

No. 618,209.

Patented Jan. 24, 1899.

N. E. SCHOONOVER.
CHECK ROW CORN PLANTER.

(Application filed Aug. 2, 1898.)

(No Model.)

2 Sheets—Sheet 1.

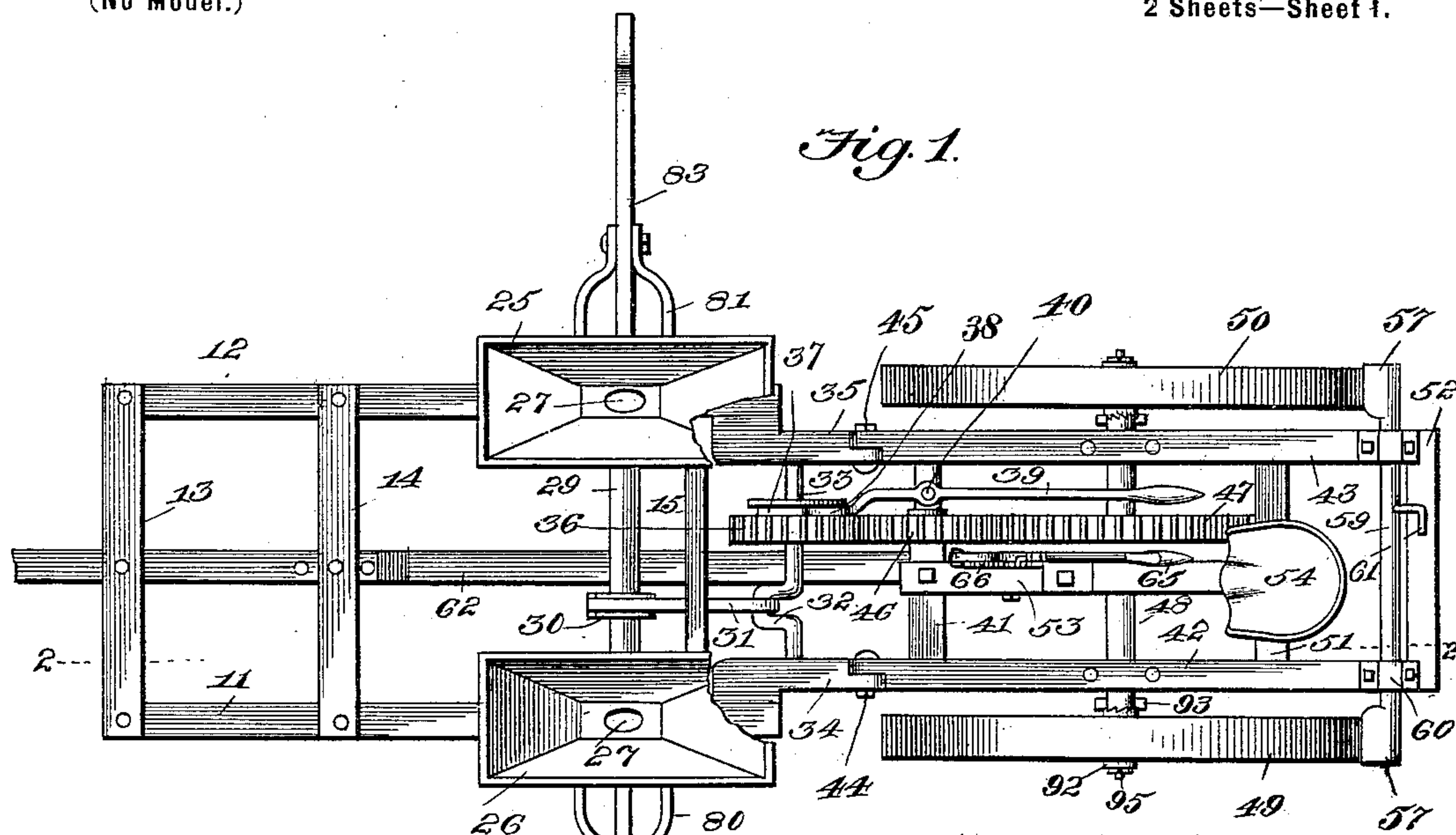


Fig. 1.

