

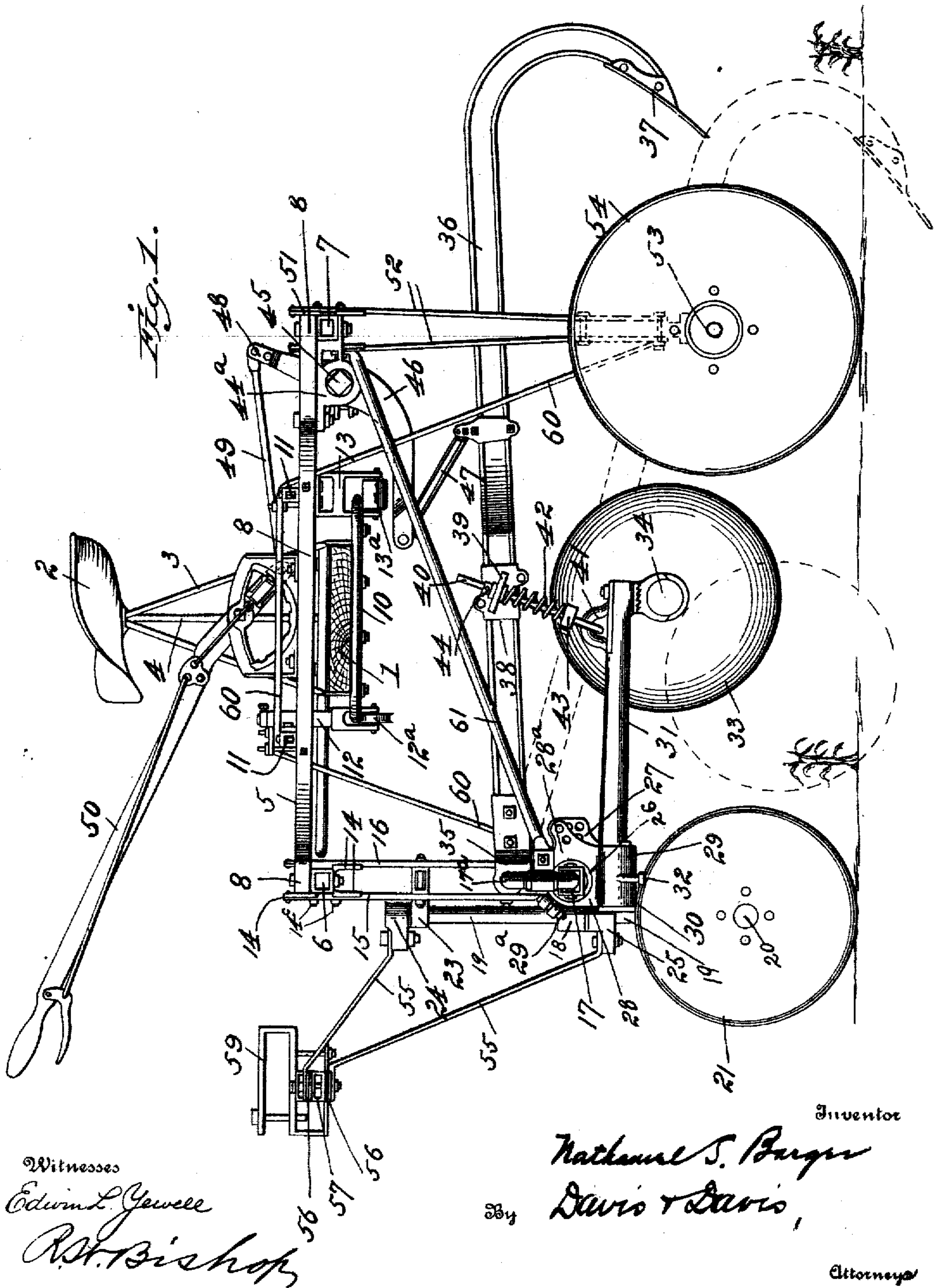
No. 814,011.

PATENTED MAR. 6, 1906.

N. S. BARGER.
CULTIVATOR.

APPLICATION FILED JULY 12, 1905.

