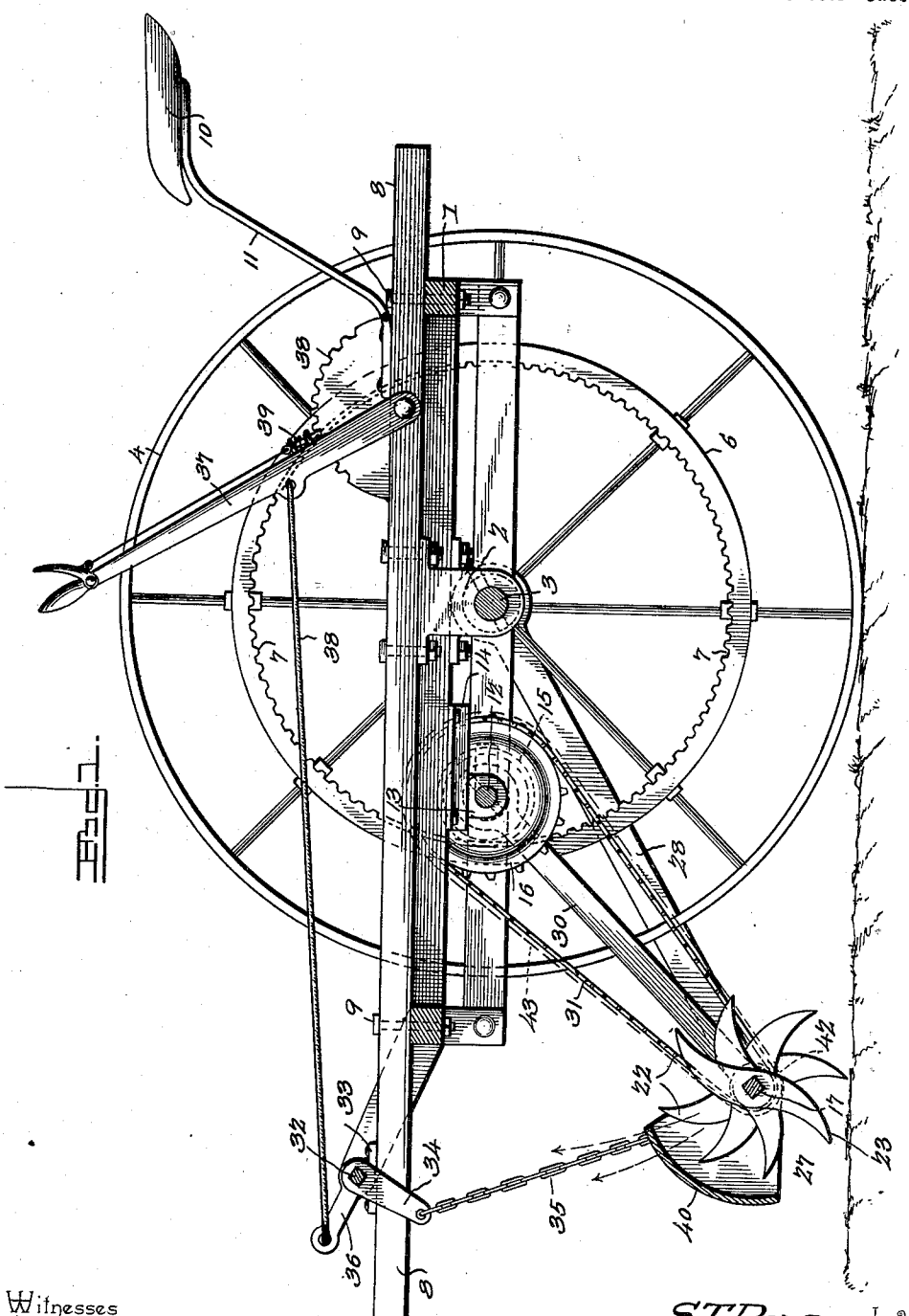
No. 662,366. Patented Nov. 20, 1900.

S. T. PAYNE.

CLOD CRUSHER AND SOD CUTTER.

