

G. A. FARRALL.
LAND ROLLER.

No. 498,252.

Patented May 30, 1893.

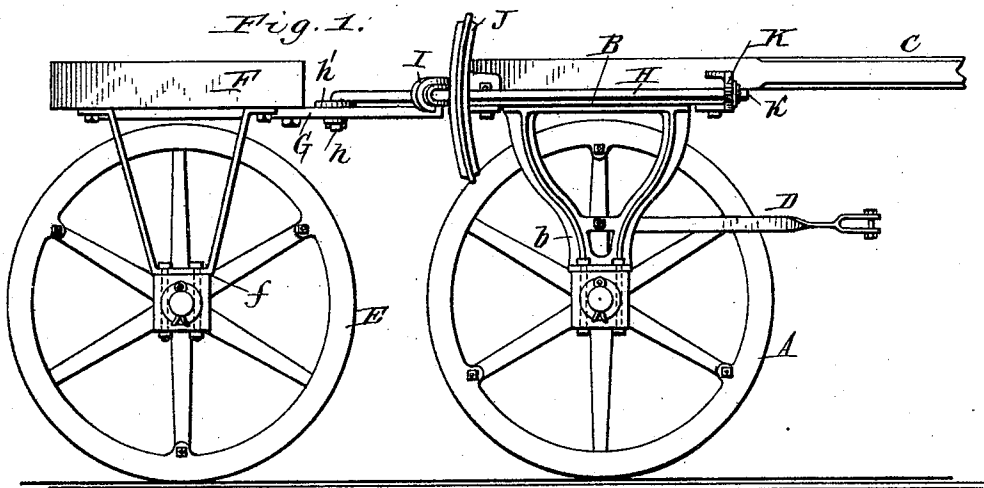


Fig. 2.

