

(No Model.)

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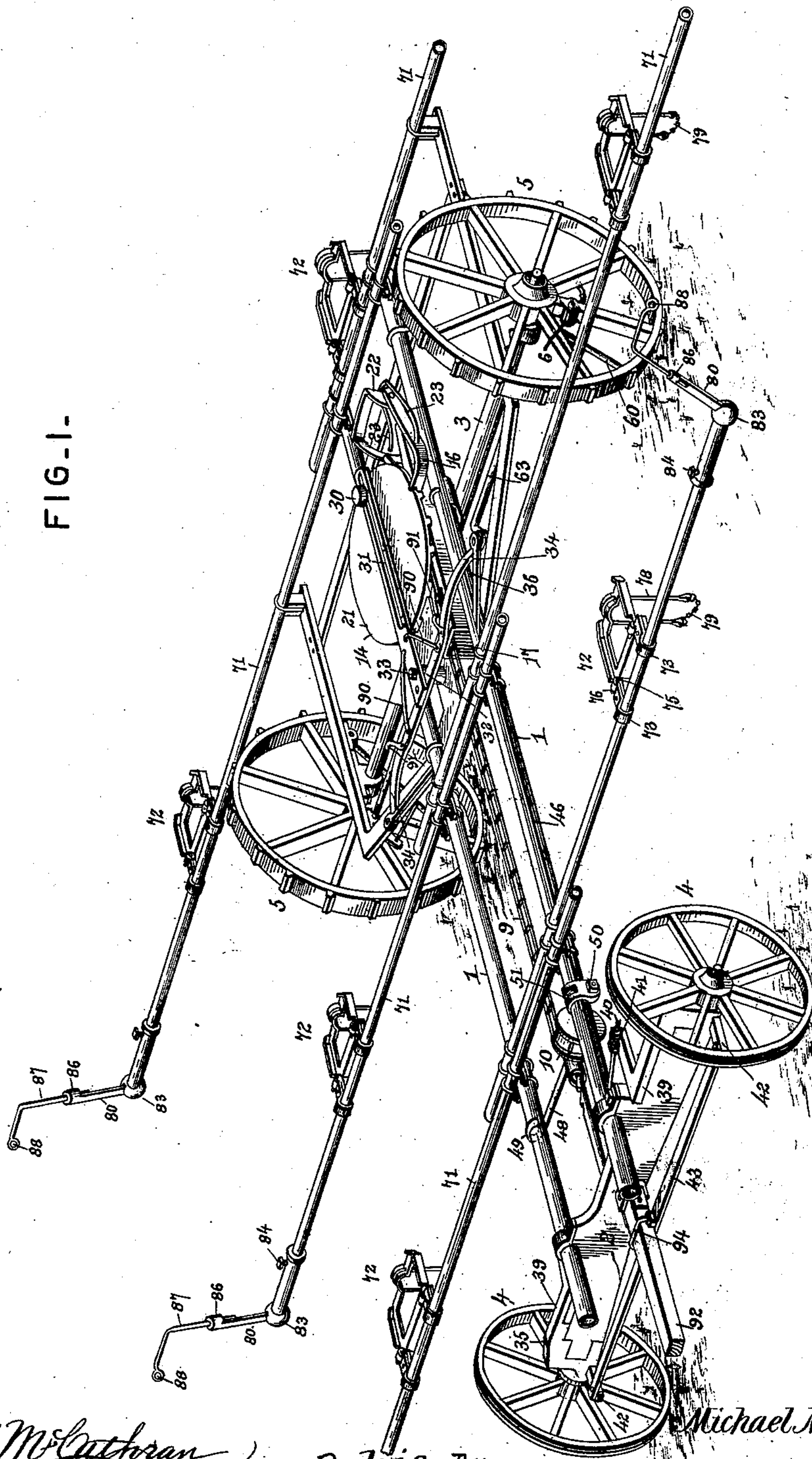
M. M. FAIRMAN.

APPARATUS FOR HANDLING STOCK IN HERDS.

No. 506,680.

Patented Oct. 17, 1893.

FIG. 1-



Witnesses

Inventor

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FIG. 2.

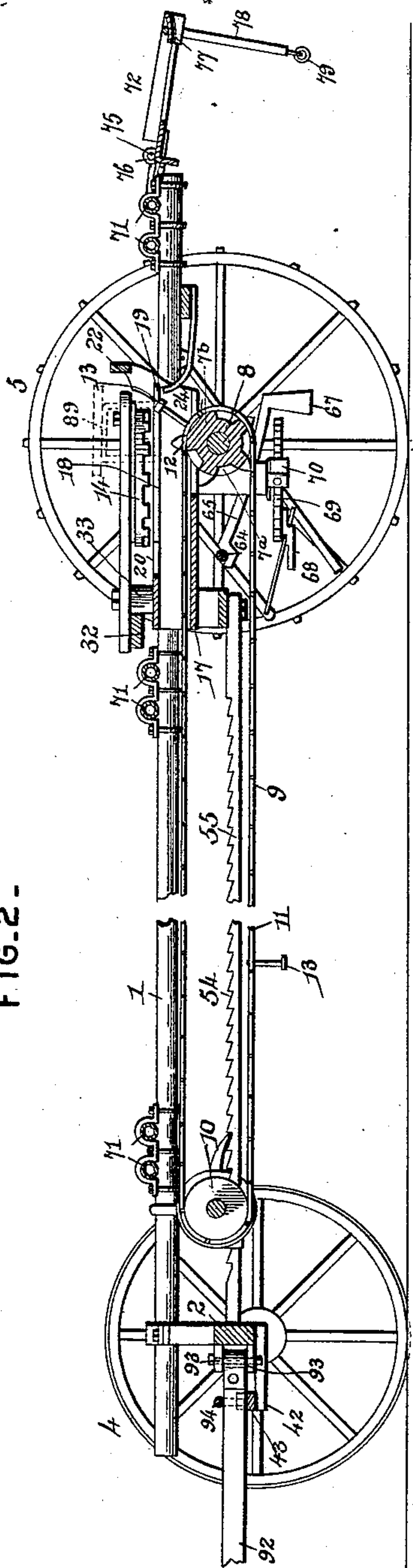
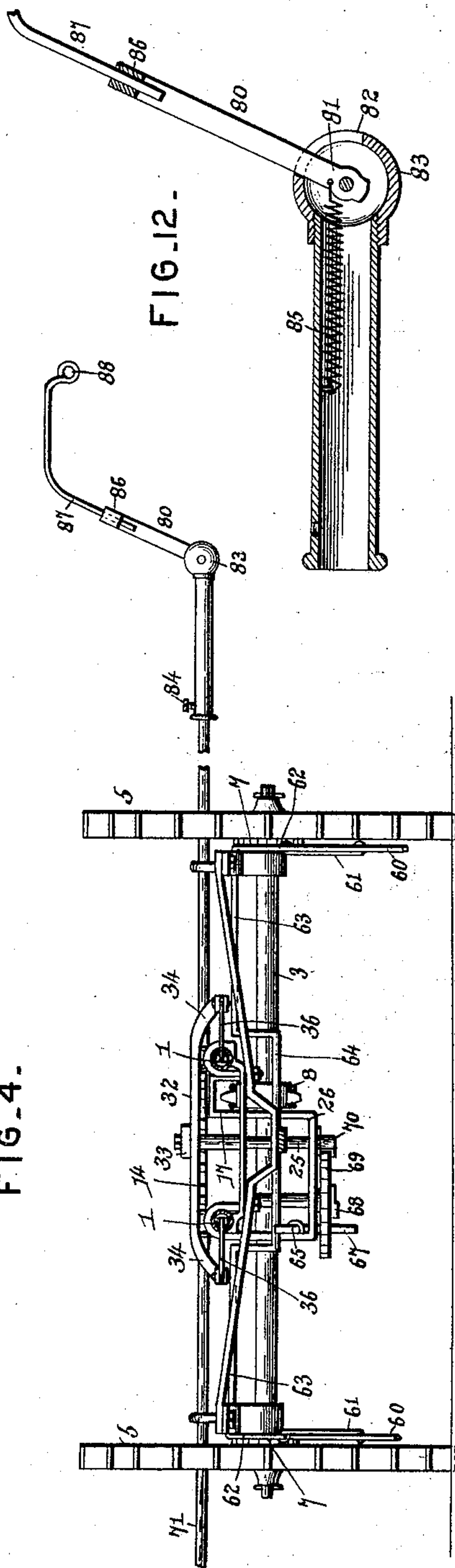


