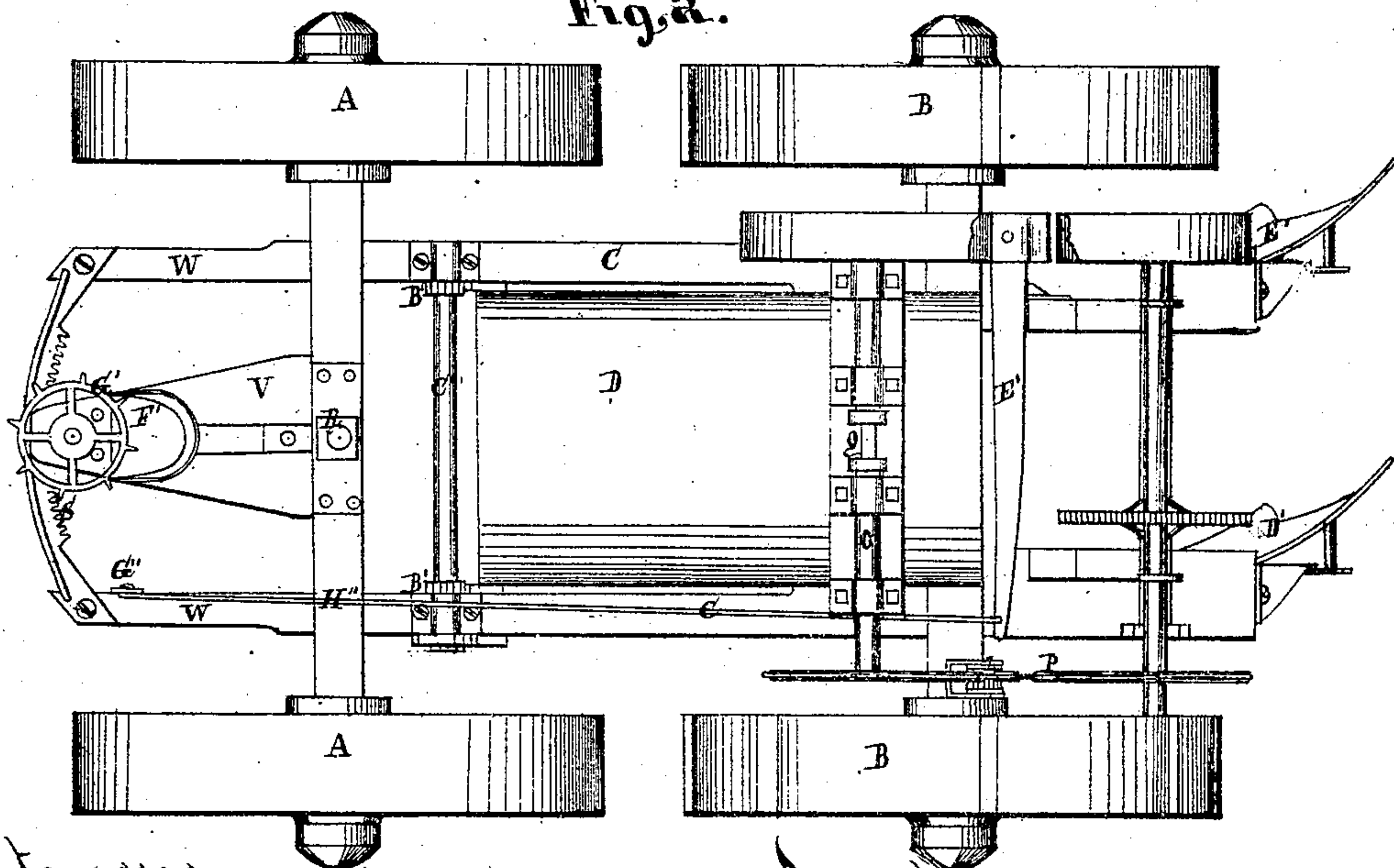


Fig. 2.