4 SHEETS—SHEET 1.



Witnesses

Edwin L. Jewell

R. H. Bishop

Inventor

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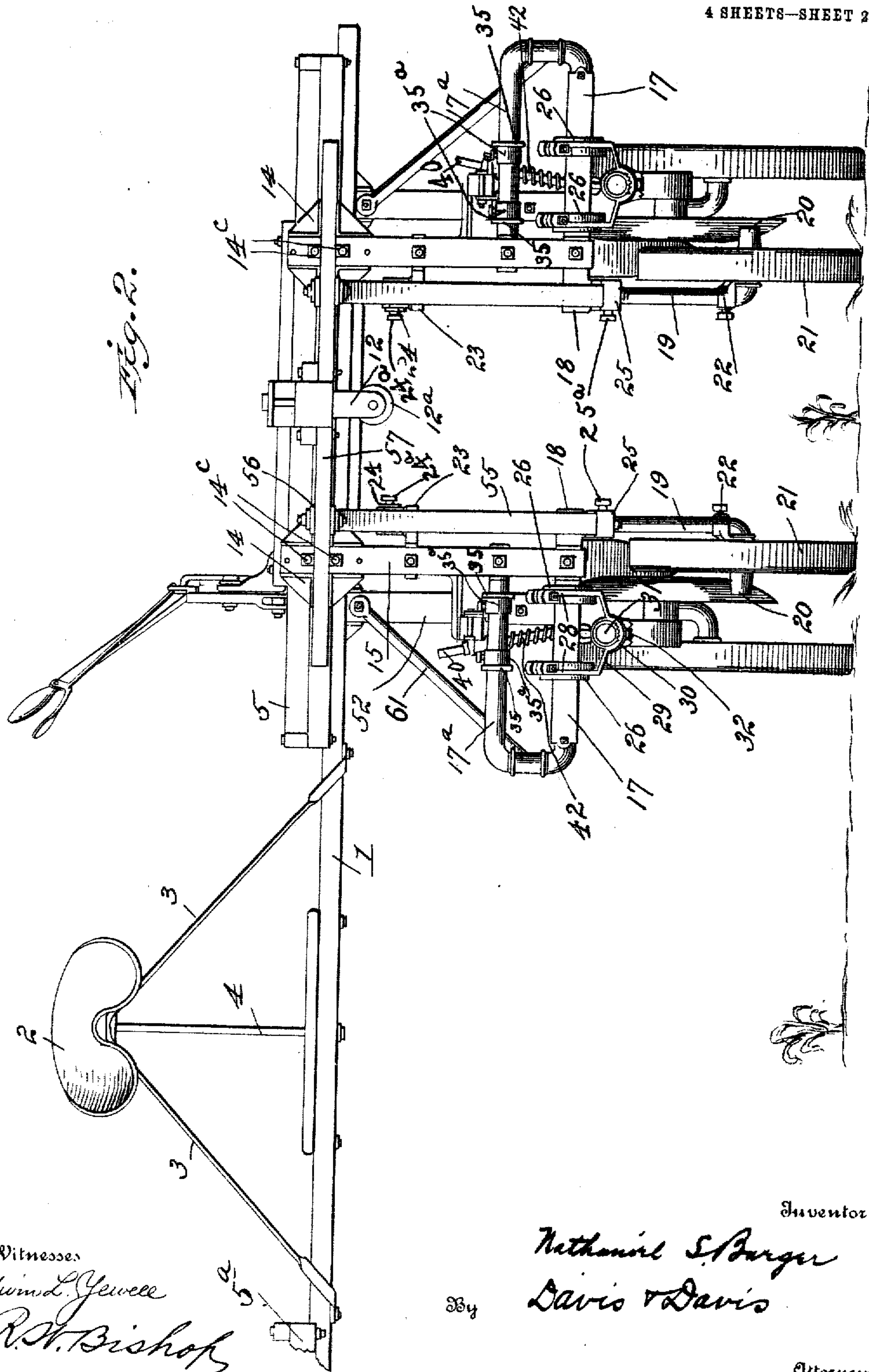
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