J. E. JOHNSON.

CULTIVATOR CROSS HEAD.

APPLICATION FILED MAY 16, 1908.

906,140.

Patented Dec. 8, 1908.

3 SHEETS—SHEET 1.

Fig. 1

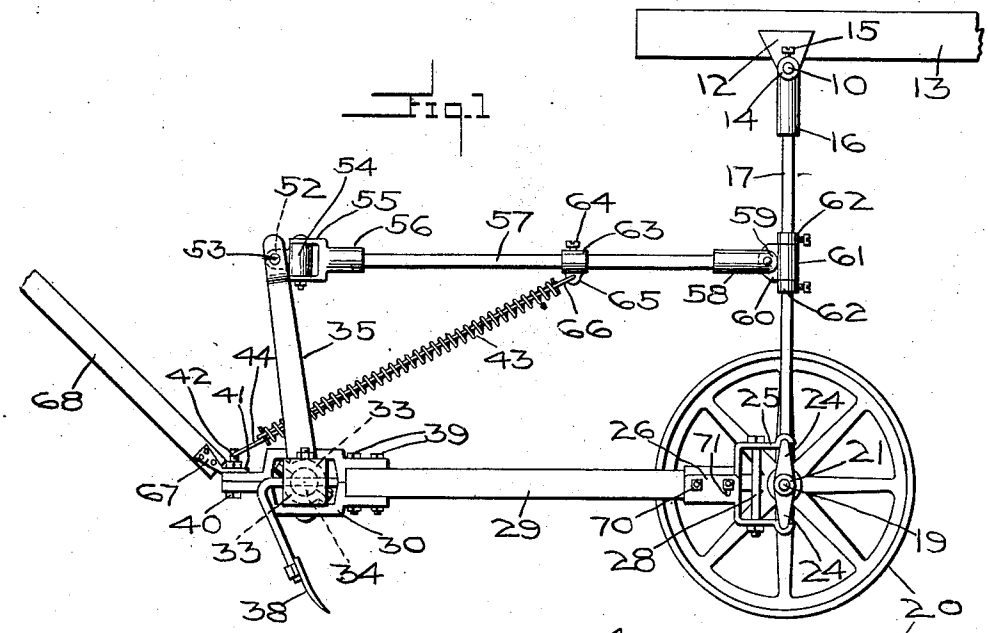
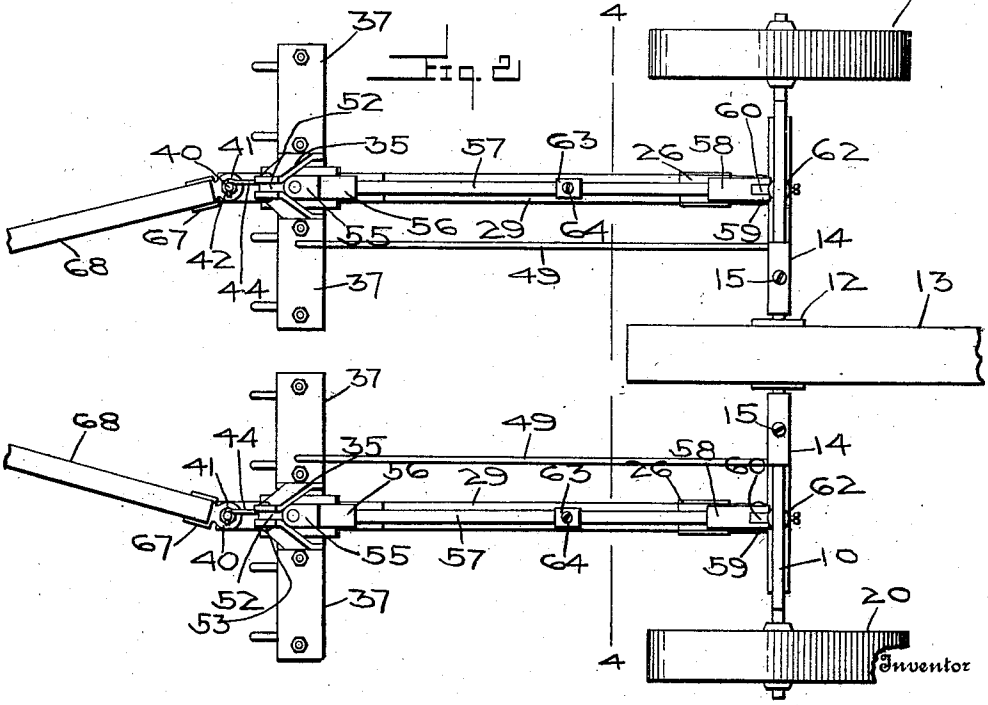