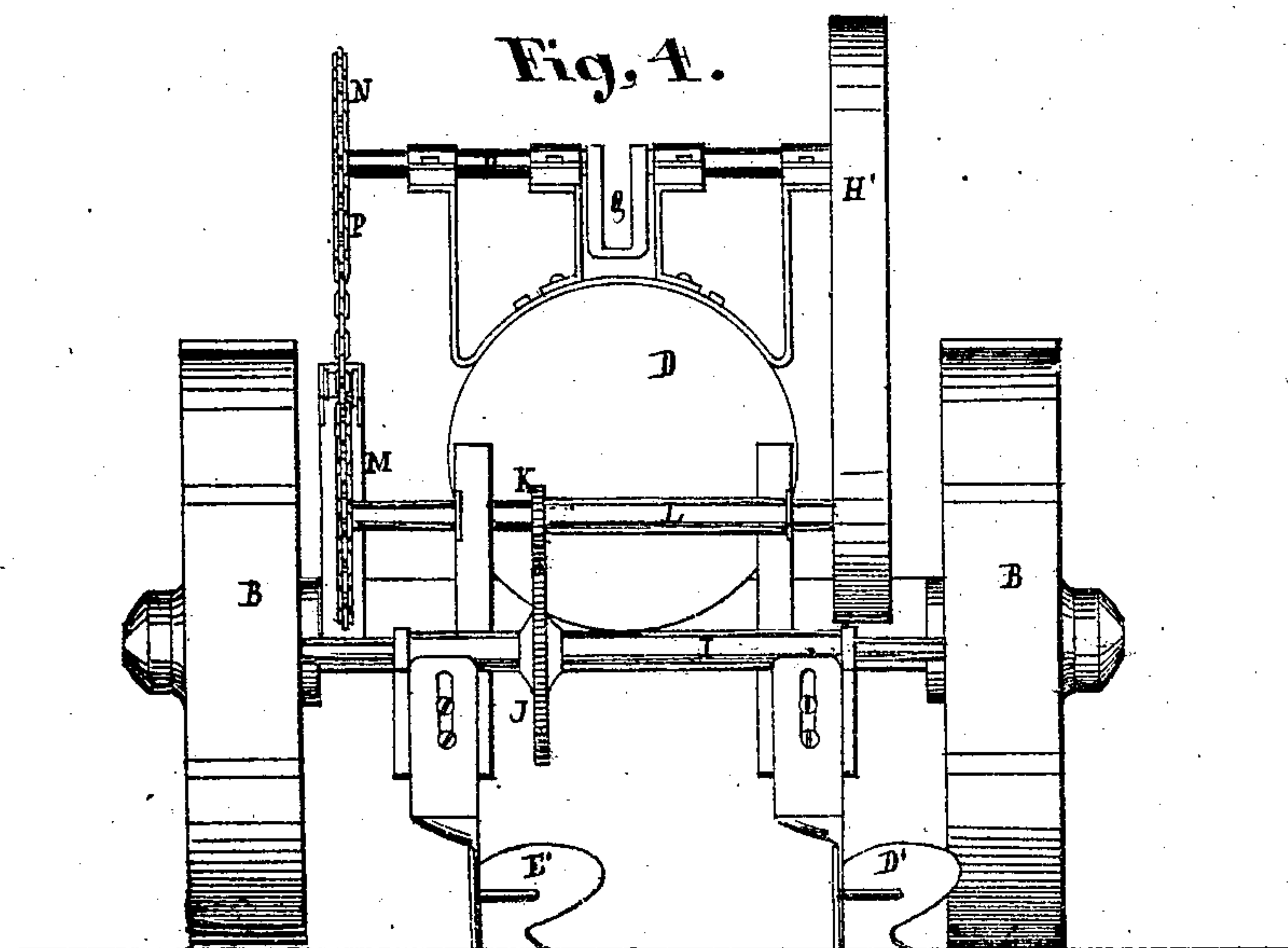
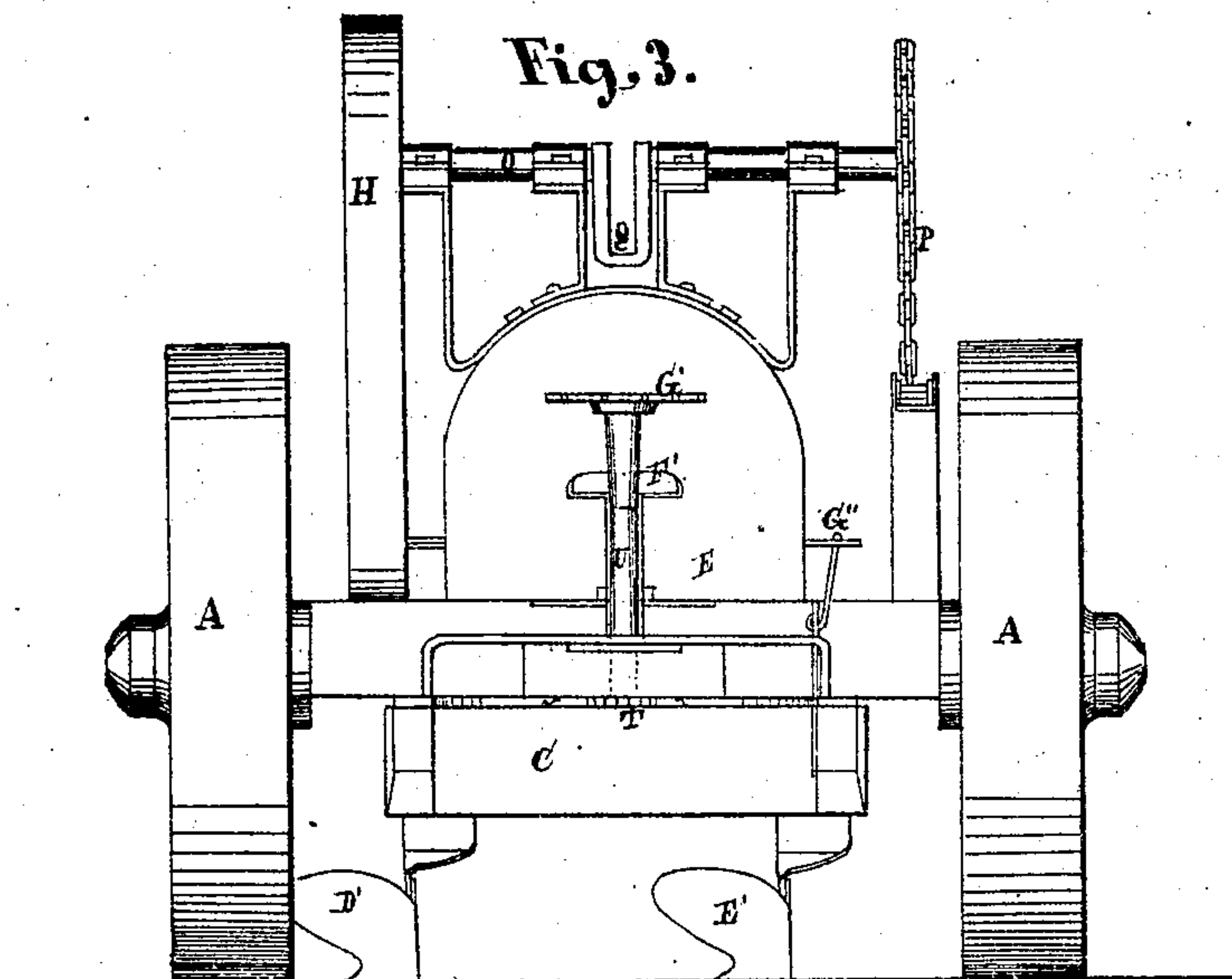
Witnesses.
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Z, RIDER.