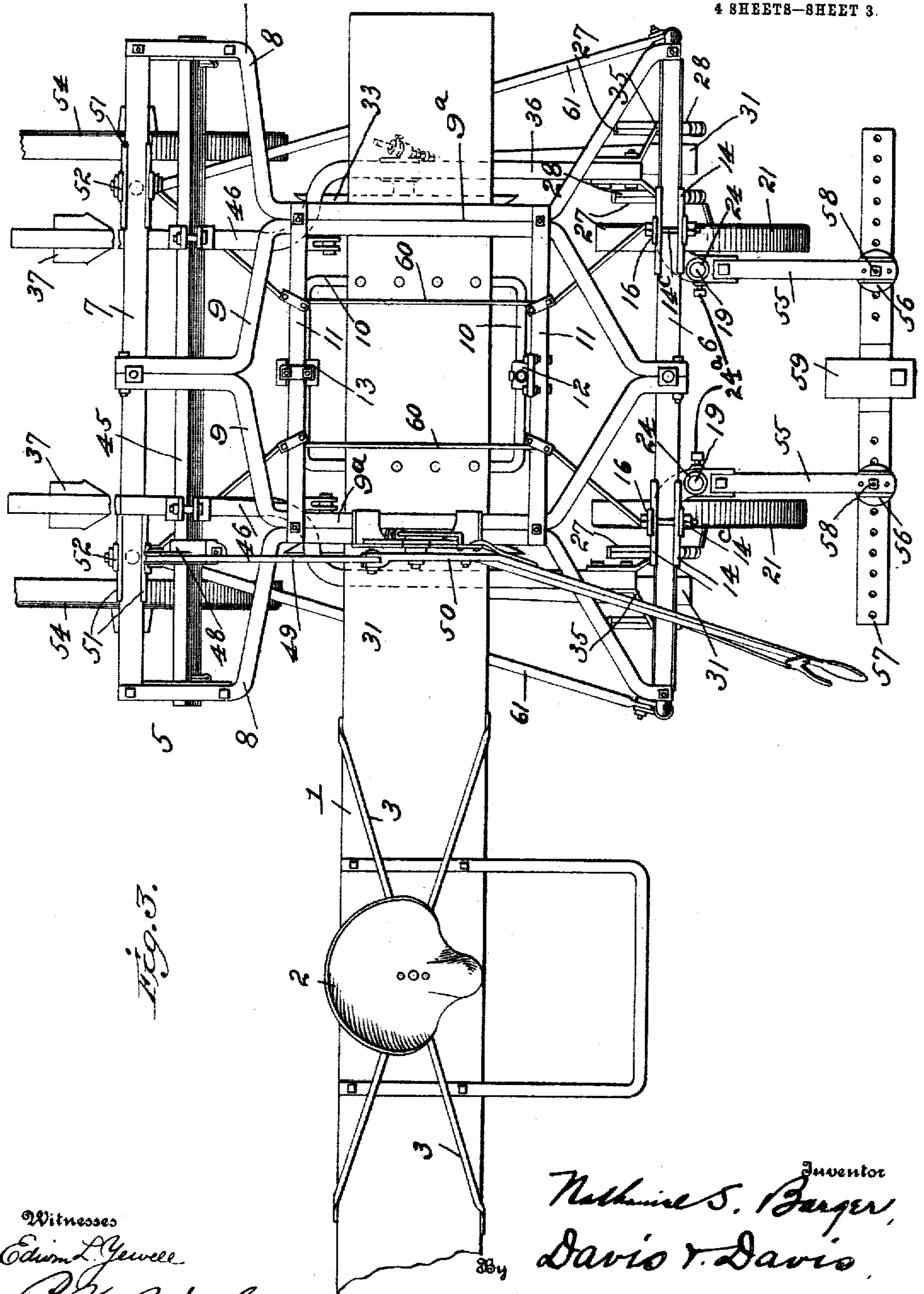
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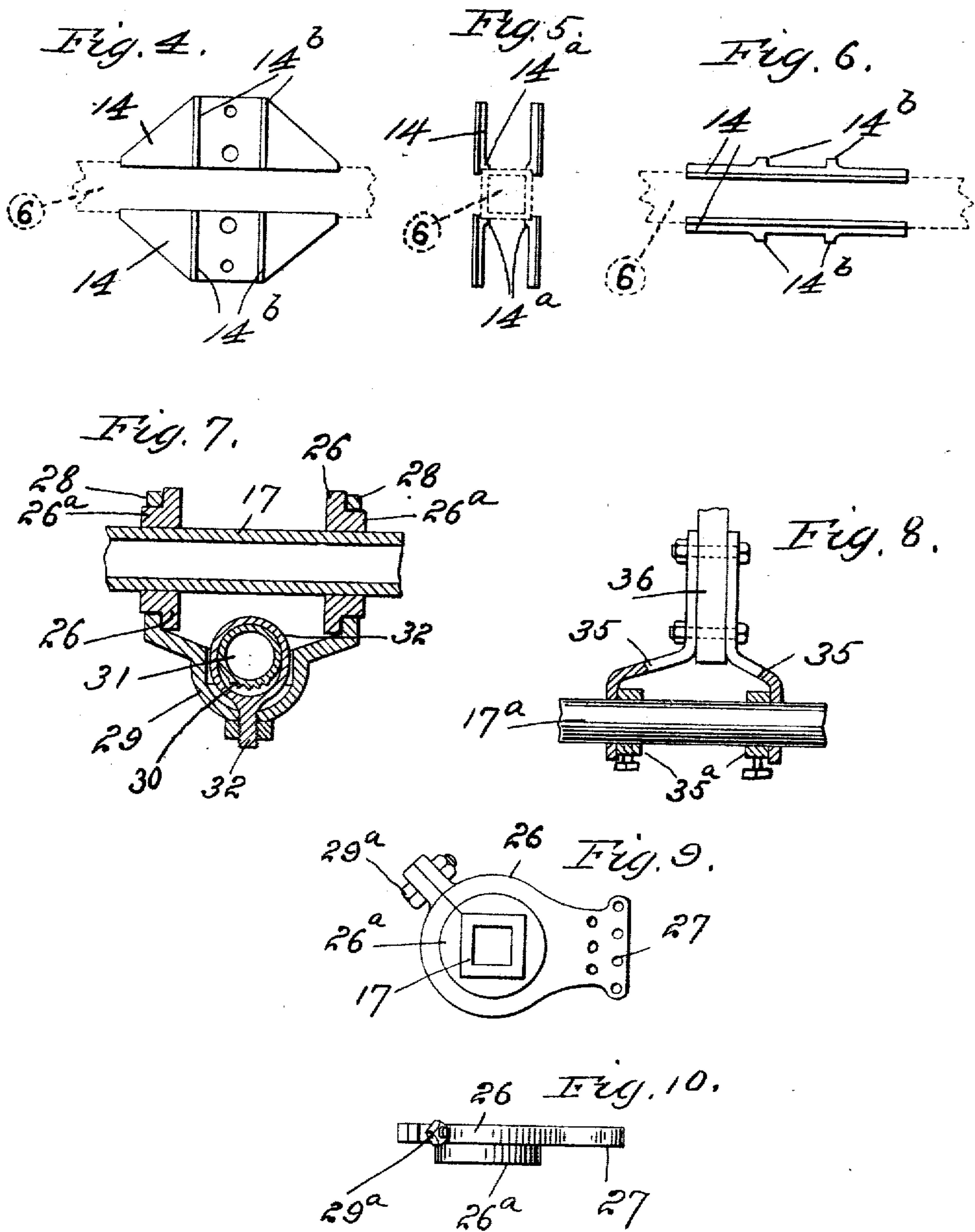
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

