

No. 755,906.

PATENTED MAR. 29, 1904.

E. MILLER.
CULTIVATOR.

APPLICATION FILED APR. 1, 1903.

NO MODEL.

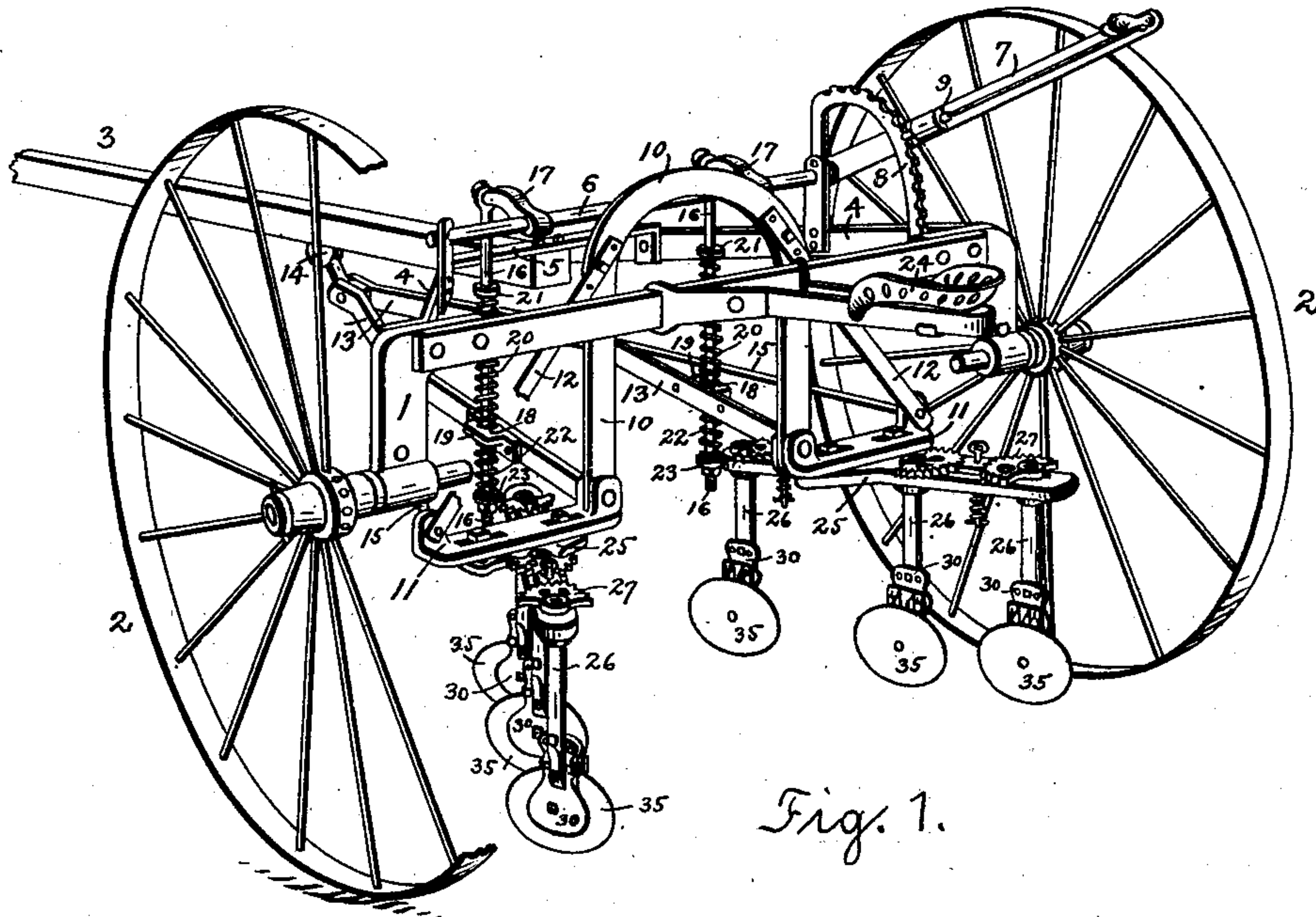


Fig. 1.

