

No. 612,700.

Patented Oct. 18, 1898.

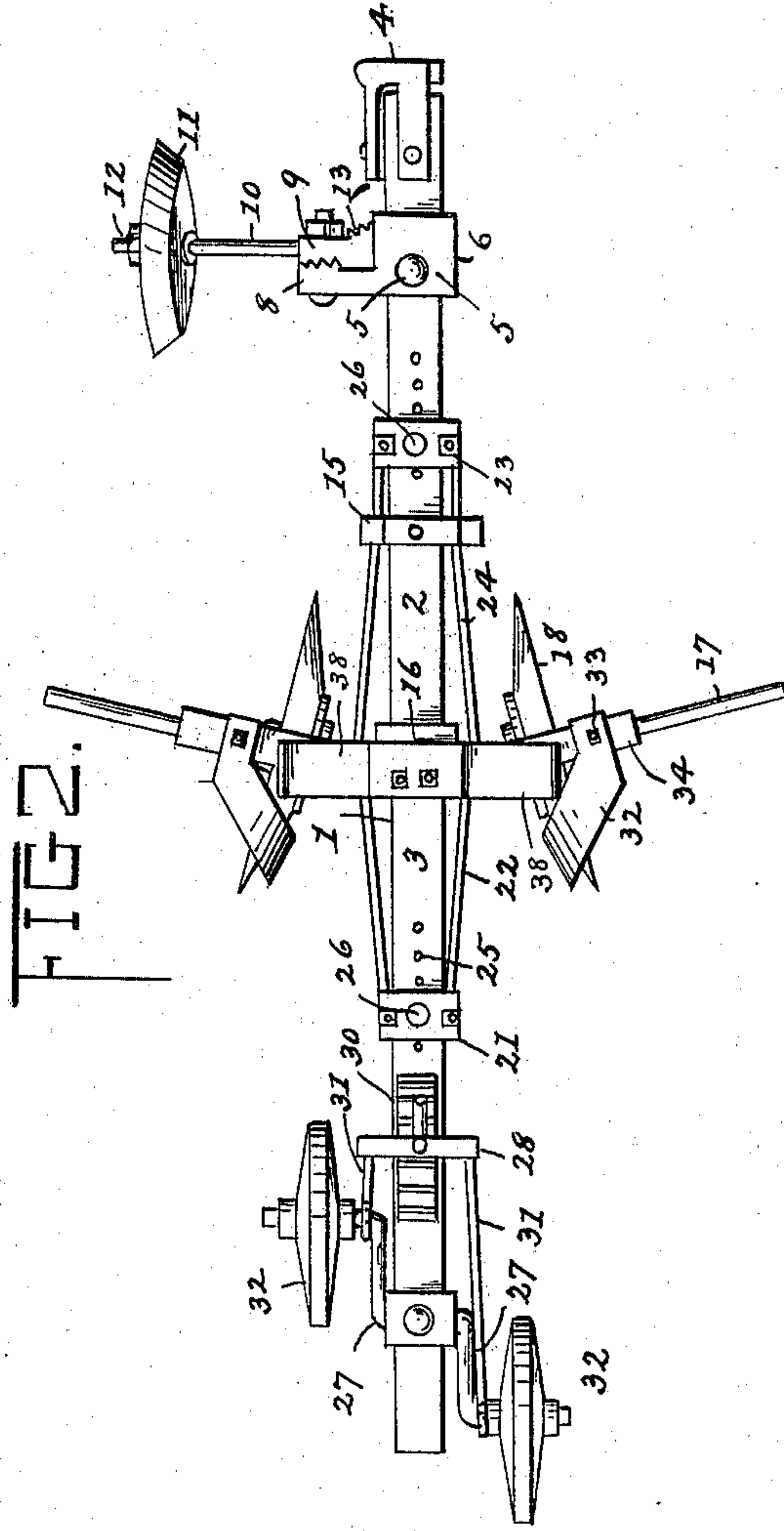