FIG. 4.



Witnesses

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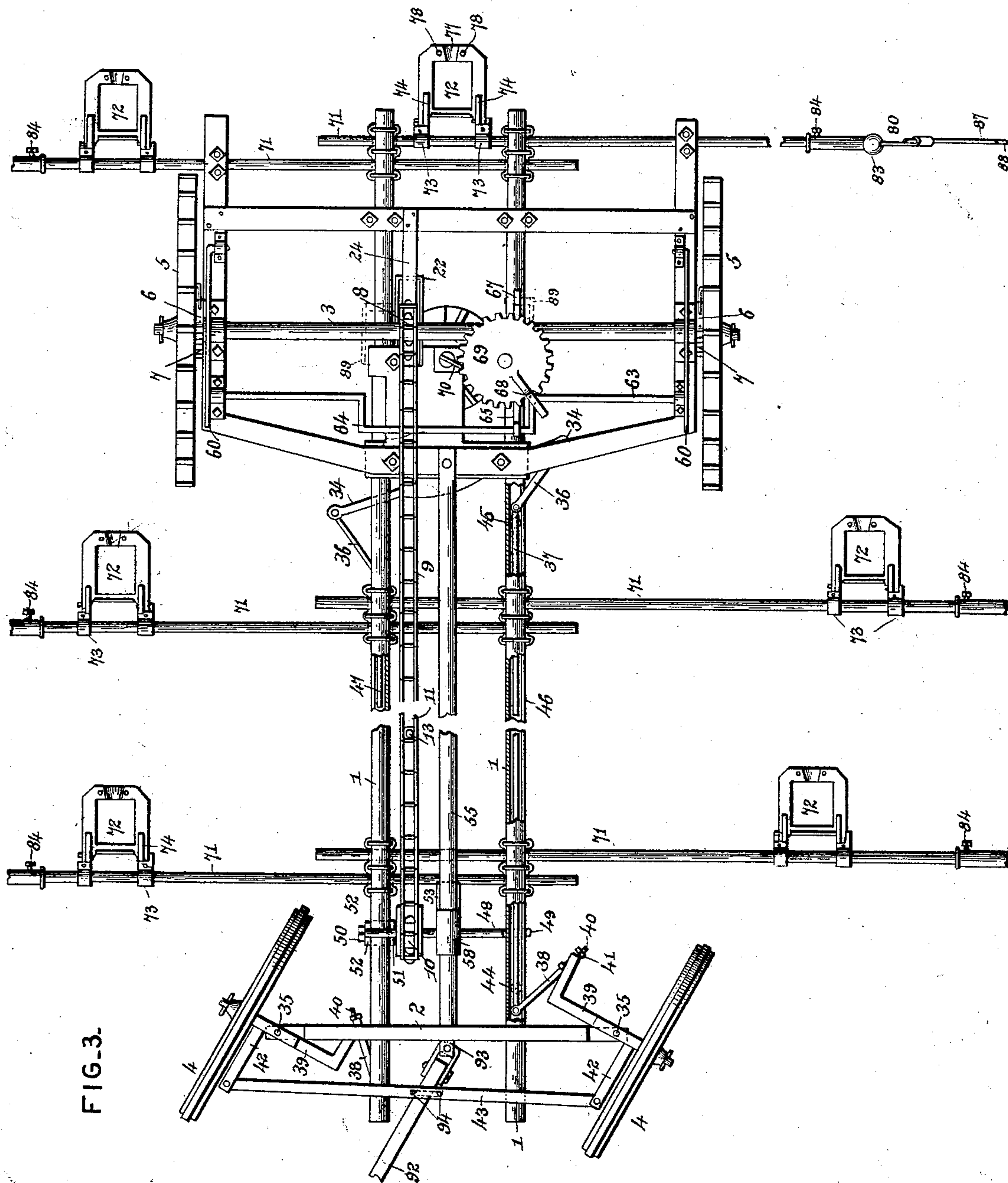


FIG. 3.