(Application filed Mar. 10, 1900.)

(No Model.) 3 Sheets—Sheet 1.



Witnesses

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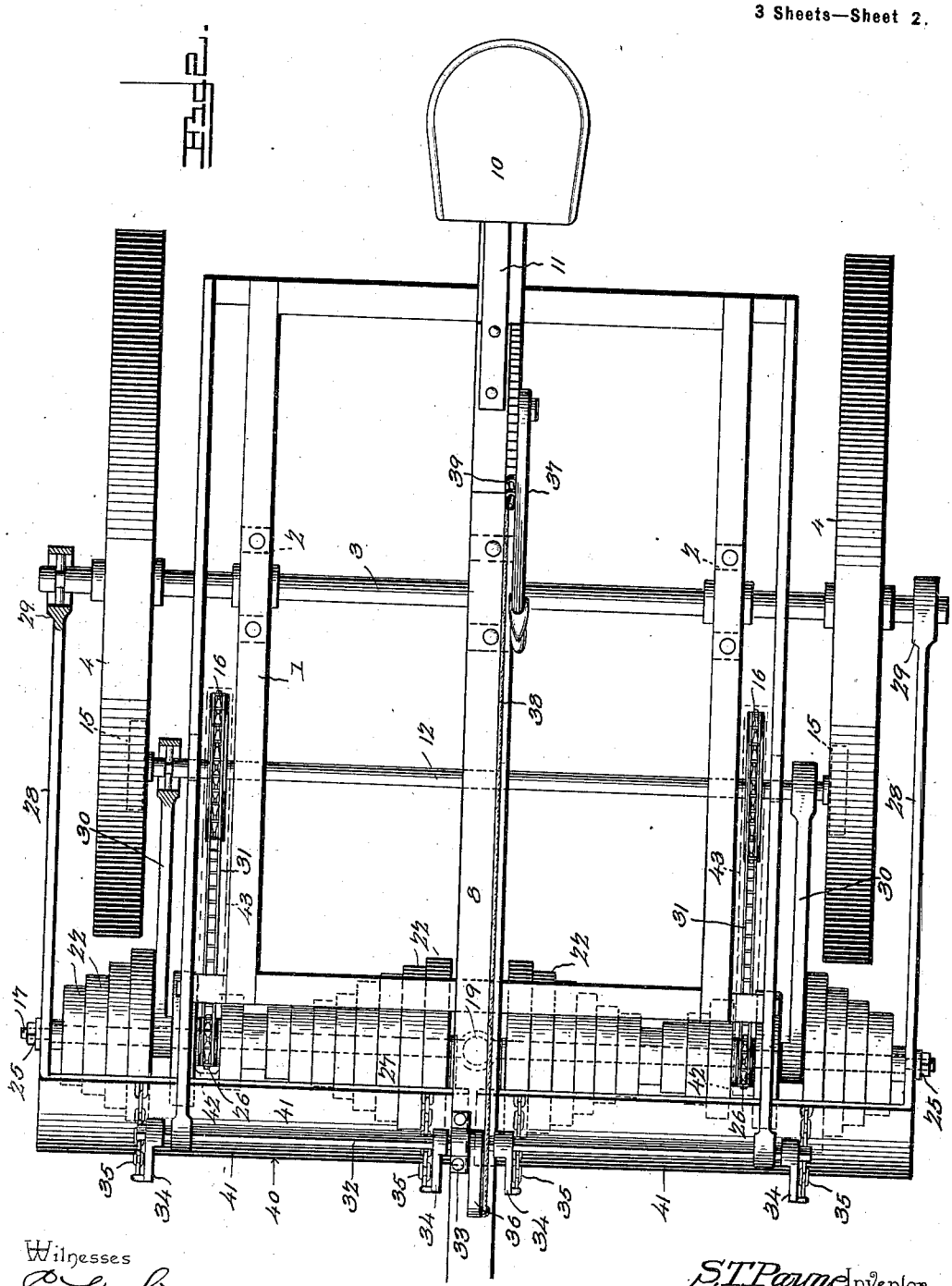
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 3.