NATHANIEL S. BARGER, OF ST. JOSEPH, MISSOURI.

CULTIVATOR.

No. 814,011.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed July 12, 1905. Serial No. 289,375.

To all whom it may concern:

Be it known that I, NATHANIEL S. BARGER, a citizen of the United States, residing at St. Joseph, county of Buchanan, State of Missouri, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a front elevation; Fig. 3, a plan view of one half or section of the cultivator; Fig. 4, a front elevation of one pair of angle-iron brackets; Fig. 5, an end elevation of same; Fig. 6, a top plan of same. Fig. 7 is a vertical section cut longitudinally through center of horizontal arm 17 and through its attached parts; Fig. 8, a longitudinal section cut horizontally through the center of arm 17^a and its attached parts. Fig. 9 is a side elevation of one of the slidable collars mounted on the disk-carrying arm, and Fig. 10 a plan view of the collar shown in Fig. 9.

This invention relates to that class of cultivators adapted for simultaneously cultivating two rows of plants, the draft-animal walking between the rows. The cultivating means are carried by independent frames, which are connected together by a coupler-bar, each of said frames being loosely mounted on said coupler-bar and having a limited lateral movement to permit said frames to be properly adjusted to bring the cultivator means in proper position to operate on the earth about the plant. Each frame is provided at its forward end with transporting-wheels which are adapted to follow the furrows, the draft being connected to said furrow-wheels in such manner that it will require a strong lateral or sidewise strain of said draft in order to cause said wheels to leave the furrows.

One of the many objects of this invention is to improve the construction of this class of cultivators and to render them more efficient in operation.

A further object of the invention is to provide improved means for adjusting the cultivator-disks vertically and laterally and also to provide means for simultaneously adjusting the disks and shovels vertically.

Other objects and advantages of the invention will appear hereinafter.

Referring to the various parts by numerals, 1 designates the coupler-bar, which, as shown in the drawings, consists of a broad

flat wooden beam or plank, which carries on its upper side midway its end the driver's seat 2. This seat is supported by the inclined bar 3 and the vertical tension-rod 4, said bars and rod forming a truss to strengthen the coupler-bar.

The cultivating devices are carried in frames 5, one of which is loosely mounted on each end of the coupler-bar. As these frames and their attached parts are exactly alike, I have shown only one in the drawings, it being of course understood that a similar frame is mounted on the other end of the coupler-bar. In Fig. 2, 5^a designates the inner end of the frame that is mounted on the left-hand end of the coupler-bar. These frames each consist of a front horizontal bar 6, a corresponding rear bar 7, side bars 8, and intermediate bars 9, the bars 8 and 9 being secured at their ends to the front and rear bars. The side bars are bent inward and the intermediate bars are bent outward, as shown in plan in Fig. 3, the central portion of said frames being secured together to form the double longitudinal bars 9^a. The front and rear ends of the intermediate bars lie side by side at the longitudinal center of the frame and are securely bolted to the front and rear bars. The side bars and the intermediate bars are preferably formed of metal bent to the proper form, so that the frame will be light and strong. Secured to the under side of the coupler-bar, near each end thereof and at a point substantially midway between the seat and the end of the bar, is a retaining-bail 10, whose forward and rear bars are parallel with the side edges of the coupler-bar and projected slightly beyond said edges, as shown clearly in Fig. 3. The double longitudinal frame-bars 9^a are connected at their forward and rear ends by means of short transverse bars 11, and to these bars at the transverse center of the frame are secured depending roller-carrying brackets 12 and 13, the brackets 12 carrying a roller 12^a, which engages under the front bar of the bail or keeper, and the bracket 13 carrying a long roller 13^a, which supports the rear end of said bail or keeper. By this means the end of the coupler-bar is supported by the frame, and the frame has a limited movement along said bar, said movement being determined by the length of the front and rear bars of the bail or keeper.

