

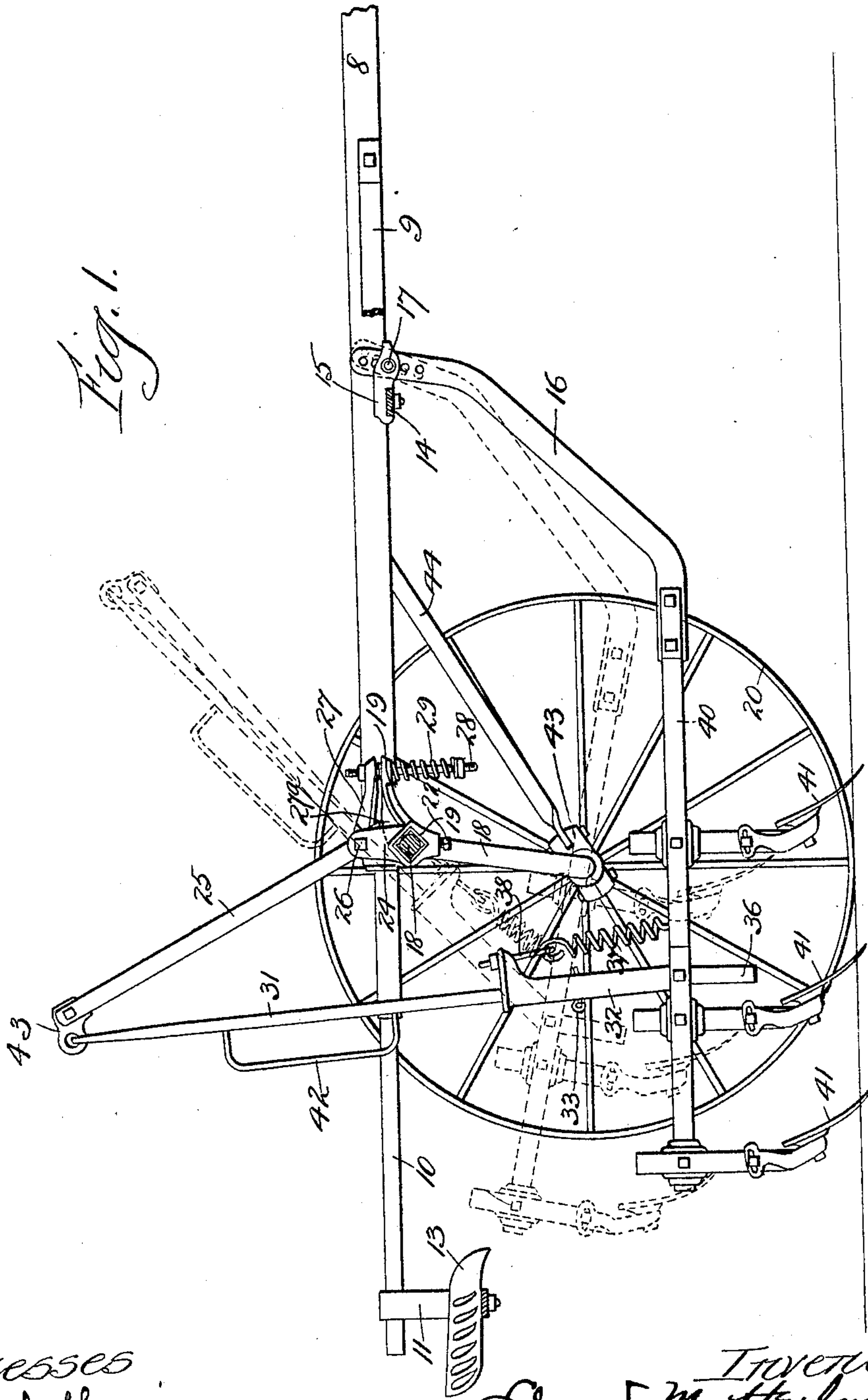
(No Model.)

3 Sheets—Sheet 1.

E. M. HEYLMAN.
CULTIVATOR.

No. 581,722.

Patented May 4, 1897.



Witnesses
Wm. J. Fleming
S. M. Rheem.

Inventor
Edward M. Heylman.
By Bond, Adams, Perkins & Jackson
his Attys.

