

(No Model.)

2 Sheets—Sheet 1.

S. M. NEELY.

CYLINDER PLOW AND PULVERIZER.

No. 332,421.

Patented Dec. 15, 1885.

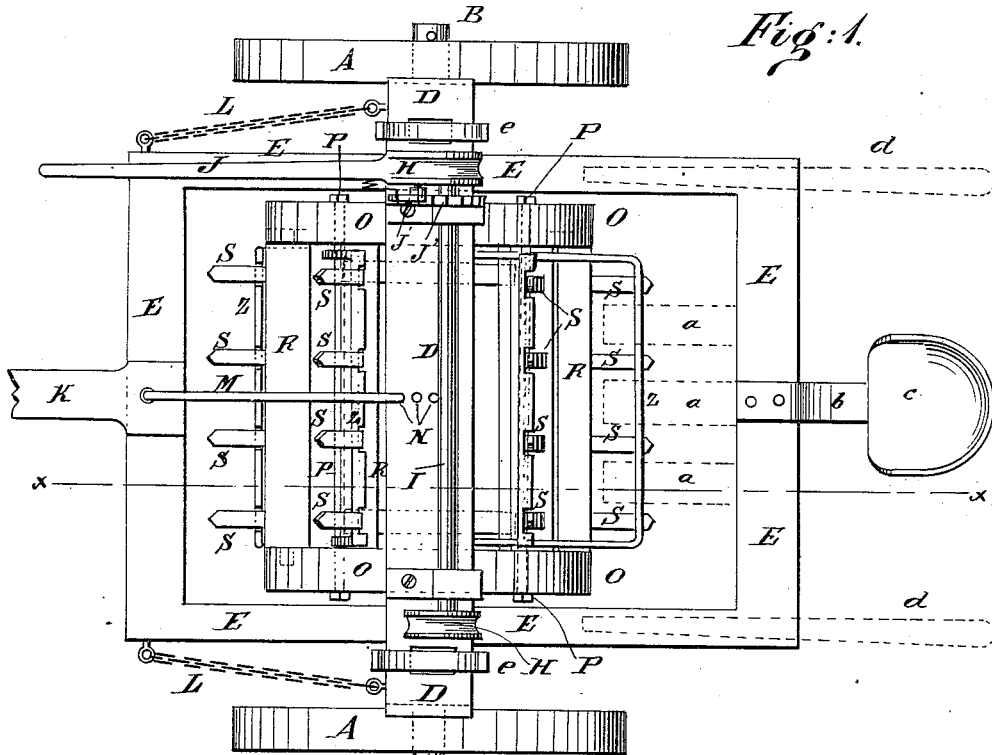


Fig: 1.

