No. 610,030. Patented Aug. 30, 1898.

# S. C. COBB.

## CULTIVATOR.

(Application filed July 27, 1897.)

(No Model.)

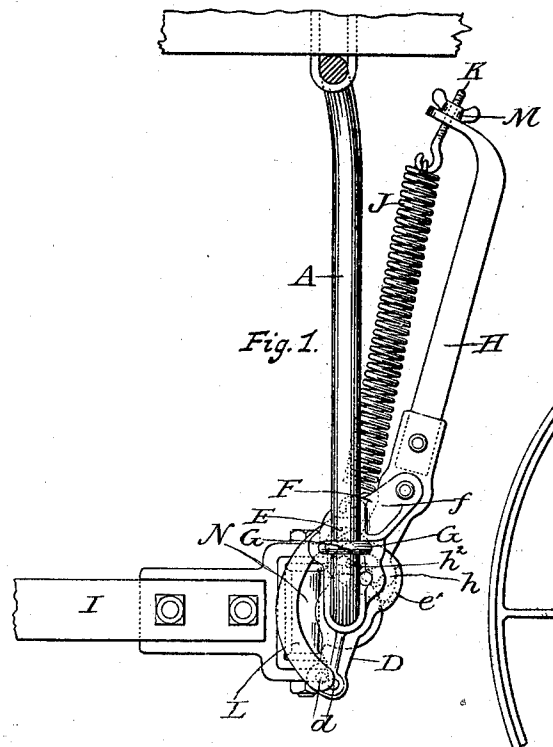



Fig. 1.

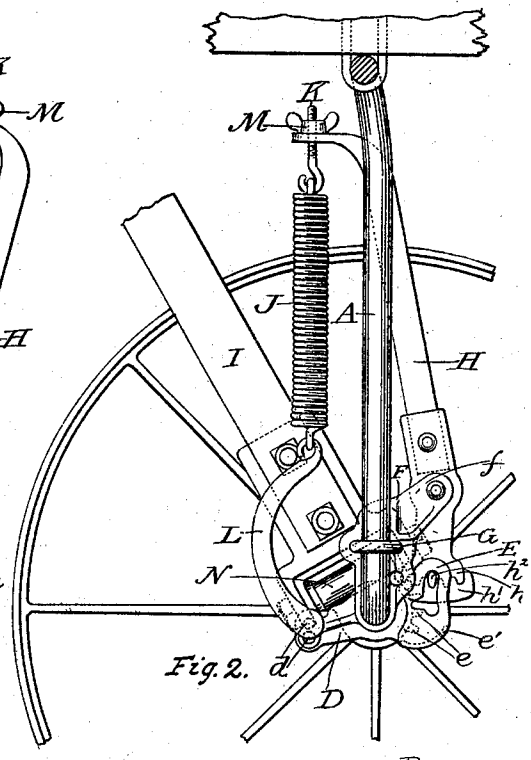



Fig. 2.

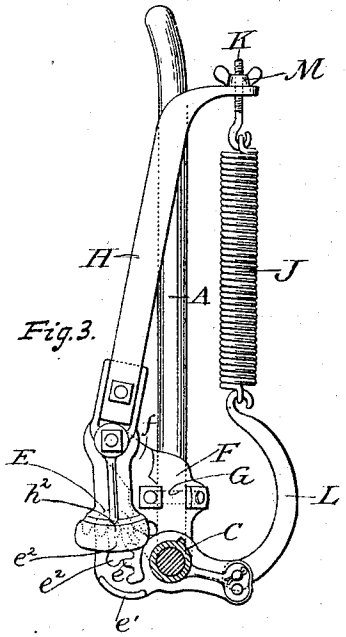



Fig. 3.

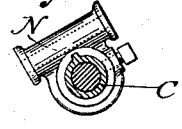



Fig. 5.

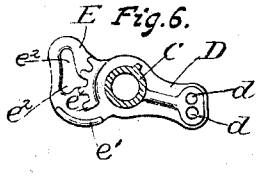



Fig. 6.




Fig. 4.

Witnesses
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# UNITED STATES PATENT OFFICE.

SAMUEL C. COBB, OF JANESVILLE, WISCONSIN.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 610,030, dated August 30, 1898.

Application filed July 27, 1897. Serial No. 646,155. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL C. COBB, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Cultivators; and I do hereby 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.

My invention relates to wheel-cultivators in which the shovel-beams are mounted upon the horizontal ends of an arched axle and known as "straddle-row walking-cultivators;" and my invention consists in the means hereinafter described for enabling the shovel-beams to be readily lifted from the ground.

In the drawings I have shown my device, in connection with the shovel-beam, secured to one of the horizontal ends of the axle, the other horizontal end of the axle being supplied with a duplicate of the parts shown in the accompanying drawings, in which—

Figure 1 is a side view of my device arranged outside of the axle, showing the position of the shovel-beam and the lifting device when the shovels are at work in the ground. Fig. 2 is a side view of the parts shown in Fig. 1 arranged as when the shovel-beam is raised from the ground. Fig. 3 is a side view of the lifting device and axle, showing the parts as arranged in Fig. 2, but from an opposite point of view of said parts. Fig. 4 is a plan view of one of the horizontal ends of the axle, with the lifting device mounted thereon, and part of a carrying-wheel. Fig. 5 is a sectional side view of axle and sleeve and a side view of a coupling to support the shovel-beam. Fig. 6 is a side view of a double lever formed on a sleeve, shown in cross-section.