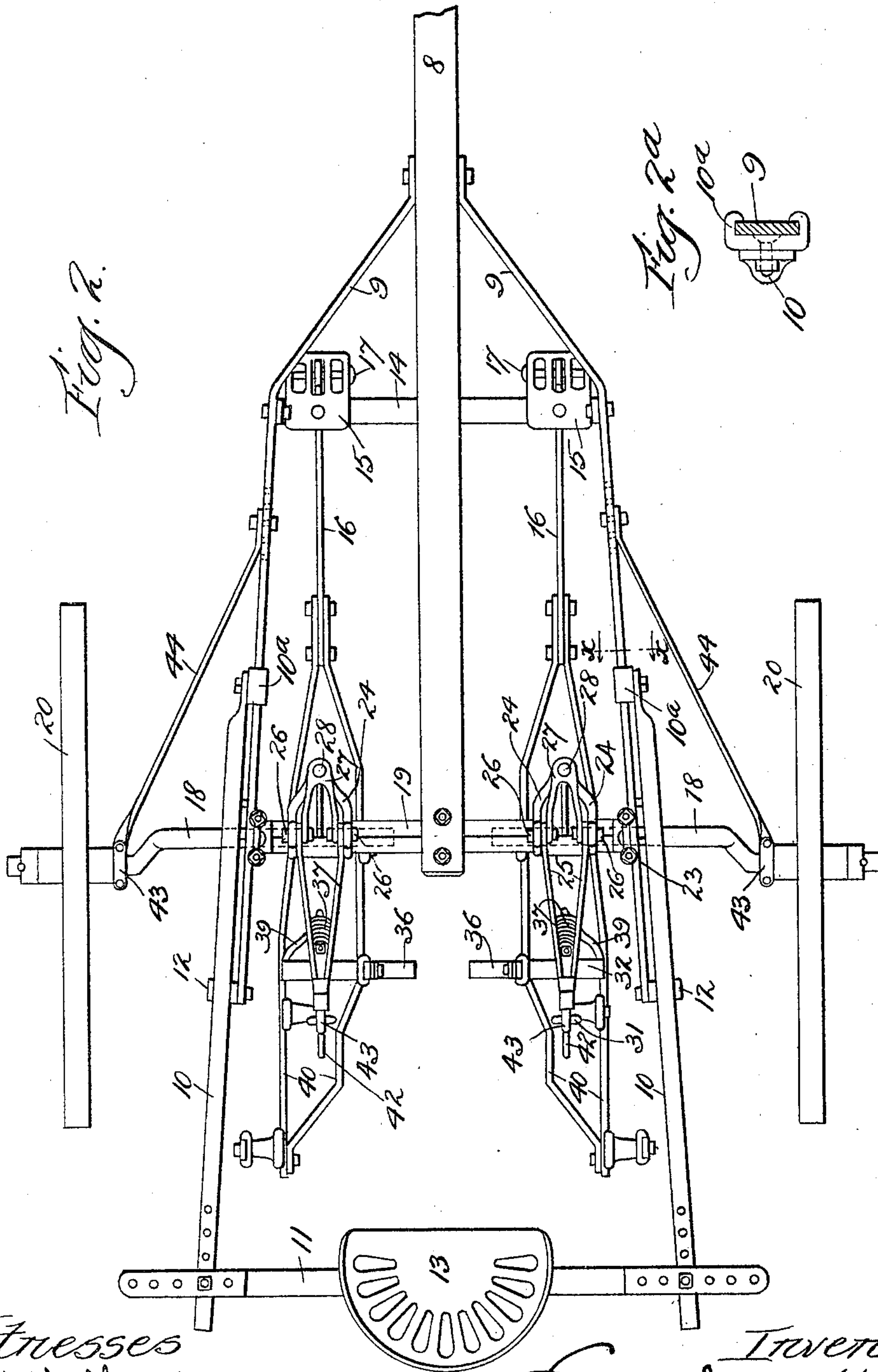
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