Fig. 2



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3 SHEETS—SHEET 2.

Fig. 3

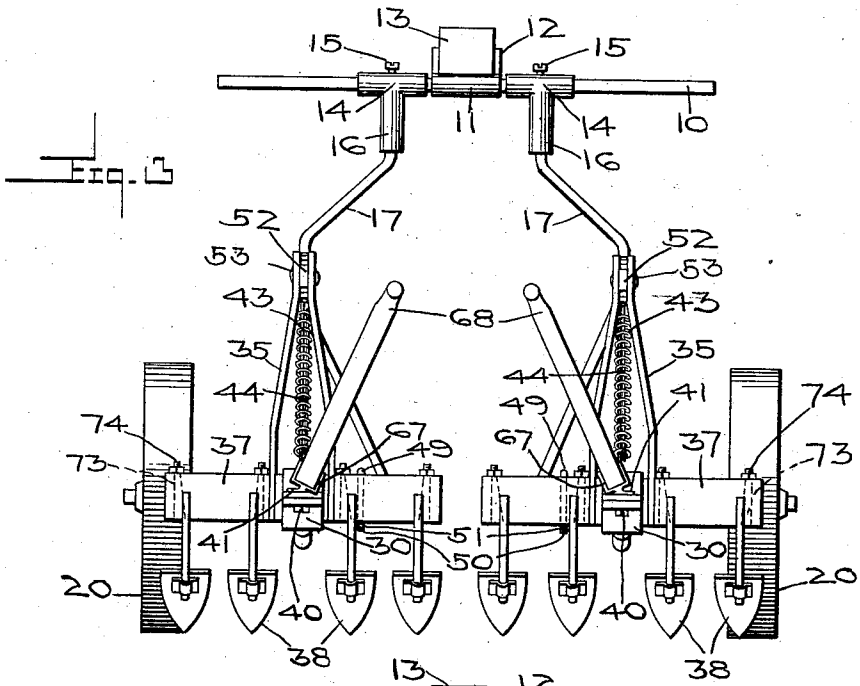
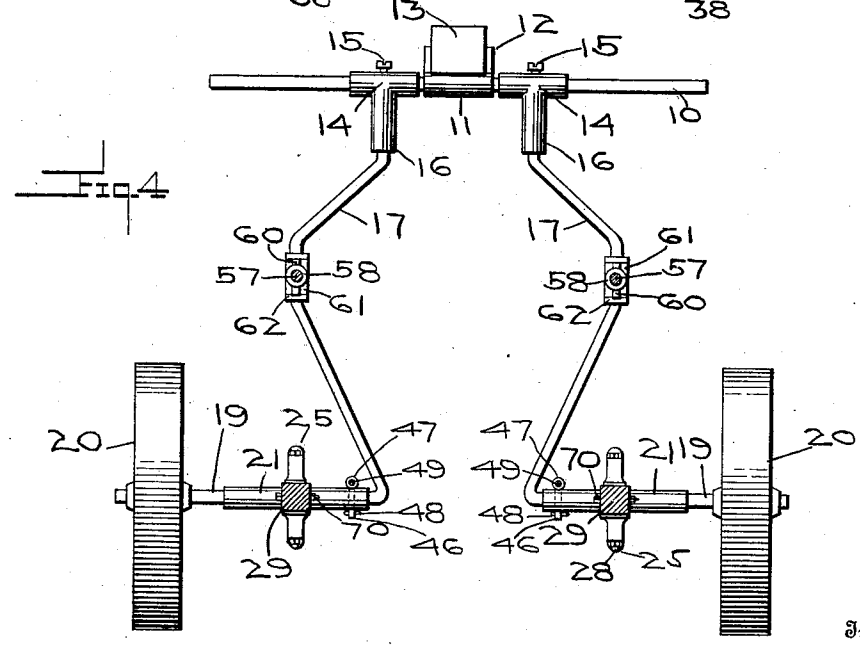


