

M. N. Lynn's Motion for the Pushing Legs of Steam Plows

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PATENTED JUL 4 1871

Fig. 1

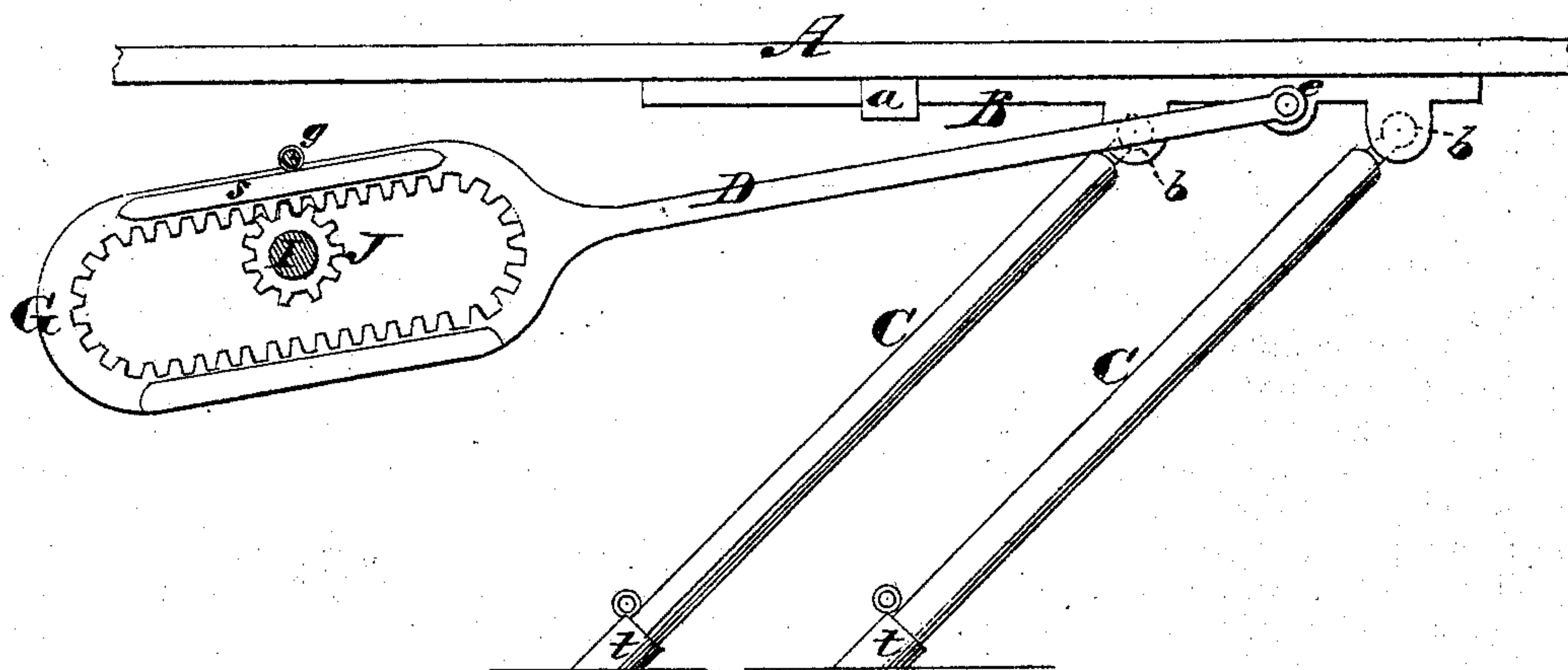


Fig. 2

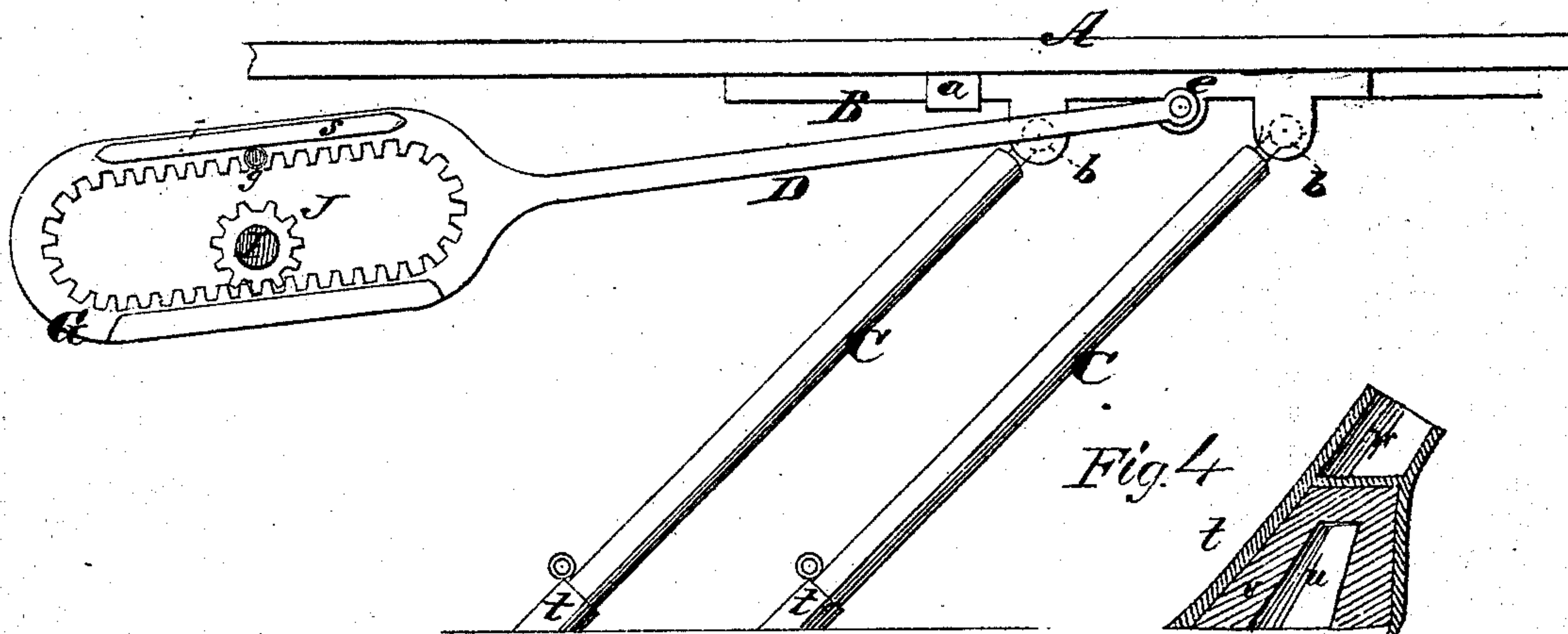