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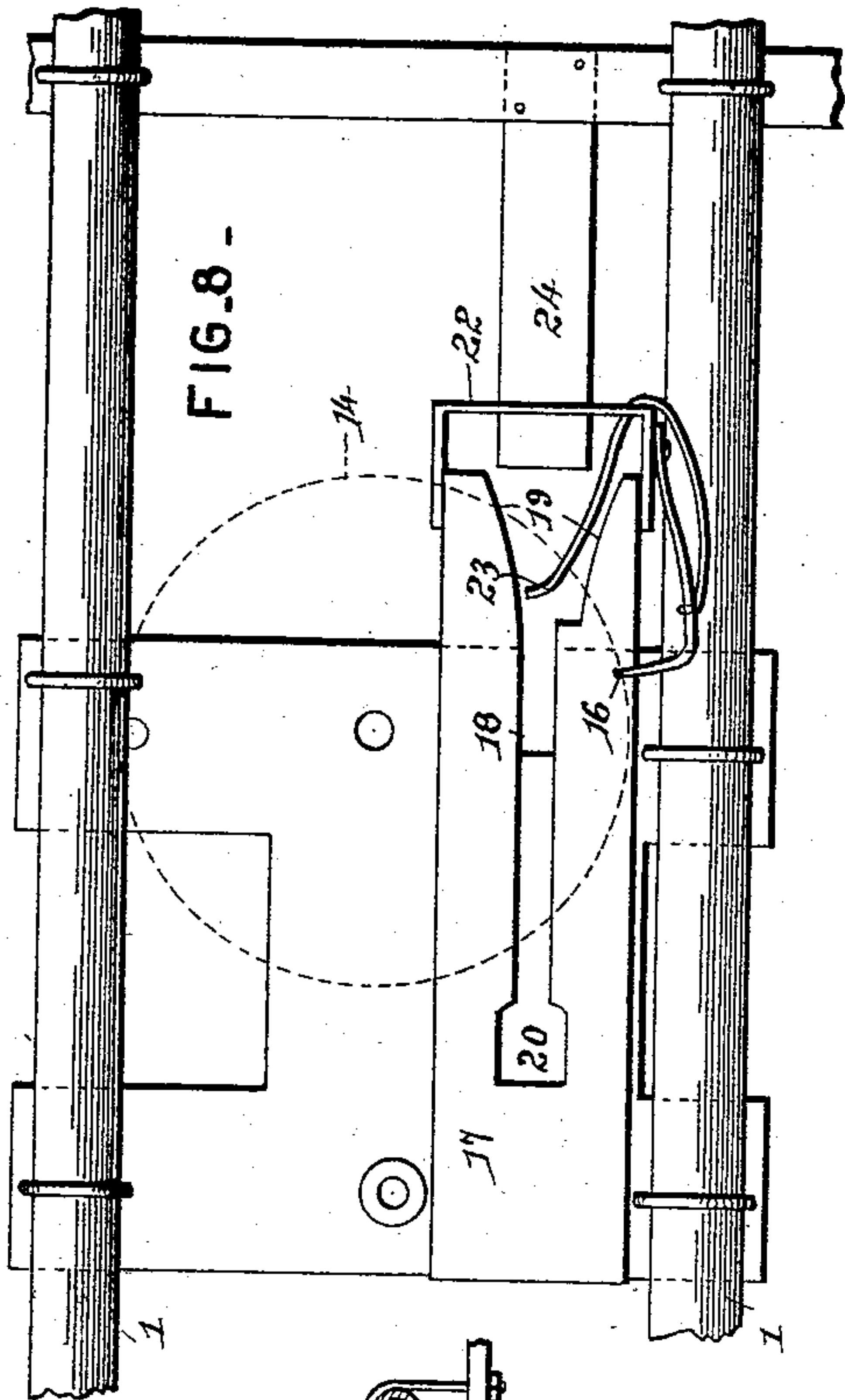


FIG. 14.

Witnesses

Jas. K. McCaffran
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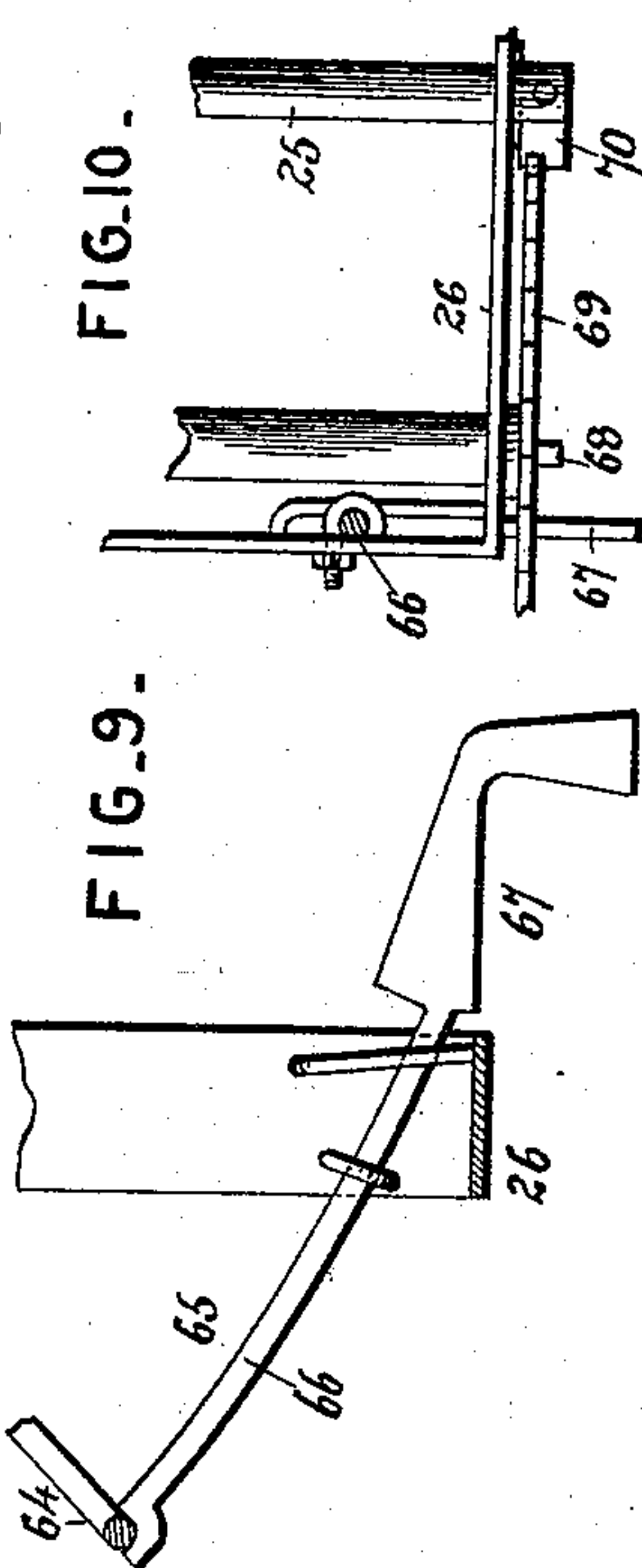


FIG. 9.

FIG. 10.

