

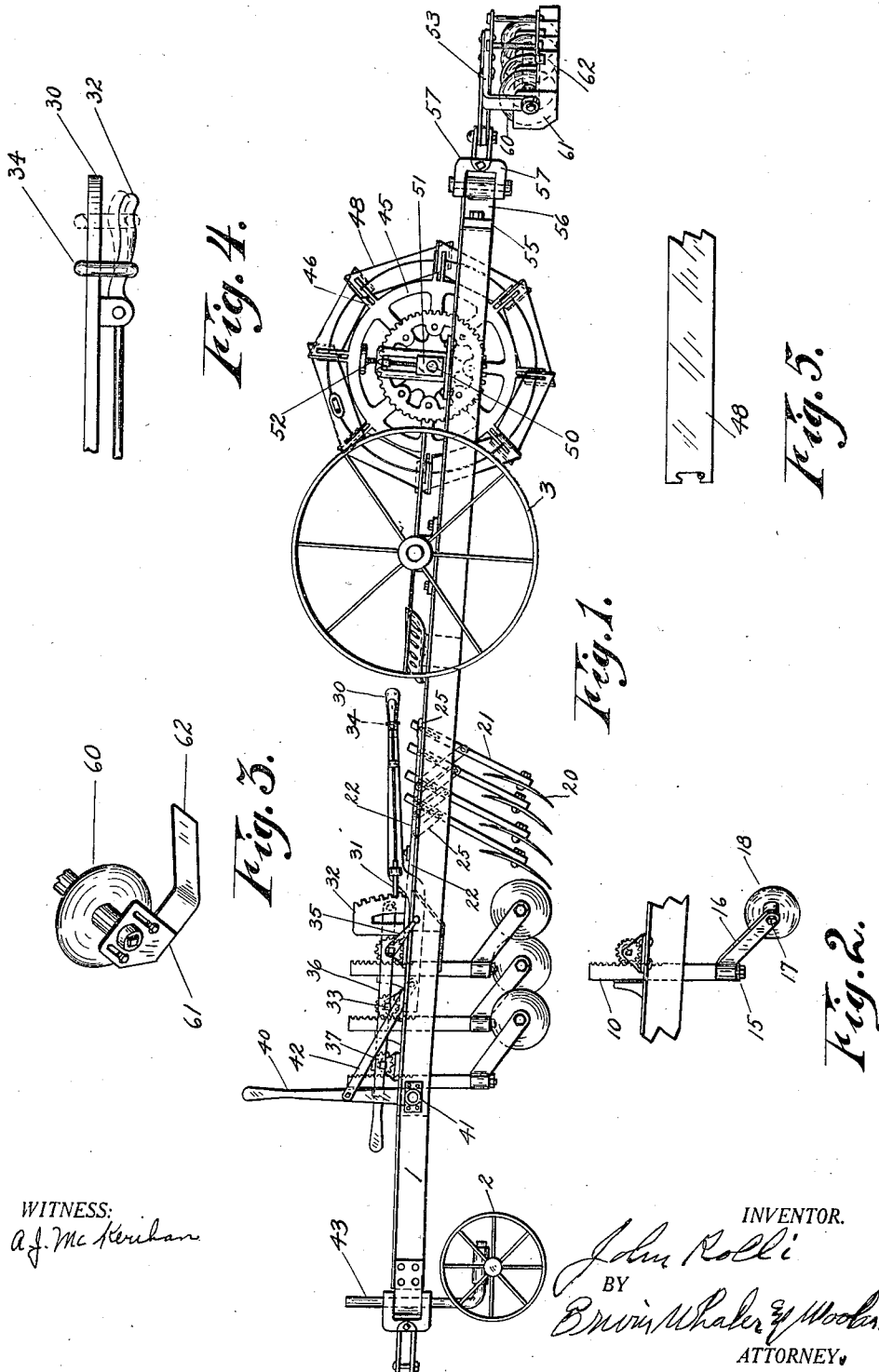
Nov. 6, 1923.