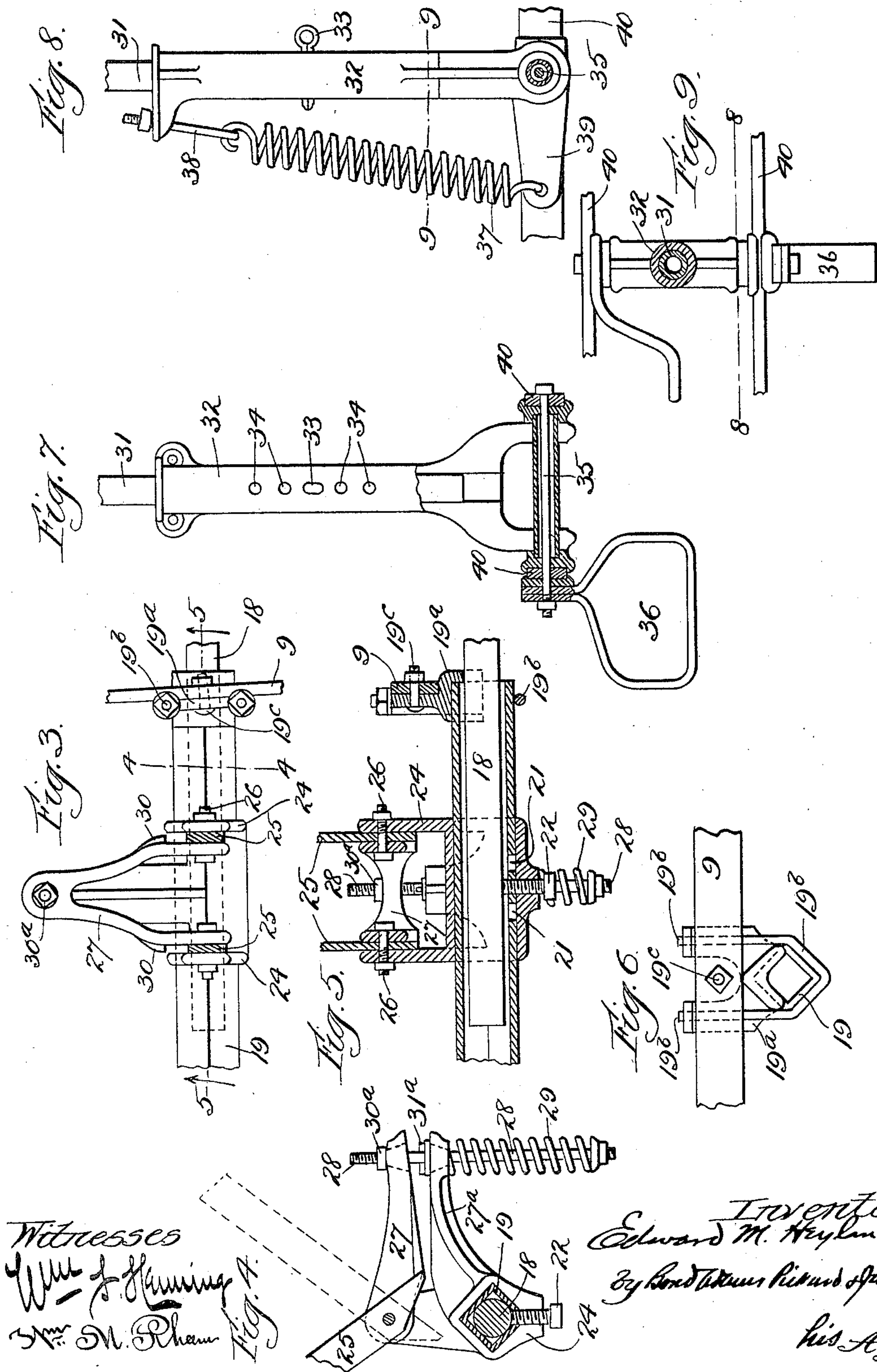
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UNITED STATES PATENT OFFICE.