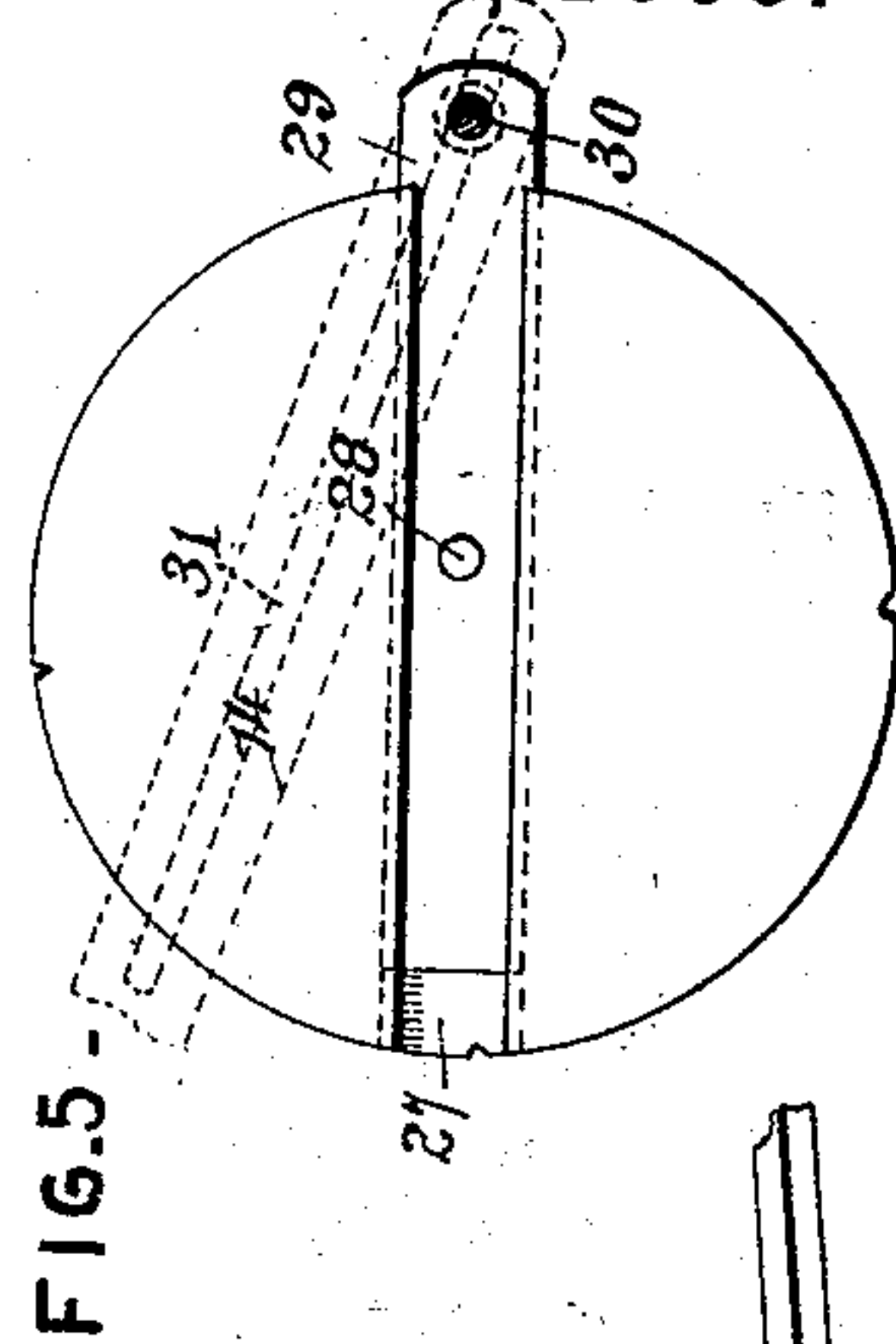


FIG. 5.

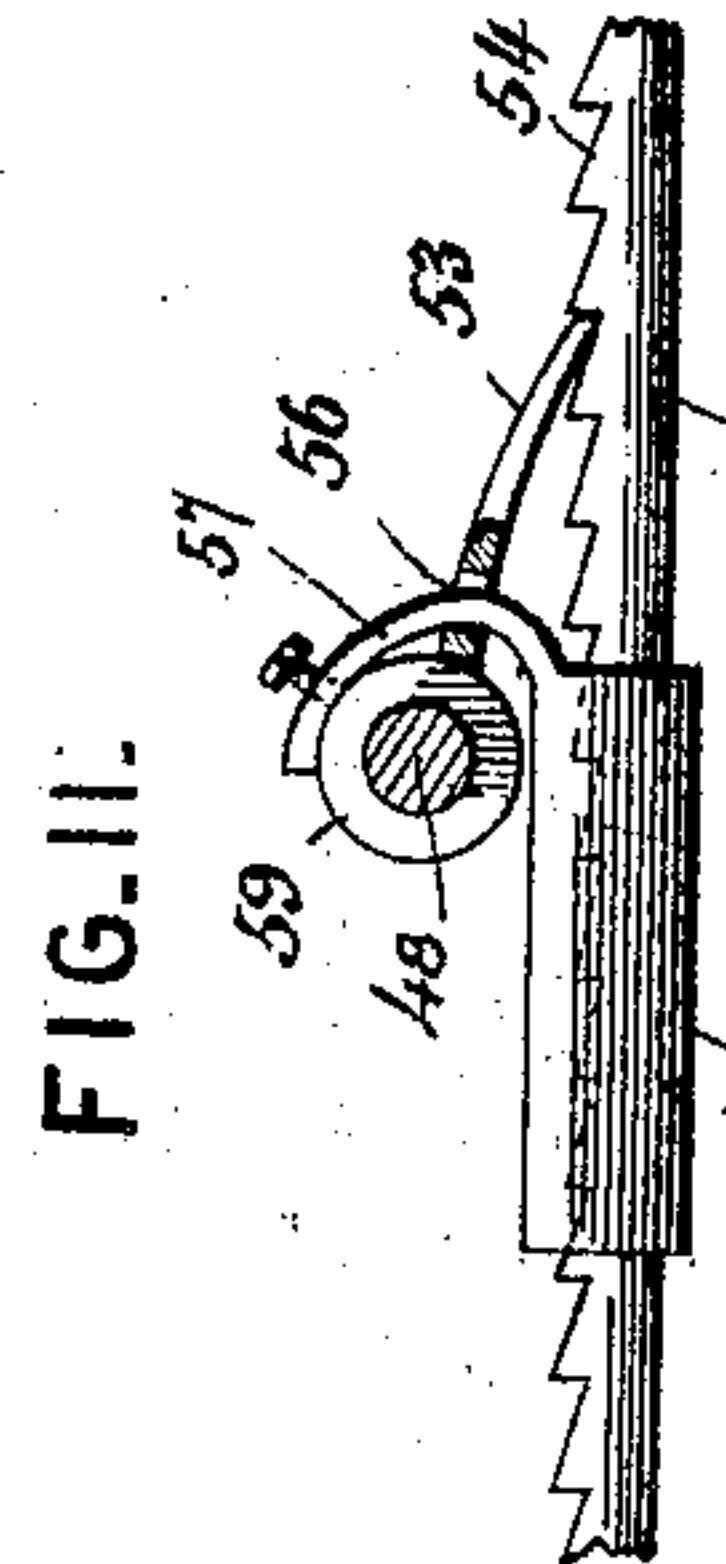


FIG. 11.