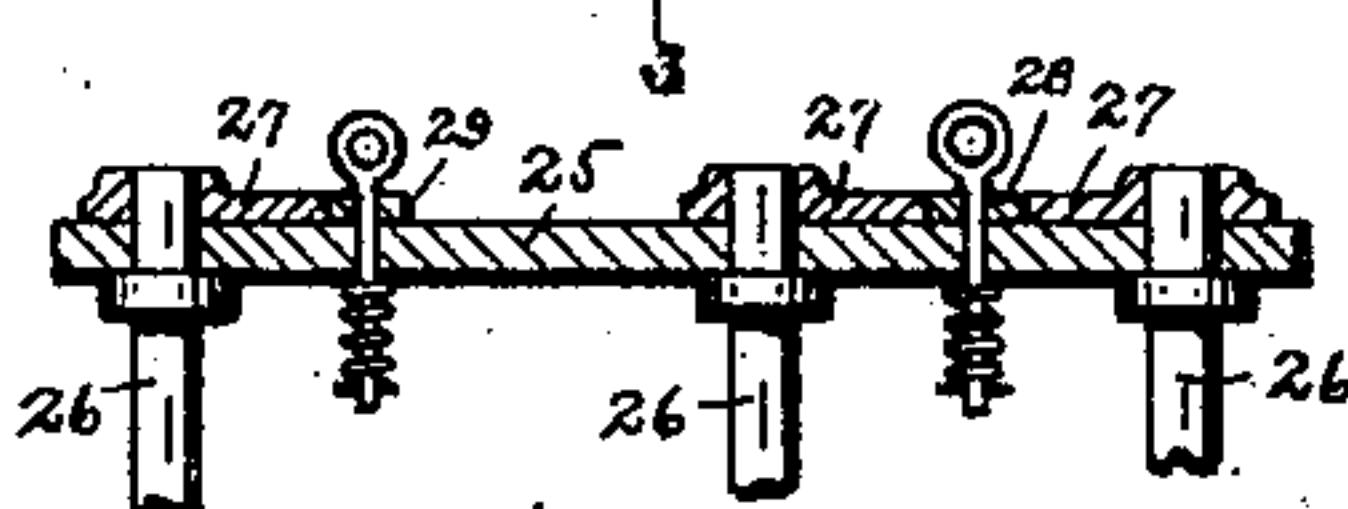