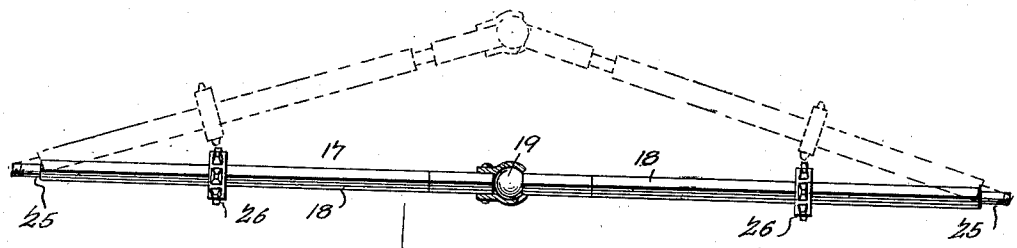


Fig. 4.

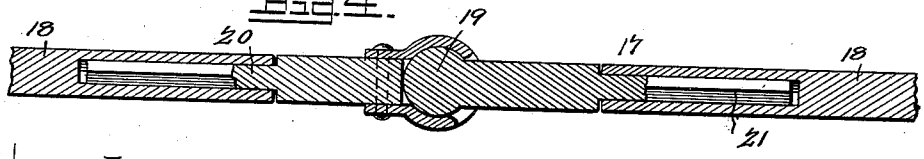


Fig. 5.

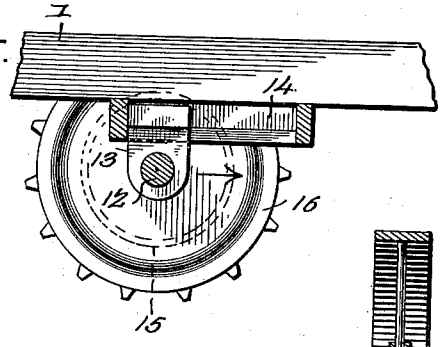


Fig. 6.

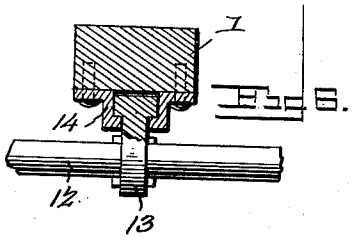


Fig. 8.

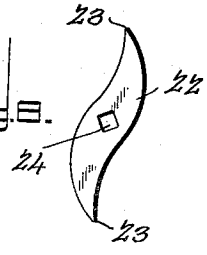
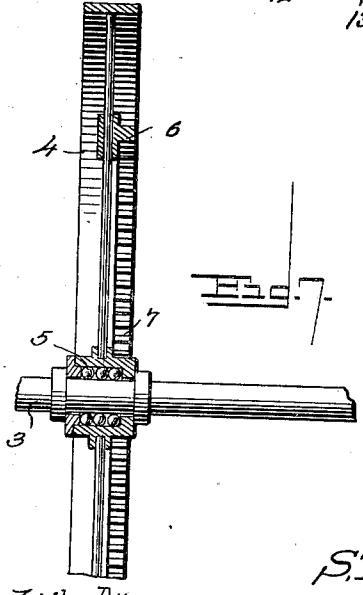


Fig. 7.



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UNITED STATES PATENT OFFICE.

STEPHEN THOMAS PAYNE, OF LOUISVILLE, KENTUCKY.

CLOD-CRUSHER AND SOD-CUTTER.

SPECIFICATION forming part of Letters Patent No. 662,366, dated November 20, 1900.

Application filed March 10, 1900. Serial No. 8,217. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN THOMAS PAYNE, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Clod-Crusher and Sod-Cutter, of which the following is a specification.

My invention is an improved clod-crusher and sod-cutter, the object of my invention being to provide a clod-crusher and sod-cutter which is adapted to conform to inequalities of the ground, so as to effectively operate on ridges and hollow places, as well as upon level land, and which shall be adapted to be readily thrown into and out of gear, of easy draft, and easily operated and controlled.