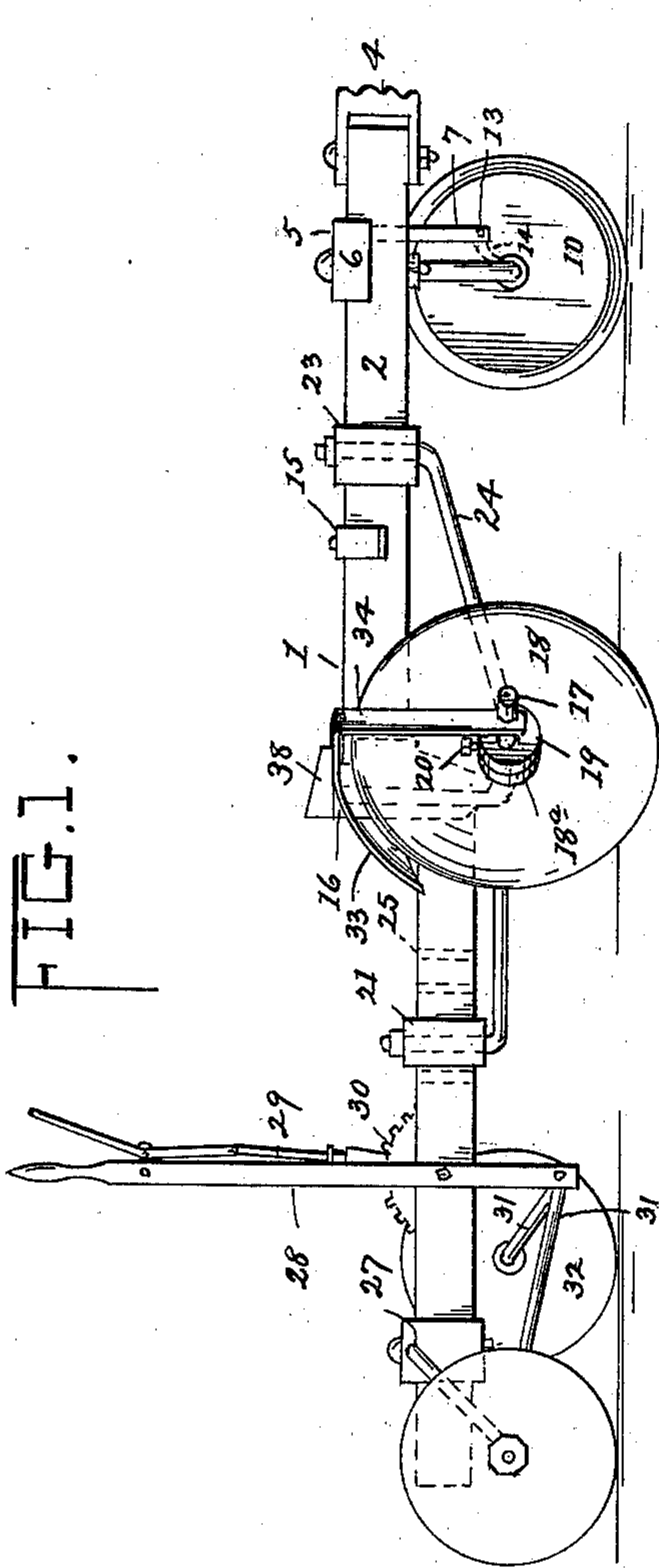
S. CAMPBELL.