EDWARD M. HEYLMAN, OF CANTON, ILLINOIS, ASSIGNOR TO THE PARLIN & ORENDORFF COMPANY, OF SAME PLACE.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 581,722, dated May 4, 1897.

Application filed May 14, 1896. Serial No. 591,486. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. HEYLMAN, a citizen of the United States, residing at Canton, in the county of Fulton and State of Illinois, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section. Fig. 2 is a top or plan view. Fig. 2^a is a detail, being a section at line *x x* of Fig. 2 and showing one of the sliding blocks by which the seat-bars are adjustably secured in place. Fig. 3 is a top or plan view of a part of the central portion of the arched axle, showing also one of the brackets secured thereto and the pivoted dog that is engaged by the swinging lever pivoted to the head to actuate a spring for partially counteracting the foot-pressure of the operator on the cultivator-beam, the swinging lever being shown in section. Fig. 4 is a cross-section on line 4 4 of Fig. 3. Fig. 5 is a longitudinal section on line 5 5 of Fig. 3. Fig. 6 is a detail showing the manner of connecting together the axle and side-bars of the frame. Fig. 7 is a rear elevation, partly in section, of the sleeve secured to each beam, showing also a portion of the rod that is secured in the sleeve and showing also in section the beam to which said sleeve is attached and the means employed for uniting the sleeve to the beam. Fig. 8 is a side elevation of the sleeve shown in Fig. 7, showing also the location and arrangement of the spring that acts to lift the beam when said beam is thrown out of use; and Fig. 9 is a cross-section at line 9 9 of Fig. 8, the spring shown in said Fig. 8 being omitted.

This invention relates to cultivators of the kind known as "riding" or "sulky" cultivators, and particularly to that type or variety of cultivator in which are employed swinging arms that are pivoted to brackets secured upon the arched axle of the machine and that are connected to the beams through long rods or levers.

The leading object of my invention is to provide a novel and effective arrangement of the springs that are ordinarily employed with this type of machines, one set of such springs

being employed to assist in raising the beams out of operative position and holding them suspended in such inoperative position and the other set of springs referred to being employed to act against the pressure exerted by the feet of the operator on the beams, and thereby permit the shovels carried by the beams to have a slight vibratory motion that is highly desirable, and also render it easier for the operator to change the direction of the shovels, as is necessary from time to time for perfect cultivation. This specified object I attain in the manner and by the means shown in the drawings and as hereinafter fully pointed out.

Further objects of my invention are to provide improved means for holding and adjusting the long rods or levers through which the beams are connected to the swinging arms that rise from the arched axle; to provide improved devices for connecting said swinging arms with the springs that are provided to act against foot-pressure; to provide an improved form of cultivator-beam whereby the shovels are adapted to be set at different distances apart, and to improve generally the construction and operation of machines of the class referred to.

That which I believe to be new will be set forth in the claims.

In the drawings, 8 indicates the tongue, the rear end of which, as shown, is connected to the central portion of the arched axle.

9 indicates the side-bars of the frame, each connected at its forward end to the tongue and diverging rearwardly.

10 indicates bars pivoted to blocks 10^a, one of such blocks being movably secured to each side-bar 9 of the frame, and upon the rear ends of the bars 10 is secured the seat-bar 11, such seat-bar being capable of being adjusted toward or from the ends of the bars 10 by reason of the holes in said bars, as seen in Fig. 2. These seat-bars 10 are preferably of tubular form. As shown in Fig. 2^a, each seat-bar 10 is secured to block 10^a by a bolt, the head of which is countersunk in the block. This block 10^a is loosely fitted on the side-rail 9, so that a quick adjustment of the driver's seat forward or back can be secured. The side-bars 9 are provided at or near their rear

ends with side projections 12, upon which the bars 11 rest.

13 indicates the driver's seat.

14 indicates a cross-piece near the forward portion of the frame and extending between and connected to the side-bars 9. Inside of the frame and near each end of the cross-piece 14 and secured to said cross-piece are blocks 15, provided with a number of openings, through either of which the forward upturned ends of the drag-bars 16 are adapted to be passed and pivotally secured in place by a bolt 17.

18 19 indicate the arched axle, which is made of three separate pieces, the two pieces indicated by 18 being the portions to which the wheels 20 are attached in any usual manner and the piece 19 being the central section. The central section 19 is hollow, as shown, (see Figs. 4 and 5,) and is preferably rectangular in cross-section, as illustrated. Into each end of this central portion 19 projects the raised horizontal portion of each axle-section 18. By this construction the width of the machine as a whole may be varied as desired, and when the desired adjustment is secured the parts are to be locked in position by means of set-screws 22. At each end of the axle-section 19 is mounted a casting 19^a, which is secured to said axle-section by a U-bolt 19^b, against the face of which casting rests one of the side-bars 9, the two being bolted together by a bolt 19^c. By this construction the frame is rigidly secured to the axle.

