

E. M. BUCKHANNON.  
ADJUSTABLE ARCH AND BEAM BALANCE FOR CULTIVATOR FRAMES.  
APPLICATION FILED OCT. 17, 1908.

920,019.

Patented Apr. 27, 1909.

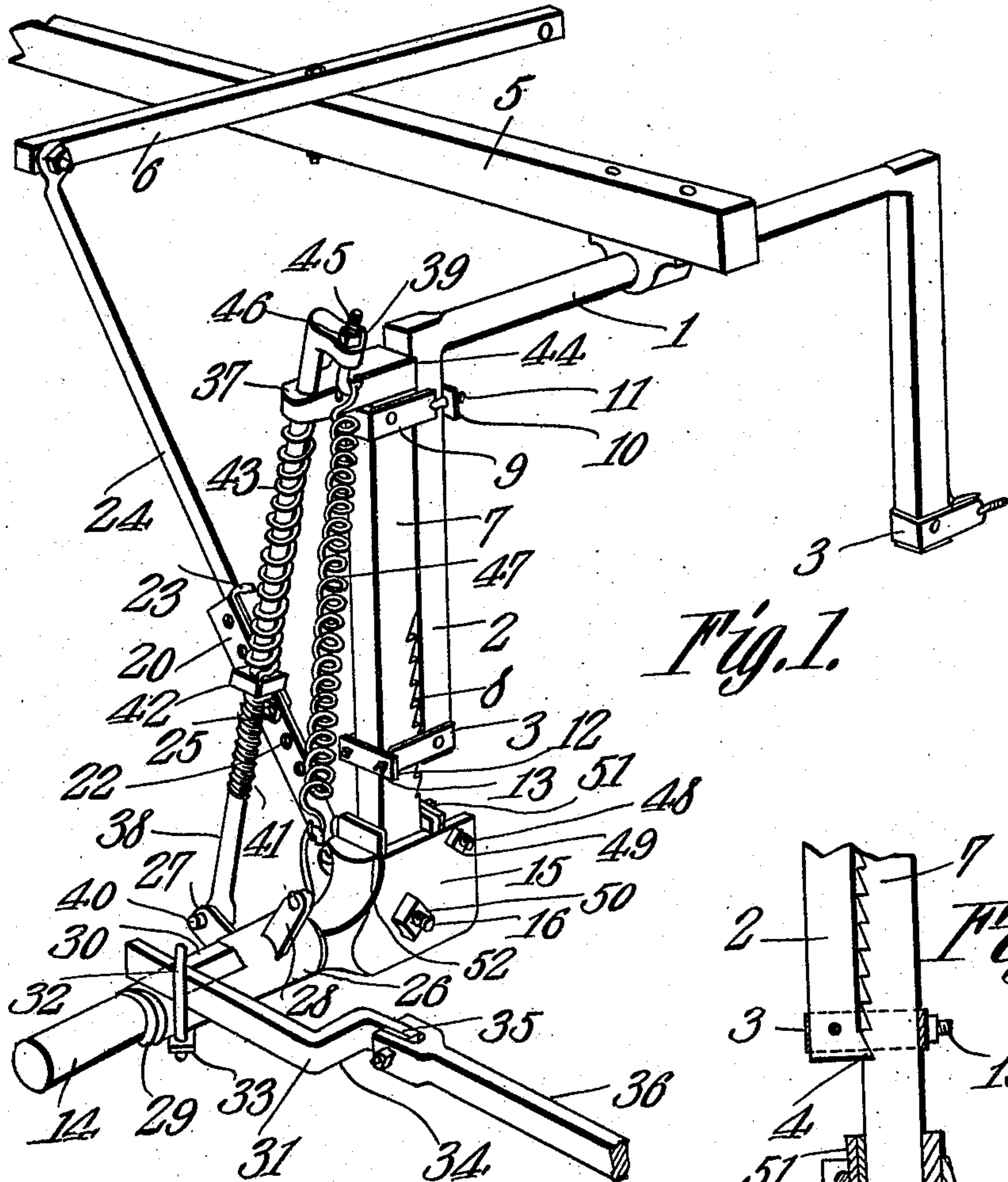


Fig. 1.