DISK PLOW.

(Application filed Nov. 8, 1897.)

(No Model.)

4 Sheets—Sheet 1.



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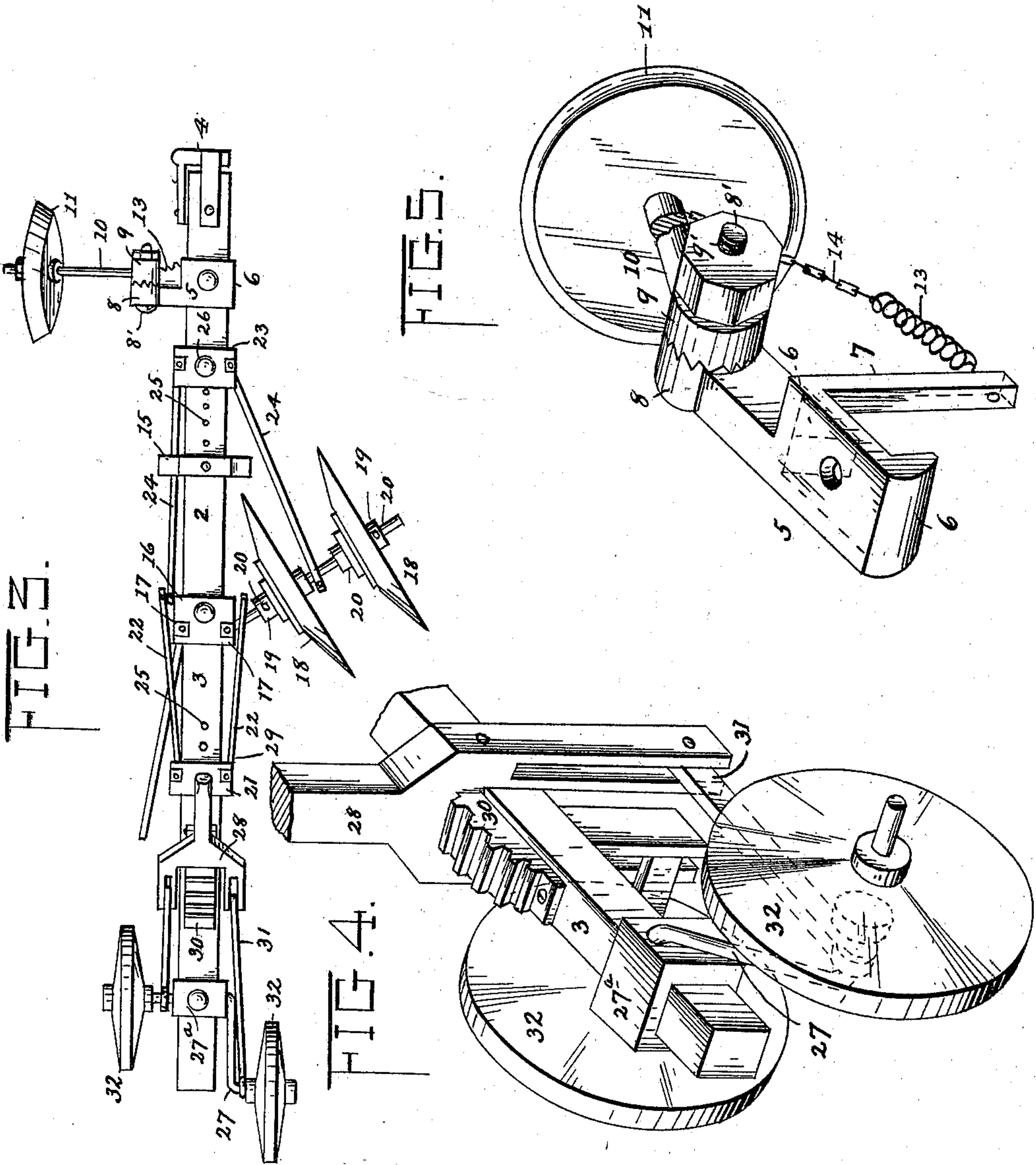
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4 Sheets—Sheet 2.



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FIG. 6.

