No. 615,210. Patented Nov. 29, 1898.

J. W. BROWN.

CULTIVATOR.

(Application filed June 11, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. I.

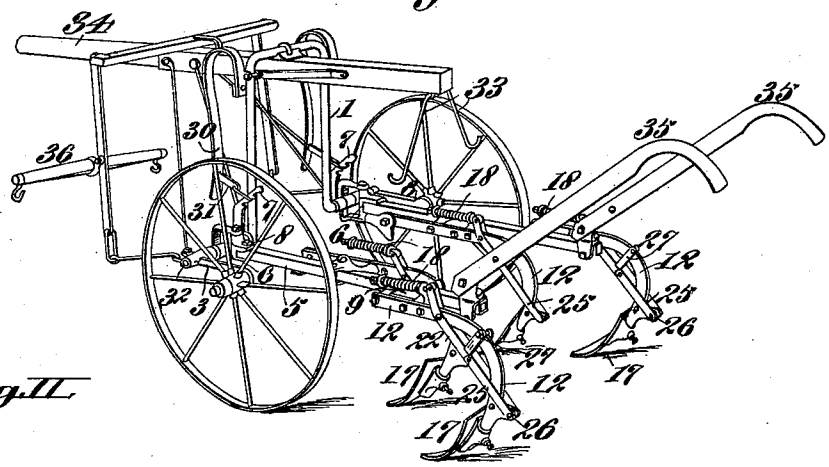


Fig. II.

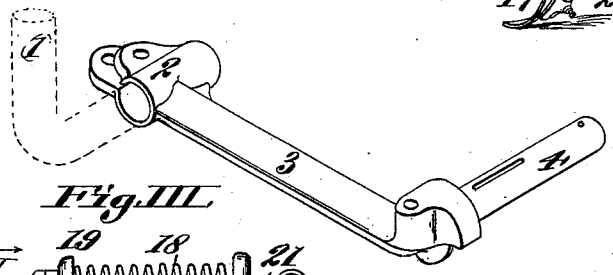


Fig. III.

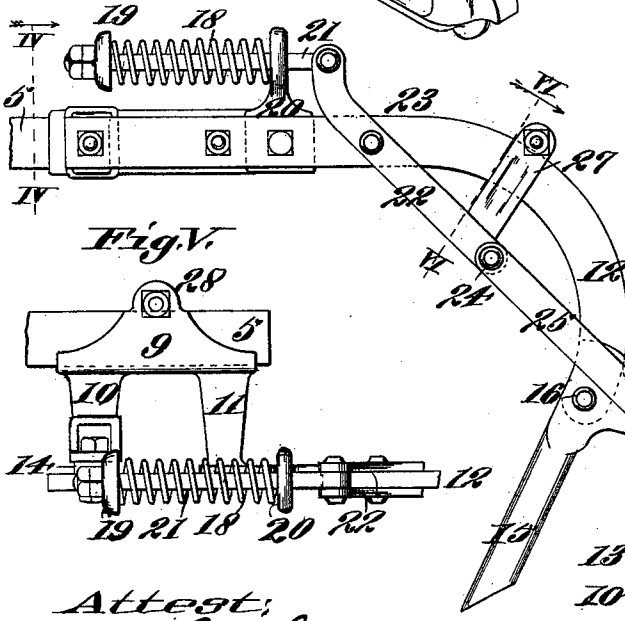


Fig. IV.

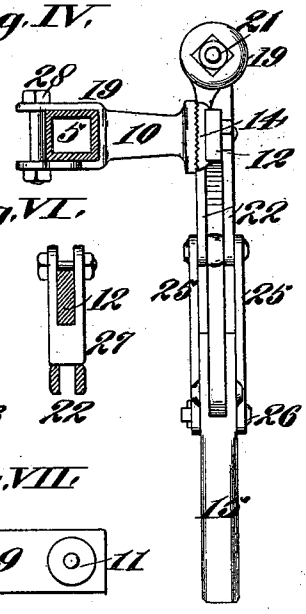
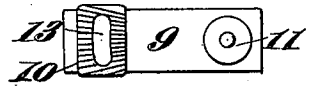


Fig. V.

Fig. VI.

Fig. VII.