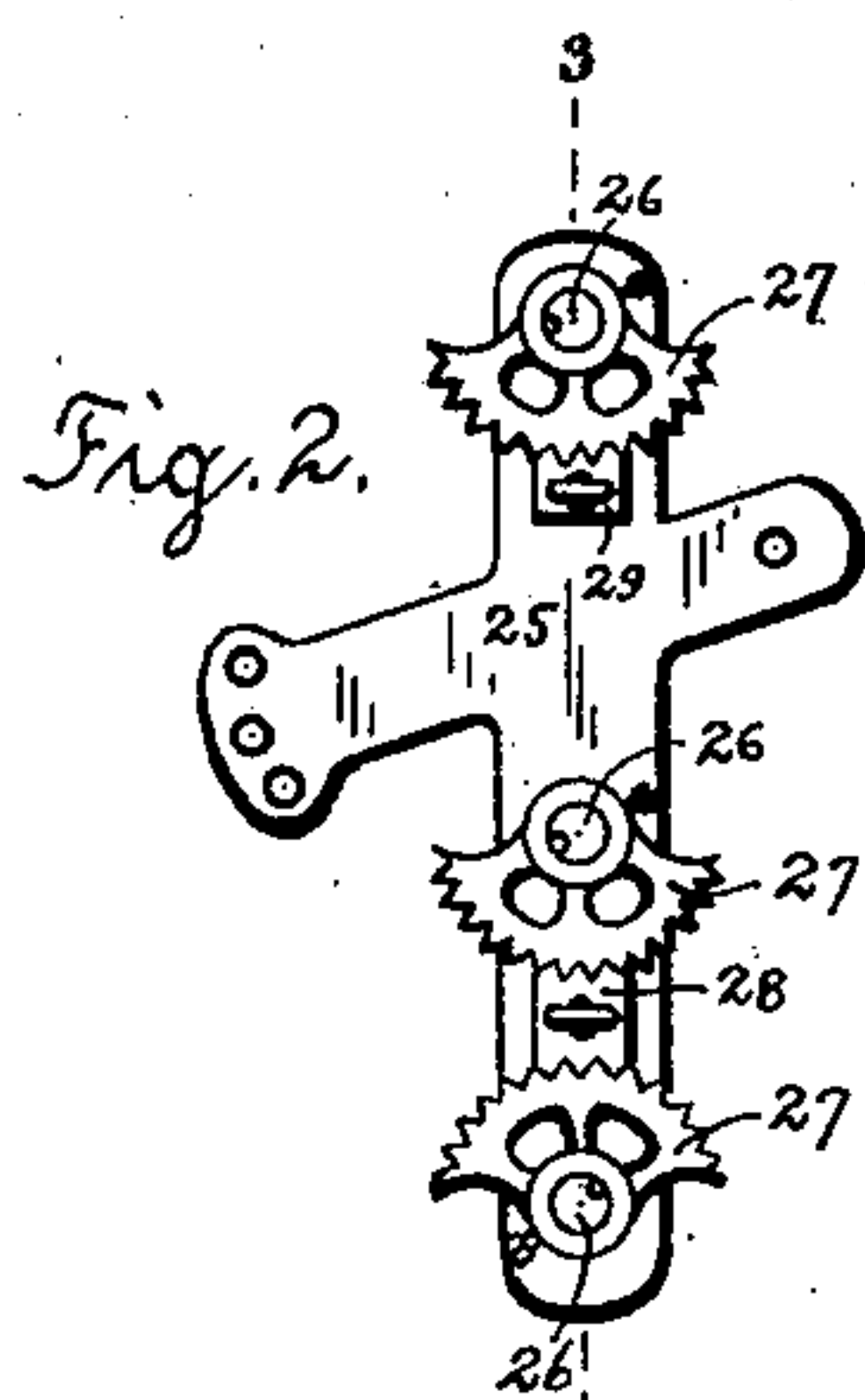


