(No Model.)

R. ALLSTATTER.

CULTIVATOR.

No. 407,273. Patented July 16, 1889.

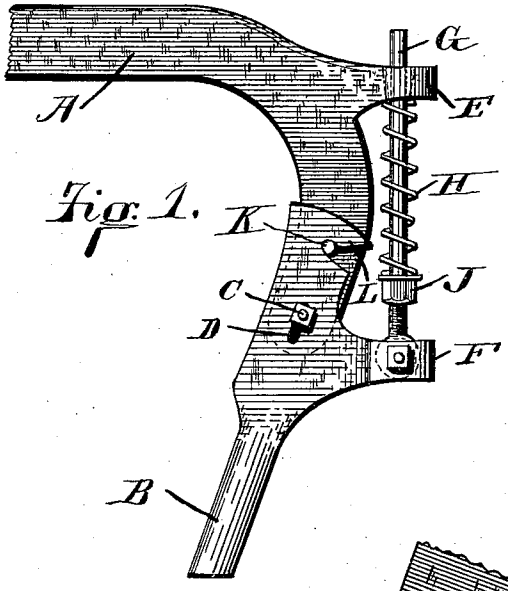


Fig. 1.

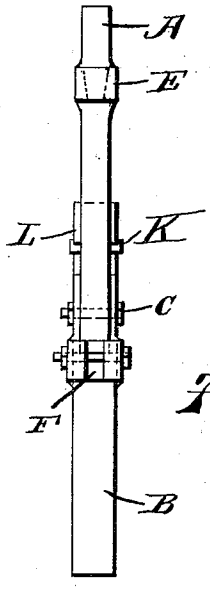


Fig. 2.

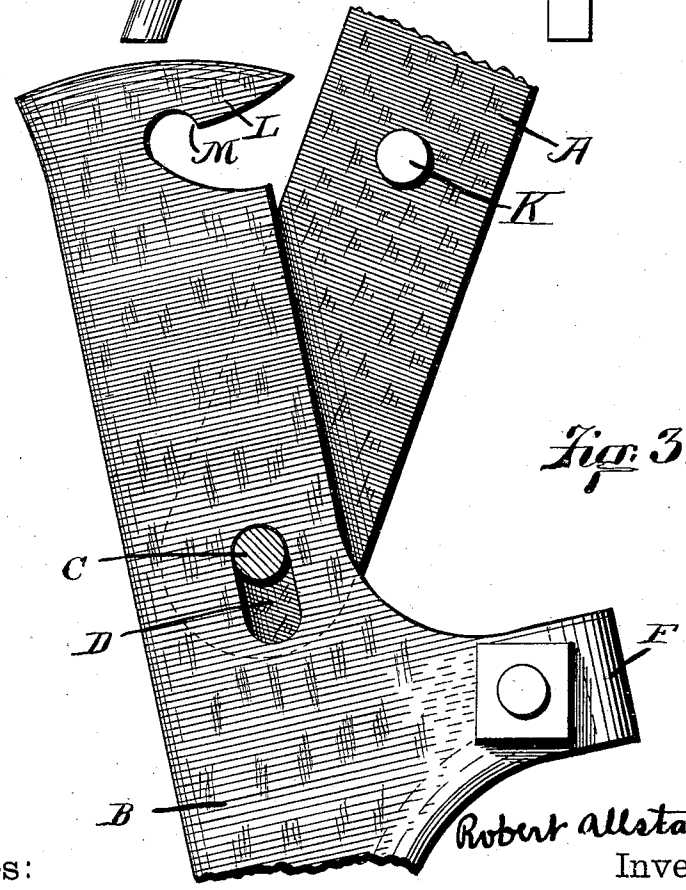


Fig. 3.

Witnesses:
A. C. Rogers.
W. L. Seward

Robert Allstatter
Inventor

by James W. See
Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ROBERT ALLSTATTER, OF HAMILTON, OHIO, ASSIGNOR TO THE LONG & ALLSTATTER COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 407,273, dated July 16, 1889.

Application filed March 25, 1889. Serial No. 304,762. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ALLSTATTER, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Cultivators, &c., of which the following is a specification.

This invention pertains to cultivators and other implements having soiling-teeth, and relates to mechanism for permitting such teeth to yield when coming in contact with extraordinary obstructions.