My invention consists in the combination, with a supporting-frame and operating-gear, of a roller which is centrally jointed, and thereby adapted to adjust itself to inequalities of the ground and is provided with a series of clod-crushing and sod-cutting teeth adapted to disintegrate clods and sods, which roller is adapted to be raised from and lowered to the ground at will and is revoluble in advance of the supporting-wheels of the main frame.

My invention further consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a clod-crusher and sod-cutter embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a detail elevation of the jointed shaft-rod of the roller. Fig. 4 is a detail sectional view of the same. Fig. 5 is a detail view of the power-shaft and its connections, whereby said power-shaft is adapted for longitudinal movement under the main frame. Fig. 6 is a detail sectional view at right angles to Fig. 5. Fig. 7 is a detail sectional view of one of the supporting or driving wheels of the machine and the bearings therefor. Fig. 8 is a detail view of one of the clod-crushing and sod-cutting teeth.

In the embodiment of my invention I provide a main supporting-frame 1, which may be of any suitable construction and, as here shown, is provided on its under side at its center with bearing-blocks 2, in which is journaled a shaft 3, which forms the axle for a pair of driving and supporting wheels 4. Each of said wheels is adapted for independent rotation on said shaft and has a ball-bearing 5. Secured on the inner side of each of the said wheels, to the spokes thereof, is a gear wheel or rim 6, which is provided with internal spur-teeth 7. A suitable tongue 8 projects forward from the machine and is centrally disposed thereon, the rear portion of said tongue extending lengthwise over the center of the frame 1 and being bolted thereto, as at 9. On the rear portion of the said tongue is secured the seat 10, of usual construction, for the driver.

It will be observed by reference to Fig. 1 that the frame is balanced on the shaft 3 and that the weight of the driver, when the machine is in operation, tends to balance that of the roller-frame, hereinafter described. If preferred, the seat-bar 11 may be adjustably secured on the rear portion of the tongue or beam that projects longitudinally on the center of the frame 1, so that the seat and the weight of the driver may be shifted forward and rearward on the rear portion of the frame.

A shaft 12 is journaled in bearing-blocks 13, which are fitted and adapted for longitudinal movement in supporting-guideways 14 on the under side of the frame 1 at a suitable distance in advance of the shaft 3, and on the said shaft 12, at the ends thereof, are spur-pinions 15, which are adapted to engage the front sides of the internally-spurred gear-wheels 6, so that rotary motion may be communicated to the shaft 12, as will be readily understood. Said shaft 12 is further provided with sprocket-wheels 16.

A roller shaft or rod 17, which is rectangular in cross-section, is composed of two sections 18, joined together at their opposing ends by a ball-and-socket or other suitable joint 19. Each of the said sections 19 is also extensible, being provided with telescoping sections, as at 20 21 of Fig. 4. On the said shaft or rod are placed a series of clod-crushing and sod-cutting teeth 22, each of which is of the form shown in Figs. 1 and 8, having two oppositely-extending points 23, which incline in opposite directions. Each of the said teeth 22 is provided with a central rec-

tangular opening 24, adapted to receive the shaft or rod 17, and in placing the said teeth on the said rod said teeth are arranged out of line with each other, so that the points thereof form spiral lines from end to end of the shaft 17. Caps or nuts 25, screwed on the end portions of said shaft or rod 17, secure the said teeth 22 on said rod, and interposed between certain of said teeth at appropriate points on said shaft or rod 17 are a pair of sprocket-wheels 26, which are considerably less in diameter than the sprocket-wheels 16 on the shaft 12.

The shaft or rod 17, together with the teeth 22, constitute the clod-crushing and sod-cutting roller 27, which roller, as herein shown, operates under the front portion of the frame 1 in advance of the supporting-wheels 4. Link-arms 28, attached to the projecting ends of the shaft or axle 3, extend forward from the same and have their lower front ends provided with bearings in which rotate the ends of the roller-shaft 17, and said link-arms include joints 29, which adapt them for torsional movement corresponding with the flexible roller 27, the joint 19 in the latter adapting said roller to conform to inequalities in the surface of the ground on which it operates. Link-arms 30, which are similar in construction to the link-arms 28, also connect the roller-shaft to the shaft 12, and the sprocket-wheels 26 on said roller-shaft are connected to the sprocket-wheel 16 on shaft 12 by means of endless sprocket-chains 31.