Fig. 3.

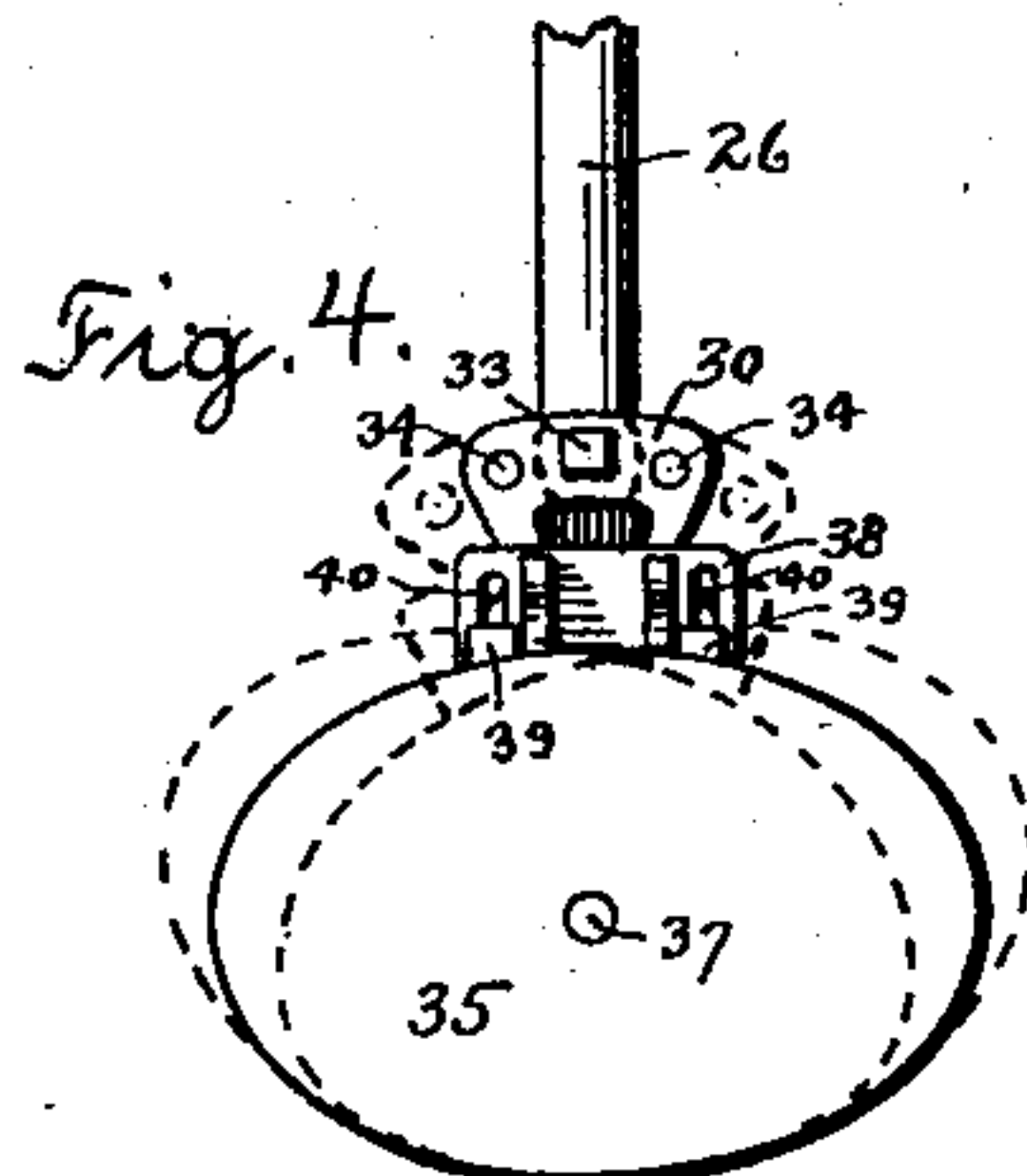


Fig. 4.