1,473,519

J. ROLLI
CULTIVATOR

Filed March 24, 1919

2 Sheets-Sheet 1



WITNESS:
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INVENTOR.
John Rolli
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2 Sheets-Sheet 2

Fig. 6.

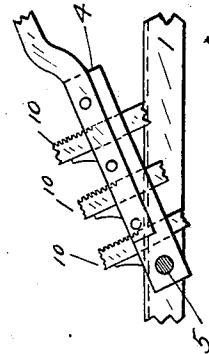
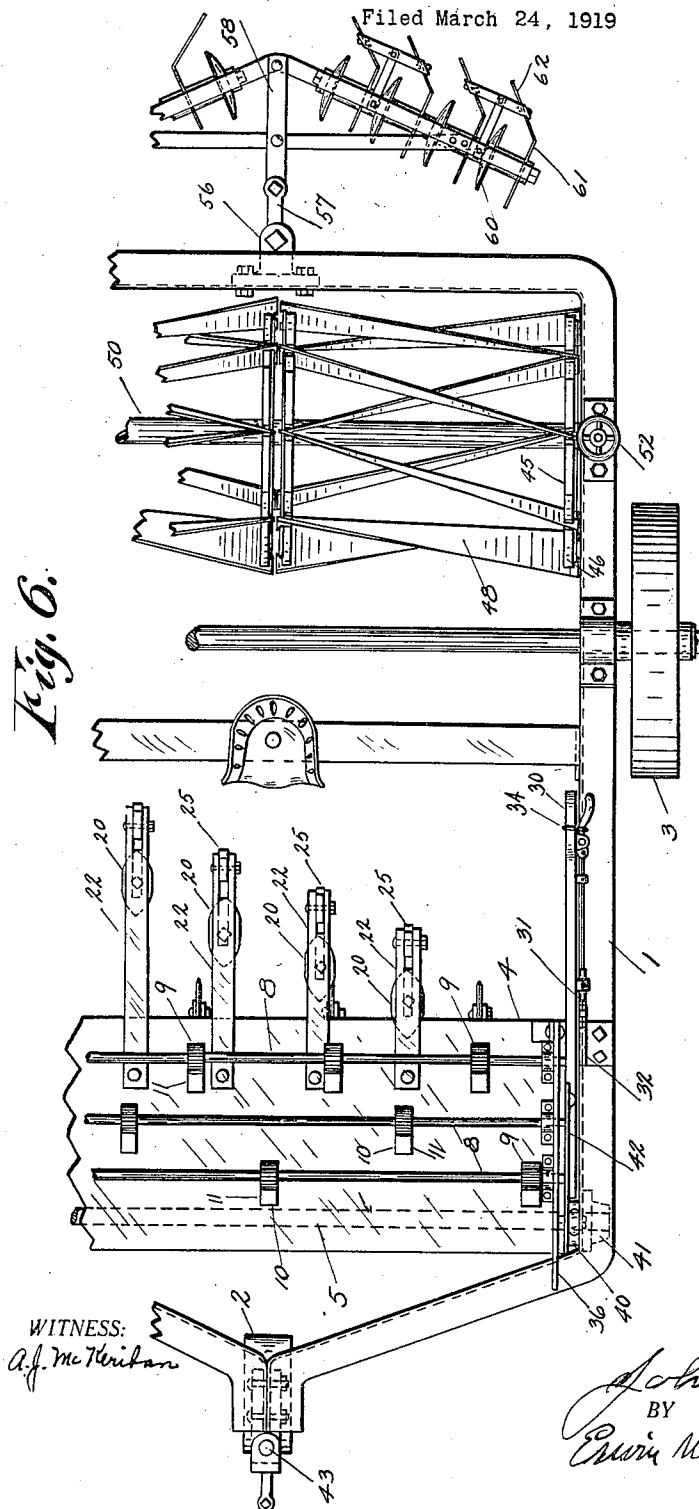


Fig. 7.