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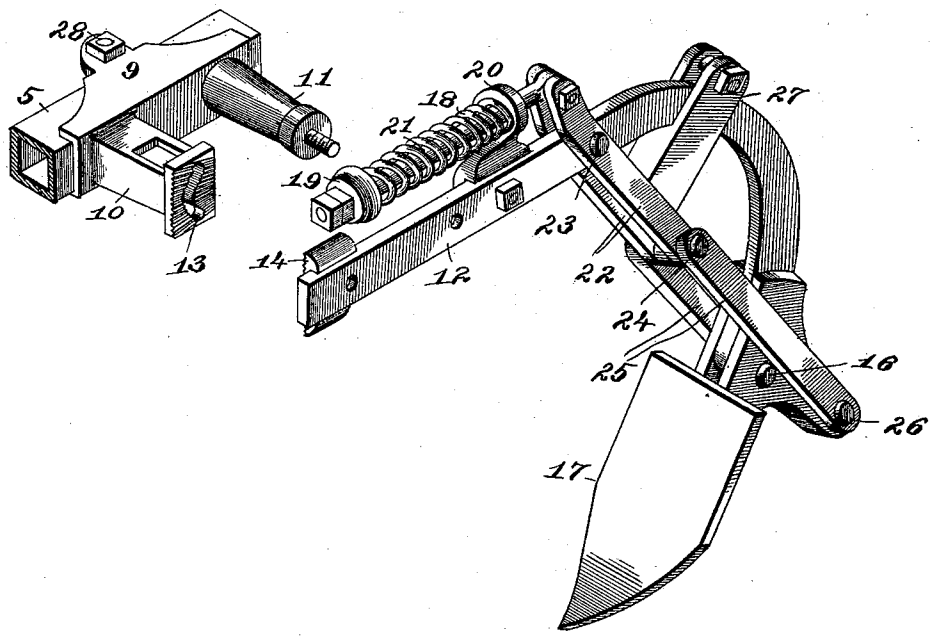
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(Application filed June 11, 1897.)

(No Model.) 2 Sheets—Sheet 2.

Fig. VIII.



Witnesses—

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. BROWN, OF QUINCY, ILLINOIS, ASSIGNOR TO THE COLLINS PLOW COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 615,210, dated November 29, 1898.

Application filed June 11, 1897. Serial No. 640,346. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BROWN, a citizen of the United States, residing at Quincy, Adams county, State of Illinois, have invented a certain new and useful Improvement in Cultivators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is to provide a cultivator furnished with a spring-trip for the shovel-beams and in which the parts are hung on an axle and so placed with reference to what is known as the "arch" as to put said arch forward of the line of the axle. This arrangement has the effect of balancing the device, or, in other words, placing the line of gravitation in the line of the axle.

The drawings show my improvements as applied to a "walking-cultivator," but they are equally applicable to a "riding-cultivator."

Referring to the drawings, Figure I shows a perspective view of the walking-cultivator equipped with my improvements. Fig. II shows a perspective view of an arm which extends rearwardly from the arch and which carries the axle. Fig. III is a side view of the shovel-arm, showing the manner of controlling the tension of the same by means of a coil-spring. Fig. IV is a front view thereof, taken along the line IV IV of Fig. III. Fig. V is a top view thereof. Fig. VI is a sectional view taken along the line VI VI of Fig. III. Fig. VII is a side view of the sliding bracket, the top view of which is shown in Fig. V. Fig. VIII is detail perspective view of the sliding bracket and shovel-arm, the shovel-arm being detached from the bracket.

1 is the arch, which is of similar construction to that used in other cultivators and which has clamped to it at its outer ends, by means of a sleeve 2, a rearward extension or arm 3, that carries the axle 4. The arms 3 being separate pieces and removably clamped in the arch, it will be seen that the arms may be readily separated from the arch in the event of either of the parts becoming broken or worn to such an extent as to be impracticable for further use. This construction is a valuable feature over an arch and spindle-arms formed of one continuous piece, for the reason that it allows of repairs being much more easily and inexpensively accomplished, requiring, as it does, but the replacing of the single worthless part without affecting the continued use of the remaining available parts. Furthermore, it is entirely impracticable to construct an arch with laterally-extending integral arms, as has been heretofore proposed, by making such numerous bends in it, and it is therefore only by my arrangement of clamping the lateral spindle-arms to the arch that such form of arch and arms is rendered practicable of manufacture.

5 is a beam made, preferably, of square steel tubing, which is attached to the arch 1 by means of a coupling and pipe-box 6. This pipe-box 6 incloses the lower horizontal portion of the arch 1, but it is not shown in Fig. II. It is preferably furnished with an arm 7, to be hereinafter described. The beam 5 is pivoted at 8 to the coupling, so as to allow lateral movement of the said beam.

9 is a sliding bracket preferably clamped to the beam 5, and it is furnished with two arms 10 and 11, which project to one side and to which the arms 12 are attached by means of bolts. One of said arms, preferably the forward one, of the bracket 9 is made with a curved slot 13. (See Fig. VII.) By this means the arms 12 pivot on the rear arm or stem 11, which permits the forward end of the arms 12 to be raised or lowered, thus giving the backward end thereof a forward or rearward movement, so that the shovels may be set more straight or slanting, as desired. To hold the arms 12 rigidly to the bracket 9, I corrugate the surface around the curved slot 13 on the forward arm 10 and provide a correspondingly-corrugated washer 14 with flanges fitting over the arms 12, so that by loosening both bolts on the two arms of bracket 9 the shovel may be set at any desired inclination.