FIG. 13.



FIG. 6.

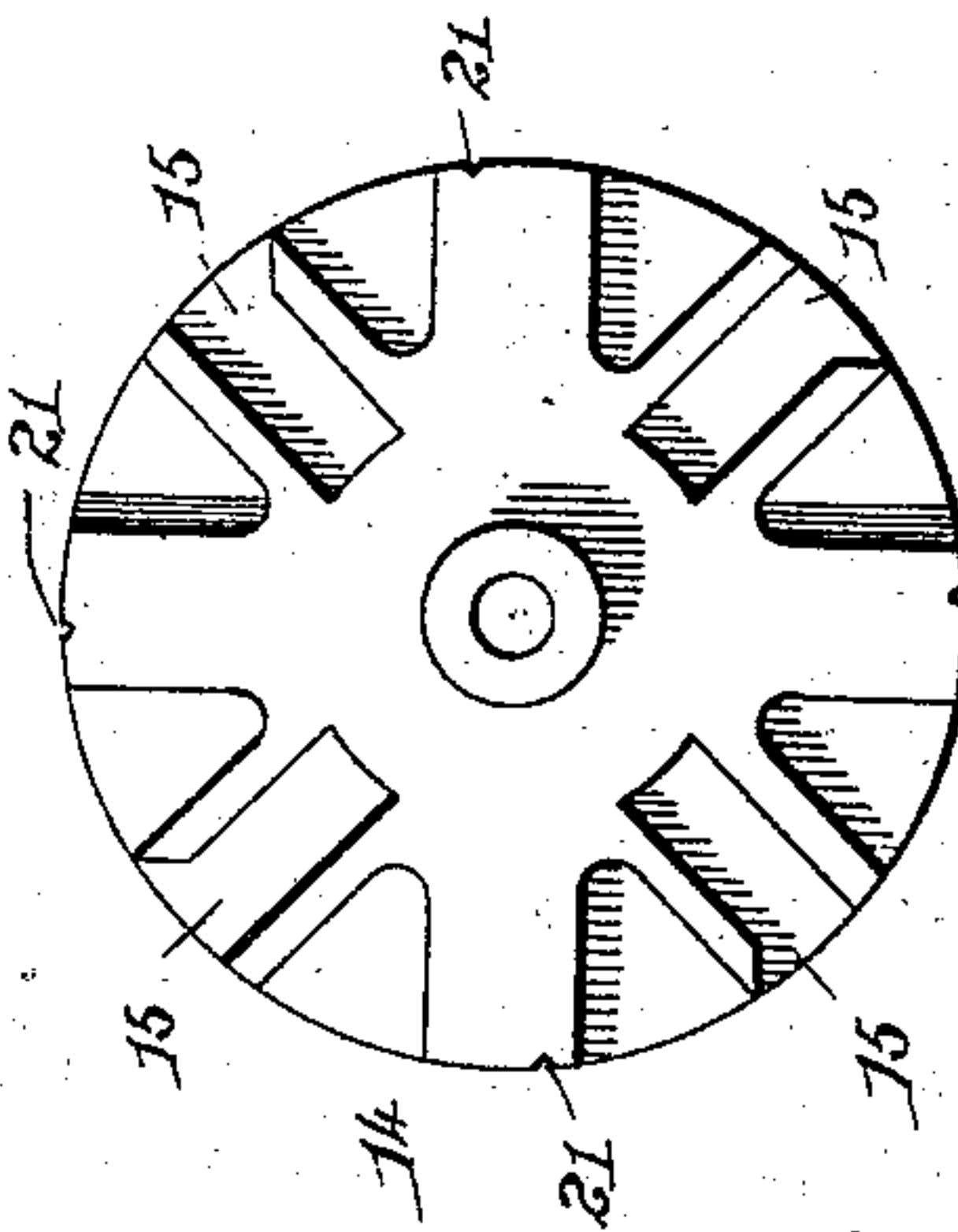


FIG. 7.



Inventor

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UNITED STATES PATENT OFFICE.

MICHAEL M. FAIRMAN, OF LIMESTONE, PENNSYLVANIA.

APPARATUS FOR HANDLING STOCK IN HERDS.

SPECIFICATION forming part of Letters Patent No. 506,680, dated October 17, 1893.

Application filed March 15, 1893. Serial No. 466,145. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL M. FAIRMAN, a citizen of the United States, residing at Limestone township, in the county of Clarion and State of Pennsylvania, have invented a new and useful Apparatus for Handling Stock in Herds, of which the following is a specification.

The invention relates to improvements in apparatuses for handling stock in herds.

The object of the present invention is to provide an apparatus for handling stock adapted for herding, leading them in droves, and capable of guiding them back and forth across a field for the purpose of grazing and of halting them when desired for rest, and of permitting them a freedom of movement sufficient to prevent any inconvenience or irritation.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended.

In the drawings—Figure 1 is a perspective view of an apparatus constructed in accordance with this invention. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a reverse plan view partly in section. Fig. 4 is a transverse sectional view. Fig. 5 is a detail plan view of the crank disk. Fig. 6 is a detail reverse plan view of the crank disk. Fig. 7 is a detail sectional view of the crank disk. Fig. 8 is a detail view showing the guide and the resilient pawl. Figs. 9 and 10 are detail views showing the trip mechanism. Fig. 11 is a detail view of the rack bar and pawl. Fig. 12 is a sectional view of one of the spring actuated arms. Fig. 13 is a detail view of the operating lever. Fig. 14 is a detail vertical sectional view showing one of the anchoring bars.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1—1 designate tubular side bars of a supporting frame, which is mounted upon front and rear axles 2 and 3 having journaled on their spindles front and rear carrying wheels 4 and 5, the latter being connected with the rear axle by spring actuated pawls 6 and ratchet wheels 7, whereby when the apparatus moves forward the rear axle will be rotated to actuate guiding mechanism for di-

recting the apparatus, and when the latter moves rearward the hind wheels will turn on the spindle of the rear axle. The rear axle has mounted on it intermediate of its ends a sprocket wheel 8 on which is arranged an adjustable sprocket chain 9; the sprocket chain extends longitudinally of the supporting frame between the side bars; and it is arranged near the front of the apparatus on an adjustable pulley 10. Links 11 and 12 of the sprocket chain are provided with pins 13, which are adapted to engage a crank disk 14 and to rotate the same a quarter revolution for turning the front wheel either at an angle to the supporting frame for turning the apparatus, or in a line with the frame to direct the apparatus for traveling in a straight line.

