(No Model.) 2 Sheets—Sheet 1.

W. A. O. JONES.

HARROW.

No. 527,993. Patented Oct. 23, 1894.

Fig. 1.

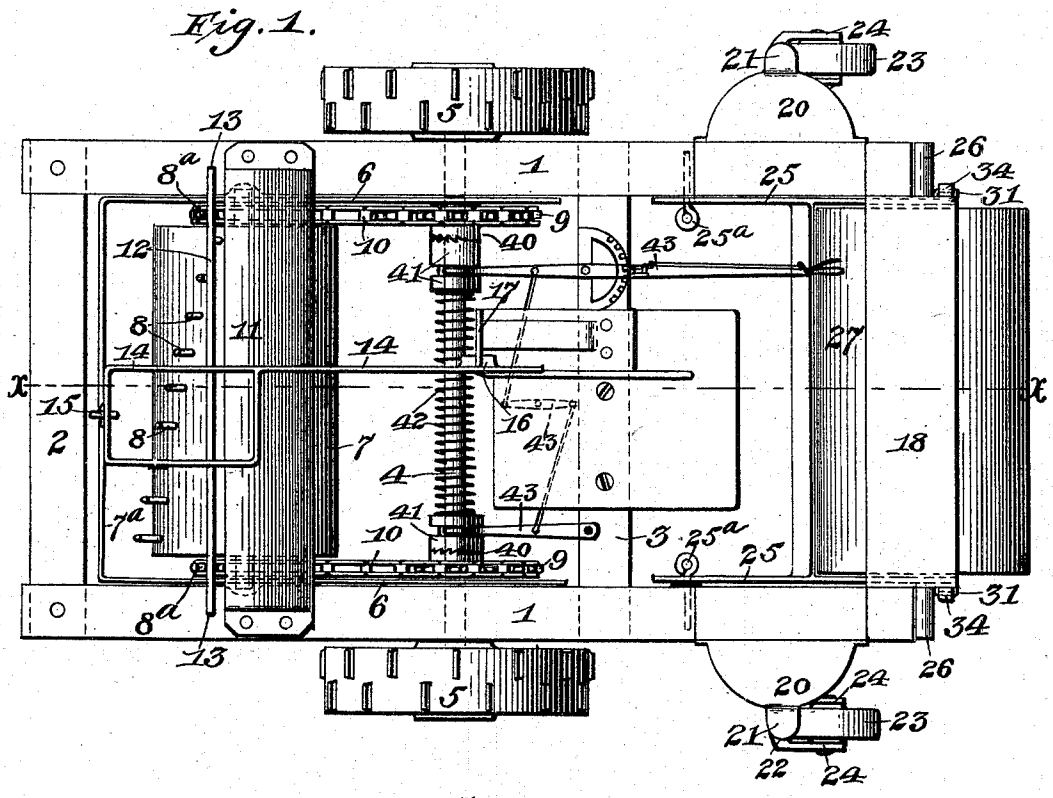
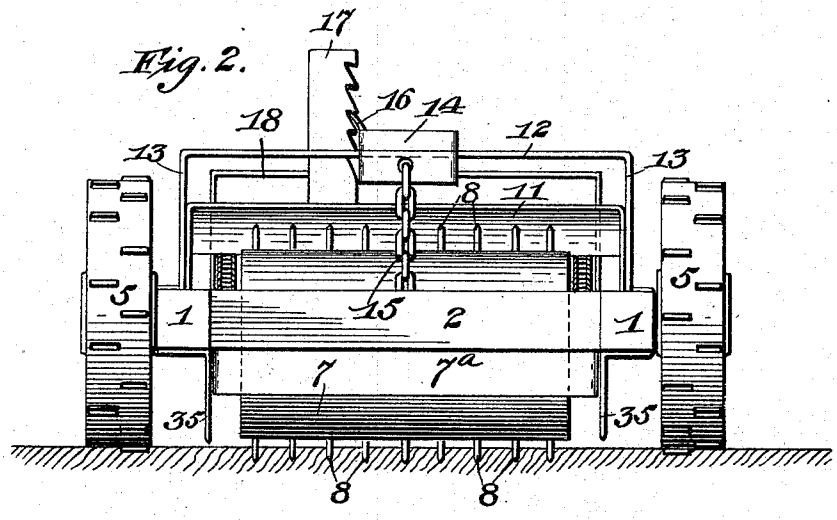


Fig. 2.



Witnesses

Geo. Vance.