On the forward bar of the frame, near each end thereof, two pairs of angle-iron brackets

14 are adjustably secured—one pair engaging the upper longitudinal edges of said bar, the other pair engaging the lower longitudinal edge thereof. Each angle-iron is provided with a horizontal inward-extending flange 14^a, which engages a horizontal surface of the bar, as shown clearly in Fig. 5, so that each angle-iron embraces one corner of said forward bar. Each iron 14 is also formed with parallel vertical ribs or flanges 14^b, the flanges of one iron being directly in line with the corresponding flanges of the adjoining angle-iron mounted on the same vertical side of the bar. Riveted to these angle-irons or brackets are depending wheel-supporting standards, which consist of two parallel bars 15 and 16. One of these bars is secured to one of the brackets above the forward bar and to one of the brackets below said bar and lies between the ribs 14^b, the other being secured to the two brackets which engage the other vertical side of the forward bar. By means of bolts 14^c, which pass through each pair of brackets, and the bars 15 and 16 above and below the forward bar of the frame the wheel-standards are adjustably secured to said forward bar.

It will be readily seen that by loosening the bolts 14^c, brackets and the wheel-standards may be adjusted along the bar of the frame, to place the wheels carried thereby the proper distance from each other to adapt them to travel in the furrows. At the bottom of each of these standards is rigidly bolted an outward-extending rectangular horizontal bar 17, the inner end of each of said bars extending slightly beyond the inner edge of its standard and carrying at said inner end a tubular socket 18. Rotatably mounted in this socket is a vertical wheel-carrying bar 19, whose lower end is bent outward to form a horizontal spindle 20, on which is mounted the transporting-wheel 21, said wheel being secured on said spindle by means of a clip 22, which is secured in place by a bolt and is provided with an arm which is adapted to engage a collar on the wheel-hub. When it is desired to remove the wheels from the spindles, the clips are raised to disengage their arms from the collars on the hubs of the wheels. Near the upper end of each of the wheel-standards is secured an inward and forward extending bracket 23, through which the upper end of the rotatable bar 19 extends, an adjustable collar 24 being secured to said bar above said socket. To said bar below the socket 18 is secured a collar 25, said collar preventing any independent upward movement of the bar 19. The collars 24 and 25 are secured to the bar 19 by means of set-screws 24^a and 25^a. The outer end of each of the arms 17 is extended vertically a short distance and is then carried back to the wheel-standard to form a horizontal cylindrical beam-carrying bar 17^a, which lies directly above the bar 17, its inner end being

rigidly bolted between the two parts of the wheel-standard. Two collars 26 are mounted on each of the rectangular arms 17, said collars being formed with rectangular openings to fit said arms. These collars are formed with cylindrical reduced portions 26^a on their outer sides and with the rearward-extending lugs 27, said lugs being provided with a series of perforations. These collars are split, and pinch-bolts 29^a secure them rigidly to the bar 17 in their adjusted position. Rotatably mounted on the reduced portion 26^a of these collars are the arms 28 of a stirrup 29, said stirrup connecting the arms 28 below the arm 17. The arms 28 are formed with rearward-extending lugs 28^a, which are provided with perforations adapted to register with corresponding perforations in the lugs 27. The stirrup 29 is formed with a concave portion 30, which is serrated and is adapted to receive the serrated forward end of the tubular rearward-extending disk-carrying arm 31, said arm being secured in the stirrup by means of an eyebolt 32, which passes down through the stirrup and encircles the disk-arm. By means of the registering openings formed in the lugs 27 and 28^a the inclination of the disk-carrying arm 31 may be varied to cause the cultivator-disks to work at the proper depth in the soil. A cultivator-disk 33 is secured to the rear end of each of the disk-carrying arms 31 by means of a journal-box 34, which may be of any suitable construction.