The pin 13, which is arranged in a perforation of its link, is provided at its inner end with a shoulder, and at its outer end with a head, and it is adapted, after passing upward around the sprocket wheel 8, to engage one of the recesses 15 of the crank disk 14 to actuate the latter. The sprocket wheel 8 forces the pin outward to project beyond the sprocket chain; and the pin in its course forward from the sprocket wheel disengages a resilient pawl 16 from the crank disk, and is caught in a guide 17, which is provided with a longitudinal slot 18 having a flaring mouth or entrance 19 and an enlarged terminus 20. The guide catches or engages the pin 13 below the head, and causes the pin while in engagement with the crank disk to have a steady positive movement. The slot is narrower than the head of the pin to prevent the latter dropping by gravity after leaving the sprocket wheel, but the enlarged terminus 20 permits the pin to drop back on the link at the end of the quarter rotation of the crank disk. This quarter rotation of the crank disk throws the front wheels, which are mounted on pivoted spindles, at an angle to the frame for turning the apparatus, and after the apparatus has turned the second pin 13 further actuates the crank disk making the latter complete a half revolution to straighten the front wheels. By varying the distance between the first and second pin the character of the turn may be determined to cause the apparatus to travel in parallel lines across a field, or to move diagonally, or in a similar manner.

The intervals or spaces between all the cogs

of the sprocket wheel, with the exception of one, which is solid, are hollow or provided with recesses 7^a to permit the pins to drop to avoid operating the crank disk. The solid portion 7^b, when it comes in contact with a pin forces the latter out and causes the same to operate the crank disk. By constructing the sprocket wheel in this manner the links of the chain may be arranged so that the pins will meet and co-operate with the solid portion 7^b to operate the crank disk each time the same pins pass the sprocket wheel; or they may be arranged so that the pins will only operate the crank disk at long intervals. The former result is accomplished by having the number of links a multiple of the number of cogs of the sprocket wheel; and the latter operation is obtained by having the number of links not a perfect multiple of the number of cogs of the sprocket wheel.

The pins must always, when two are used, be separated by a number of links, which are a multiple of the cogs of the sprocket wheel, in order that when one pin operates the crank disk to throw the front wheels out for turning, the second pin will straighten the wheels.

The periphery of the crank disk is provided with four equi-distant notches 21 which are successively engaged by the resilient spring 16 to hold the crank disk against accidental movement and to make the course of the apparatus positive and unwavering. This means for holding the crank disk against accidental rotation prevents the front wheels being thrown in or out by any inequality of the ground. The resilient pawl 16 is L-shaped and is disposed horizontally in the same plane as the crank disk; its rear end is secured to an inverted U-shaped back piece 22 of the guide; and it has connected to it near its front engaging end one arm of an angle lever 23, the other arm of which is arranged at the entrance of the slot of the guide in position to be engaged by the pins 13, whereby when a pin 13 enters the slot of the guide and engages the crank disk, the latter will be released by the resilient pawl. As soon as the pin passes the lever 23 the pawl again presses against the periphery of the crank disk to engage the approaching notch 21 at the end of the quarter revolution of the crank disk; and a spring 24 is arranged in rear of the entrance to the slot 18 of the guide, and is secured to the back or rear end of the support frame, to force the pins into the open spaces or recesses of the sprocket wheel to make the operation of the apparatus positive.

The crank disk 14 is secured to the upper end of the vertical shaft 25, and is supported by a hanger 26, which also supports the guide 17, and which is provided with bearings for the shaft 25. The upper face of the crank disk is provided with a diametrically disposed dove-tailed groove 27, in which is secured by a clamping screw 28 a dove-tailed slide 29 which is provided at its outer end with a wrist

pin 30, engaging a slot 31 of a T-shaped lever 32. The T-shaped lever 32 is fulcrumed at the angle of its arm on a post 33 of the bracket 26, and it has its arms 34 disposed laterally of the supporting frame and connected with the spindles 35 of the front axle. By means of the adjustable slide of the crank disk the amount of turn or rather the angle at which the front wheels are arranged to the frame in turning the apparatus, may be regulated to enable the apparatus to make a sharp or long turn. The crank disk in four actuations makes one revolution; and the wrist pin in moving across the machine, in two distinct movements during one half a revolution, throws the front wheels out at one side for turning and back for straightening, and in moving across the machine in the second half of the revolution the front wheels are thrown out at the opposite side and straightened, whereby the apparatus will be alternately turned to the right and to the left, during its traveling.

The ends of the arms 34 of the T-shaped lever are connected by rear connecting bars 36 with longitudinally movable bars or rods 37, arranged within the tubular side bars 1 of the supporting frame. The front ends of the longitudinally movable rods 37 are connected by rods 38 with rearwardly extending arms 39 of the crank spindles 35 of the front axle 2. The connecting rods 38 have their front ends pivoted to the longitudinally movable rods 37, and their rear ends are threaded at 40 and are provided with nuts 41, whereby the connecting rods 38 are adjustably attached to the crank spindles in order to bring the front wheels in proper relative position, in order that they may be perfectly parallel and move in unison. The crank spindles are provided adjacent to the front wheels with forwardly extending arms 42, which have their front ends pivoted to the ends of a shifting transversely disposed bar 43; and the latter connects the spindles and causes the front wheels to move together in turning. The longitudinally movable bars 37 are provided with rollers 44 and 45, which have convex engaging faces to conform to the interior of the tubular side bars; and the latter are provided with slots 46 and 47 to permit the front and rear connecting rods and bars 38 and 36 to move freely.

The pulley 10, which supports the sprocket chain at the front of the apparatus, is mounted on a spindle or shaft 48 which terminates at one end in a hook 49 and has its other end threaded and provided with a nut 50, which secures a clip plate 51 to the threaded end of the shaft. The hook 49 engages one of the tubular side bars; and the clip plate 51 is provided with a pair of hooks 52 which engage the other tubular side bar, whereby the shaft 48 is secured to the supporting frame. This means for securing the shaft to the tubular side bars permits the pulley to be adjusted longitudinally of the frame to vary the length

of the sprocket chain; and the shaft is secured in its adjustment to maintain the sprocket chain at the proper tension by a pawl 53, which is mounted on the shaft and arranged to engage shouldered teeth 54 of a rack bar 55 which has its front end secured to the front axle, and its rear end attached to the hanger 26. The pawl 53 is provided at its rear end with a slot 56 receiving a curved arm 57 of a sleeve 58 which is arranged on the rack bar 55, and which has its arm 57 secured to a collar 59 of the shaft 48.