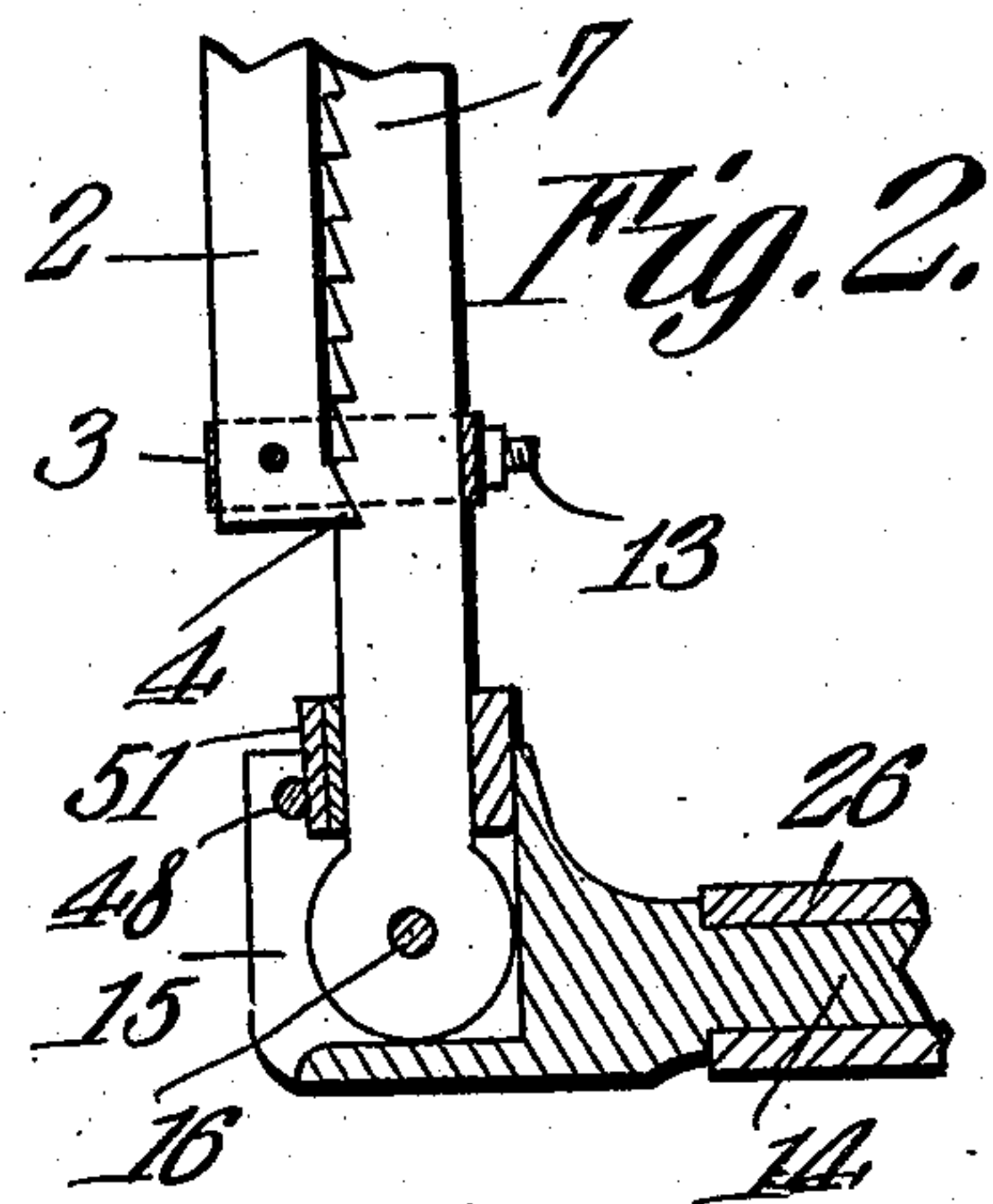


Fig. 2.