W. Harry Mingy.

Inventor

Wyatt A. O. Jones,

By J. B. Lawyer

Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

W. A. O. JONES.

HARROW.

No. 527,993. Patented Oct. 23, 1894.

Fig. 3.

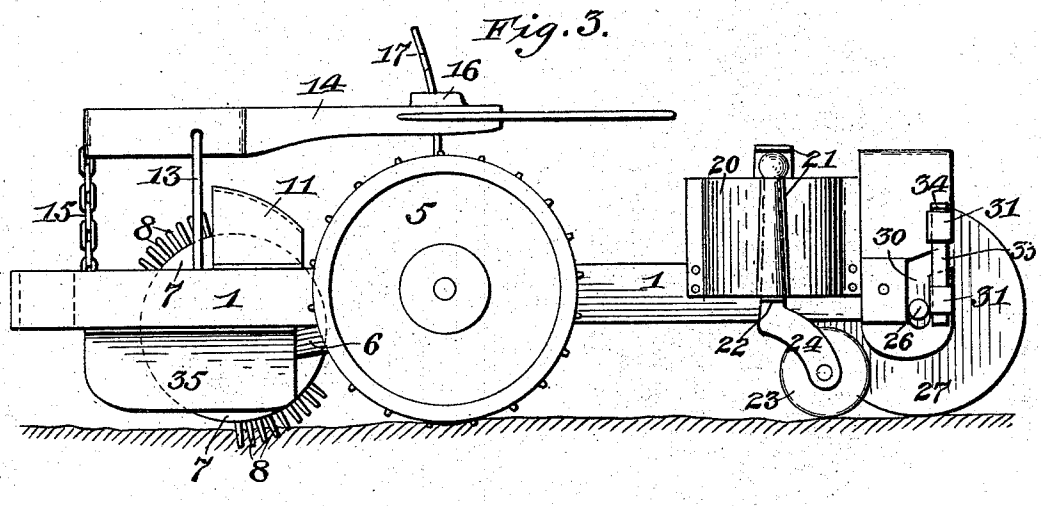


Fig. 4.

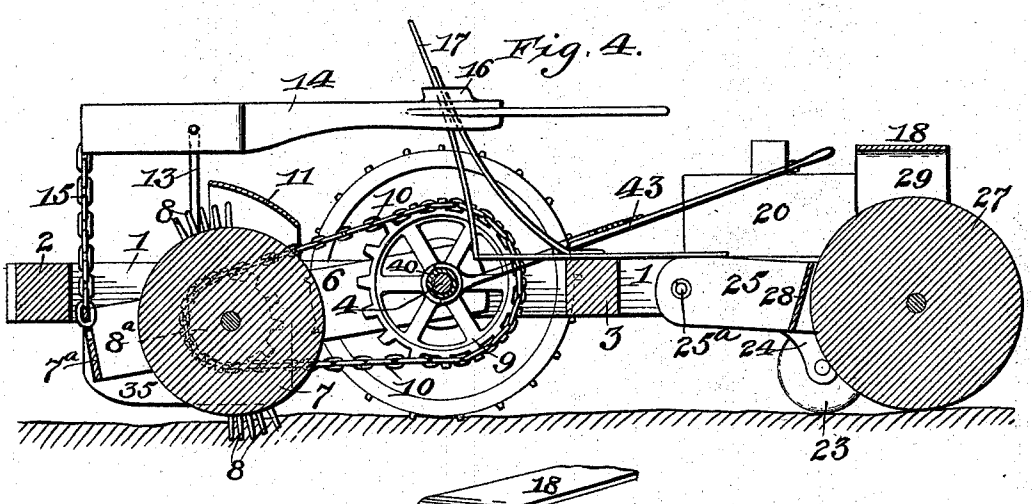
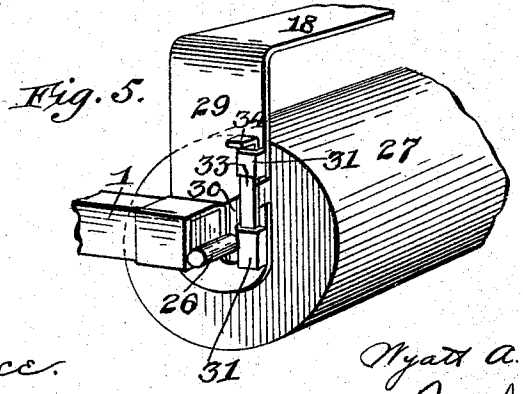


Fig. 5.



Witnesses
Geverance.
W. Harvey Muzzy.