Pivotaly mounted on each of the beam-carrying arms 17^a are two clips 35, between the rear ends of which is bolted the forward end of the cultivator-beam 36. Clips 35 are adjustably kept in place on arms 17^a by set-screwed collars 35^a. Beam 36 carries at its rear end a shovel 37 of any suitable form. Secured to each of these cultivator-beams, on the outer side thereof, is a clip 38, which is formed with a flange 39, through which projects a rod 40. The lower end of this rod is connected to an eye 41, formed on the upper side of the adjacent arm 31, at the rear end thereof. Surrounding this rod and bearing against the under side of the flange 39 is a coiled spring 42, said spring being held against said flange by means of a collar 43, adjustably secured on said rod. On the rod 40, above the flange 39, is adjustably secured a collar 44. By this means the cultivator-beam and the adjoining disk-carrying arm are yieldably connected together, the spring 42 normally serving to keep them in their relative positions, but permitting them to approach each other when sufficient strain is brought thereon in the proper direction to compress said spring. The cultivator-beams are very much longer than the disk-carrying arms and are bent inward at a point slightly in the rear of the axles of said disks to bring the cultivator-shovels carried at their rear

ends directly in line with the furrow-wheels carried by the forward wheel-standards, as shown clearly in Fig. 3. The cultivator-beams may be moved laterally on the arms 17^a, and the wheel-standards may be laterally adjusted on the front bar of the frame in order to secure the proper relative positions of these parts.

In bearings 44^a, secured to the under side of the frame at the rear end thereof, is mounted a transverse rock-shaft 45. On said shaft directly over each cultivator-beam is secured a downward and forward extending arm 46, which is connected by a link 47 to the cultivator-beam. On said rock-shaft is mounted an upward-extending arm 48, whose upper end is connected by a forward-extending bar 49 to the lower end of an adjusting-lever 50, said lever being pivoted upon a suitable support mounted on the top of the inner longitudinal bar 9^a. This lever is provided with a rack and dog, by means of which it may be secured in any position, the forward end of said lever extending into such a position that it may be conveniently grasped by the operator. By these devices the cultivator-beams and the connected disk-carrying arms may be vertically adjusted to bring them into or out of operative position. It will of course be understood that when the disk-carrying arms are adjusted by means of the registering apertures in the lugs 27 and 28^a said arms are disconnected from the cultivator-beams.

On the rear bar of the frame, at each end thereof, are mounted angle-iron brackets 51, which correspond to the brackets 14, mounted to the front bar of said frame, and to these brackets are secured the depending wheel-standards 52. In the lower ends of these standards are secured the rear-wheel-carrying spindles 53, on which are mounted the rear transporting-wheels 54, said wheels being somewhat larger than the forward transporting-wheels. These rear transporting-wheels are on the outer side of the cultivator-beams and the cultivator-disks and are adapted to travel in the furrows made by said disks. It will therefore be seen that the forward transporting-wheels are arranged to travel in the old furrows, and the rear wheels are to travel in the new furrows made by the cultivator-disks, so that the machine will be self-guiding and each frame will follow the proper furrows and automatically laterally adjust itself in proper relation with the row of plants to be cultivated. The lateral movement of the frames on the coupler-bar is limited, of course, by the keeper or bail 10.

The collars 24 and 25 on the bar 19 are formed with forward-extending lugs, to which are secured the forward and upward extending guide rods or bars 55. Between the upper ends of these guide-rods and separately secured thereto are the circular plates 56, which are adjustably and pivotally secured to the

upper and lower sides of the horizontal transverse draft-beam 57 by bolts 58. The plates 56, and consequently arms 55, are adjustable along the draft-bar 57 by means of a series of perforations in said draft-bar adapted to receive the securing-bolts 58. To the center of the draft-bar and midway between the arm 55 is secured a draft-clip 59. By this arrangement of the draft-connecting devices the strain of the draft-bar 57 will tend to hold the wheels 21 in the furrows, so that any strain or thrust on the wheels tending to deflect them will be resisted to the extent of the forward strain on the draft-bar 57 and also by the connected wheel 21, as both wheels must swing simultaneously.

The frame is braced by the truss-rods 60, which are secured to the lower ends of the forward-wheel standards, then pass over and are secured to the transverse frame-bars 11, their rear ends being connected to the lower ends of the rear-wheel standards. The frame is further braced by means of the rods 61, whose forward ends are secured to the vertical bars which connect the outer ends of the bars 17 and 17^a, the rear ends of these bars being connected to the upper ends of the rear-wheel standards, as shown very clearly in Figs. 1 and 2 of the drawings.

From the foregoing it will be readily seen that I provide a cultivator of a very light but strong construction, wherein the sections carrying the cultivating means may automatically adjust themselves to the furrows along the rows of plants to be cultivated. It will further be seen that while the cultivator-beams and the disk-carrying arms are connected together and are adapted to be simultaneously adjusted by means of the levers 50, the spring 42 will permit the disk-arms to have an upward movement independent of the cultivator-beams to permit the disk to pass over small obstructions without elevating the cultivator-shovel. It will further be seen that the transporting-wheels may be adjusted to travel at the proper distance on each side of the rows of plants to be cultivated.