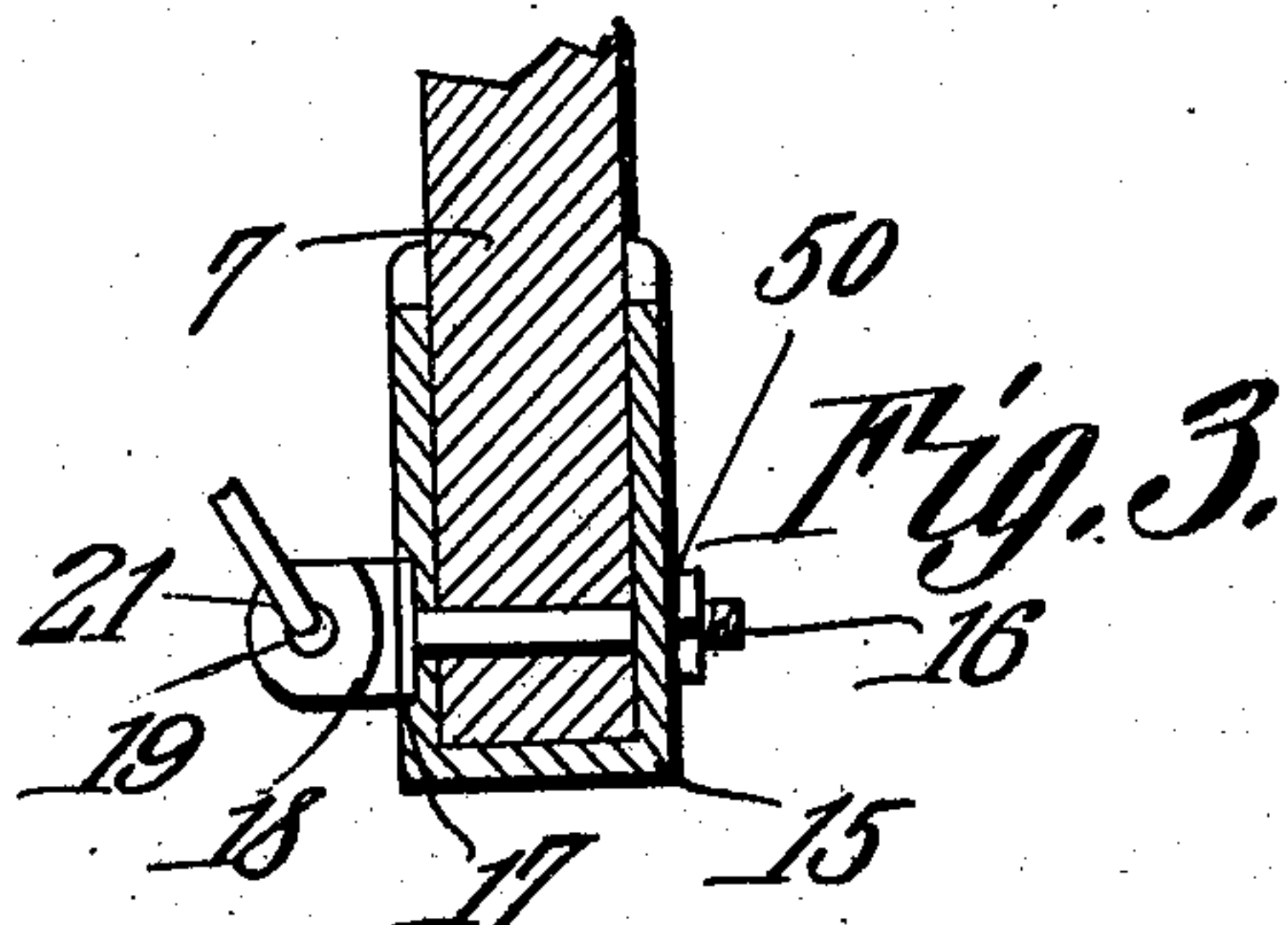


Fig. 3.