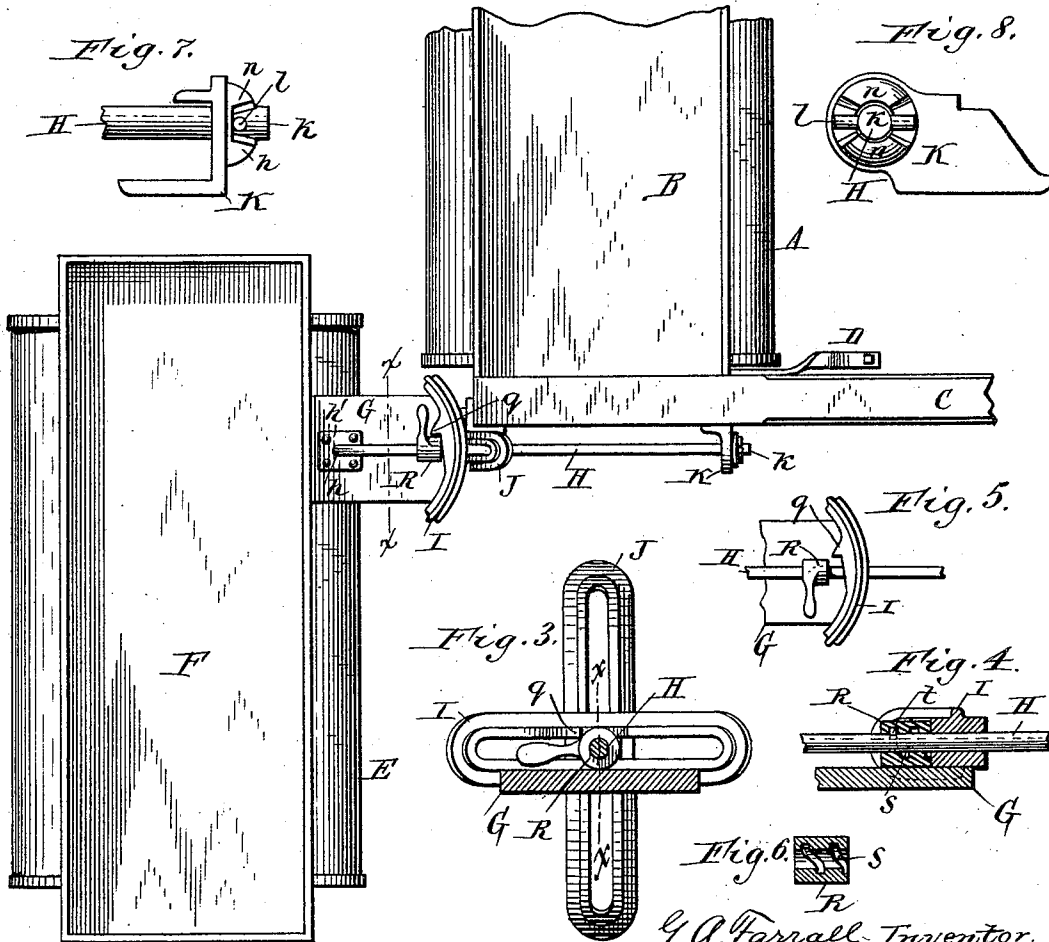


Fig. 7.

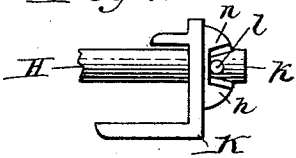


Fig. 8.

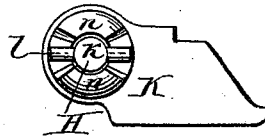


Fig. 5.

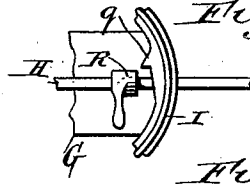


Fig. 3.

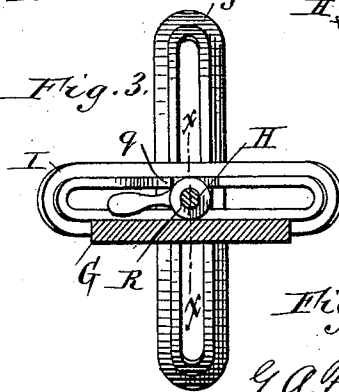


Fig. 4.

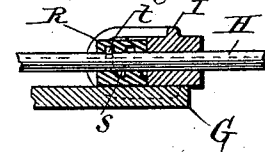


Fig. 6.



Emil Neuhart
Thos. L. Popp.

Witnesses:

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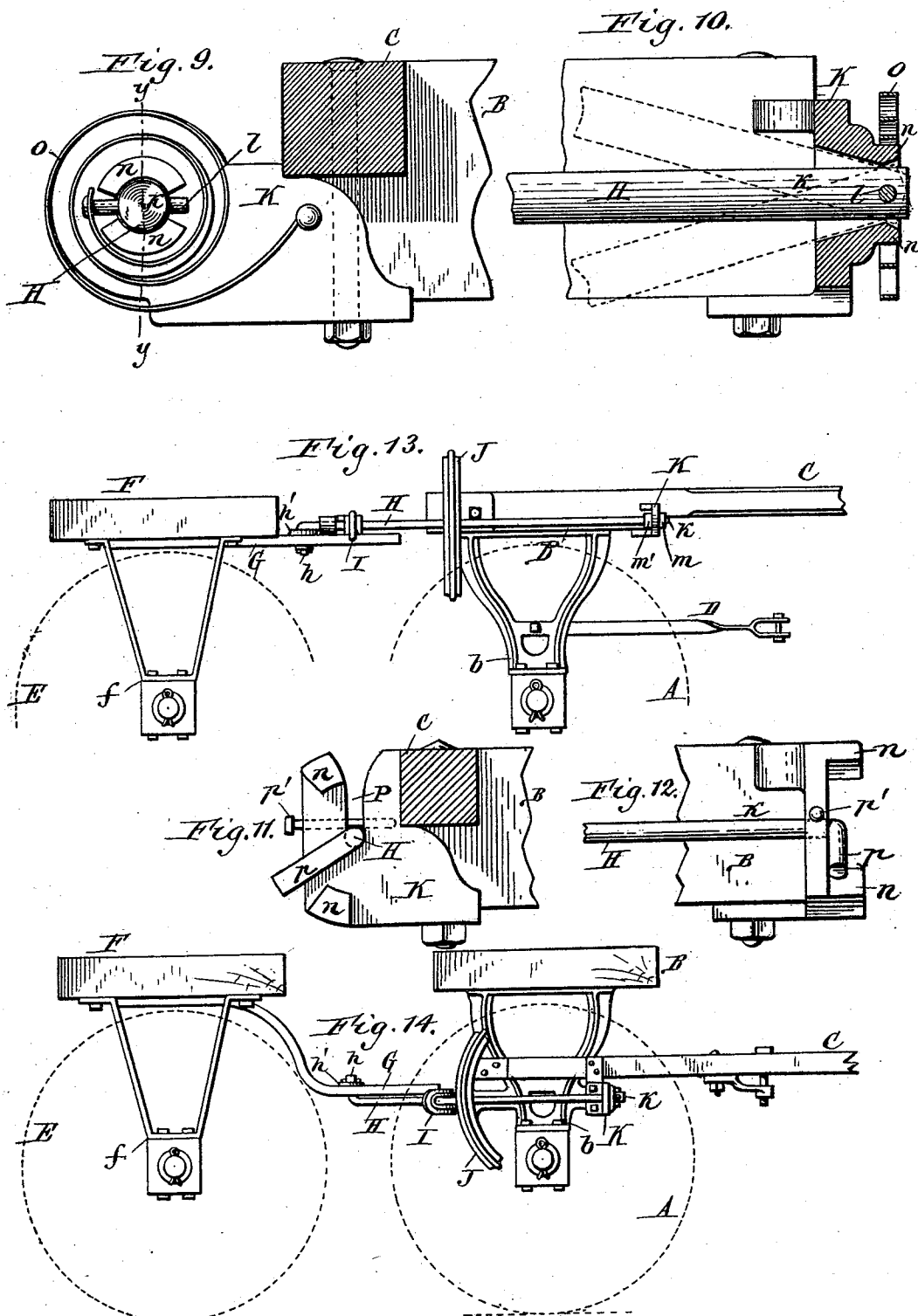
(No Model.)

2 Sheets—Sheet 2.

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Witnesses:

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By Wilhelm Pomeroy Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE A. FARRALL, OF BATAVIA, NEW YORK, ASSIGNOR TO THE JOHNSTON HARVESTER COMPANY, OF SAME PLACE.

LAND-ROLLER.

SPECIFICATION forming part of Letters Patent No. 498,252, dated May 30, 1893.

Application filed October 27, 1891. Serial No. 409,959. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. FARRALL, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented new and useful Improvements in Land-Rollers, of which the following is a specification.

This invention relates to that class of land rollers which contain two rollers arranged one in advance of the other and in which the frame of the rear roller is flexibly connected with that of the front roller, so that the two rollers can stand parallel with each other or at an angle to each other.

The object of this invention is to provide simple and efficient means for flexibly connecting the two roller frames.

In the accompanying drawings consisting of two sheets:—Figure 1 is a side elevation of my improved land roller. Fig. 2 is a fragmentary top plan view thereof. Fig. 3 is a vertical cross section of the coupling connecting the roller frames in line $x-x$, Fig. 2, on an enlarged scale. Fig. 4 is a longitudinal section through the rear guide and connecting parts in line $x-x$, Fig. 3. Fig. 5 is a top plan view of the rear guide, showing the stop collar disengaged therefrom. Fig. 6 is a longitudinal section of the stop collar. Fig. 7 is a side elevation of the front bearing of the coupling rod. Fig. 8 is a front elevation thereof. Fig. 9 is a sectional front elevation of the coupling rod and its front bearing connected by a cushioning spring. Fig. 10 is a longitudinal section in line $y-y$, Fig. 9. Fig. 11 is a front elevation, and Fig. 12 a side elevation of the front portion of the coupling rod and its front bearing, showing a slightly modified construction of these parts. Figs. 13 and 14 are side elevations illustrating modified constructions of the land roller.