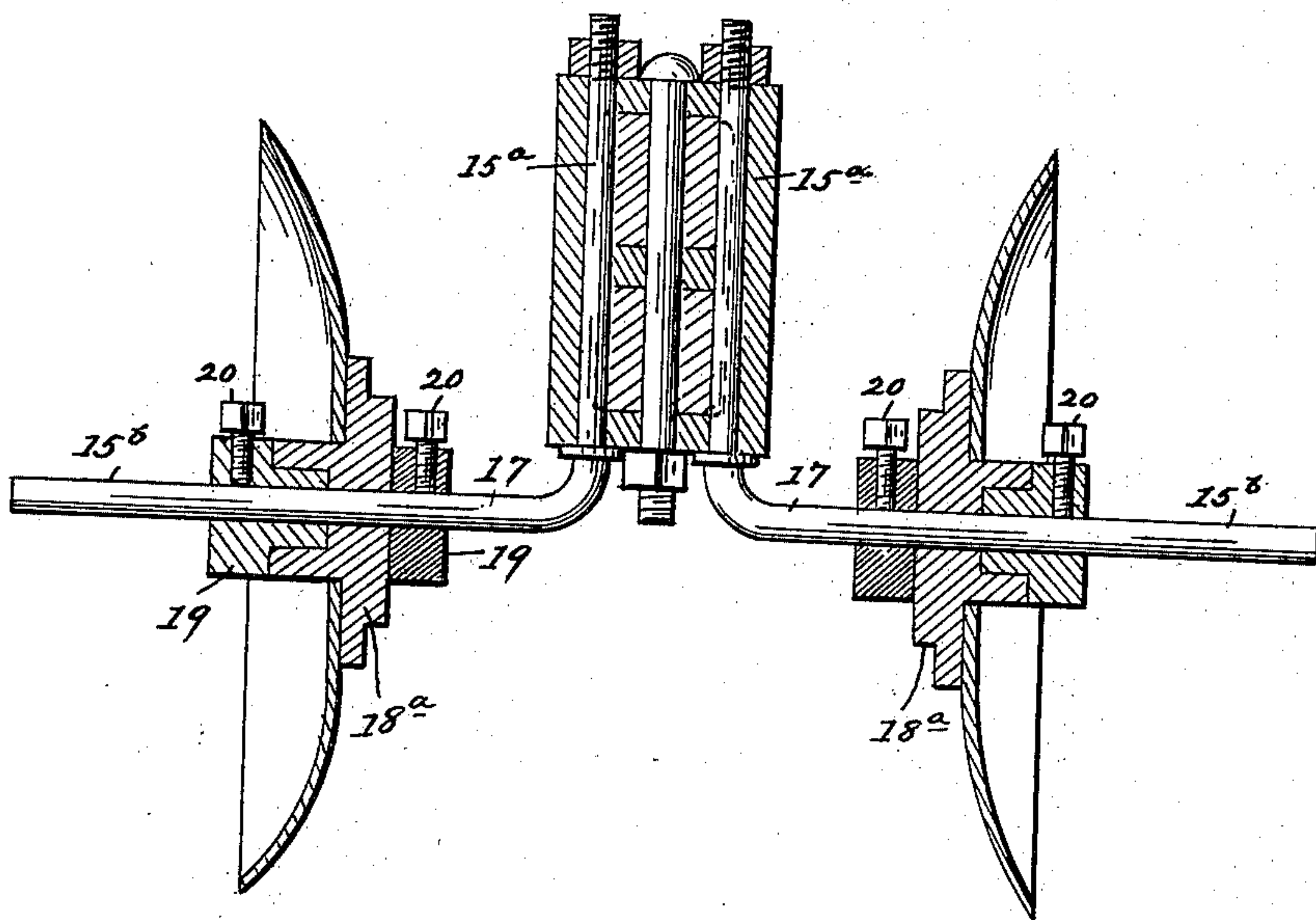
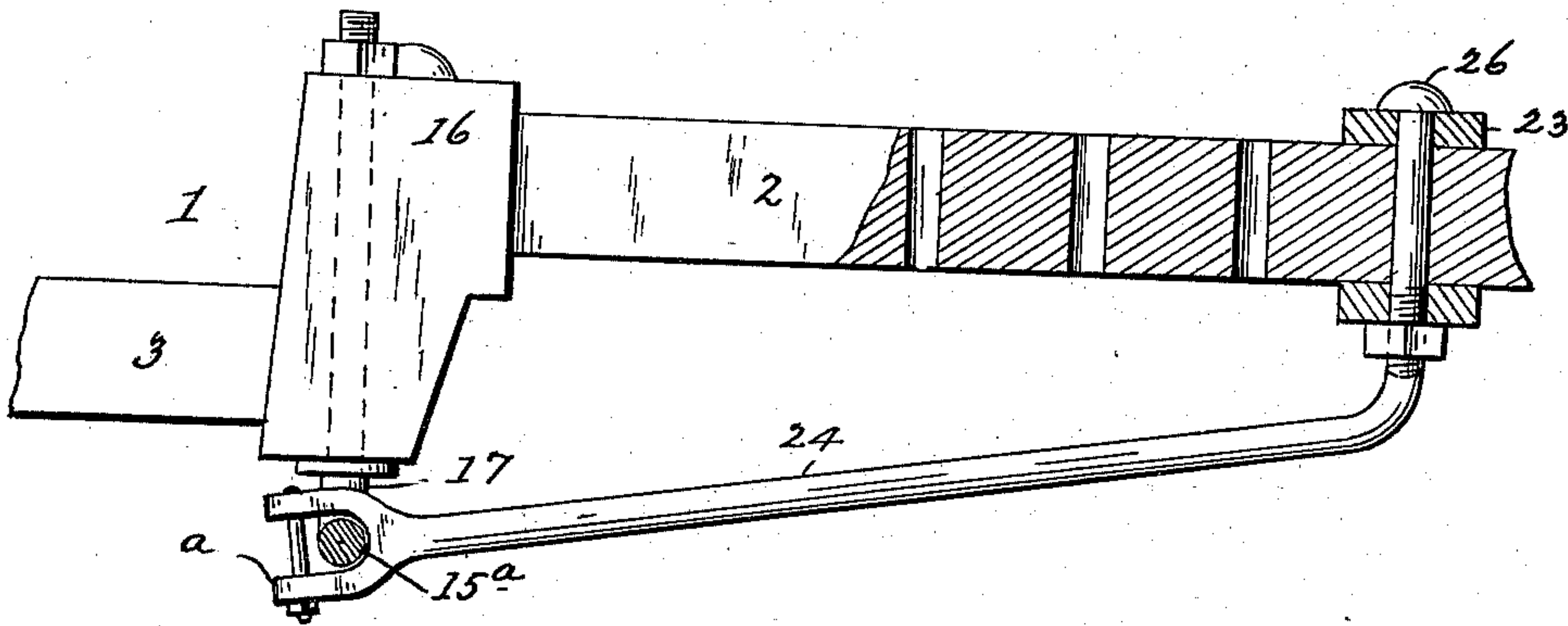


FIG. 7.