Inventor
Wyatt A. O. Jones.
By J. B. Lawyer
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WYATT A. O. JONES, OF ROGERS, ARKANSAS.

HARROW.

SPECIFICATION forming part of Letters Patent No. 527,993, dated October 23, 1894.

Application filed December 19, 1893. Serial No. 494,099. (No model.)

To all whom it may concern:

Be it known that I, WYATT A. O. JONES, a citizen of the United States, residing at Rogers, in the county of Benton and State of Arkansas, have invented certain new and useful Improvements in Harrows; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in combined clodcutters and harrows, and it relates to that class of devices in which a revolving cylinder, provided with teeth is adapted to be driven by the carrying wheels of the machine, the cylinder being capable of vertical adjustment, and being carried in side bars, flanges provided with lower knife edges which cut the clods and prevent their being thrown to the sides of the machine being used, while a roller capable of a vertical movement is mounted in the rear of the machine and is adapted to even the ground, the frame of the machine being carried by the supporting wheel and by universally pivoted rear wheels.

My invention, therefore, consists in the construction, arrangement and combination of the several parts of which the said machine is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings in which corresponding parts are designated by similar marks of reference: Figure 1 is a plan view of a combined clodcutter and harrow constructed in accordance to this invention. Fig. 2 is a front view thereof. Fig. 3 is a side elevation of the invention. Fig. 4 is a central vertical longitudinal section on lines X X of Fig. 1. Fig. 5 is a detail view showing the method of mounting the rear roller.

The frame of the machine consists of the longitudinal side pieces 1, which are connected at their front ends by the transverse sill piece 2, and by the rear transverse sill piece 3, the rear ends of the side pieces projecting behind the last named transverse piece to support the opening roller, and to afford a point of attachment for the pivoted supporting wheel, to be hereinafter more fully described.

A shaft 4 projects from side to side of the frame, passing through the side pieces thereof in front of the sill piece 3, and by preference, in front of the center of the frame, the said shaft having rigidly secured upon its opposite ends the supporting wheels 5, the peripheries of which are by preference corrugated to prevent the slipping thereof. Bars 6 have their rear ends pivoted upon the shaft 5, their forward ends being connected by the bent portion 7^a thereof, which lies immediately in the rear of the forward transverse sill piece 2. A cylinder 7, having projecting teeth 8 upon its periphery is pivoted to the said bars between their forward ends and their pivotal point, the said cylinder having rigidly secured at each end thereof sprocket wheels 8^a, while similar sprocket wheels 9 are rigidly secured to the shaft 4 inside the side pieces 1, a sprocket chain 10 passing over each of the sprocket wheels 8^a and the corresponding sprocket wheel 9.

As shown in the accompanying drawings, I construct the sprocket wheel 8^a of less size than the sprocket wheel 9, whereby, upon a rotation of the supporting wheels 5, on a movement of the frame, the cylinder 7 will be driven with an accelerated motion in the same direction as the supporting wheel, thereby throwing the clods to the rear, breaking them at the same time, and it will be noticed that as the bars in which the cylinder is carried are pivoted on the shaft, no change in the tension of the sprocket wheel will occur, owing to the raising or lowering of the cylinder.

A suitable guard 11 secured to the frame, covers a portion of the cylinder, while a rod 12 carried by standards 13 which are secured to the side pieces 1, has pivoted thereon a lever 14, the forward end of which is connected by a flexible coupling, such as the chain 15 with the bent portion 7^a of the bar 6, whereby the latter and the cylinder carried thereby may be raised, the rear end of the lever being provided with a handle and having a wing 16 adapted to be engaged in the serrated stand-

ard 17, which is secured to and arises from the transverse sill piece 3, the flexible connection between the lever and bars 6 permitting the latter to rise when the cylinder 7 strikes an obstruction.

The seat 18 is secured on the rear end of the side pieces 1, and a platform is mounted upon the transverse sill piece 3 in front thereof, the seat being in convenient reach of the rear end of the lever.

Brackets 20 are secured to the outside of the rear end of each of the side pieces 1, each having formed therein a vertical bore closed at its upper end, each bore 21 being adapted to receive an upright 22, the lower end of which is bifurcated, a wheel 23 being mounted between the forks 24 thereon, it being evident that by this construction the upright may be rotated and turned, whereby in turning the frame, the wheels 23 will be free to assume any position therefor.