Fig. 4



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3 SHEETS—SHEET 3.

Fig. 5

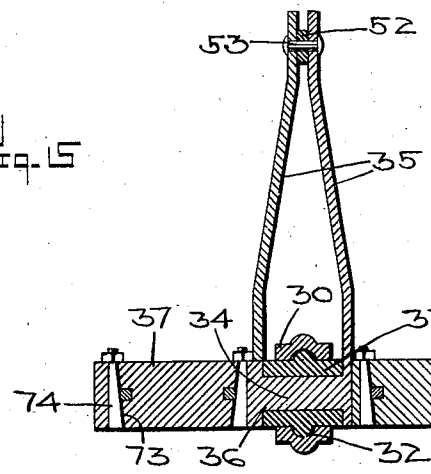


Fig. 8

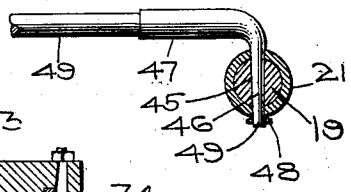


Fig. 6

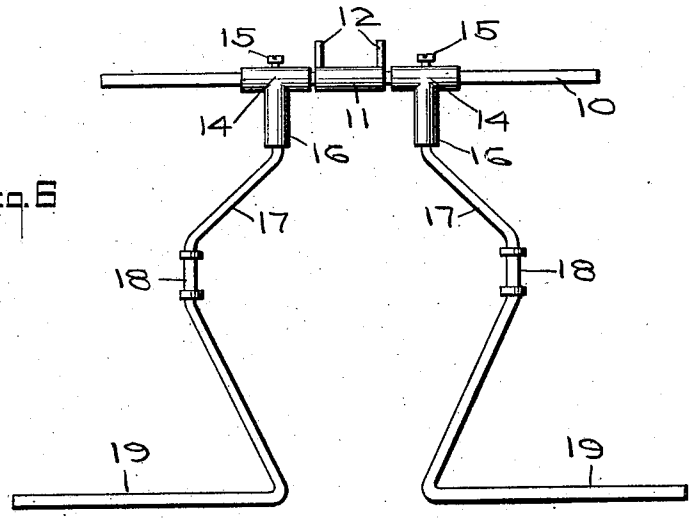
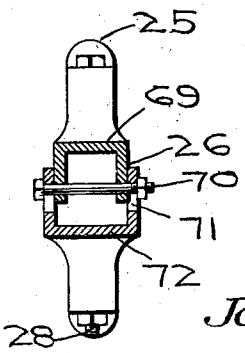


Fig. 7



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN E. JOHNSON, OF CLIFF, MISSISSIPPI.

CULTIVATOR CROSS-HEAD.

No. 906,140. Specification of Letters Patent. Patented Dec. 8, 1908.

Application filed May 16, 1908. Serial No. 433,298.

To all whom it may concern:

Be it known that I, JOHN E. JOHNSON, a citizen of the United States, residing at Cliff, in the county of Itawamba and State of Mississippi, have invented certain new and useful Improvements in Cultivator Cross-Heads, of which the following is a specification.

This invention relates to cultivators, with special reference to the structure of the frame.