A shaft 32 is journaled in suitable bearings, as at 33, on the front side of the frame 1 and is provided with rock-arms 34, which are connected to the flexibly-jointed members of the roller 27 by means of suitable chains or other links 35, and said shaft is further provided with an arm 36, which is connected to an elevating-lever 37 by a rod 38. Said lever is located within convenient reach of the driver on the seat 10 and is provided with the usual locking-segment 38 and spring-actuated detent 39, by means of which said lever may be secured at any desired adjustment. It will be understood that by means of said lever and the connections between the same and the members of the flexibly-jointed clod-crushing and sod-cutting roller the latter may be raised and lowered at will. When the roller is raised and lowered, it moves in an arc the radius of which is drawn from the center of the shaft 3, and hence as said roller is raised the link-arms 30 cause the shaft 12 to move rearward under the frame, and thereby disengage the pinions 15 from the gear-wheels 6, so that when said roller is raised it becomes disconnected from the driving-wheels and ceases to rotate.

As shown in Figs. 1 and 2, I employ in connection with the flexibly-jointed clod-crushing and sod-cutting roller a concaved guard or casing 40, which is disposed on the front side thereof in an elevated position, partly covering said roller, the said guard or casing comprising two sections 41, attached to the respective link-arms 28 30 on opposite sides of the machine. I also provide shoes 42 for covering the sprocket-wheel 26 and fenders 43 to protect the endless sprocket-wheels 31 from the particles of earth which would otherwise be thrown upon them and cause them to get out of order.

It will be understood from the foregoing description and by reference to the drawings that the roller is rotated at a comparatively high rate of speed and that the teeth thereof, by successively striking the clods and sods, effectually break up, cut, and disintegrate the same, the machine performing efficient service in putting plowed land in condition for planting.

Having thus described my invention, I claim—

1. In a clod-crushing and sod-cutting machine, the combination with a main frame having driving-gears, a drive-shaft having gears adapted to engage with the driving-gears, said drive-shaft being laterally movable in its bearings, a clod-crushing and sod-cutting roller, operating connections between the latter and the drive-shaft, whereby said roller may be rotated, links connecting said roller with the main frame and means to raise and lower the roller and thereby automatically throw the drive-shaft into and out of gear with the driving-gears, substantially as described.

2. In a clod-crusher and sod-cutter, the combination with a main frame, supporting-wheels therefor, driving-gears rotated by said supporting-wheels, a clod-crushing and sod-cutting roller, link-arms connecting the latter to the spindles or axles of the supporting-wheels, a drive-shaft having gears to engage the driving-gears, bearings for said drive-shaft whereby the latter may be moved laterally into and out of gear with the driving-gears, operating connections between said drive-shaft and said roller, link-arms connecting said roller with said drive-shaft, and means for raising and lowering said roller, substantially as described.

3. In a clod-crusher and sod-cutter, the combination of a main frame, a flexibly-jointed clod-crushing and sod-cutting roller, supporting and operating connections between the latter and the main frame and means for raising and lowering said flexibly-jointed roller, substantially as described.

4. A clod-crushing and sod-cutting roller comprising the flexibly-jointed rod, and the series of teeth thereon, said teeth having their points arranged spirally, substantially as described.

5. A flexibly-jointed clod-crushing and sod-cutting roller having the concave guard thereon, in combination with means for rotating, supporting, and raising and lowering said roller, substantially as described.

6. A clod-crushing and sod-cutting machine comprising a supporting-frame, a flexi-

bly-jointed roller, connections between the latter and the frame whereby said roller is supported and guided in advance of said frame and in the line of draft, and means for rotating said roller and for raising and lowering the same, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

STEPHEN THOMAS PAYNE.

Witnesses:
L. B. ALLISON,
M. T. ALLISON.