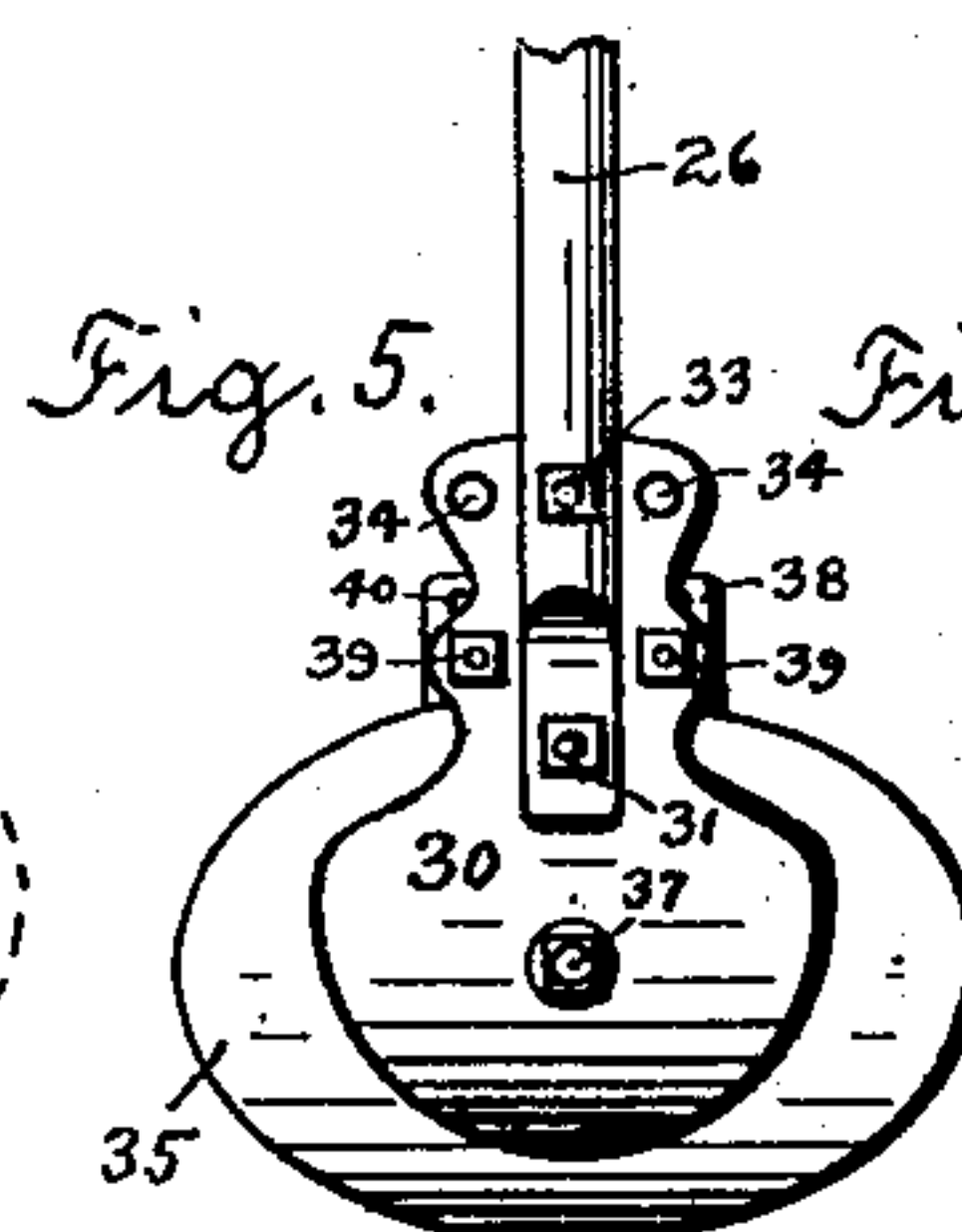


Fig. 5.