Inventor

Edward M. Buckhannon

Witnesses

*E. M. Buckhannon*  
C. C. Breinert

By *C. A. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

EDWARD M. BUCKHANNON, OF SULPHUR SPRINGS, TEXAS, ASSIGNOR OF ONE-HALF TO  
WILLIAM A. BRADFORD, OF BIRTHRIGHT, TEXAS.

## ADJUSTABLE ARCH AND BEAM-BALANCE FOR CULTIVATOR-FRAMES.

No. 920,019.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed October 17, 1908. Serial No. 458,261.

*To all whom it may concern:*

Be it known that I, EDWARD M. BUCKHANNON, a citizen of the United States, residing at Sulphur Springs, in the county of Hopkins and State of Texas, have invented a new and useful Adjustable Arch and Beam-Balance for Cultivator-Frames, of which the following is a specification.

This invention has relation to adjustable arches and beam balance appliances for cultivator frames, and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The object of the invention is to provide a means for vertically adjusting the intermediate portion of an arch used in a cultivator frame, whereby the draft tongue of the implement may be raised or lowered, and in providing means for securing the said arch in an adjusted position.

A further object of the invention is to provide a balancing mechanism for the beam of the cultivator which is spring-actuated and serves as a means for normally holding the cultivator beam as a median line or position, and which is provided with means for adjusting or regulating the tension of the spring.

A further object of the invention is to provide means for adjusting the spindle portion of the frame with relation to the arch portion thereof whereby the cultivator beam may be turned axially for the purpose of raising or lowering the inner or outer members of a gang of shovels or blades carried at the rear end portion thereof.

In the accompanying drawings:—Figure 1 is a perspective view of the device. Fig. 2 is a transverse sectional view of the inner end portion of the spindle member of the device. Fig. 3 is a sectional view of said member cut at a right angle to the view, as illustrated in Fig. 2.

The adjustable arch and balance for cultivator frames consists of the arch member 1, which is provided with the depending legs 2, each of which is provided at its lower end portion with a cuff or clip 3, permanently attached thereto. Each of the said legs is provided upon its outer side and in the vicinity of its lower end with an outwardly disposed lug 4. The draft tongue 5 is attached to the intermediate portion of the arch 1 and is located above the same, as is usual in cultivator construction. The cross-bar 6 is mounted upon the tongue 5 in advance of

the arched member 1. Included in the present invention are means for adjusting vertically the wheel-supporting spindle and beam-connecting means of the cultivator frame with the said arch member 1, or conversely for vertically adjusting the said arch member with relation to the said means, and as the said means are duplicated and are located one at each side of the frame proper, a description of one will answer for both. Each of the said means comprises a standard 7, which is provided upon its inner side and in the vicinity of its lower end with a series of notches 8, any of which is adapted to receive the lug 4, of the leg portion 2 of the arch 1, against which the said standard 7 is located or placed. Each standard 7 is provided with a cuff or clip 9, the end portions of which are adapted to lie against the opposite sides of the leg portion 2 of the arch 1, and which are clamped in position upon the same by means of the plate 10, which is held by the tap 11, screw-threaded upon the extremity of the said clip 9. The clip 3 also lies at its side portions against the opposite sides of the standards 7, and is held in position thereon by means of the plates 12 and the taps 13, which latter are also screw-threaded upon the extremity of the said clip 3.