24 indicates brackets secured to the central portion 19 of the axle, and between the sides of each bracket, in the construction shown, is pivoted at 26 an arm 25, which, as shown, is composed of two members that converge toward their upper ends and at such upper ends are bolted or otherwise secured together. The pivot-bolts 26 are threaded into the brackets 24 and held in place by jam-nuts, so that they will not turn as the arms 25 are rocked back and forth over said pivots.

21 are a series of holes in the under face of the section 19 of the axle, through one of which passes the bolt 22, that secures each bracket 24 in place, such bolts also bearing against the wheel portions 18 of the axle and holding them in place. By loosening the set-screws 22 the axle portions 18 can be adjusted in or out, as desired, and by providing a number of the holes 21 different lateral adjustments of the bracket on the axle portion 19 can be secured.

27 indicates a dog having its rear portion bifurcated, in the construction shown, and pivoted by the pivots 26 to the bracket 24 between the two members of the arm 25 and having its forward end provided with a hole through which and a hole in a forwardly-projecting portion 27^a of the bracket passes a bolt 28, surrounding which is a coiled spring 29, held between a nut and washer on the lower end of the bolt 28 and the under sur-

face of the forwardly-projecting portion 27^a of the bracket, as clearly shown in Figs. 3 and 4.

The dog 27 is provided with lateral lugs 30 forward of the pivots 26, which lugs are adapted to be engaged by the lower ends of the two members of the arm 25, so that as strain is put upon the said arm to pull it backward the dog will be turned on its pivots 26, causing the spring 29 to be compressed.

31 indicates rods connected with the upper ends of the swinging arms 25 through a small side extension-piece 43, bolted to the upper end of each of said arms 25. The lower end of each rod 31 passes into a long sleeve 32, that is pivotally connected to one of the cultivator-beams. Each sleeve is provided with a number of holes 34, through one of which and a hole in the rod 31 passes a key 33. By means of the holes and the key different adjustments of the rod can be readily had. As the construction of beam represented is one composed of two portions separated save at their ends, the lower end of the sleeve, which is united to the beam near the center of said beam, is necessarily widened, as shown in Figs. 7 and 9, in order that it may snugly fit against each portion of the beam, and, as shown, it is suitably journaled to the beam, being held in place by a long bolt 35.

By reference to Fig. 4 it will be seen that the upper ends of the bolts 28 are screw-threaded to receive nuts 30^a, and by adjusting such nuts up or down thereon it will permit the arms 25 to incline to a greater or less extent, and to that extent regulate the depth to which the shovels enter the earth. As shown, each bolt 28 is provided with a small spring-cotter 31^a to prevent said bolt from dropping down. Between such cotter and the face of the extension 27^a is interposed a washer, as shown in said Fig. 4.

36 indicates a stirrup for the reception of the driver's foot, a stirrup being provided for each beam and connected to the beam and held in place by the same bolt 35 that secures the sleeve 32 in place.

37 indicates a strong coiled spring connected to each beam and the sleeve supported upon said beam, it being connected with the upper end of said sleeve by means of a link 38, adjustably secured in place, and being connected at its lower end with the beam through an arm 39, rigidly secured at one end to the beam and bent so as to bring its other end midway of the two members or parts of the beam. (See Figs. 8 and 9.)

40 indicates the cultivator-beams, as hereinbefore stated, each of which consists of two parts or members separated from each other save at their ends, where they are brought together and firmly united by bolts, their forward ends, in the construction shown, embracing the rear end of one of the drag-bars 16 and being firmly bolted thereto. By reference to Fig. 2 it will be seen that the two parts or members of each cultivator-beam are of irregular shape, and that in consequence

the space between them varies at different parts of the beam. One of these parts or members, it will be observed, is bent in several places. By thus constructing these beams the standards of the shovels 41, which are to be attached in any usual manner, can be readily shifted to bring the shovels on the two portions of a beam closer together or wider apart, which is a very desirable feature.

42 indicates handles projecting from the rear face of and attached to the rods 31 in such position that they can be readily grasped by the operator.

