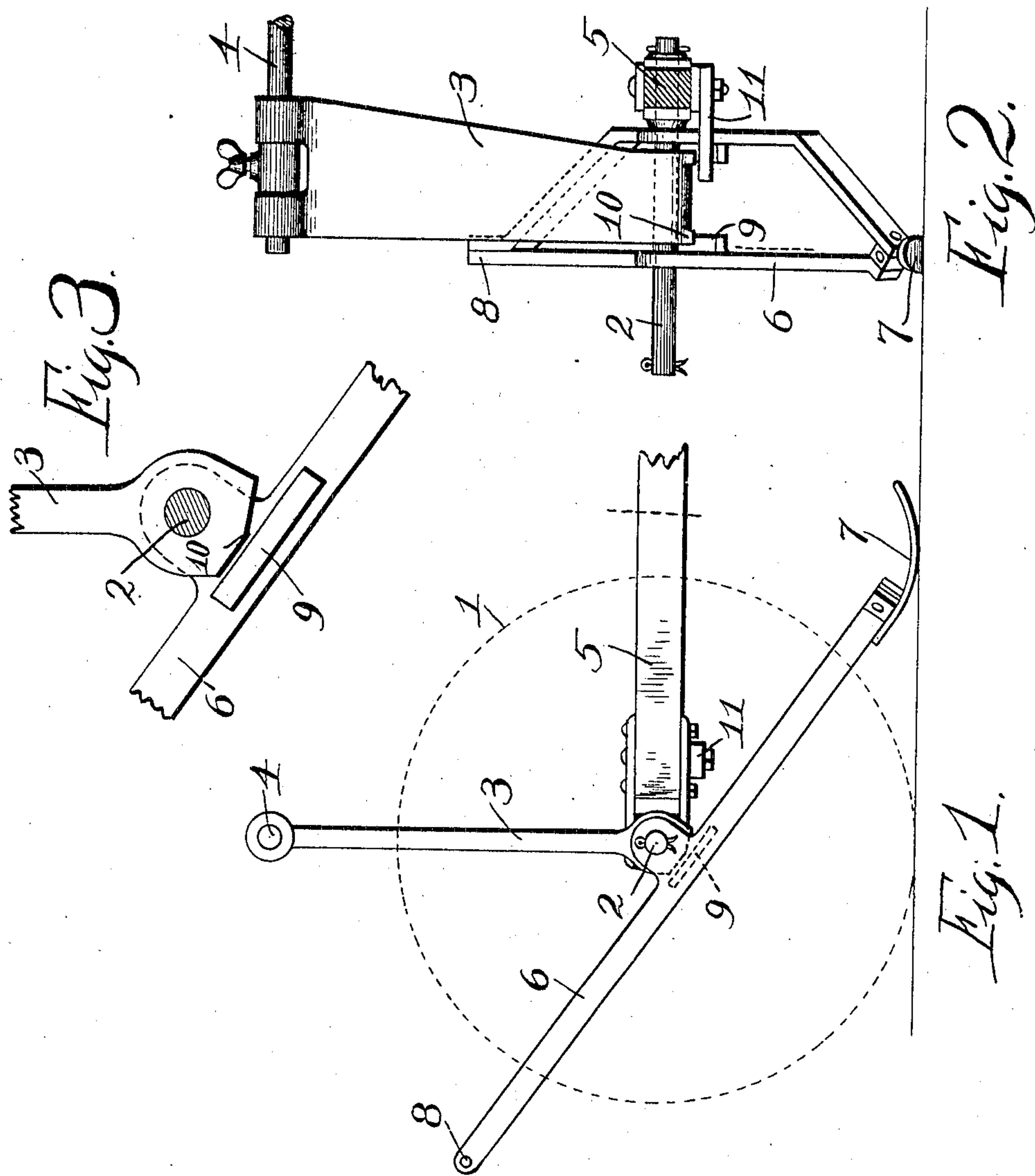


No. 843,160.

PATENTED FEB. 5, 1907.

C. E. MACBETH.  
TONGUELESS CULTIVATOR.  
APPLICATION FILED DEC. 17, 1906.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## TONGUELESS CULTIVATOR.

No. 843,160.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed December 17, 1906. Serial No. 348,098.

*To all whom it may concern:*

Be it known that I, CHARLES E. MACBETH, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Tongueless Cultivators, of which the following is a specification.

There is a general class of tongueless cultivators which may be briefly described as a wheel running on a stub-axle; a cultivator-beam pivoted to the stub-axle; an arch side having its base pivoted to the stub-axle; a duplication of the parts thus far referred to; an arch-bar extending across from one structure to the other to form a straddle-row cultivator, the upper ends of the arch sides being pivoted on the arch-bar, and springs or other devices of one kind or another to give reasonable support to the general arch of the compound structure. (See Long's patent, No. 329,919.) In structures of this general kind a trailing shoe-bar has been pivoted on each stub-axle to aid in giving support to the arch under certain conditions. (See Long's patent, No. 441,179, of November 25, 1890.)