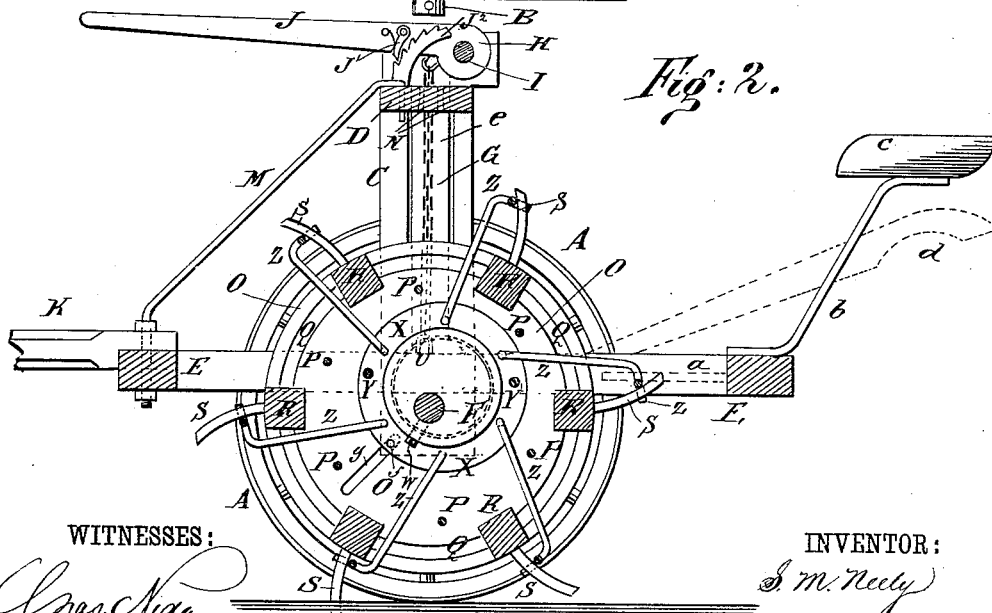


Fig: 2.

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Fig: 3.

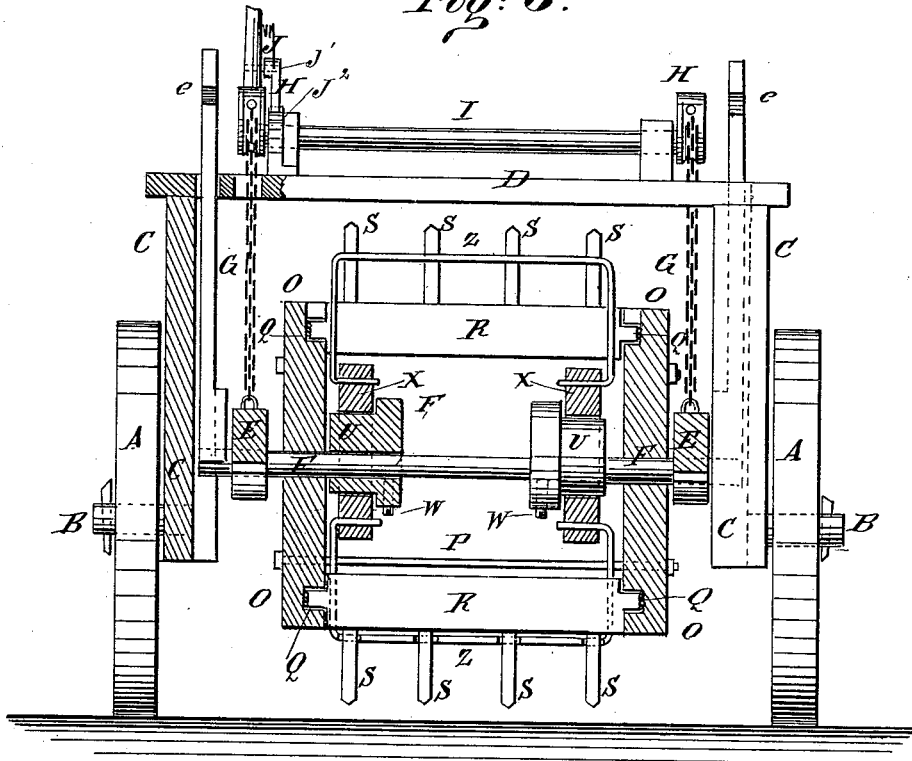


Fig: 4.

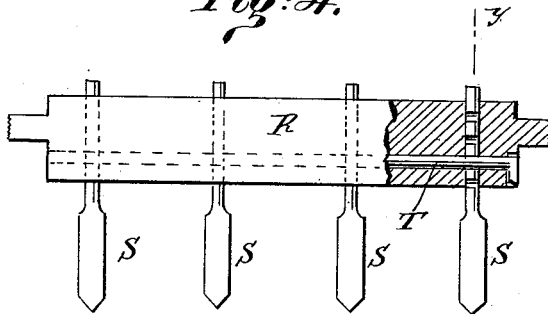
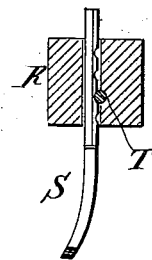


Fig: 5.