A link 25 is pivoted upon the inner side of each side piece 1 by removable bolts 25^a, the said links projecting to the rear and being apertured to admit the passage of the axle 26 of the evening roller 27, the links being connected in front of the said roller by a transverse plate 28, which serves as a scraper to prevent the accumulation of soil upon the roller. In order to obviate the necessity of making the bolts 25^a of great size and strength, and to reduce to a minimum the strain upon the links 25, the standards 29 of the seat 18 are continued to the rear of the side pieces 1, and have vertical slots 30 therein, the upper ends of which open to the rear of the standard, and in these slots the ends of the axle 26 of the roller 27 are contained.

Vertical pockets 31 are secured upon the outer surface of each of the standards 29 above and below the rearwardly extended portion of the slot 30 therein, through which pockets a locking plate 33 provided with a bent upper end, 34, is adapted to be inserted, whereby the axle of the roller will be locked within the slot and it will thus be seen that, while the said axle is free to move vertically within the slot, in order to provide for the inequalities of the ground upon which the roller constantly bears, the axle will be securely held in place.

Flanges 35 are secured to the lower surface of the forward ends of each of the side pieces, immediately on the side and in front of the cylinder 7, whereby the lateral displacement of the clods will be prevented, the said flanges having knife-shaped lower edges to cut and sever any clods that may be thrown by the cylinder 7 or over which they may pass.

Any desired form of motive power for drawing the frame over the ground may be attached to the forward transverse sill piece 2, as is evident.

From the above it will be seen that the cylinder 7 may be so adjusted as to cause the teeth thereon to penetrate the soil to any desired extent, and that the roller will on account of its freedom to vertical motion bear constantly on the ground.

In order to permit the movement of the harrow from place to place without driving the roller 8, when such is desired, and to permit the backing of the harrow without reversing the direction of rotation of the roller, I may, if I desire, insert clutches, such as 40 between the main axle 4 and the sprocket wheels 9, the several members of the clutches having teeth so disposed thereon, as to engage upon the forward motion of the axle 4, but to slide upon a reversal of its movement, whereby the latter of the above objects is accomplished. The movable members 41 of the clutches are feathered on the axle 4, and are pressed outwardly against the outward members by the spiral spring 42 encircling the axle, while they are adapted to be disengaged therefrom by the system of levers 43, whereby the sprocket wheels may be disconnected from the axle to permit the free movement thereof in any direction.

Having thus described my invention, what I claim, and desire to secure, is—

1. In a harrow, the combination with a suitable frame, of supporting wheels therefor, bars pivoted concentrically to the said wheels, a tooth cylinder mounted within the said bars and driven by the said supporting wheels with an accelerated motion, means for vertically adjusting the position of the said cylinder, standards secured on the opposite sides of the rear of the said frame, each of the said standards having a vertical and rearwardly opening slot therein, and having pockets thereon above and below the rearwardly opening portion of the said slots, locking plates adapted to be inserted in the said pockets, links pivoted to the said frame and having apertures therein, and an axle, carrying a roller, the said axle passing through the apertures in the links and through the slots in the standards, substantially as described.

2. In a harrow, the combination with a suitable frame, of supporting wheels therefor, bars pivoted in the said frame, a tooth cylinder mounted in the said bar and driven by the said supporting wheels, a pivoted lever connected with the said bars, standards secured on the opposite sides of the rear of the said frame, each of the said standards having a vertical and rearwardly opening slot therein and having pockets thereon above and below the rearwardly opening portion of the said slot, a seat carried by the said standards, locking plates adapted to be inserted in the said standards, links pivoted to the said frame and having apertures therein and an axle, carrying a roller, the said axle passing through the apertures in the links and through the slots in the standards, substantially as described.

3. In a harrow and clod cutter, the combination with a suitable frame, of a shaft passing therethrough, supporting wheels mounted

on the said shaft, bars pivoted upon the said shaft, a cylinder provided with teeth journaled in the said bars and having sprocket wheels thereon, sprocket wheels mounted on the said shaft of greater size than the sprocket on the said cylinder, sprocket chains passing over the said sprocket wheels, a pivoted lever connected with the said bars, flanges provided with knife edges secured to the said frame on the sides of the said cylinder standards secured on the opposite sides of the said frame, each of the said standards having a vertical and rearwardly opening slot therein and having vertical pockets thereon above and below the rearwardly opening portion of the said slot, a seat carried by the said standards, locking plates adapted to be inserted in the said standards links pivoted on the said frame and having apertures therein, and an axle carrying a roller, the said axle passing through the apertures in the links and through the slots in the standards, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WYATT A. O. JONES.

Witnesses:
JAMES ROE,
J. F. WALKER.