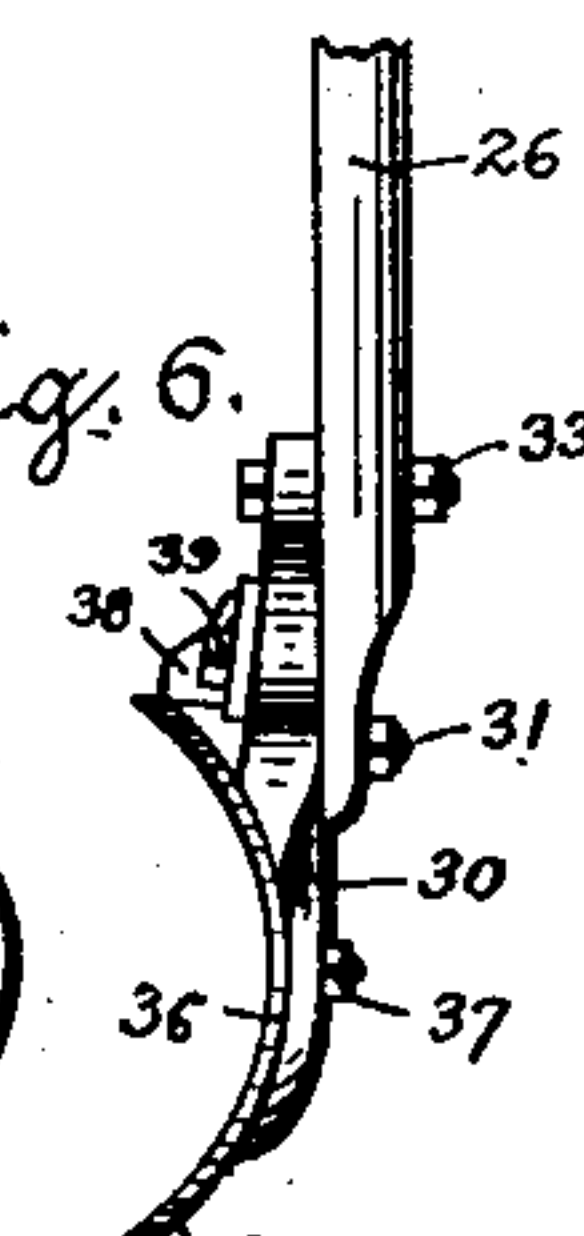


Fig. 6.

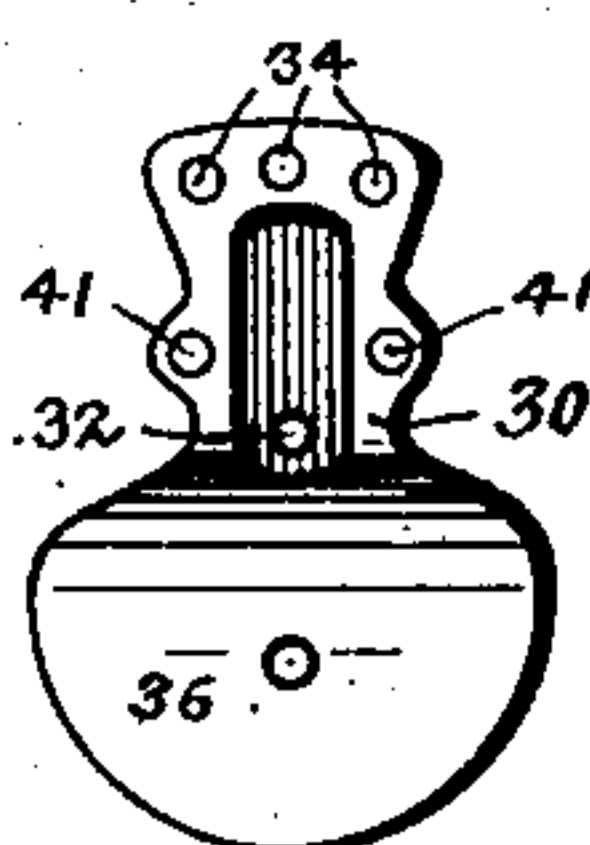


Fig. 7.

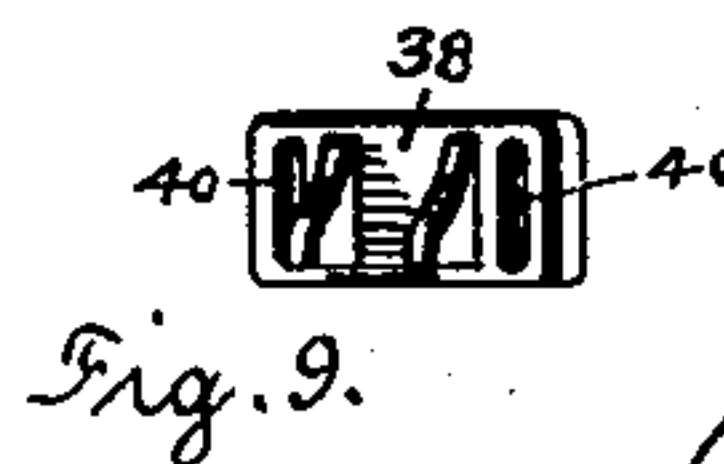


Fig. 9.