Fig. 4

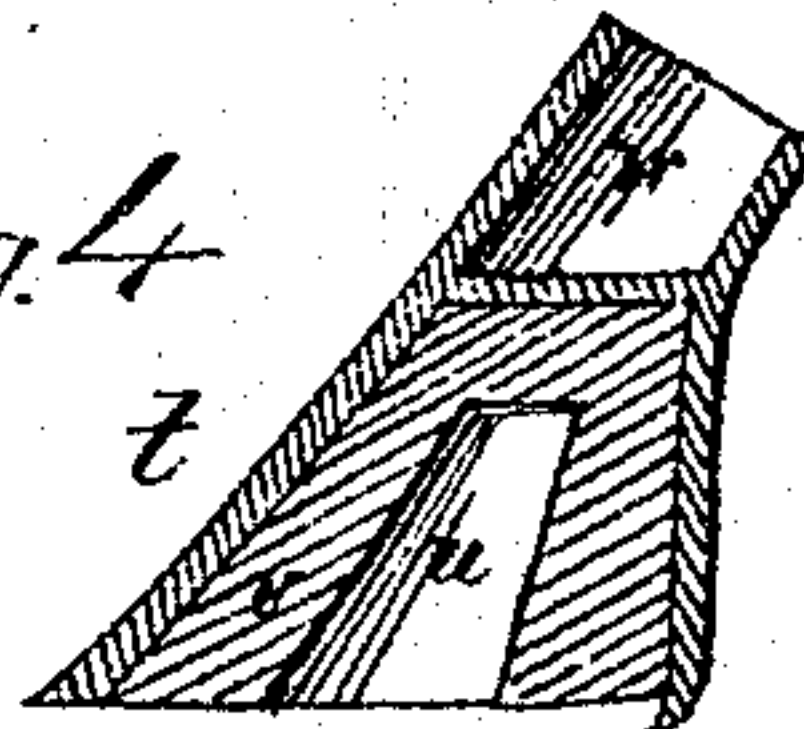
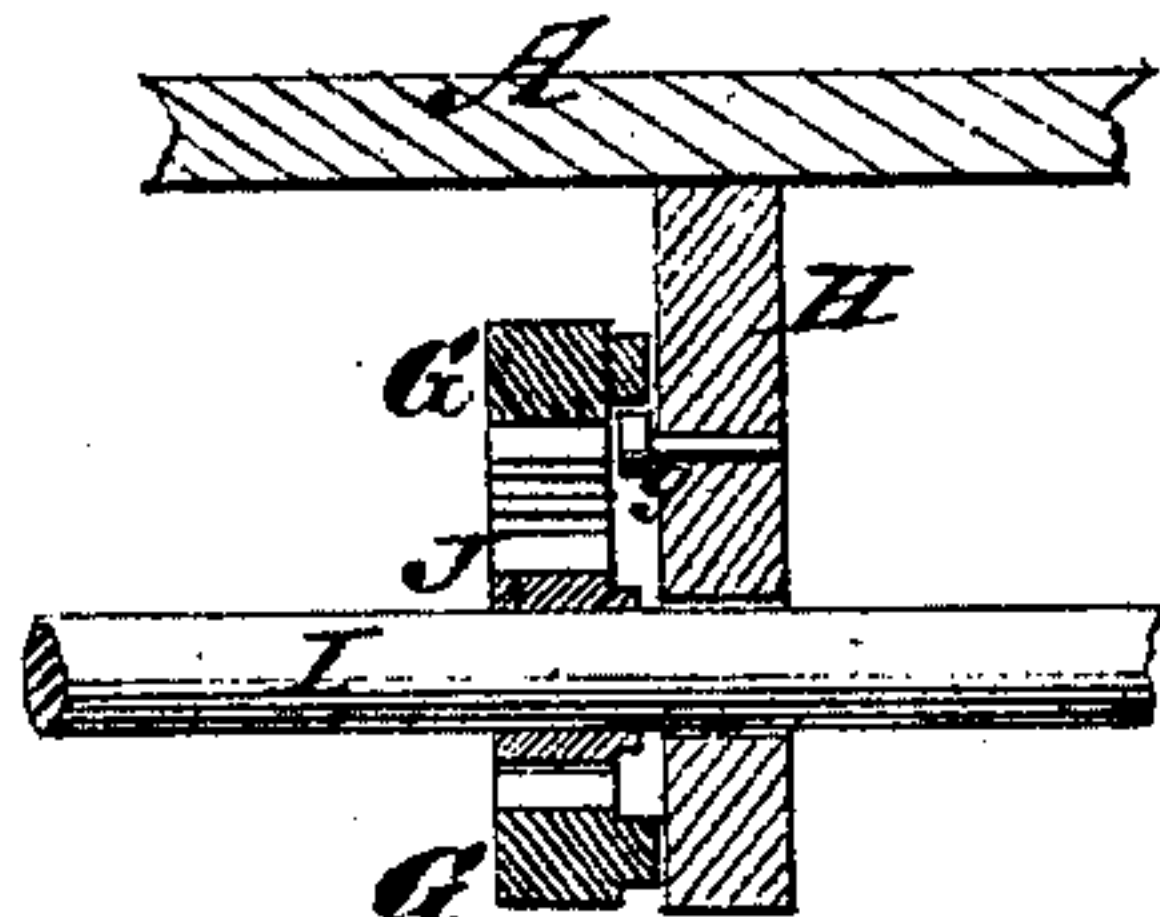


Fig. 3



Witnesses.
R. T. Campbell
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UNITED STATES PATENT OFFICE.

MIRABEAU N. LYNN, OF NEW ALBANY, INDIANA, ASSIGNOR TO HIMSELF AND EDWARD H. MANN, OF SAME PLACE.

IMPROVEMENT IN STEAM-PLOWS.

Specification forming part of Letters Patent No. 116,610, dated July 4, 1871.