15 are shovel-carrying prongs or sleeves pivoted to arms 12 at 16 and to which the shovels 17 may be attached in any suitable manner. I prefer to construct them with

round shanks, as shown. 18 is a coil-spring preferably located between a cup washer 19 and a fixed bracket 20. 21 is a bolt passing through the said coil-spring and through the washer 19 and bracket 20 and connected at its rear end to an arm 22, pivoted to the arm 12 at 23. The other end of this arm 22 is pivoted at 24 to an arm 25, so as to form a toggle-joint therewith, and the opposite end of this arm 25 is pivoted to an extension 26 on the prong 15.

27 is a sliding stop clamped to the arm 12 for the purpose of throwing the toggle 22 25 more or less off of the center and to prevent its movement in but one direction.

28 is a bolt used to clamp the sleeve 9 to the arm 5.

30 is a lift-spring made fast at its upper end to the arch 1 in any suitable manner and connected to the arm 7, before mentioned, by means of an adjustable link 31. This adjustable connection is for the purpose of giving power to the lift-spring 30 to aid in raising the beams.

32 is the outer end of the arch 1, to which the arm 3 is attached in any suitable manner. The length of this arm 3 is made to suit the weight of the beams, so as to keep the cultivator nearly balanced both when the beams are dropped for use or hooked up over the hangers 33. By this means the line of the axle 4 may be practically placed on the line of gravitation of the entire device.

34 is the pole of the cultivator, which by reason of the balancing adjustment described needs but little support at its outer end when not in use.

35 are the cultivator-handles, and 36 are the singletrees, which are attached to the device in the usual manner.

The device operates as follows: By reason of the spring-support 30 being rigidly attached to the arch 1 and adjustably attached to the box 6 by means of the arm 7 and connection 31 it preserves the device practically at a balance on the axles 4. The shovels 17, attached to their prongs or sleeves 15, are adjusted as to their angles through the medium of the arm 12, clamped to the sleeve 9. This adjustment is accomplished by means of the corrugated washer 14 engaging in the corrugated portion 10 of the bracket 9 and the bolt securing the same riding in the slot 13. If a shovel should strike a root or stump, instead of stopping or breaking the parts the shovel will spring backward and upward, which causes the prong 15 to pivot on 16, carrying the point 26 around said pivot 16 in the arc of a circle, which will drop the toggle 22 25, the said part 22 rotating on the pivot 23, which causes the same to exert a pressure on the coil-spring 18. This acts as a cushion and will overcome the force of the shock and return the shovel to its normal position; but movement in only one direction of the toggle 22 25 is permitted, as stop 27 serves to prevent movement in the other direction.

By reason of the arm 3 extending to the rear the weight of the beams, with the action of the spring 30, is not so inclined to lift the tongue of the cultivator into the air, as is the case now with all tongue-cultivators. This extension acts as an offset to the weight of the beams in lifting the tongue.

If the wheels of the device were put on the extension of the arch 1 at 32, the lifting power of the spring 30 could not act upon the beams to raise them without the tongues also rising. This improvement in placing the axles to the rear of the arch 1 by means of the arms 3 is especially valuable in spring-trip cultivators where the beams require to be heavy. A further advantage is gained by having bracket 9 adjustably connected with beams 5, as by this means the shovels can be set wider apart for lumpy ground, or by placing them nearer upon the same lines the shovels cut the ground to better advantage. Another advantage in the sliding bracket 9 is that I am thereby enabled to put more or less weight on the beams and shovels, as desired, and at the same time preserve the tendency to balance.

I claim as my invention—

1. In a cultivator, the combination of a tongue, an arch having connection with said tongue, arms removably clamped to the ends of said arch and extending rearwardly and provided with spindles, ground-wheels, and plow-carrying beams pivotally connected to said arch, substantially as set forth.

2. In a cultivator, the combination of a tongue, an arch having connection with said tongue, arms removably clamped to the ends of said arch and extending rearwardly and provided with spindles, ground-wheels, plow-carrying beams pivotally connected to said arch, and lift-springs each rigidly supported at one end and having their opposite ends loosely connected to said plow-carrying beams, substantially as set forth.

3. In a cultivator, the combination of a beam, a bracket connected thereto, arms carried by said bracket, and a shovel-carrying arm pivoted to one of said arms and adjustably connected to the other arm, substantially as described.

4. In a cultivator, the combination of a beam, a bracket connected thereto, a shovel-carrying arm, an arm carried by said bracket to which said shovel-carrying arm is pivoted, a second arm carried by said bracket provided with a slot, and means for adjustably connecting said shovel-carrying arm, substantially as described.

JOHN W. BROWN.

In presence of—
L. L. KLEIN,
W. N. BROWN.