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UNITED STATES PATENT OFFICE.

SAMUEL M. NEELY, OF SMITH'S TURN OUT, SOUTH CAROLINA.

CYLINDER PLOW AND PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 332,421, dated December 15, 1885.

Application filed May 8, 1885. Serial No. 164,829. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. NEELY, of Smith's Turn Out, in the county of York and State of South Carolina, have invented a new and useful Improvement in Cylinder Plows and Pulverizers, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of one of my improved plows and pulverizers. Fig. 2 is a sectional side elevation of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a sectional front elevation of the same, parts being broken away. Fig. 4 is a rear elevation of one of the tooth-bars partly in section. Fig. 5 is a sectional end elevation of the same, taken through the line *y y*, Fig. 4.

The object of this invention is to provide cylinder plows and pulverizers constructed in such a manner that they can be readily adjusted to work at any desired depth in the ground, and to pulverize the soil to any desired fineness, and which will automatically clear the teeth of soil.

The invention consists in the construction and combination of various parts of the cylinder plow and pulverizer, as will be hereinafter fully described, and then pointed out in the claims.

A are the wheels, the short axles B of which are attached to the lower ends of two upright bars, C. The upright bars C are connected at their upper ends by a cross-bar, D, forming the carriage-frame.

E is the plow-frame, to the middle part of the side bars of which is rigidly attached the shaft F. The ends of the shaft F project beyond the side bars of the frame E and enter and slide up and down in vertical grooves in the inner sides of the upright bars C. To the middle parts of the side bars of the frame E are attached the lower ends of chains G, which pass up through holes in the cross-bar D, and are attached to the grooved cams or roller-segments H, rigidly secured to the ends of a shaft, I. The shaft I rocks in bearings attached to the cross-bar D, and to one of the segments H is attached, or upon it is formed, a lever, J, by means of which the said seg-

ments are turned to raise and lower the frame E and its attachments. The lever J is provided with a spring-pawl, J', to engage with a catch-bar, J'', attached to one of the bearings for the shaft I and hold the said lever J, and with it the frame E, in any position into which they may be adjusted. To the center of the front cross-bar of the frame E is attached the tongue K, to which the draft is applied. To the forward ends of the side bars of the frame E are attached the forward ends of chains L, the rear ends of which are attached to the lower parts of the forward sides of the upright bars C of the carriage-frame, so that the carriage will be drawn from the frame E. The carriage-frame CD is held in an erect position by the brace-bar M, the lower end of which is attached to the rear end of the tongue K and the front cross-bar of the frame E. The upper end of the brace-bar M is bent downward into hook form, to hook into one or another of the holes N, formed to receive it in the upper side of the middle part of the top bar, D, so that the said brace-bar can be adjusted as the height at which the frame E is to be used may require.

Upon the shaft F, at the inner sides of the side bars of the frame E, are placed two disks, O, which are connected and made to revolve together by long bolts or rods P. In the inner sides of the disks O, near their rims, are formed annular grooves Q, to receive tenons formed upon the ends of the bars R, to which the teeth S are attached. At one or more places in one or both disks O the part of the rim of the said disk or disks between the groove Q and the outer surface is cut away, as shown in Fig. 3, so that the tooth-bars R can be readily detached by slipping them around to the said opening. The ends of the tooth-bars R and the bottoms of the grooves Q are roughened, as shown in Fig. 4, to prevent the said tooth-bars from slipping, when arranged in place and clamped between the disks O, by screwing up the nuts of the long bolts P.

The teeth or plows S may be made of any desired shape, as the character of the work to be done may require, and their shanks are inserted in holes in the bars R, where they are secured in place by pins T, passed through holes in the said bar R and through recesses in the shanks of the teeth S. Several recesses

are formed in the shanks of the teeth S to receive the pins T, so that the said teeth can be adjusted to project more or less, as may be desired.