The apparatus may, after being moved back and forth a predetermined number of times for grazing, be stopped and anchored against further movement at the end of a turn by bars 60 inclining forward and downward from the rear of the supporting frame and having their upper ends hinged thereto. The inclined anchoring bars 60 are connected by rods or links 61 with arms 62 of a transversely disposed rock-shaft 63 journaled in suitable bearings of the supporting frame. The rock-shaft has its ends bent to form the arms 62, and it is provided intermediate of its ends with a downwardly extending crank bend 64, which forms an arm, and which is adapted to be engaged by an angle lever 65, and to be supported thereby in an elevated position to hold the inclined anchoring bars above the ground. The long arm 66 is journaled in suitable bearings of the hanger 26, and the arm 67 depends from the rear end of the arm 66, and is arranged to be engaged by a radial arm 68 of a cog wheel 69 to turn the angle lever out of engagement with the loop arm of the rock-shaft to permit the inclined anchoring bars to fall to stop the apparatus.

The distance of the radial arm from the angle lever may be varied to regulate and control the number of movements or travelings back and forth of the apparatus; and the cog wheel 69 is actuated by a tooth 70 at the lower end of the shaft 25, whereby after a predetermined number of rotations of the crank disk and consequent turn of the apparatus the latter will be anchored.

The tooth 70 of the shaft 25 is pivoted in a bifurcation of the shaft, and is adapted to swing to either side of the latter. It is secured in operative position by a key. As the crank disk makes one half of a revolution at each end of a movement, the tooth may be adjusted to either side of the shaft to cause the anchors to drop at either end of a movement, as the tooth will only come in contact with the cog wheel at that end of a movement.

The supporting frame is provided at intervals with laterally extending bars 71, which are clipped to the side bars, and which have attached to them yoke supporting frames 72. The yoke supporting frames are approximately rectangular and are hinged at their front sides to collars 73, and are supported at the joint by springs 74, which take the weight of the frames from the necks of the animals and greatly relieve the latter of the incon-

veniences and annoyances of an ordinary yoke. The collars are each constructed of a single piece of metal; the ends of which are bent outward and slotted to form pintles 75 for eyes 76 of the yoke frame. The ends of each collar are secured together by a bolt and serve as clamps for the springs 74 which engage at their free rear ends the lower faces of the sides of the yoke frame. The back of each yoke frame is arched and padded to provide a collar pad or saddle 77; and the sides of a yoke 78 are arranged in perforations at the sides of the saddle 77, the upper portion of the yoke being arched to conform to the configuration of the saddle. The bottom of the yoke is provided with a securing chain 79 for confining the neck of an animal. The attachment of the yoke is such that an animal is permitted to move its head upward and downward at pleasure without inconvenience and restraint; and the yoke frame is provided with a large opening, which prevents any liability of the head of an animal striking against the frame.

The yokes are for the attachment of cows and similar animals; but horses are designed to be connected with spring actuated arms 80 to hold the halter rope away from the legs of the animals to prevent them becoming entangled with it and irritating or injuring the animal. The lower end of the arm 80 is provided with a heel 81 which is pivoted in a segmental slot 82 of a tip 83, which is secured by a clamping screw 84 on the end of one of the laterally projecting bars 71 of the supporting frame. The heel which is pivoted in the slot of the tip is connected to a spiral spring 85, which holds the arm 80 in an upright position. The upper end of the arm 80 is provided with a socket 86 in which is detachably secured a bent rod 87; and the latter is provided at its outer end with an eye 88 for the attachment of a halter strap or rope.

The laterally projecting bars 71, which are secured by clamps to side bars of the frame are capable of adjustment or movement laterally of the frame to vary the capacity of the apparatus and to lessen the width to enable the same to pass through a narrow way or door or for analogous purposes.

The herding apparatus is adapted to have all kinds of animals or stock attached to it, and it will obviate the necessity of employing fences, and will prevent animals committing depredations. It is capable of use in winter in stables and may be daily advanced to avoid cleaning the stable. It is also adapted for leading stock in droves along roads or elsewhere.

When it is desired to take the animals along a road or some route for which the apparatus is not set, it may be guided by the operator; and for this seat supports or brackets 89 are secured to the tubular side bars in rear of the arms 34 of the T-shaped lever. The T-shaped lever is provided with opposite divergent braces 90, which terminate at their

front ends in stirrup hooks 91 secured to the arms 34, and adapted for the reception of the feet of the operator to enable him to guide the apparatus. When the apparatus is
5 guided in this manner the T-shaped lever is disconnected from the wrist pin of the crank disk.

In grazing or feeding, the cattle yoked to the apparatus will, in reaching forward for
10 grass, propel the apparatus, which will not require the attention of an operator.

A tongue 92 is provided, and is detachably coupled to the front axle, and is removably connected with the transverse connecting bar
15 43. The transverse connecting bar 43 is provided with projections 93 between which the tongue is confined by a hasp 94. Horses may be attached to the tongue in the usual manner for drawing the apparatus and causing
20 the stock to follow.

The apparatus may also be guided by a lever or handle 95, which is provided at its front end with a pair of hooks 96 to engage the braces 90 at their angles, and at an intermediate point with a loop 97 to receive the
25 rear end of the T-shaped lever. The lever or guide pole 95 is designed to be of sufficient length to extend rearward a convenient distance to be readily grasped and within easy
30 reach of the operator.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.
35

What I claim is—

1. In an apparatus for handling stock in herds, the combination of a frame, front and rear axles supporting the frame, the former
40 being provided with pivoted spindles, a lever connected with the pivoted spindles for turning the latter, wheels journaled on the spindles, an intermittently operated disk connected with the lever, and means connected
45 with the hind wheels for actuating said disk, substantially as described.

2. In an apparatus for handling stock in herds, the combination of a frame, front and rear axles supporting the frame, the former
50 having pivoted spindles, a slotted T-shaped lever having laterally extending arms connected with the pivoted spindles, a crank disk having a wrist pin arranged in the slot of the lever, and means for intermittently actuating the disk, substantially as described.
55

3. In an apparatus for handling stock in herds, the combination of a supporting frame, front and rear axles, the former having pivoted spindles, a T-shaped lever fulcrumed on the frame and having its laterally disposed
60 arms connected with the pivoted spindles, and an intermittently operated crank disk actuating the lever and receiving motion from the rear axle, substantially as described.