Structures of the class above referred to are of a peculiarly flexible character, as needs be the case in order to fit the implements for their work; but conditions arise under which the flexibility of the system is liable to lead to such a general disorganization of the structure as to bring about seriously annoying delays, and in many structures of this class attempts have been made to remedy the evils by various constructions and arrangements of the lifting-springs with which implements of this class are generally provided.

My invention relates to improvements in cultivators of the general class above referred to and has for its object the prevention of the disorganization above referred to as due to the general flexibility of the system.

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 forward portion of a cultivator embodying my invention; Fig. 2, a front elevation of one of the arch sides with its immediate accessories, the wheel being omitted and the cultivator-beam appearing in vertical transverse sec-

tion; and Fig. 3, an enlarged view of the stops coöperating between the shoe-bar and the base of the arch side.

In the drawings, 1 indicates the wheel; 2, the stub-axle on which the wheel is mounted; 3, the arch side pivoted at its base to the stub-axle; 4, the arch-bar to connect the tops of the two arch-sides and permit them to have swinging motion independent of each other; 5, the cultivator-beam having its forward end connected with the stub-axle; 6, the shoe-bar, pivoted at about the middle of its length to the stub-axle; 7, the shoe on the rear end of the shoe-bar; 8, the hitch-point for the horse at the forward end of the shoe-bar; 9, a stop-ledge upon the shoe-bar near the base of the arch side; 10, stop-lugs upon the base of the arch-bar to permit the same to rock upon the stub-axle a limited distance relative to the shoe-bar, and 11 a stop secured near the forward end of the cultivator-beam in position to be upwardly engaged by a portion of the shoe-bar to the rear of the stub-axle.

The present invention does not concern itself with the springs with which the implement may be provided and any of the usual or suitable springs may be assumed as present.

Looking at Fig. 1 the parts are shown in position assumed when there is no forward strain upon the implement and when the axes of the two stub-axles are in a common line. The general arch is at liberty to rock forward or rearward a limited distance, as defined by the stops 9 and 10.

When the horse is pulling on one of the cultivator members, the direct line of strain cuts the stub-axle and the hitch-point at the horse's collar, and, as is usual in these structures, the hitch-point 8 of the shoe-bar, through which the implement is drawn, stands higher than the described line of strain when the shoe 7 is resting on the ground, the consequence being that when the strain of draft is applied the hitch-point 8 descends, seeking to get into the line of draft, and the shoe 7 takes idle position free of the ground. By this new disposition of the shoe-bar the arch obtains an increased capacity for swinging forward at its top and a lessened capacity for swinging rearward; and everything is satisfactory if the two horses pull upon their respective shoe-bars equally; but if the nearer horse pulls considerably in advance of the



further horse then the nearer stub-axle correspondingly advances and the nearer end of the arch-bar is pulled forward and downward, taking an oblique position. The arch-  
5 bar transmits a forward and downward strain to the top of the further arch side, the result being that that arch side pries the further shoe-bar downward at its forward end and upward at its rear. This permits the  
10 nearer end of the arch-bar and the upper end of the nearer arch side to advance still further and urge the top of the further arch side still more forward. As the further horse is not pulling, the entire further cultivator member  
15 may be considered as being anchored to the ground, while the nearer cultivator member continues to advance, the result in ordinary structures often being that the arch system becomes so flexed and disorganized that it  
20 becomes necessary to straighten out affairs generally by hand, so as to get the two cultivator members again into reasonable harmony with each other; but in the present case the continued tilting of the further shoe-  
25 bar eventually results in its engaging under the stop 11, and it can tilt no further, owing to the weight of the cultivator-beam which carries the stop. These stops 11 are under any ordinary conditions far enough above

the shoe-bars to prevent them being interfered with as regards any proper motions of any of the parts; but they are engaged by the shoe-bars in time to prevent the disorganization which has been referred to. In other  
35 words, these stops prevent annoying abnormalities of the flexible system without interfering with that degree of flexibility essential to proper working of the implement.

I claim—

A cultivator comprising a stub-axle, a cultivator-beam connected therewith, an arch  
40 side having its base pivoted to the stub-axle, an arch-bar having pivotal connection with the top of the arch side, a shoe-bar pivoted at an intermediate portion to the stub-axle  
15 and having a hitch-point at its forward end, a shoe at the rear end of the shoe-bar, cooperating stops upon the shoe-bar and the base of the arch side, and a stop carried by the  
50 cultivator-beam and projecting above and into the path of the shoe-bar to the rear of the stub-axle, combined substantially as set forth.

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