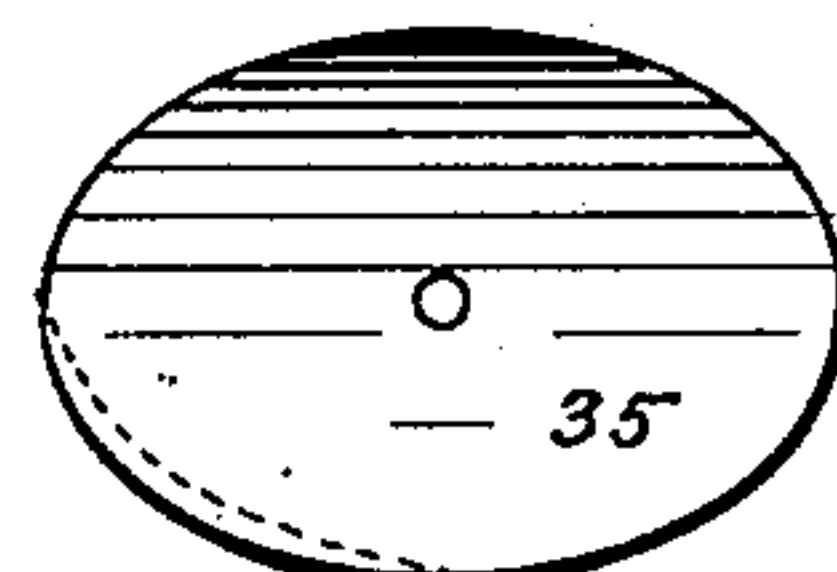


Fig. 8.

Witnesses;
Edward Klein
Fred Klein

Inventor;
Eli Miller,
By Harry Freese, Attorney.

UNITED STATES PATENT OFFICE.

ELI MILLER, OF CANTON, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 755,906, dated March 29, 1904.

Application filed April 1, 1903. Serial No. 150,545. (No model.)

To all whom it may concern:

Be it known that I, ELI MILLER, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

The invention relates to sulky-cultivators; and the objects of the invention are to provide a shovel-frame which will automatically raise with the shovels over the local elevations and can be depressed on either side, so the shovels will conform to the local depressions in the surface of the soil, and to provide universal shovels which can be used on either side of the cultivator and are reversible end for end, and to attach the shovels on brackets by which they can be adjusted to various inclinations longitudinally. I attain these objects by the construction and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the cultivator with some parts broken away to show the details; Fig. 2, a plan of one head-block; Fig. 3, a section of same on line 3 3, Fig. 2; Fig. 4, a face elevation of a shovel and its bracket connection; Fig. 5, a rear elevation of the same; Fig. 6, a side elevation of the same; Fig. 7, a face view of a shovel-bracket; Fig. 8, a face view of a shovel, and Fig. 9 a perspective view of an edge brace.

Similar numerals refer to similar parts throughout the drawings.

The carriage is preferably made of the arched axle 1, the wheels 2, and the tongue 3, the tongue being connected to the axle by the bars 4 and stayed laterally by the brace 5. The transverse rock-shaft 6 is journaled on the carriage and is operated by the lever 7 and locked by the curved rack 8 and the pawl 9.