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Plate 2.



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UNITED STATES PATENT OFFICE.

ZERAH RIDER, OF PAINESVILLE, OHIO.

IMPROVEMENT IN STEAM PLOWING-MACHINES.

Specification forming part of Letters Patent No. 117,113, dated July 18, 1871.

To all whom it may concern:

Be it known that I, ZERAH RIDER, of Painesville, in the county of Lake and State of Ohio, have invented a new and Improved Steam Plowing-Machine, &c., of which the following is a description, reference being had to the accompanying drawing making part of this specification.

Figure 1, plate 1, is a side elevation of the machine. Fig. 2 is a plan view. Fig. 3, plate 2, is a front elevation. Fig. 4 is a rear elevation.

Like letters of reference refer to like parts in the different views.

The object of this invention is to produce a locomotive power that shall be applicable to the various purposes, viz., plowing, thrashing grain, sawing wood, &c., and which can be run from place to place by its own generated power, thereby dispensing with the use of horses for the several purposes specified, and for transporting the same from place to place.

The construction, arrangement, and operation of the above said machine are as follows:

In the drawing, Fig. 2, A B represent two pairs of wheels, of which A is the guiding front wheels and B the rear and driving ones. To the axles of said wheels is suspended a frame, C, in which the front end of the boiler D and fire-place E are secured, whereas the rear end of the boiler is pil- lowed on the axle-tree, as shown in Fig. 1. On the under side of the rim of the wheels B is se- cured a gearing, G, Fig. 1, in which is made to engage pinions, H, keyed to the ends of the shaft I, Fig. 4. Also, to said shaft is secured a cog- wheel, J, which is made to engage a pinion, K, on the shaft L. To one end of said shaft L is keyed a sprocket-wheel, M, connected to a sprocket- wheel, N, on the shaft O, by means of a chain, P, Fig. 1, and whereby the driving-wheels B are op- erated for moving the machine from place to place, the power for so doing being supplied by a steam- engine erected on the top of the boiler and con- nected to the shaft P by means of the pitman at- tached to the crank Q of said shaft. The axle- tree of the front wheels is connected to the frame by means of a king-bolt, R, Fig. 2, thereby allow- ing the wheels to swing around laterally for the purpose of guiding the machine while in motion. The wheels are turned about in either direction by means of a rack and pinion, S T, Figs. 2 and 4. A part of the rack in Fig. 4 is represented as being broken away in order that the pinion may

be seen. Said pinion is secured to the lower end of the shaft U, secured in the tongue V, project- ing forward from the axle-tree, and which is made to engage the rack S attached to the ends of the hounds W of the frame C. To each corner of the fire-box E is secured a rack, A', Fig. 2, in which are made to engage pinions B', Fig. 2, one on each end of the shaft C, the purpose of which will here- inafter be shown. To the rear end of the ma- chine are attached two plows, D' E', which are or may be of the ordinary shape. More or less number may be attached to the machine as the nature of the plowing may demand.

The practical operation of the above-described machine is as follows, viz.: Steam is generated in the boiler D in the usual way, and applied to the engine in the ordinary manner. The engine- power is applied to the crank Q, from which it is conveyed to the wheels B by the interposition of the chain P and pinions H, thereby propelling the machine along in the direction of the line of work, and drawing the plows D' E' along therewith, turning two furrows at once, or more, as the num- ber of plows may be. The machine is guided in the course of its work by the driver, who takes his place upon the seat F' in front and directs the course of the machine by turning the hand- wheel G', thereby actuating the pinion T engaged in the segment S, which will cause the front wheels to turn laterally in either direction, as the movement of the pinion may be. In very heavy plowing, as sward-ground, or when deep plowing is desired, two plows can easily be drawn, and the work done in a good workmanlike manner. Should the soil be light, or if no unusual depth is required to run the plows, more may be attached to the machine, and thereby facilitate the work of preparing the ground for seeding. In order to transport the machine from place to place the plows are raised above the ground, they being attached to the machine in such way as to allow of it being done with but little trouble. This machine, when not required for plowing, can be made useful for other purposes, as thrashing grain, sawing wood, &c., by simply removing the chain from the wheels M N and carrying the power of the engine from the pulley H' by a belt, I', to the thrashing-machine, or to the saw or other machinery to be operated. In order that the water in the boiler shall be level, and therefore cover the flues, the front end of the boiler may

be raised or lowered for that purpose by means of the rack and pinions A' B', said pinions being operated by the ratchet-wheel and lever C'' D'', Fig. 1. By this means the boiler can be adjusted to a level when the carriage supporting it may be on an incline in consequence of the unevenness of the ground on which it may stand; hence the water in the boiler, as aforesaid, can be kept so as to cover the flues. On running the machine from place to place on the roads the brake E' can be applied to restrain the machine on down grades or to stop it, as the case may be. Said brake is operated by the foot of the driver by placing it upon the lever G', connected to the brake by means of the rod H''. I'', Fig. 1, is a tension-pulley, whereby the chain is kept taut, so that it may not slip upon the wheels M N.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The wheels M N, gearing K J, pinions H, driving-wheels B B, and plows D', all arranged to operate substantially in the manner as described and for the purpose set forth.

2. The arrangement of the crank-wheel N, chain or band P, driving-wheel M, pinions K J and H H with the teeth G on the traction-wheel, together with the adjustable plow-beams C C, in the manner substantially as and for the purpose specified.

ZERAH RIDER.

Witnesses:

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