43 is a sand-band at the inner end of each wheel-hub, to which is attached one end of a brace 44, the other end being attached to a side-bar 9, the side-bars 9 being provided, as indicated in Fig. 2, with a series of holes, into one of which the bolt that secures the brace passes.

The operation of the machine is as follows: The driver being on the seat and the devices being out of operative position, as illustrated by the dotted lines of Fig. 1, to swing them down into position for cultivating downward pressure is exerted on the beams by the feet through the medium of the stirrups 36, and by means of the handles 42 a backward pull is given on the rods 31. This action on the part of the driver will bring the parts into the position indicated by the full lines in said Fig. 1. The machine is then ready for cultivating, and as it advances with the shovels in the ground the springs 29 will be brought into play and will respond to every motion of the beams and will act against the downward pressure exerted by the feet of the operator. They act also to impart to the beams and the shovels carried thereby a constant vibratory or trembling motion, which is very desirable. To throw the beams up into an inoperative position, the handles 42 are to be grasped and the rods to which they are attached pushed slightly upward and forward. With the commencement of this motion the springs 37 act to complete the operation of throwing the parts completely out of operative position into the position indicated by dotted lines in Fig. 1, and when so thrown out the springs 37 will be contracted and exert their greatest force, thereby holding the beams securely in the elevated position. By raising or lowering the rods 31 to different positions in the sleeve 32 the depth of the shovels in the ground can be regulated. Variation in the effect of the spring 37 can be attained by adjustment of the nut on the link 38. With the commencement of the operation of raising the beams to an inoperative position the strain on the springs 29 is at once released.

The machine as a whole is simple, effective, and easily operated, and by reason of the arrangement and construction of parts can be

readily and easily adjusted in various ways to adapt it for different conditions of work. 65

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, an arm mounted on the axle and pivotally connected therewith, a spring acting upon said arm to support the cultivator-beam when the latter is down and impart a vibratory motion thereto, a rod connecting said arm with the cultivator-beam, and a spring connected at its lower end with the beam and at its opposite end with the rod, and operating when the said rod is raised, to lift the beam, substantially as described. 70 75

2. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, a swinging arm pivotally mounted on the axle, a rod connected at its upper end with said swinging arm, a sleeve connected with and projecting upwardly from the cultivator-beam and within which the lower end of said rod is secured, and a lifting-spring secured to said sleeve and cultivator-beam, substantially as and for the purpose specified. 80 85

3. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, a bracket on said axle, an upwardly-projecting arm pivoted to said bracket, a dog also pivoted to said bracket and adapted to be engaged by said arm, a spring acting against said dog, and a connection between said arm and the cultivator-beam, substantially as and for the purpose specified. 90 95

4. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, an adjustable bracket on said axle, an upwardly-projecting arm pivoted to said bracket, a dog also pivoted to said bracket and adapted to be engaged by said arm, a spring acting against said dog, and a connection between said arm and the cultivator-beam, substantially as and for the purpose specified. 100 105

5. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, a bracket on said axle, an upwardly-projecting arm pivoted to said bracket, a dog also pivoted to said bracket and adapted to be engaged by said arm, a bolt passing through the forward ends of said dog and bracket, a spring secured to said bolt, and a connection between said pivoted arm and the cultivator-beam, substantially as and for the purpose specified. 110 115

6. In a cultivator, the combination of a frame, an arched axle, wheels secured thereto, a bracket on said axle, an upwardly-projecting arm pivoted to said bracket, a dog also pivoted to said bracket and adapted to be engaged by said arm, a spring acting against the movement of said dog, a rod connected with the upper end of said arm, a cultivator- 120 125

beam, a sleeve connected with and projecting upward from the beam, means for securing said rod within the sleeve, and a lifting-spring secured to said sleeve and beam, substantially
5 as specified.

7. In a cultivator, the combination with a frame, of an axle consisting of two wheel-sections and an elevated hollow horizontal portion adapted to receive the ends of the wheel-
10 sections, brackets carried by said horizontal

portion adapted to carry beam-supporting arms, and means for locking the axle as a whole together and also locking the said brackets upon the axle, substantially as specified.

EDWARD M. HEYLMAN.

Witnesses:

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