An object of the invention is to construct a device of this character that will automatically adjust itself to the uneven surfaces over which it is adapted to pass.

Another object of the invention is to form a device that will admit of adjustment to wide and narrow rows.

A still further object is to so construct the adjusting mechanism that it may be applied to a cultivator of ordinary construction.

Other objects and advantages will be apparent from the following description and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the similar views, Figure 1 is a side elevation of the cultivator, Fig. 2 is a top plan of the device, Fig. 3 is a rear elevation of the same, Fig. 4 is a section on line 4—4 of Fig. 2, Fig. 5 shows a cross section of the cross head and supporting arms, Fig. 6 is a detailed view of the frame adjustment, Fig. 7 is a detailed sectional view of the sleeve connecting the beams to the frame.

Referring to the drawings, 10 designates a cross arm upon the center of which is an adjustable collar 11 carrying upwardly projecting lugs 12 between which is rigidly secured the tongue 13 for drawing the machine. Two sleeves 14 are slidably mounted upon the cross arm 10 and are fastened in rigid position by set screws 15. The sleeves 14 are provided with depending sleeves 16 disposed at right angles to sleeves 14 and are adapted to contain the upper ends of vertically disposed standards 17. The standards 17 diverge intermediately of their length to form suitable bearing surfaces 18 and then extend inwardly to a point intermediately beneath the sleeves 16. At their lower point the standards 17 are curved outwardly into a horizontal plane and form axles 19 upon which the wheels 20 are mounted. The axles 19 carry upon their inner ends loosely mounted sleeves 21. On each of said sleeves 21 are formed two studs 24 which are diametrically disposed and adapted to be engaged by the forked ends 25 of the split sleeves 26 in recesses formed on the inner sides of said forked ends 25 and reinforced thereon by bolts 28. The main beams 29 of the machine are supported at their forward ends in said sleeves 29 while the rear ends of the beams 29 carry split boxings 30 which support in recesses studs 32 formed on the split sleeve 33 which is carried by the crossheads 34. The crossheads 34 comprise arms 35 which carry at their lower extremities offset portions 36 which form bearing surfaces for said sleeves 33 and have extensions 37 to support the depending plows 38. The boxings 30 are clamped at their front ends upon the studs 32 and upon the beams 29 by bolts 39 and at their rear ends by bolts 40 which also support plates 41. The plows 38 are supported in wedge slots 73 and are secured therein by the correspondingly shaped bolts 74. The bolts 40 have eyes 42 in which are supported the lower ends of springs 43. The springs 43 are preferably of the compressible type having rods 44 passed through their centers and attached to the springs 43 at their opposite ends.

Rods 49 are provided upon their forward extremities with threaded portions which engage in internally threaded sleeves 47 which are provided with forwardly and downwardly extending shanks 46 which engage through apertures formed through the inner ends of the sleeves 21. The shanks 46 are secured through the sleeves 21 by means of cotter pins 48. The opposite extremities of the rods 49 are turned downwardly to form shanks 50 which are engaged through the cross heads 34 and are secured therein by cotter pins 51 which are passed through the

lower extremities of the shanks 50. As both the shanks 46 and 50 are circular in cross section the rods 49 have free lateral rotative movement. The two ends of the cross head are reduced and overlapped at their inner extremities and the arms or bars 35 are carried upon the inner extremities of the opposite ends of the crosshead.

The arms 35 of the cross head 34 converge at their upper ends where they support connecting members 52 by bolts 53, said connecting members having bored vertically offset portions 54 which are adapted to be secured between the forked ends 55 of internally threaded sleeves 56. Supported in the sleeves 56 at one end are rods 57 while their forward ends are held in engagement with the threaded sleeves 58. The sleeves 58 have horizontally disposed forks 59 which engage the lugs 60 of one piece sleeves 61 which encircle the bearing surfaces 18 of the standards 17. The sleeves 61 are held from vertical displacement by the bushings 62 rigidly disposed upon the upper and lower ends of the bearing surfaces 18 on said standards 17. Slidably mounted on the rod 57 is a sleeve 63 which is secured in various positions longitudinally upon said rod 57 by a set screw 64 and which carry depending parallel lugs 65 supporting the ends of the rods 66 which pass through the center of the springs 43 and are secured at their opposite ends to the springs 43. The plates 41 are provided with rearwardly projecting pivotally mounted lugs 67 to which are adapted to be attached suitable handles 68 by which the plows 38 are to be raised or depressed as required.