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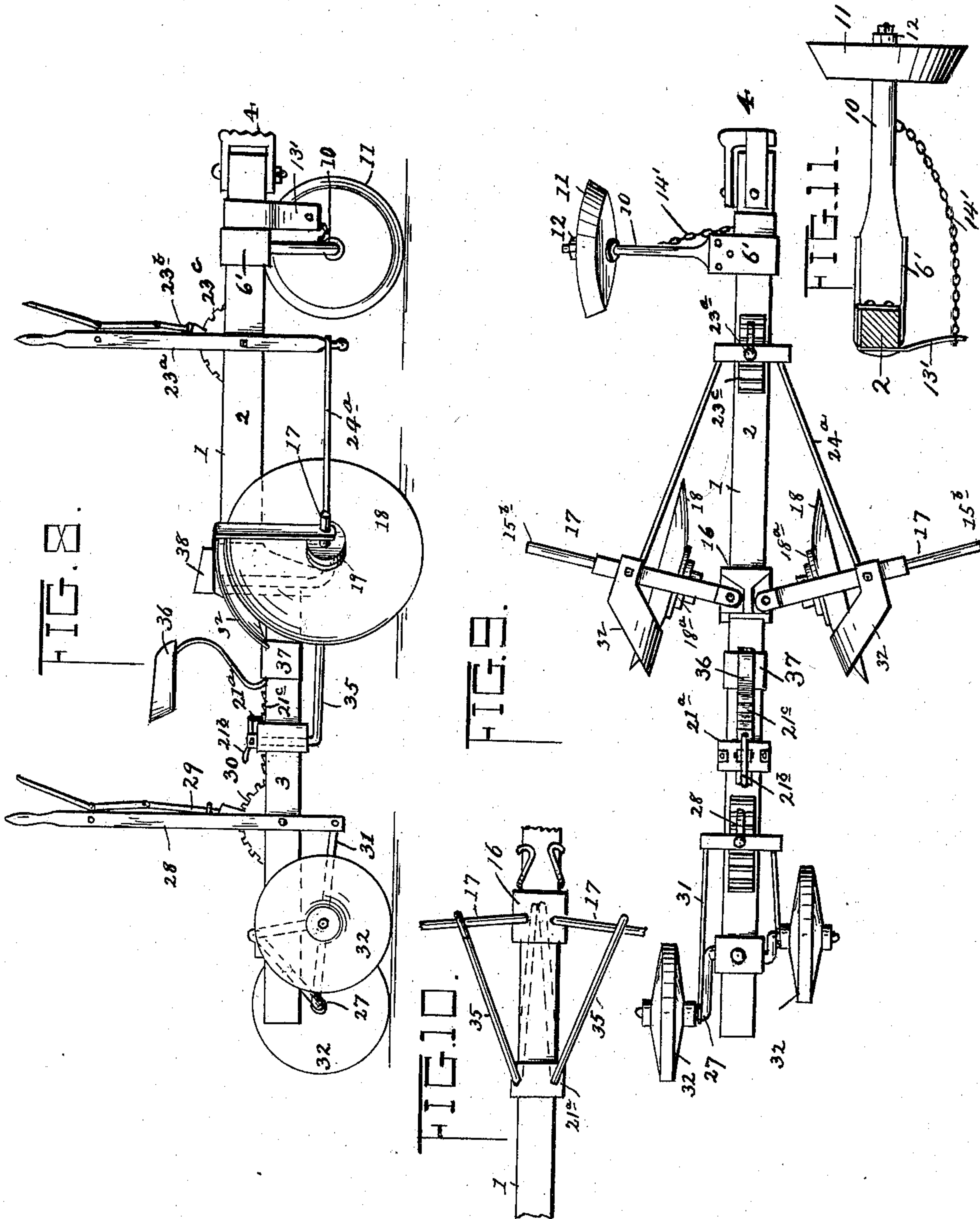
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(No Model.)

4. Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

SINGLETON CAMPBELL, OF NEW WAVERLY, TEXAS.

DISK PLOW.

SPECIFICATION forming part of Letters Patent No. 612,700, dated October 18, 1898.

Application filed November 8, 1897. Serial No. 657,851. (No model.)

To all whom it may concern:

Be it known that I, SINGLETON CAMPBELL, a citizen of the United States, residing at New Waverly, in the county of Walker and State of Texas, have invented certain new and useful Improvements in Disk Plows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in disk cultivators; and its object is to provide a novel plow or cultivator of this class which shall have sufficient adaptability for the various varieties of plowing and cultivating, such as flat-breaking, basing and bedding out, listing, bedding in, &c.

To this end the invention consists in certain novel features of construction and combination of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevational view of a cultivator constructed in accordance with my invention; Fig. 2, a top plan view of same. Fig. 3 is a similar view showing a different arrangement of the disk-wheels; Fig. 4, a broken detail perspective view of the rear end of the machine; Fig. 5, a detail perspective view of the guide-wheel and connecting parts. Fig. 6 is a transverse section through the disk-wheels and beam, showing the manner in which they are applied to their respective shafts and the manner of attaching the shafts to the beam. Fig. 7 is a part sectional and part side elevational view of the beam, showing the disk-wheels removed and disclosing the shifting-fork. Fig. 8 is a side elevation disclosing a modification in the construction of the cultivator. Fig. 9 is a top plan view, and Fig. 10 a detail bottom plan view, of same; Fig. 11, a cross-section through the beam and a front view of a modified construction of guide-wheel.

Referring now more particularly to the accompanying drawings, 1 represents a divided beam comprising two portions or sections 2 3, arranged parallel, but in different horizontal planes, as shown, and connected in the manner hereinafter described. This beam is preferably made square in cross-section and is pro-

vided at its front end with a clevis 4, adapted to give varying heights of draft and to permit of side drafts for the purposes hereinafter set forth. A saddle 5 is bolted to the beam immediately in rear of this clevis, and said saddle is formed with lugs 6, adapted to closely engage the sides of the beam, a depending brace-arm 7, and a rigid clutch-collar 8. This clutch-collar 8 is adapted to engage with a similar clutch-collar 9, formed integral with an axle 10, carrying a guide-wheel 11, held thereon by means of a nut 12. The clutch-collars are detachably connected by means of a bolt 8' and nut 9' thereon. A spring 13 is secured to the brace-arm 7 and is in turn attached to a chain 14, connected to the guide-wheel 11 or its axle 10. By this construction it will be plain that the guide-wheel may be adjusted to and rigidly held in any desired position in a plane at right angles to the center of the connecting-bolt. I may, however, provide a lever in place of the clutch device for raising and lowering the guide-wheel and holding the same locked.

The adjoining ends of the beam sections or portions 2 3 are stepped into a fixed casting or clamping-collar 16 and rigidly secured therein by a bolt 15, extending centrally therethrough. The vertical arms 15^a of two approximately L-shaped shafts 17 extend upward through orifices in the casting at opposite sides of the bolt and are secured therein by any suitable means, such as a nut fitted on their upper ends, as shown. One or more disk-wheels 18 are mounted on the horizontal arms 15^b of each of these shafts, as desired, according to the character of work to be done, each wheel being adjustably and revolvably mounted on the arm in the following manner: The wheel-hub 18^a loosely encompasses the arm and is held from sliding by adjustable collars 19, each collar being provided with a set-screw 20 to rigidly clamp it to said arm. The outer one of these collars is preferably formed with a tongue or projection which extends within a bore in the hub and bears against a shoulder therein, the outwardly-extending flange of said hub forming a shield to keep the sand and dirt from interfering with the motion of the wheel and wearing the surface of the collars and hubs. By means of the set-screws 20 these collars and wheels may

be adjusted to any point on the arms and clamped against sliding thereon. This construction also permits of the wheels being reversed—that is to say, released and turned—
 5 so as to bring the concave or convex faces thereof next to the beam at will.

Upon the rear beam-section 3 in rear of the casting 16 is slidably mounted a sleeve or block 21, carrying shifting-levers 22, having
 10 forked ends *a*, engaging the shafts 17, as clearly shown in Fig. 7. Upon the front beam 2 is also slidably mounted a second sleeve or block 23, which carries shifting-levers 24, similar in construction to the levers 22.
 15 These sliding blocks or sleeves are adapted to be adjusted longitudinally on the beam and held in adjusted position by means of bolts 26 engaging therewith and adapted to pass through either one of a series of vertical
 20 openings 25 in the beam-sections, as shown. It is plain that by this means the arms 15^b of the shafts 17 may be shifted to any desired position in an approximately horizontal plane and there securely locked; also that the shafts
 25 17 may be secured by means of the levers to either the front or rear block, thus holding them in either a forward or backward position.