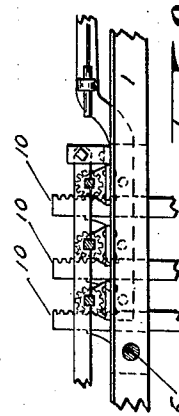


Fig. 8.

WITNESS:
A. J. McKittrick

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UNITED STATES PATENT OFFICE.

JOHN ROLLI, OF WEST ALLIS, WISCONSIN.

CULTIVATOR.

Application filed March 24, 1919. Serial No. 284,532.

To all whom it may concern:

Be it known that I, JOHN ROLLI, a citizen of the United States, residing at West Allis, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Cultivators, of which the following is a specification.

My invention relates to improvements in cultivators.

10 The object of my invention is to provide a machine having a series of sets of co-operating cutters and harrowing devices, of differing character, whereby the same machine may be adapted to the requirements of soils
15 of varying character.

In the drawings,—

Figure 1 is a side elevation of a machine embodying my invention.

20 Figure 2 is a detail side view of one of the castor disks and associated means for raising and lowering the same.

Figure 3 is a detail view of one of the final harrowing disks and its associated leveling blade.

25 Figure 4 is a detail view of a fragment of the main operating handle, and controlling latch, showing the latch retracting device.

Figure 5 is a detail view of a fragment of one of the cutter blades of the drum.

30 Figure 6 is a plan view of the machine with one side broken away.

Figure 7 is a detail side view, showing the controlling bar in tilted position, with the main operating handle raised.

35 Figure 8 is a detail view of the rack and pinion mechanism for raising and lowering the castor disks, and the means for locking the disk shanks or rack bars in proper position.

40 Like parts are identified by the same reference characters throughout the several views.

The main frame 1 may be propelled in any ordinary manner and may be supported
45 in part by a front wheel 2 and in part by wheels 3, over which the machine may be substantially balanced, when the harrows are raised.

50 Near the forward end of the frame, a tilting head plate 4 is secured to the side bars of the frame by a cross shaft 5, to which the front margin or marginal portion of the plate is rigidly secured. Rotatable cross shafts 8, journaled to the upper side of this
55 plate, are provided with pinions 9 in mesh with rack bars 10, the latter being adapted

to slide vertically thru apertures 11 in the plate, the walls of these apertures serving as guide bearings to hold the rack bars in mesh with the pinions, and in a substantially vertical position. 60

At the lower ends of the rack bars they are provided with swivel heads 15, upon which swinging arms 16 are journaled, each arm carrying a stud shaft 17, supporting a
65 cutter disk 18, which is preferably slightly dished, as shown. The castor disks are supported in sets of parallel disks, with others operating in the rear and laterally offset from those in front, but each disk is free to
70 swing about the axis of the swivel head 15 to which it is connected. Therefore, the disks may run around stones and other hard obstructions.

In the rear of the disks 18, I preferably
75 provide a set of cultivator teeth 20, supported by bars 21 and levers 22 from the rear marginal portion of the head plate 4. Braces or links 25 support the bars 21 from the levers 22 to prevent the bars 21 from
80 swinging upon their connections at 25. These levers 22 will be lifted when the head plate is tilted to the position in which it is shown in Figure 7.

The main lever or handle 30 is employed
85 to tilt the head plate. It has a latch 31 co-operating with a toothed segment 32, to lock the lever in various positions of adjustment, thus regulating the depth of the cutting and harrowing operations. A sliding ring 34
90 may hold the latch in retracted position, thus allowing the head plate to swing free.

The pinions 9 have their shafts squared at the ends, as shown at 33. These shafts may be separately actuated by a crank 35. They
95 are locked by a lever 36, which, when in locking position, receives the squared ends of the shafts in notches 37.