4. In an apparatus for handling stock in herds, the combination of a supporting frame,
65 a front axle having pivoted spindles, a T-

shaped lever having its arms disposed laterally and connected with the pivoted spindles and provided in its main portion with a longitudinal slot, an intermittently operated disk
70 provided on its upper face with a groove, and an adjustable slide mounted in the groove of the disk and provided at its outer end with a wrist pin, substantially as described. 75

5. In an apparatus for handling stock in herds, the combination of a supporting frame, a front axle having pivoted spindles, a T-shaped lever having its arms laterally disposed and connected with the spindles, an intermittently operated crank disk actuating the lever and provided on its lower face with
80 recesses, a rear axle carrying a sprocket wheel, a pulley arranged at the front of the frame, a sprocket chain arranged on the sprocket wheel and pulley and provided with a pin for engaging the recesses of the crank disk, and means for holding the crank disk at the end of each partial revolution, substantially as described. 90

6. In an apparatus for handling stock in herds, the combination of a supporting frame, a front axle provided with pivoted spindles, longitudinally movable rods mounted on the frame and connected at their front ends with
95 the pivoted spindles, a T-shaped lever fulcrumed on the frame and having its arms laterally disposed and connected with the rear ends of the connecting rods, and an intermittently operated crank disk connected with the lever and actuating the same, substantially as described. 100

7. In an apparatus for handling stock in herds, the combination of a supporting frame having tubular side bars provided at their front ends and intermediate of their ends with slots, longitudinally movable rods arranged in said bars and provided with rollers, a T-shaped lever having its arms laterally disposed, an intermittently operated
110 crank disk connected with the lever, the front connecting rods attached to the front ends of the longitudinal movable rods and extending through the front slots and attached to the pivoted spindles, and the rear connecting
115 bars pivoted to the rear ends of the longitudinally movable rods and to the arms of the lever, substantially as described.

8. In an apparatus for handling stock in herds, the combination of a supporting frame, a front axle, spindles pivoted to the front axle and provided at their inner ends with rearwardly extending arms, longitudinally movable rods mounted on the frame, a T-shaped lever fulcrumed on the frame and having its
120 arms laterally disposed, the front connecting rods pivoted to and extending rearward from the longitudinally movable rods and adjustably secured at their rear ends to the arms of the pivoted spindles, substantially as described. 130

9. In an apparatus for handling stock in herds, the combination of a supporting frame, a front axle having pivoted spindles, a rear

axle having a sprocket wheel, a lever fulcrumed on the frame and connected with the pivoted spindles, an intermittently operated crank disk connected with the lever and provided on its lower face with recesses, a sprocket chain arranged on said sprocket wheel and provided with a pin for engaging the recesses of the crank disk and actuating the latter, and a guide arranged below the crank disk to receive said pin for holding the same in engagement with the crank disk, substantially as described.

10. In an apparatus for handling stock in herds, the combination of a supporting frame, a rear axle having a sprocket wheel, an intermittently operated crank disk provided on its lower face with recesses, a sprocket chain arranged on said sprocket wheel and provided with a pin having a head, and a guide located below the crank disk and provided with a longitudinal slot to receive the pin and provided at the front end of the slot with an enlargement of the same, substantially as and for the purpose described.

11. In an apparatus for handling stock in herds, the combination of a supporting frame, a front axle having pivoted spindles, a rear axle having a sprocket wheel, a T-shaped lever fulcrumed on the frame and having its arms connected with the pivoted spindle, an intermittently operated crank disk connected with the lever and provided on its lower face with recesses, a sprocket chain arranged on the sprocket wheel and provided with pins loosely mounted in perforations and having heads, a guide arranged beneath the crank disk and provided with a longitudinal slot having a flaring mouth and an enlarged front terminus, and means for holding the disk at the end of each partial revolution, substantially as described.

12. In an apparatus for handling stock in herds, the combination of a frame, a rear axle having a sprocket wheel, an intermittently operated crank disk provided on its lower face with recesses and having at its periphery notches, a guide arranged beneath the disk, a resilient pawl arranged to engage the notches of said disk, a lever connected with the pawl and extending in front of the guide, and a sprocket chain provided with a pin for engaging the lever to disengage the pawl and for engaging the recesses to actuate the disk, substantially as described.

13. In an apparatus for handling stock in herds, the combination of a supporting frame, a rear axle having a sprocket wheel, a crank disk provided on its lower face with recesses, a guide arranged below the crank disk and having a longitudinal slot with an enlarged front end, a resilient pawl for engaging the crank disk, an angle lever having one arm connected with the pawl, and its other arm arranged at the mouth of the slot of the guide, a spring arranged in rear of the guide, and a

sprocket chain having a pin provided with a head, substantially as for the purpose described.

14. In an apparatus for handling stock in herds, the combination of a supporting frame, an intermittently operated crank disk, a shaft journaled in the frame and carrying the crank disk and provided with a tooth, a cog wheel arranged adjacent to said shaft, and intermittently operated by said tooth and provided with an arm, inclined anchoring rods hingedly connected with the frame, a rock shaft journaled on the frame and provided with arms connected with the anchoring rods, said rock shaft having an intermediate arm, and a lever fulcrumed intermediate of its ends and having one end arranged to engage said intermediate arm to hold the anchoring rods elevated and having its other end arranged to be engaged by the arm of the cog wheel, substantially as described.

15. In an apparatus for handling stock in herds, the combination of a frame carrying wheels, a yoke frame hingedly connected with the main or supporting frame and having an inclosed opening, a yoke mounted at the outer end of the yoke frame, and springs arranged beneath the yoke frame at the hinges thereof to relieve an animal of the weight of the yoke and yoke frame, substantially as described.

16. In an apparatus for handling stock in herds, the combination of a supporting frame carrying wheels, a yoke frame having a central opening and hingedly connected with the supporting frame and provided at its outer end with an upwardly curved portion forming a saddle, a yoke mounted on the outer ends of the yoke frame and having its upper portion arched to conform to the saddle, and springs secured to the supporting frame and engaging the lower face of the yoke frame, substantially as described.

17. In an apparatus for handling stock in herds, the combination of a supporting frame, a yoke frame having an opening and hinged to the supporting frame and having its outer end arched and padded to form a saddle, and a yoke secured to the outer end of the yoke frame; substantially as described.

18. In an apparatus for handling stock in herds, the combination of a supporting frame carrying wheels, arms extending from the frame, tips secured to the arms and provided at their outer ends with slots, spring actuated arms mounted in the slots and provided at their outer ends with sockets, and rods stepped in the sockets and provided with eyes, substantially as described.

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

M. M. FAIRMAN.

Witnesses:

JOHN H. SIGGERS,

ARTHUR B. SEIBOLD.