The sleeves 26 supporting the beams 29 are formed of upper inverted U shaped members 69 carrying integrally formed forked members 25 which carry bolts 70 adapted to pass through said beams 29 and engage in slots 71 under U shaped members 72 carrying forked members 25 registering with the forked members 25 carried by the upper U shaped members 69.

In operation, the beams 29 have a free horizontal movement as the recesses formed in the same are circular and engage the circular studs 24 at one end and the split boxings 30 at the rear end are formed with recesses which admit of free rotation of the studs 32. This free horizontal movement is advantageous when the device is being turned or working on curved rows. The beams 29 have also a vertical movement owing to the fact that the supporting sleeves 21 and 33 are loosely mounted on their supporting bearing surfaces. This vertical movement of the beams 29 are limited however by the tension of the springs 43, which tension is varied by the adjustment of the sleeve 63 upon the rod 57. Any sudden action of the tongue will not effect the action of the plows 38 on account of this two way movement of the beams 29 and the resilient effects of the springs 43.

What is claimed is:

1. A device of the class described comprising an adjustable frame, beams supported by said frame, a plurality of plows carried by said beams, arms upwardly extended from the rear extremity of said beams, rods disposed between said frame and the upper extremities of said arms and a spring disposed between said rods and said beams for tensionally holding the same in a horizontal position.

2. A cultivator comprising a frame, beams mounted upon said frame, cross heads disposed upon the rear extremities of said beams, plows carried by said cross heads, arms upwardly extended from said cross heads, rods disposed between the upper ends of said arms and said frame, a spring adjustably disposed intermediately upon said rods, the lower extremities of said springs being secured to the rear extremities of said beams for the purpose of tensionally supporting said beams in a horizontal position.

3. In a cultivator, a frame, beams secured to said frame, cross heads secured to the rear ends of said beams, plows carried by said cross heads, upwardly extending arms carried by said cross heads, rods disposed in parallel with said beams and having their forward ends secured to said frame and their rear ends supported by said arms, and rods disposed in parallel with said beams and supported by said frame and said cross head.

4. In a device of the class described the combination with an adjustable frame, of beams pivotally disposed upon said frame, cross heads loosely mounted in the rear extremities of said beams arms upwardly extended from said cross heads, rods loosely disposed between the upper ends of said arms and said frame and a spring adjustably secured between the rear extremities of said beams and said rods.

5. A cultivator having a crosshead, said cross head comprising two sections overlapping each other and forming a split bearing portion intermediate of its length, extensions adapted to support plows, and upwardly extending arms, said arms carried by the inner end of said overlapping sections.

6. A cultivator comprising a frame, cross heads disposed upon said frame and plows mounted in said cross heads, said cross heads comprising two sections overlapping each other, the inner adjoining portions of said sections being formed semicircular in cross section, upwardly extended arms disposed upon the inner ends of said sections and a split sleeve adapted to encircle said overlap-

ping sections for the purpose of securing the same together.

7. A cultivator comprising a frame, beams rearwardly extending from said frame, crossheads on said beams, upwardly extending arms on said crossheads, rods carried by said arms and said frame, rods carried by said frame and said cross head, and a spring for connecting said beams at their rear ends to the intermediate portions of said rods on said upwardly extending arms.

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

JOHN E. JOHNSON.

Witnesses:

B. A. CLEVELAND,

J. R. his × mark THOMAS.