It is common in the construction of cultivators and analogous toothed implements to provide a relief device for the teeth. A common method is to pivot the tooth-shank to the beam and hold the shank in normal position by means of a wooden pin called a "break-pin." In case the tooth comes in contact with an extraordinary obstruction the break-pin will be sheared off, and the tooth-shank will turn on its pivot and allow the tooth to yield backwardly, and thus clear the obstruction without stopping the implement or breaking any parts but the break-pin. The objection to the break-pin system is that the restoration of the tooth to working condition requires the making and insertion of a new break-pin, which must be done in the field, before the implement can proceed with its work. Still another system employs a yielding latch held by a spring. The latch performs the office of the break-pin and unlatches in case of extraordinary strain. After the obstruction is passed the tooth can be restored to its normal working position, where the latch will hold it. Such system avoids the necessity for replacing break-pins, but, like the break-pin system, it requires the attendant to restore the retreating tooth to working position after the obstruction has been passed. In still another system the tooth is held to its work by a strong spring, which yields under extraordinary strain, and allows the tooth to retreat, the spring returning the tooth to normal position when the obstruction is passed. Such system avoids the replacing of break-pins and avoids the necessity for the attendant restoring the tooth to working condition, but the system possesses inherent defects of its own. The spring must be of such great strength as to resist the full working strain of the teeth, and it must have a great range of action in order to permit the tooth to retreat properly, and there is great trouble in arranging the strength of the spring so that it will be great enough and not too great.

The principle on which my present device is based is that a weak spring may hold a latching device, as in the second system above referred to, and that a latch held by a light spring can stand the heavy working strains of the tooth, and that a comparatively light spring can restore the tooth to working condition when free from strain. In carrying out this principle I arrange a comparatively light spring in such manner that normally it tends to hold the latch into engagement, and performs only a latch-holding office, while, when the latch has given way and the tooth retreated, the spring serves in restoring the tooth to its normal latched position.

My invention will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of the rear end of a cultivator-beam having a toothed shank attached and provided with a relief device exemplifying my invention; Fig. 2, a rear elevation of the same; and Fig. 3, an enlarged view of the upper portion of the shank, showing the shank as unlatched and in retreated position, the spring being omitted.

In the drawings, A indicates the rear portion of an ordinary beam of a cultivator; B, the usual shank to which the tooth or point is to be attached; C, the usual pivot by which the shank is united to the beam and on which it swings in order to enable the teeth to clear obstructions; D, the hole in the shank which forms the pivot-hole for the pivot C, this hole having the form of a substantially vertical slot, whereby the shank is permitted to have a vertical motion with reference to the beam, as well as an oscillating motion; E, a lug projecting rearwardly from the beam; F, a lug projecting rearwardly from the shank under the lug E; G, an eyebolt pivoted to lug F and sliding freely through lug E; H, a spring on this eyebolt abutting against the under surface of the lug E; J, an adjusting-nut on the

eyebolt engaging the lower end of the spring and, serving as a means for adjusting the strength of the spring; K, a latch-pin projecting from each side of the beam above the pivot C; L, a downwardly-facing incline projecting rearwardly from the shank above the pivot C, and adapted to rise over the latch-pin when the upper end of the shank moves rearwardly, and M a latch-notch in the shank at the rear edge of this incline adapted to engage the latch-pin and resist the forward movement of the upper part of the shank.

By inspecting Fig. 1 it will be noticed that the rearward strain on the lower portion of the tooth-shank tends to move the upper portion of the shank forwardly; that this forward motion is resisted by the notch M engaging to the rear of the latch-pin; that so long as the notch M engages the latch-pin the shank cannot turn upon its pivot; that if the tooth-shank were at liberty to rise the notch could disengage from the latch-pin, and that the spring exercises a downward pressure upon the tooth-shank and resists the raising of the notch from the latch-pin. It is therefore seen that the working strain is resisted by the engagement of the notch and latch-pin, and that the normal office of the spring is simply to hold this latchment into engagement. A comparatively light spring may therefore be used. In case the tooth meets with an extraordinary obstruction the strain upon the latchment will cause the tooth-shank to rise against the resistance of the spring and the latchment will become disengaged. The tooth will then be held to its work only by the comparatively light spring. This will readily yield and permit the shank to turn upon its pivot and the tooth to clear the obstruction. As soon as the obstruction is passed, the spring is able to promptly return the shank to its normal position, the latchment snapping into engagement.

Many different constructions will suggest themselves to the skilled mechanic who desires to carry out my invention. The exemplification given will be found a satisfactory one.

Having explained the principle of my invention and the best mode in which I have contemplated applying that principle, I now proceed to particularly point out and distinctly claim the improvement or combination which forms my invention.

I claim as my invention—

The combination, substantially as set forth, of a beam, a toothed shank pivoted thereto, so as to be capable of oscillating motion and a reciprocating motion with reference thereto, a latchment serving to hold the shank into normal position with reference to the beam and adapted to engage and disengage by the reciprocating motion of the shank upon the beam, and a spring acting between the beam and shank and arranged to resist the disengagement of the latchment and to resist the swinging back of the tooth-shank when the latchment is disengaged.

ROBERT ALLSTATTER.

Witnesses:
W. A. SEWARD,
A. C. ROGERS.