As illustrated in the drawings, A represents the vertical portion of an arched axle, having a horizontal end B extending from its lower end. A sleeve C is journaled on said horizontal end of the axle and is provided with a double lever having opposite arms D and E, which are preferably formed on the sleeve C, although they may be formed separately and secured to said sleeve or connected therewith in any suitable manner.

A bracket F, formed, preferably, as a half-sleeve, is secured to the lower portion of the standard A of the axle by means of a clip G and is provided with an offset arm $f$, to which the lower portion of a vertical lever H is pivoted. The lower end of the vertical lever H is provided with teeth $h$, forming a sector, which teeth engage a similar toothed sector $e$, formed on the arm E of the double lever. The lower end of the vertical lever H is also provided with a flange or shield $h'$, which protects the teeth of the engaging sectors and prevents foreign matter from lodging between said teeth. A projecting pin $h^2$ is also formed on the inner side of the lower end of the lever H and engages the irregular slot $e^2$ of the arm E, which thereby serves as a stop to limit the movement of the lever H and keep the toothed sectors of the lever H and arm E in engagement with each other. The arm E is also provided with a laterally-extending rim or flange $e'$, which is adapted to bear against the lower end of the lever H, as indicated by dotted lines in Fig. 1, and prevent the shovel-beam I from being depressed too much when the shovels are at work. The upper end of the lever H is bent forward, so as to support the upper end of a spring J, which is connected with the upper end of the lever H by means of a threaded bolt K, which passes through the upper end of said lever and engages a thumb-nut M, by means of which the tension on said spring may be regulated. The lower end of the spring J is connected with the arm D of the sleeve C by means of a link L, which is curved to clear the adjacent parts when arranged as in Fig. 1.

When the shovels are at work and the shovel-beam I is in a substantially horizontal position, as shown in Fig. 1, the lower end of the link L is connected with the arm D at a point beyond a line drawn from the axial center, on which the beam vibrates, and the point of pivotal attachment of the lever H, so as in effect to lock the spring under tension, as indicated in Fig. 1. The end of the arm D is preferably provided with more than one hole $d$, so that by connecting the end of the link L with the hole desired the line of spring action may be varied, and consequently the beam I may be held in the ground with the desired firmness.

The shovel-beam I is hinged to a coupling

N, which is secured on the sleeve C and adjustable laterally on said sleeve, so as to regulate the beams at the desired distance apart.

When the parts are in operation and it is desired to raise the shovel-beam I, the outer end of such beam is first lifted by the user until the point of attachment of the link L with the arm D comes beyond the line of pivotal attachment of the beam I and vertical lever H. The spring then begins to retract and exert a lifting force on the arm D and through the sleeve C to the coupling N and beam I. At the same time the beam I is raised the spring J begins to recoil and the upper end of the lever H moves forward, so that the force of the spring is gradually increased as the beam I is raised. When, on the contrary, the beam I is depressed from the position indicated in Fig. 2, the sleeve C turns on the axle end B, at the same time moving downward the arm D and link L, so as to exert a straining force on the spring J. As the arm D moves downward the opposite arm E is raised, and by means of its toothed engagement with the lower end of the lever H the upper end of the lever H is drawn backward, thereby exerting a straining force at the upper end of the spring J. By means of this double movement of the arm E and the upper end of the lever H a comparatively slight movement of the beam I is sufficient to produce a strong tension on the lifting-spring J.

What I claim is—

1. In a cultivator, the combination of a double lever journaled on an axle and provided with a toothed sector, and a vertical pivoted lever having a toothed sector engaging the sector end of the axle-lever, substantially as shown and described.

2. In a cultivator, the combination with an axle, of a sleeve journaled on said axle and provided with a two-arm lever having a toothed sector, a vertical pivoted lever having a toothed sector engaging the sector of the sleeve-lever, a spring connected with said vertical lever, and a link connecting the end of said spring with an arm of the axle-lever, substantially as shown and described.

3. In a cultivator, the combination of a vertical pivoted lever having a toothed sector, and a lever journaled on an axle and provided with a sector end engaging the sector of the vertical lever and a stop adapted to bear against said vertical lever and limit the movement of said levers, substantially as shown and described.

4. In a cultivator, the combination of a lever journaled on an axle and provided with a toothed sector and a slot, and a vertical pivoted lever having a toothed sector engaging the sector of the axle-lever and provided with an offset pin engaging the slot of said axle-lever, substantially as shown and described.

5. In a cultivator, the combination with a two-arm lever journaled on an axle and provided with a toothed sector, of a vertical pivoted lever having a sector end engaging the sector of the axle-lever, and a spring connected at its upper end with said vertical lever and at its lower end with a link having an adjustable connection with one of the arms of said axle-lever, substantially as shown and described.

6. In a cultivator, the combination with a two-arm lever journaled on an axle, of a vertical pivoted lever having a toothed sector engaging the toothed sector of the axle-lever, a spring having an adjustable connection between its upper end and said vertical lever, and a link connecting one end of said spring with one of the arms of the axle-lever, substantially as shown and described.

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

SAMUEL C. COBB.

Witnesses:
F. H. GREEN,
J. A. CRAIG.