A lever 40, pivoted to the frame at 41,
100 may be used to manually control the head plate 4 when the main lever 30 is unlatched. This lever 40 is connected to the head plate by a link 42. The front wheel is preferably connected with the front end of the main frame by a steering post 43. 105

In the rear of the wheels 3, I provide a drum 45, having central and end arms 46 projecting radially and forked at their outer ends to receive blades 48, the margins of which follow substantially a helical line,
110 curving about the drum from the respective ends toward the center. The outer and

inner margins of these blades have cutting edges, and they may be reversed when one edge becomes dull, being detachably bolted to the arms 46.

5 The drum 45 has its supporting shaft 50 journaled in bearing blocks 51, which may be raised or lowered by screws 52.

The rear frame bar 55 is provided with a central draw bar 56, to which a clevis 57
10 may be connected, whereby a disk harrow 58 may be attached and drawn by the machine, while free to conform to the surface over which it travels. The disks 60 are of ordinary type, but a set of scraper blades 61
15 are preferably hung upon the shaft and provided with elbowed portions 62 trailing in the rear of the disks and adapted to push the soil in the opposite direction from that in which it is plowed by the disks, thereby
20 levelling the surface.

It will be understood that in my improved machine the soil is first cut by the disks 18, along lines generally parallel to the direction of vehicle travel, but curving
25 laterally to some extent to avoid unyielding obstructions. The cultivator teeth 20, when in use, enter the grooves made by these disks and further harrow up the soil. The drum blades cross cut the soil and reduce
30 it to a condition where complete pulverization is possible by means of the disk harrow at the rear. Ordinarily the main lever may be locked in the desired position to control the penetration of the teeth 20, but under
35 some conditions lever 40 may be manually manipulated to raise and lower these cultivators to suit varying conditions.

It will be observed that each of the soil cultivating elements above described constitutes a
40 plow, but the successive sets of plows differ in character and therefore act differently upon the same portion of the soil, whereas in the ordinary cultivators or plows as heretofore constructed each portion of the soil is sub-
45 jected to the action of a single plow, and where plows are used in gangs they are employed to cut parallel furrows, and therefore simply form a set of furrows instead of one.

50 I am aware that colters have been used in advance of a plow to cut a slit in the soil to facilitate guiding the plow along a straight line, and to cut grass roots to lessen resistance and facilitate turning a furrow of

uniform width, and properly turning the 55 sod to completely bury the growing vegetation. Such colters are simple disks and are not plows in any sense, for they do not turn over any portion of the soil. Therefore they are not equivalents for my plowing disks 18 60 which are concave on one side and convex on the other, and are therefore not colters, but plows per se.

I claim:—

1. In a cultivating machine, a tilting support, a set of posts adjustable perpendic- 65-ularly to the support, rack and pinion connections for adjusting the posts, arms in swiveled and laterally swinging connection with the lower end of the posts, and cutting disk journaled on said arms. 70

2. In a cultivating machine, a tilting support, a set of posts adjustable perpendic- 75-ularly to the support, rack and pinion connections for adjusting the posts, arms in swiveled and laterally swinging connection with the lower ends of the posts, and cutting disks journaled in said arms, the pinions having shafts provided with squared portions, and the frame having a notched 80 lever adapted to simultaneously engage said squared shaft portions to simultaneously lock all the pinions against rotation.

3. In a cultivating machine, the combination with a main frame provided with front 85 and rear supporting wheels, of a cross shaft thereon, a head plate connected with the cross shaft and adapted to tilt about the axis of said shaft, a set of posts adjustable perpendicularly of said head plate, rack 90 pinion connections for adjusting the posts, cutting disks carried by said posts, means for rotating said pinions, means including a lever adapted to lock said pinions against rotation, a set of links carried by said head 95 plate and extending laterally thereof a supporting bar carried by each of said links, a cultivator tooth carried by each of the supporting bars, a lever for tilting said head plate, and means including a toothed 100 segment for maintaining the head plate in any one of a plurality of tilted positions.

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

JOHN ROLLÉ.

Witnesses:

LEVERETT C. WHEELER,
O. C. WEBER.