The spindle member 14 is provided with a bifurcated head 15, which receives the lower end portion of the standards 7, said standard 7 fitting snugly within the said head 15. The bolt 16 passes transversely through the lower end portions of the standards 7 and the sides of the head 15, and is retained against rotation with relation to the said head 15 by means of a non-circular socket 17, in which the inner end portion of the head 18 of the said bolt 16 snugly fits. The head 18 of the bolt 16 is provided with an eye 19. The plate 20 is provided with a hooked extremity 21 which engages the eye 19 of the head 18, and the said plate is provided with a series of perforations 22, and at the end thereof opposite to the end carrying the hooked portion 21 is laterally bent or disposed as at 23. The upper end of the rod 24 is pivotally connected with the outer end portion of the cross-bar 6 and the opposite end portion of the said rod 24 passes through a perforation provided in the laterally disposed extremity 23 of the plate 20, and the lower end portion of the rod 24 is laterally disposed and is adapted to



pass through one of the perforations of the series 22 and is held in position therein by means of the tap 25 which is screw-threaded upon the laterally disposed portion of the said rod 24. The plate 20 and the rod 24 constitute a tension means for connecting the end portion of the cross-bar 26 with the head 15, and, by means of the connecting parts, as above described and as shown, the said tension member or means may be longitudinally extended or contracted.

The sleeve 26 is journaled upon the spindle member 14, adjacent the enlarged head 15 thereof, and is provided with a forwardly disposed lug 27 and a rearwardly disposed lug 28. The sleeve 26 is held in place upon the spindle member 14 by means of a collar 29, or its equivalent, which is fixed with relation to the said spindle member. The upper portion of the sleeve 26 is provided with the flat surface or surfaces 30, upon which the forward end portions of the draw-bar 31 rest, said bar being held in an adjusted position upon the surface 30 by means of the U-shaped clamp-bolt 32, which straddles the said bar 31 and the sleeve 26, which is provided with a clamping plate 33. The rear end portion of the said bar 31 is bent laterally as at 34 and terminates in the extremity 35 which lies substantially parallel with the forward end portion of the said draft-bar 31. The cultivator beam 36 is pivotally connected with the extremity 35 in the usual manner.

Each standard 7 is provided at its upper end with a laterally disposed perforated lug 37. The upper end portion of the rod 38 passes through the perforation in the lug 37 and is provided with a laterally disposed extremity 39, which is also perforated. The said rod 38 is provided at its opposite ends with a laterally disposed pin 40, which passes through a perforation in the lug 27 carried by the sleeve 26. The intermediate portion of the rod 38 is screw-threaded as at 41, and a nut 42 engages the said thread 41. The coil spring 43 surrounds the upper end portion of the rod 38 and bears at its upper end against the under side of the lug 37 and at its lower end upon the upper face of the nut 42.

It is obvious that by adjusting the nut 42 along the thread 41, that the tension of the spring 43 may be regulated. The hook 44 is provided with a threaded shank 45, which passes through the perforation in the lug 39. Said hook is held in an adjusted position with relation to the said lug 39 by means of the nut 46, which is in engagement with the thread 45 of the said hook. The upper end of the spring 47 is connected with the hook 44, and the lower end of the said spring is connected with the lug 28 carried by the sleeve 26.

The bolt 48 passes transversely through the inner end portions of the sides of the head 15 and abridges the bifurcations in the

said head. The nut 49 is screw-threaded upon the end of the said bolt 48, and the nut 50 is screw-threaded upon the end of the bolt 16. The wedges 51 are adapted to be inserted between the inner and outer sides of the standards 7, and the bolt 48 upon one side and the side of the head 15 upon the other side of the said standards. Each of the wedges 51 is provided with the laterally disposed shoulders 52 which are adapted to engage the upper edges of the sides of the head 15.