Like letters of reference refer to like parts in the several figures.

A represents the front roller; B is the frame which extends lengthwise over the same and is provided at both ends with depending bearings b in which the roller is journaled.

C is the draft pole which is secured to the inner side of the front frame in such manner

that the rear portion of the pole forms part of the frame.

D is one of the draft rods to which the horses are attached and which is secured to the inner bearing b .

E represents the rear roller, F the frame extending lengthwise over the same and ff the depending bearings which are secured in this frame and in which the roller is journaled.

G represents a draw bar which is secured to the under side of the rear frame F in rear of the inner end of the front frame B and which projects forwardly toward the front frame.

H represents a coupling rod which connects the two roller frames and which is arranged with its front portion along the inner side of the front frame. This coupling rod is provided at its rear end with a downwardly projecting pivot h , which is preferably formed integral with the coupling rod and which is seated in a vertical socket h' secured to the draw bar G and affording a long and reliable bearing for the pivot.

I represents a slotted guide which is secured to the front end of the draw-bar G and through which the coupling rod passes. J represents a similar vertical guide which is secured to the inner rear corner of the front frame and through which the coupling rod passes also.

K represents a horizontal socket or bearing which is secured to the inner side of the front roller frame near the front corner thereof and in which the horizontal front portion k of the coupling rod is swiveled.

As shown in Figs. 1 and 2, the two slotted guides are constructed with arc-shaped contact faces, the rear guide I being curved from the rear pivot of the coupling rod as a center and the front guide J from the front bearing K as a center. The cavity of this bearing flares rearwardly, as represented in Fig. 10, so that the coupling rod can move vertically in this bearing, as indicated by dotted lines in said figure. The vertically slotted front guide J guides the rod in its vertical movements and holds it against lateral displacement on the front frame. The horizontally

slotted rear guide I guides the rod in its horizontal movements on the rear pivot as a center and holds the rod against vertical displacement on the rear frame. The curved contact faces of these guides serve as buffers which prevent longitudinal movement of the front and rear frames toward each other. The two roller frames are prevented from moving from each other by the pin *l* which is applied to the coupling rod in front of the front bearing K, as represented in Figs. 7 and 8. While it is desirable to employ these buffers, because they are very strong and durable, it is not absolutely necessary that buffer guides should be employed. For instance, the guides can be straight and not make contact with each other, in which case the roller frames are held at the proper distance apart by screw-nuts or collars *m m'* applied to the front portion of the coupling rod on the front and rear sides of the front bearing K, as represented in Fig. 13.

In order to reduce the tendency of the front roller to tip inwardly, the coupling bar projecting forwardly from the rear frame can be depressed, so as to locate the coupling rod nearer the center of the rollers, as represented in Fig. 14.

n n represent two segmental stops formed on the front side of the front bearing K above and below the draft pin *l*, as represented in Figs. 7 and 8. These stops permit of a limited swiveling movement of the coupling rod in the front bearing, but confine this movement to a certain range, so that the two rollers cannot depart too far from their normal positions. In order to prevent excessive strain on the draft pin in striking these stops the coupling rod can be cushioned by a coiled spring O which is attached with one end to the rod and with the other end to the front bearing, as represented in Figs. 9 and 10. When the outer end of either roller is tipped up this spring is strained and so opposes a yielding resistance to this movement of the rollers.