The plow is supported at the rear end by
 30 what may be termed "carrying" and "furrow" wheels 32, mounted on a cranked axle 27, journaled in a fixed bearing-block 27^a. This shaft is adapted to be oscillated by a shifting-lever 28, bifurcated at its lower
 35 end to straddle the beam and provided with a pawl 29 to engage a toothed segment 30 thereon. Pivoted rods or bars 31 connect the arms of the bifurcated portion of the lever with the opposite ends of said axle. By
 40 throwing the lever 28 toward the front of the machine one of the wheels will be raised and the other depressed, and by throwing said lever toward the rear of the machine the reverse action takes place. It will thus be seen
 45 that the wheels may be so adjusted with respect to each other that when one of said wheels is traveling on level ground or on top of a hillock the other will travel in the furrow and the machine will be maintained in
 50 an upright or approximately level position. The rods 31, connecting the axle 27 and lever 28, may be attached either above or below the pivotal point of said lever.

Curved scrapers 32 are provided to rid the
 55 disk-wheels 18 of accumulated soil. These scrapers are detachably connected by means of set-screws or bolts 33 to approximately L-shaped carrier-bars 34, having the inner ends of their horizontal arms pivoted to the block
 60 16 and the lower ends of their vertical arms fitted on the shafts 17. The scrapers thus constructed and applied are adapted to move with the wheels when the latter are adjusted and to be removed in entirety when said
 65 wheels are reversed, as hereinbefore described. Different-shaped scrapers are necessarily employed when the wheels are re-

versed to present their concave or convex faces outward, but the carrier-bars are adapted to receive either kind. 70

From the above description, taken in connection with the accompanying drawings, it will be seen that I have provided an improved cultivator which is adapted for a variety of
 75 uses and possesses important advantages, among which I may name the following: As the cultivator has no carrying or outside wheels to interfere with old beds and stalks, there is nothing to deflect it from line of draft and it will operate evenly astride of or be-
 80 tween rows, and being adjustable in all of its parts is readily adapted to any width of rows. It will execute more different varieties of work than any plow now made, being adapted for flat-breaking to right or left, basing
 85 and bedding out, listing and bedding in, cultivating, &c. This cultivator also renders the use of stalk-cutters unnecessary, as it executes this work perfectly, and, furthermore, is adapted for use by the Southern
 90 farmer in his invariable method of reversing old beds from year to year, for which an ordinary riding-plow cannot be used on account of the interference of the old stalks and beds with the carrying or outside wheels thereof. 95

In operation the cultivator parts are adjusted as follows for performing the different varieties of work set forth: For flat-breaking to the right the brace-wheel is adjusted
 100 on left-hand side of cultivator. Both disk-wheels are placed on right axle with their concave faces outward. The axle is then thrown forward and latched at proper angle. The furrow-wheels are then adjusted to lower
 105 the right-hand furrow-wheel to run in the furrow and raise the left-hand furrow-wheel to run on the unbroken ground, the said right-hand furrow-wheel being placed to travel in the cut of the inside disk. For flat-breaking
 110 to the left this operation is reversed. To reverse beds, remove brace-wheel and spring, place two disks on each axle with concave faces outward and throw axles forward by means of lever and latch at desired angle, ad-
 115 just furrow-wheels to run in the cut of their inside disks, respectively, and drive astride of a row and it will be turned right and left into the adjoining middles. To bed in between rows or on broken or unbroken sur-
 120 faces, release parts from forward position, remove and reverse blades, fronting beam with their concave faces and throw axles to the rear and latch at desired angles, reinforce them in this position by means of the stay-
 125 rods connected to the slide 21^a, and adjust furrow-wheels to run in the cuts of their outside blades, respectively, and the earth will be drawn in and the bed completed as the plow goes. One or more blades may be employed
 130 on each axle in each of the processes described to accommodate the plow to the capacity of the horse-power at command.