5 Upon the shaft F, at the inner sides of the disks O, are placed eccentrics U, which are secured to the said shaft F by set-screws W, so that the said eccentrics will be held stationary.

10 Upon the eccentrics U are fitted annular disks X, which are connected by bolts or rods Y, and to which are hinged the ends of the arms of bails Z, the middle parts of which rest upon the teeth S, and which are pushed out-
15 ward and drawn inward as the annular disks X are carried around the eccentrics U, by the revolution of the disks O. The disks O are made to carry the annular disks X with them, in their revolution, by a rod, *f*, which passes
20 through holes in the said annular disks X, and the ends of which enter radial grooves *g* in the inner sides of the said disks O, so that the said annular disks X will be free to adjust themselves to the eccentrics U while being carried
25 around by and with the said disks O. The eccentrics U are so arranged as to cause the bails Z to begin to move outward as the teeth S rise from the ground, so as to clear the said teeth of soil, or of grass, weeds, or other rub-
30 bish, and to be drawn inward as the said teeth descend toward the ground, so as to be out of the way when the said teeth are working in the ground.

If desired, the clearers Z can be detached
35 and the teeth S kept clear by arms *a*, attached to the rear cross-bar of the frame E in such positions as to pass between the said teeth S as they rise, and thus clear the said teeth of rubbish. This modification is indicated in
40 dotted lines in Figs. 1 and 2. To the rear cross-bar of the frame E is attached the lower end of a standard, *b*, to the upper end of which is attached the driver's seat *c*.

If desired, the carriage A B C D can be
45 omitted and the machine used as a walking plow and pulverizer. In this case the standard *b* and seat *c* are omitted, and handles *d* are attached to the rear part of the frame E for guiding the machine, as indicated in dotted
50 lines in Figs. 1 and 2.

e are bars the lower ends of which are concaved to rest upon the ends of the stationary shaft F. The bars *e* are placed in the grooves in the inner sides of the uprights C of the carriage-frame, and their upper ends project
55 through apertures in the top bar, D, of the said frame, so that weights can be applied to the upper ends of the said bars *e*, to hold the

plow-frame E and its attachments down with any desired force, as the hardness of the ground
60 may require.

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

1. In a cylinder plow and pulverizer, the
65 combination, with the frame E, of the stationary shaft F, the loose disks O, having annular grooves Q in the outer parts of their inner sides, the bolts P, connecting the disks, and the bars R, having end tenons to enter the
70 grooves of the disks O, and provided with teeth S and their fastening-pins T, substantially as herein shown and described, whereby the tooth-bars will be securely held and
75 can be readily attached, adjusted, and detached, as set forth.

2. In a cylinder plow and pulverizer, the combination, with the frame E, the stationary shaft F, the grooved disks O, the tooth-
80 bars R, and the teeth S, of the eccentrics U, secured to the said stationary shaft F, the annular disks X, and the bails Z, hinged to the said annular disks X, substantially as
85 herein shown and described, whereby the said bails will be pushed outward to clear the teeth of rubbish as the said teeth rise from the
90 ground, and drawn inward out of the way as the said teeth move downward, as set forth.

3. In a cylinder plow and pulverizer, the
90 combination, with the plow-frame E and the stationary shaft F, of the wheels and axles A, B, the upright frame C D, having vertical grooves in the inner sides of its uprights to receive the ends of the said stationary shaft
95 and the draft-chains L, and adjustable hook-brace M, connecting the said frames, substantially as herein shown and described, whereby the plow-frame is provided with a carriage,
as set forth.

4. In a cylinder plow and pulverizer, the
100 combination, with the plow-frame E, the stationary shaft F, attached to the said plow-frame, and the upright carriage-frame C D, having grooves in the inner sides of its uprights and apertures in its top bar of the
105 bars *e*, having concaved lower ends to rest on the said stationary shaft, substantially as herein shown and described, whereby weight can be applied to the said stationary shaft to hold the plow-frame and its attachments down with
110 any desired force, as set forth.

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Witnesses:

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