It will be readily understood that the previously-made furrows along the rows of plants will act as guides for the front furrow-wheels. For the safety of the plants between said furrows and to prevent them being destroyed by the cultivator it is essential that said front wheels shall be guided by the previously-made furrows, and thus follow the rows of plants whether these rows be in a straight or deviating line. It is essential that this furrow-guidance of the front wheels shall not be overcome by any ordinary strain of the draft, and for that reason the pivotal attachment of the draft-beam 57 must not be so far forward of the pivot-bars 19 as to produce too great a leverage in favor of the draft and against the furrow-guidance. It will of

course be understood that it is essential that the guide-rods shall be of sufficient length to hold the forward furrow-wheels in proper position and to prevent them being rotated on their pivots by slight inequalities in the furrows.

What I claim as new, and desire to secure by Letters Patent, is—

1. A cultivator comprising a coupler-bar extending transversely of the cultivator and provided near each of its ends with side bars parallel with the front and rear edges of said coupler-bar, a frame loosely engaging each pair of side bars and supporting the coupler-bar, whereby the coupler-bar and said frames will be in loose sliding engagement with each other, said connecting means being located at the longitudinal center of each frame, forward furrow-wheels carried by said frame on each side of the longitudinal center thereof, rear transporting-wheels carried by said frames, cultivator-disks carried by said frames between the forward and rear transporting-wheels, cultivator-beams secured to said frames and carrying cultivator-shovels at their rear ends in the rear of the transporting-wheels, and means for simultaneously vertically adjusting the cultivator-disks and the cultivator-beams.

2. A cultivator comprising a transverse coupler-bar, a plurality of cultivator-sections, means for slidingly supporting said coupler-bar on said sections whereby said bar and said sections may have a lateral movement independently of each other, transporting-wheels carried by each of said sections, disk-carrying bars and cultivator-beams carried by each section, means connecting said beams and disk-carrying bars together whereby they may be simultaneously vertically adjusted, and yieldable devices between the cultivator-beams and the disk-carrying bars whereby the said bars may have a vertical movement independent of the cultivator-beams.

3. A frame for a cultivator of the class described, comprising front and rear bars, side bars and intermediate bars, the side bars being bent inward and the intermediate bars being bent outward, these bars being brought together to form double longitudinal bars, transporting-wheels, and cultivating means carried by said frame.

4. A cultivator comprising a coupler-bar, a plurality of cultivator-frames, means for slidingly connecting the coupler-bar to said frames, said connecting means being at the longitudinal center of said frames, each of said frames consisting of the forward and rear bars, side bars, and intermediate bars, said side bars being bent inward, and said intermediate bars being bent outward, adjoining side bars and intermediate bars being brought together to form the double longitudinal bar, transporting-wheels, cultivating

means carried by each of said frames, and draft devices connected to the forward end of each frame.

5. A cultivator comprising a coupler-bar a plurality of frames slidingly connected thereto, said frames supporting said coupler-bar, each of said frames carrying front and rear bars, a pair of wheel-standards adjustably connected to each of said bars, transporting-wheels mounted in said standards, a horizontal outward-extending arm secured to each of the forward-wheel standards, a disk-carrying bar mounted on said horizontal arm, a cultivator-disk carried by each of said bars, an outward-extending beam-carrying arm connected to each of the forward-wheel standards, a cultivator-beam mounted upon each of said beam-carrying arms, and means for vertically adjusting the cultivator-beams and disk-carrying bars.

6. A cultivator comprising a transverse coupler-bar, a plurality of coupler-frames, means for forming a loose sliding connection between said frames and said coupler-bar, transporting-wheels carried by said frames, a pair of horizontal arms carried by each frame, said arms extending in opposite direction and being angular in cross-section, a pair of laterally-movable collars on each of said arms, said collars being held against rotation, a stirrup carried by each of said arms and rotatably mounted on the collars thereof, a disk-bar carried by said stirrup, cultivator-disk carried by each of said disk-carrying bars, a pair of horizontal beam-carrying arms carried by each of said frames above and parallel with the angular arms, a cultivator-beam pivotally and slidably mounted on each of said beam-carrying arms, means for yieldably connecting adjoining cultivator-beams and disk-carrying bars, and means for vertically adjusting the cultivator-beams.

7. A cultivator comprising a coupler-bar, a plurality of cultivator-frames slidably connected thereto, said frames supporting said coupler-bar, a pair of wheel-standards connected to the forward portion of each of said frames, a horizontal laterally-extending arm carried by each of said wheel-standards, said arms being angular in cross-section and extending in opposite directions, a pair of collars mounted on each of said angular arms, a stirrup rotatable on each of said pairs of collars, a disk-carrying bar secured in each stirrup between the collars, a horizontal beam-carrying arm connected to each forward-wheel standard above the angular bar and parallel therewith, a cultivator-beam pivotally mounted on each of said beam-carrying arms, means for yieldably connecting adjoining cultivator-beams and disk-carrying bars, and means for vertically adjusting the cultivator-beams.