In the modification shown in Figs. 8, 9, and 10 the sliding collar or block 23 is dispensed

with and a bifurcated lever 23^a, having a pawl 23^b, adapted to engage a segment-rack 23^c on the beam, is provided in lieu thereof to adjust the disk-axes 17 through the medium of the connecting-rods 24^a. In addition reinforcing-rods 35 are provided to brace the said axles when the disk-wheels are thrown to the rear. These rods are pivoted at one end to the adjustable collar or box 21^a and are formed at their free ends with hooks or eyes to engage the horizontal arms of the shaft 17. When out of use, the reinforcing-rods lie parallel with each other beneath the beam, as shown in Fig. 10. The collar 21^a is provided with a pivoted thumb-latch 21^b, adapted to engage a rack-plate 21^c on the beam to hold said collar stationary.

In the modification shown in Figs. 8, 9, and 10 and in detail in Fig. 11 the axle 10 of the guide-wheel 11 is swiveled to a reduced portion of the beams 2 by a U-coupling 6', and a chain 14' directly connects said axle to a plate-spring 13', rigidly secured to said beam. A seat 36 is clamped to the beam-section 3 by a block 37, and a foot-rest 38 is mounted upon the casting 16. This foot-rest is not shown in Fig. 9, but appears in the other figures.

I desire it understood that I do not limit my invention to the specific construction and arrangement of parts herein shown and described, but reserve to myself the right to make such changes and modifications as fairly fall within the spirit and scope of my invention.

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

1. In a disk plow, the combination, with a divided beam, of a crank-axle on the rear of the beam, an adjustable guide-wheel at the front of the beam, furrow-wheels mounted on said crank-axle, an adjusting-lever pivoted to said beam and provided with a latch, rods connecting the lever and axle, disk-carrying shafts pivoted to the beam to swing in a horizontal plane, disk-wheels mounted on said shaft, and means for adjusting the disk-shafts, substantially as and for the purpose described.

2. In a disk plow, the combination with a divided beam comprising two sections or portions lying in different horizontal planes and provided with a clevis at one end thereof, of a guide-wheel carried by said beam, shafts having laterally-extending arms pivotally mounted on said beam, an adjusting device, and rods connecting said arms with said adjusting device and adapted by the movement of the adjusting device to vary the angles of the arms.

3. In a disk plow, the combination with a beam having a series of openings, of shafts pivoted thereto and having laterally-extending arms adapted to swing horizontally, disks rotatably mounted upon said arms, adjusting-collars for said disks, blocks slidably mounted upon said beam, stay-rods connecting said

blocks and shaft-arms, locking-bolts extending through said blocks and through one of the said series of openings in said beam, a cranked axle also mounted on said beam, a pivoted adjusting-lever, furrow-wheels mounted on said cranked axle, and rods connecting said lever and cranked axle, substantially as described.

4. In a disk plow, the combination with a beam having a series of openings and provided with a clevis at the end thereof, of shafts pivoted to said beam and having laterally-extending arms adapted to swing horizontally, disks rotatably mounted upon said arms, adjusting-collars for said disks, blocks slidably mounted upon said beam, rods connecting said blocks and arms and adapted when the blocks are moved to shift said shaft-arms, locking-bolts extending through said blocks and openings in said beam, a cranked axle also mounted on the beam, a pivoted adjusting-lever, rods connecting said lever and cranked axle, a saddle on the front end of the beam provided with a depending arm, a guide-wheel pivotally connected thereto, and a spring connected to said saddle-arm for controlling the guide-wheel.

5. In a disk plow, the combination, with a beam, of a saddle mounted thereon and provided with a depending arm, and a clutch-collar, a shaft formed with a clutch-collar adapted to engage that on the saddle, a guide-wheel mounted on said shaft, and a spring connecting the said shaft and depending arm.

6. In plows, the combination of a divided beam comprising two portions or sections arranged parallel but in different horizontal planes, a clamping-collar or casting connecting the adjoining ends of said beam-sections, a pair of L-shaped shafts each having a vertical arm extending up through and pivotally mounted in said collar and a horizontal arm extending laterally of the beam, a disk-wheel rotatably mounted on said horizontal arm, and an adjusting device connected with the horizontal arm of each shaft to swing the same in a horizontal plane, substantially as described.

7. In plows, the combination of a beam, a pair of shafts pivotally mounted on said beam and having lateral wheel-carrying arms adapted to swing in a horizontal plane, a disk-wheel mounted on said arms, an L-shaped carrier-bar having a horizontal arm pivoted to the beam and a vertical arm fitted on the arm of the shaft, a curved scraper secured to said carrier-bar, and an adjusting device connected with the lateral arm of the shaft to swing the same, substantially as described.

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

SINGLETON CAMPBELL.

Witnesses:

J. R. TRAYLOR,
BENJAMIN STRANGE.