The shovel-frame is made of the yoke 10, the lateral arms 11, hinged to the yoke on each side and adjustably supported by the braces 12, the draw-bars 13, which are together connected to the tongue in the middle line of the carriage by the universal joint 14 and the side braces 15. The supporting-rods 16, one on each side, are pivotally connected above to the arms 17 on the rock-shaft and extend down freely through the aperture 18 in the lugs 19 on the

draw-bars. The coil-springs 20 are located around the supporting-bars above the lugs and extend upward to the collars 21 on the bars, and the coil-springs 22 are similarly located around the bars below the lugs and extend downward to the collars 23 on the bars, which several collars are preferably adjustable on the bars whereby the tension of the springs is regulated. The springs are so adjusted and the rock-shaft so turned by the lever that the frame is normally held at a suitable height for the proper working of the shovels along the average surface of the soil, and when a stone or local elevation of the surface is met on either side the frame on that side is raised against the action of the upper spring to permit the shovels to pass over the obstacle or elevation, after which the spring acts to return the frame to the normal position, and when a local depression is met on either side the driver sitting in the seat 24 can depress the frame on that side against the action of the lower spring by pushing his foot down against the lateral arm, or both sides can be depressed in the same manner, after which by removing the pressure of the foot the frame will be raised to its normal position by the action of the springs. It will be understood that the same results can be accomplished by the use of one set of springs either above or below the lugs and by connecting the ends of these springs to the lugs and collars, whereby the springs would operate one way by compression and the other way by tension; but I prefer to use two sets of springs, as illustrated.

The head-block 25 is adjustably attached on the lateral arms 11, and in the head-blocks are rotatably mounted the shovel-shanks 26. These shanks are preferably provided with the ratchet-wheel sections 27, which are locked by means of the spring-retained ratchet-blocks 28 and 29. The brackets 30 are attached on the lower ends of the shanks by means of the pivotal bolts 31 through the apertures 32 and by the adjusting-bolts 33 through either of the apertures 34, whereby the brackets can be turned on their pivotal bolts to various angles to carry the shovels at various inclinations, as shown by broken lines in Fig. 4. This adjustment is desirable so the forward

ends of the shovels can be depressed for better cutting and handling hard ground or so the forward ends can be elevated for better working sod-ground or soil containing cornstalks or other similar obstacles. The shovels 35 are formed in outline as a cylindric section and are horizontally straight and vertically curved. The shovels are attached on the similarly-curved concave faces 36 on the lower parts of the brackets by means of the central bolts 37. The edge braces 38 are attached on the brackets by the bolts 39 through the slotted brace-apertures 40 and the bracket-apertures 41, whereby the braces can always be adjusted to butt against the upper edges of the shovels to stay and support them. By this form of construction and manner of attachment a shovel can be turned end for end on the same bracket when one edge becomes worn, as shown by dotted lines in Fig. 8, to bring into use the diametrically opposite edge, and it can also be transferred to a bracket on the opposite side of the cultivator to bring into use the intervening edges. At the same time the adjustable edge brace can be brought against the upper edge of the shovel, however irregularly the edge may be worn. The shovels are made considerably larger than the body of the brackets, so there is always presented in front and below a sharp cutting edge or blade, and as a result when the shovel strikes a lump or clod of earth it cuts or pulverizes the same instead of pushing or rolling it to one side or on top of the soil.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a cultivator-carriage, a shovel-frame pivotally attached at its forward end to the carriage in the middle line by a universal joint, and spring-supports on each side suspending the frame from the carriage, the springs acting to resist the elevation and depression respectively of the frame.

2. The combination of a cultivator-carriage, a shovel-frame pivotally attached at its forward end to the carriage in the middle line by a universal joint, and spring-supports on each side suspending the frame from the carriage, the springs acting to resist the depression of the frame.

3. In a cultivator, a bracket having a vertically-curved concave face, a similarly-curved shovel attached on the curved face, and an adjustable brace on the bracket fitting against the upper edge of the shovel.

4. In a cultivator, a bracket having a horizontally-straight and vertically-curved concave face, and a similarly-shaped shovel formed in outline as a cylindric section, centrally attached thereon, the convex side of the shovel joining the concave face of the bracket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELI MILLER.

Witnesses:

HARRY FREASE,
FRED HEIM.