8. A cultivator comprising a pair of supporting-frames, a transverse coupler-bar sup-

ported by and loosely connecting said frames whereby said frames may have a limited lateral movement independently of each other, a pair of forward furrow-wheels carried by
 5 each frame, vertical pivotal supports for said wheels between each pair of wheels, laterally-adjustable supports carried by said frames and in which the pivotal supports of said wheels are mounted, cultivator means carried
 10 by said supports, forward-extending guide-rods connected to the pivotal supports of the furrow-wheels, a transverse draft-beam connected to the forward ends of each pair of guide-rods, means for connecting the
 15 draft to said draft-beam midway between each pair of guide-rods, rear supporting-wheels.

9. A cultivator comprising a pair of supporting-frames, a transverse coupler-bar,
 20 means for loosely connecting the coupler-bar to the frame whereby the frames may have a lateral movement independently of each other, a pair of wheel-supports secured to the front of each frame, a pair of forward furrow-
 25 wheels carried by said supports, a pair of horizontal outward-extending bars carried by each of said wheel-supports, a laterally-adjustable disk-carrying arm carried by one of the bars of each pair, a laterally-adjustable
 30 cultivator-beam carried by the other bar of each pair, and rear supporting-wheels carried by each frame.

10. A cultivator comprising a supporting-frame, a pair of forward-wheel supports
 35 mounted in said frame, a pair of forward furrow-wheels mounted in said supports, an outward-extending rectangular arm carried by each of said supports, a pair of laterally-adjustable collars carried by each of said
 40 arms, a disk-carrying arm pivotally mounted on each pair of collars, means for vertically adjusting said disk-carrying arm, and rear supporting-wheels carried by said frame.

11. A cultivator comprising a supporting-
 45 frame, a pair of forward-wheel supports mounted in said frame, a pair of forward furrow-wheels mounted in said supports, an outward-extending rectangular arm carried by each of said supports, a pair of laterally-ad-
 50 justable collars carried by each of said arms, a disk-carrying arm pivotally mounted on each pair of collars, means for vertically adjusting said disk-carrying arm, an outward-extending horizontal cylindrical bar carried
 55 by each wheel-support above the rectangular bar, a laterally-adjustable cultivator-beam mounted on each of said cylindrical bars, means for vertically adjusting said cultiva-

tor-beams, and rear supporting-wheels carried by said frame. 60

12. A cultivator comprising a supporting-frame, a pair of wheel-supports at the forward end of said frame, flanged plates secured to the upper ends of said supports and adapted to embrace the forward bar of said
 65 frame, said flange-plates engaging the upper and lower surfaces of said bar, clamping means securing said plates to the wheel-supports and adjustably clamping said plates to
 70 said bar, a pair of forward furrow-wheels, a vertical pivot for each of said wheels carried by each wheel-support on the inner side thereof, the lower ends of said pivots extending outwardly to receive the wheels, an outward-extending substantially horizontal bar
 75 carried by each of said wheel-supports, cultivator means carried by each of said bars, forward-extending guide-rods connected to the pivotal supports of the wheel, said guide-rods lying parallel with the vertical plane of
 80 the furrow-wheels, a transverse draft-bar connected to the forward ends of said guide-rods, and means for connecting the draft to this draft-bar midway between the guiding-rods whereby the draft will be attached
 85 wholly to the draft-bar and the strain of the draft will hold the furrow-wheels parallel with the line of draft.

13. A cultivator comprising a supporting-frame, a pair of wheel-supports at the forward end of said frame, a pair of forward furrow-wheels, a vertical pivot for each of said
 90 wheels carried by each wheel-support on the inner side thereof, the lower ends of said pivots extending outwardly to receive the wheels, an outward-extending substantially horizontal bar carried by each of said wheel-supports, cultivator means carried by each of said bars, forward-extending guide-rods connected to the pivotal supports of the wheel, said guide-
 95 rods lying parallel with the vertical plane of the furrow-wheels, a transverse draft-bar connected to the forward ends of said guide-rods, and means for connecting the draft to this draft-bar midway between the guiding-
 100 rods whereby the draft will be attached wholly to the draft-bar and the strain of the draft will hold the furrow-wheels parallel with the line of draft. 105

In testimony whereof I hereunto affix my
 signature, in the presence of two witnesses,
 this 6th day of July, 1905. 110

NATHANIEL S. BARGER.

Witnesses:

CHAS. L. WIEHL,

WM. L. HUYETT.