Instead of employing a separate stop pin at the front end of the coupling rod, the front end of the latter can be bent to form a stop, as shown at *p* in Figs. 11 and 12. In this case, the front bearing is provided with a slot P for the insertion of the coupling rod and with a pin *p'* by which the rod is confined in the bearing.

q represents a nose or stop which is formed on the rear side of the rear guide and which faces toward the outer end of the rear roller.

R represents a stop collar which is mounted on the coupling rod and made lengthwise movable thereon, so that it can be placed opposite the nose *q*, as represented in Fig. 2, or can be moved back on the rod to clear the nose, as represented in Fig. 5. When the stop collar is moved forward so as to engage against the nose, the rear roller frame is prevented from turning on the rear pivot of the rod outwardly beyond the position shown in Fig. 1, in which the rear roller stands parallel with the front

roller. The outer end of the rear roller has a tendency to hang back when going up-hill and this is readily prevented by moving the stop forward into this position. Upon moving the stop back so as to clear the nose, the rear roller is free to move in either direction. The longitudinal movement of the stop collar is readily effected by a spiral groove *s* formed in the cavity of the collar and a pin *t* which is secured to the coupling rod and engaged in said groove, the collar being provided with a handle for turning it.

I claim as my invention—

1. The combination with the front roller and its frame and the rear roller and its frame, of a coupling rod connecting both frames and made vertically movable on the front frame, and a slotted vertical guide attached to the front frame and holding the coupling rod against lateral movement thereon, substantially as set forth.

2. The combination with the front roller and its frame and the rear roller and its frame, of a coupling rod capable of vertical movement on the front frame and attached to the rear frame by a vertical pivot, a horizontal guide attached to the rear frame and holding the coupling rod against vertical movement thereon, and a vertical guide attached to the front frame and holding the coupling rod against horizontal movement thereon, substantially as set forth.

3. The combination with the front and rear roller frames, of a coupling rod attached to the rear frame by a vertical pivot and to the front frame by a horizontal pivot, a horizontal buffer guide attached to the rear frame, and a vertical buffer guide attached to the front frame, substantially as set forth.

4. The combination with the front and rear roller frames, of a coupling rod, and a horizontal rear guide and vertical front guide constructed with curved contact faces, substantially as set forth.

5. The combination with the front and rear roller frames, of a coupling rod, a bearing which is secured to the front frame and in which the coupling rod can swivel, a pin secured in said rod, and stops which are formed on the front bearing and which limit the swiveling movement of the rod by coming in contact with said pin, substantially as set forth.

6. The combination with the front and rear roller frames, of a coupling rod, a bearing which is attached to the front frame and in which the coupling rod has a swiveling movement, stops which are formed on said bearing and which limit the swiveling movement of the coupling rod, and a spring which cushions the rod in its swiveling movement, substantially as set forth.

7. The combination with the front and rear roller frames, of a coupling rod, a bearing which is attached to the front frame and in which the coupling rod has a swiveling movement, a cross pin secured in the coupling rod,

stops formed on said bearing and limiting the swiveling movement of the coupling rod, and a spring coiled around said rod and connecting the latter with the bearing, substantially as set forth.

5 8. The combination with the front roller frame, the rear roller frame, and the coupling rod, of the rear guide provided with a projecting stop, and a stop collar mounted on the
10 coupling rod and capable of free longitudinal movement thereon in either direction, whereby the collar can be set out of reach of the projecting stop or within reach thereof, at desire, substantially as set forth.

15 9. The combination with the front roller

frame, the rear roller frame and the coupling rod, of the rear guide provided with a projecting stop, a stop collar mounted on the coupling rod, and a screw thread and pin connecting the collar with the coupling rod, 20 whereby the collar can be adjusted lengthwise of the coupling rod by turning it thereon, substantially as set forth.

Witness my hand this 21st day of October, 1891.

GEORGE A. FARRALL.

Witnesses:

E. J. MOCKFORD,
L. D. COLLINS.