To all whom it may concern :

Be it known that I, MIRABEAU N. LYNN, of New Albany, in the county of Floyd and State of Indiana, have invented an Improved Motion for the Pushing Legs of Steam-Plows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side elevation, showing two pushing-legs and the improved device for operating them. Fig. 2 shows the same parts in a different position. Fig. 3 is a vertical cross-section through the toothed yoke and its driving-wheel. Fig. 4 is a diametrical section through a pushing-foot which I use with the pushing-legs.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improved mode of operating the pushing-legs of steam-plows, the same being an improvement on the steam-plow patented by me May 31, 1870. The nature of my invention consists: 1st, in combining with a rectilinear movable slide, having pushing-legs applied to it, a reciprocating toothed yoke and rotating driving-wheel, whereby a regular rotary motion imparted to said wheel will communicate the required forward-and-backward movements to the pushing-legs, as will be hereinafter explained. 2d, in a novel kind of foot for a pushing-leg, which foot presents to the surface of the ground an India-rubber sole and a vacuum chamber, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawing I have only represented two pushing-legs and the improved device for operating them; but it should be understood that in practice there will be a gang of these pushing-legs arranged beneath the bed A of the carriage, side by side, and driven from a single shaft, I. It should also be stated that in practice the several pairs of pushing-legs will be arranged in such relation to each other that while one pair is moving backward another pair will be moving forward, thereby giving a regular or continuous progressive movement to the carriage.

A represents the bed of a carriage, which is to be mounted upon transporting-wheels, and which is to have a steam-boiler, steam-engine or engines,

gang of plowshares, and other things necessary to a steam-plow, applied to it. B represents a slide, which is arranged beneath the bed A and guided by staples *a*, or other suitable means, which will allow this slide a free endwise motion in the direction of the length of the carriage. By means of ball-and-socket joints *b*, or in any other suitable manner, the pushing-legs C C are attached to the slide. These legs incline backward and downward, and are furnished, on their lower ends, with feet *t t*, so constructed as to prevent the legs from slipping on the ground while making their propelling stroke, as will be hereinafter explained. The ball-and-socket attachments *b b* will allow the legs to receive lateral as well as longitudinal motion, so that they can accommodate themselves to inequalities of surface passed over. This mode of attaching the legs I do not claim under this application. For the purpose of lifting the legs free from the ground when this is desired, chains are attached to them, which extend up to windlasses on the frame of the carriage. I represents a driving-shaft, which is arranged horizontally and transversely beneath the carriage-bed A, and supported by suitable bearings. This shaft will be rotated, by means of cranks, connecting-rods, and engines, in any suitable manner. Oscillating engines may be used and their piston-rods connected directly to the cranks on driving-shaft I. To each one of the slides B a pitman-rod, D, is connected by a joint, *a e*, which rod extends backward, and is rigidly connected to the front end of an oblong toothed yoke, G, through which the driving-shaft I passes. This yoke consists of parallel toothed racks terminated at their ends by semicircular inside spur-teeth, as shown in Figs. 1 and 2. J represents a spur-wheel, which is keyed on shaft I in the same vertical plane as the yoke G, and intended for giving motion to this yoke by engaging with its teeth. For the purpose of keeping the teeth of the wheel J and those of the yoke G at all times engaged, a piece, *s*, is applied to the side of the yoke above wheel J, and constructed with beveled ends, and a stud or small anti-friction wheel, *g*, is applied to a fixed pendant guide, H, so as to support the yoke G (when lifted by wheel J, as shown in Fig. 2) during one of the strokes of this yoke, and to hold the yoke down in gear with wheel J during the other strokes. The yoke thus receives from wheel J longitudinal motion

and also a vertical motion. The pendant H, which supports the stud or roller *g*, also serves as a guide or stay for keeping the yoke in the same place as the driving-wheel J. It may also be made to serve as an intermediate bearing for the shaft I to sustain this shaft against the strain to which it is subjected.

Fig. 4 shows one of the feet *t* in section, exposing the socket *w* and the chambered India-rubber sole V. The rubber sole, in conjunction with the chamber *u* therein, will prevent slipping, as this chamber *u* operates in a great measure as a vacuum space and causes adhesion of the

foot to the ground during the downward and backward pushing motion.

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

1. The reciprocating toothed yoke G, constructed as described, in combination with the spur-wheel J, pitman D, slide B, and pushing-legs C, substantially as and for the purposes described.
2. The foot *t*, constructed as shown in Fig. 4.

MIRABEAU N. LYNN.

Witnesses:

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JOHN C. SCOTT.