From the above description it is obvious that by loosening the nut 48 and the nut 50 on the bolts 49 and 16 respectively, the wedges 51 may be withdrawn from their positions adjacent the inner and outer sides of the standards 7, and that the spindle member 14 may be swung upon the bolt 16 as a pivot with relation to the standards 7, and when at a desired angle with relation thereto, the said wedges 51 may be inserted in the bifurcations of the head 15, so that the wedges will bear against the inner and outer sides of the said standards 7, and the bolt 48 and the wall of the bifurcation of the head 15 in such manner as to hold the spindle 14 in adjusted position with relation to the said standards. When this is done the nuts 49 and 50 are screwed up upon the bolts 48 and 16, and the opposite portions of the head 15 will be brought together to such an extent as to clamp against the forward and rear sides of the standards 7. Thus means is provided for holding the spindle member 14 at a desired angle with relation to the standards 7, which in effect will turn the beam 36 axially or in a line parallel with its longitudinal axis, whereby the plows or shovels constituting the inner and outer members of a gang of plows or shovels (not shown) mounted at the rear end of the said beam 36 may be raised or lowered as desired for the purpose of throwing the soil toward or away from the standing plants. It will also be seen that the draft bar 31 may be shifted along the flat surface 30 of the sleeve 26, and thus the cultivator beams 36 carried at the opposite sides of the implement may be brought together or spread apart as desired.

By loosening the taps 13 and 11 upon the extremities of the clips 3 and 9, the intermediate arch member 1 of the frame of the cultivator may be adjusted vertically, and the lugs 4 carried at the ends of the said member 1 may be inserted in the notches 8, when the taps 11 and 13 may be tightened in their positions upon the clips 3 and 9, and the said member 1 will be securely held in its adjusted position. Thus means is provided for raising or lowering the intermediate portion of the frame of the cultivator in order to accommodate low or tall plants, and, at the same time, the tongue 5 is adjusted vertically. At the time that the arch member 1 is moved



vertically, similar adjustment must be made between the plate 20 and the rod 24, the tension device of which the said bar forms a component member being elongated or contracted as above described. It will also be seen that through the instrumentality of the rod 38 and its attachments, the spring 47 and the sleeve 26, together with the draft bar 31, that the cultivator beam 36 and its attachments are practically counterbalanced, so that when the beam is in the operative position, or the position in which it is when the cultivator is doing work, it will be balanced, and will remain in that position, unless moved therefrom by some exterior force or cause, and when raised to any point within easy movement by the hand of the operator, the beam will still be balanced by the said spring, rod, etc., and will remain in the position in which it is brought, unless forced therefrom.

The outer end portion of the spindle 14 is adapted to carry a supporting wheel, which forms no part of the present invention, and, consequently, is not shown.

Having described my invention, what I claim as new, and desire to secure, by Letters Patent, is:—

1. In a cultivator frame an arch member having laterally disposed lugs at its end portions, standards provided at their inner sides with notches for the reception of the said lugs, clips for binding the said standards in positions against the end portions of the arch member, spindle portions carried by the said standards, and means mounted upon the

spindle portions for attachment with the cultivator beam.

2. In a cultivator frame an arch member, a tongue attached to the arch member, a cross-bar attached to the tongue, standards adjustably connected with the ends of the said arch member, a spindle member adjustably connected with each standard, adjustable traction members connecting the spindle members with the cross-bar, and means carried by the spindle members for attachment with the beam of the cultivator.

3. In a cultivator frame an arch member, standards attached to the end portions thereof, spindles attached to the said standards, sleeves journaled upon the spindles and having oppositely disposed lugs, a rod pivotally connected at one end with one of the said lugs and slidably engaging at its upper end portion one of the standards, an adjustable stop carried by said rod, and a spring interposed between the said stop and the said standard, a spring connected with the upper end portion of the said rod and with the other lug carried by the sleeve, means for adjusting the tension of the last said spring, and means carried by the sleeve for attachment with the cultivator beam.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD M. BUCKHANNON.

Witnesses:

N. A. TITTLE,  
NELSIE TITTLE.