Fig. 9.

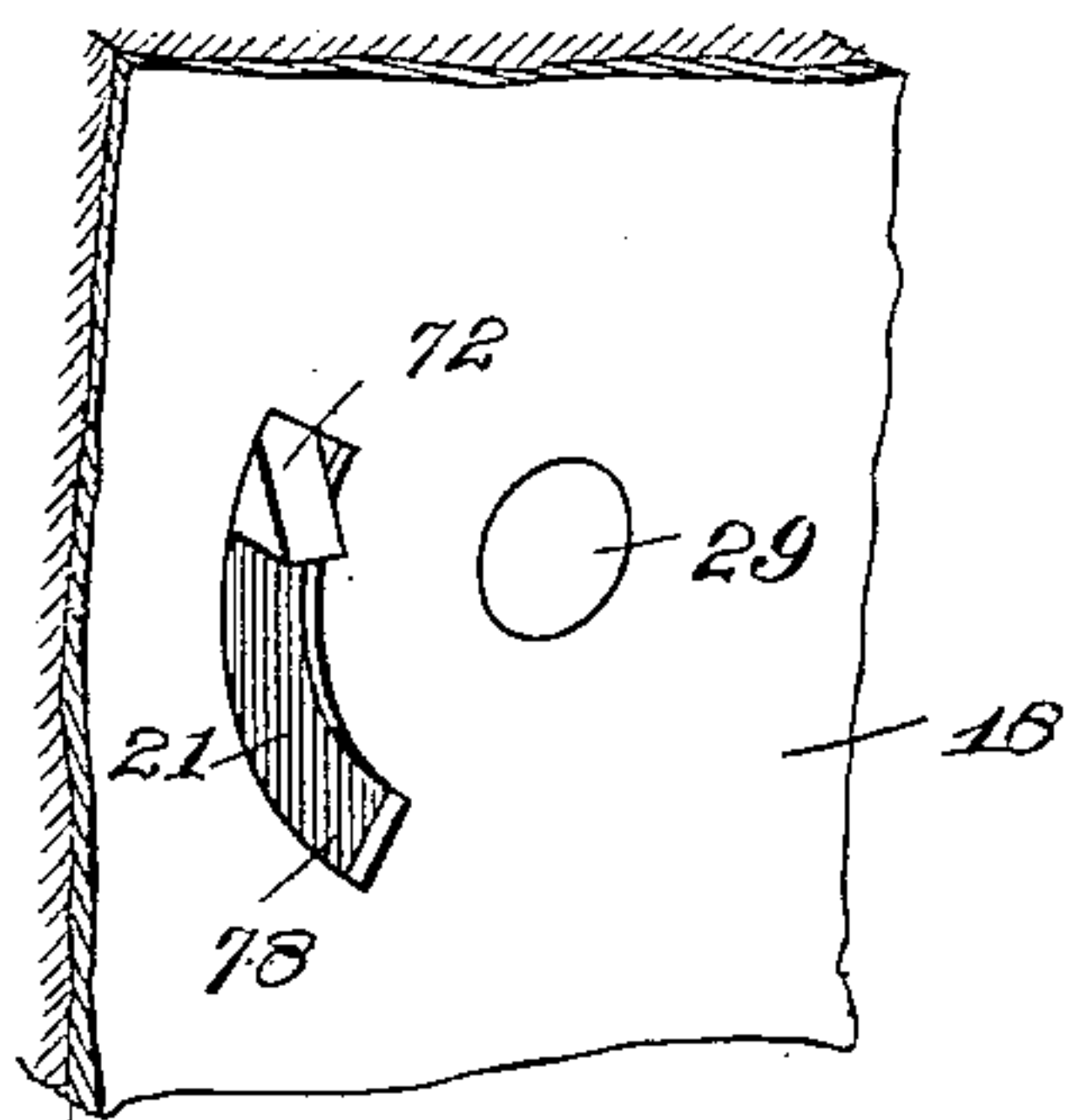


Fig. 10.

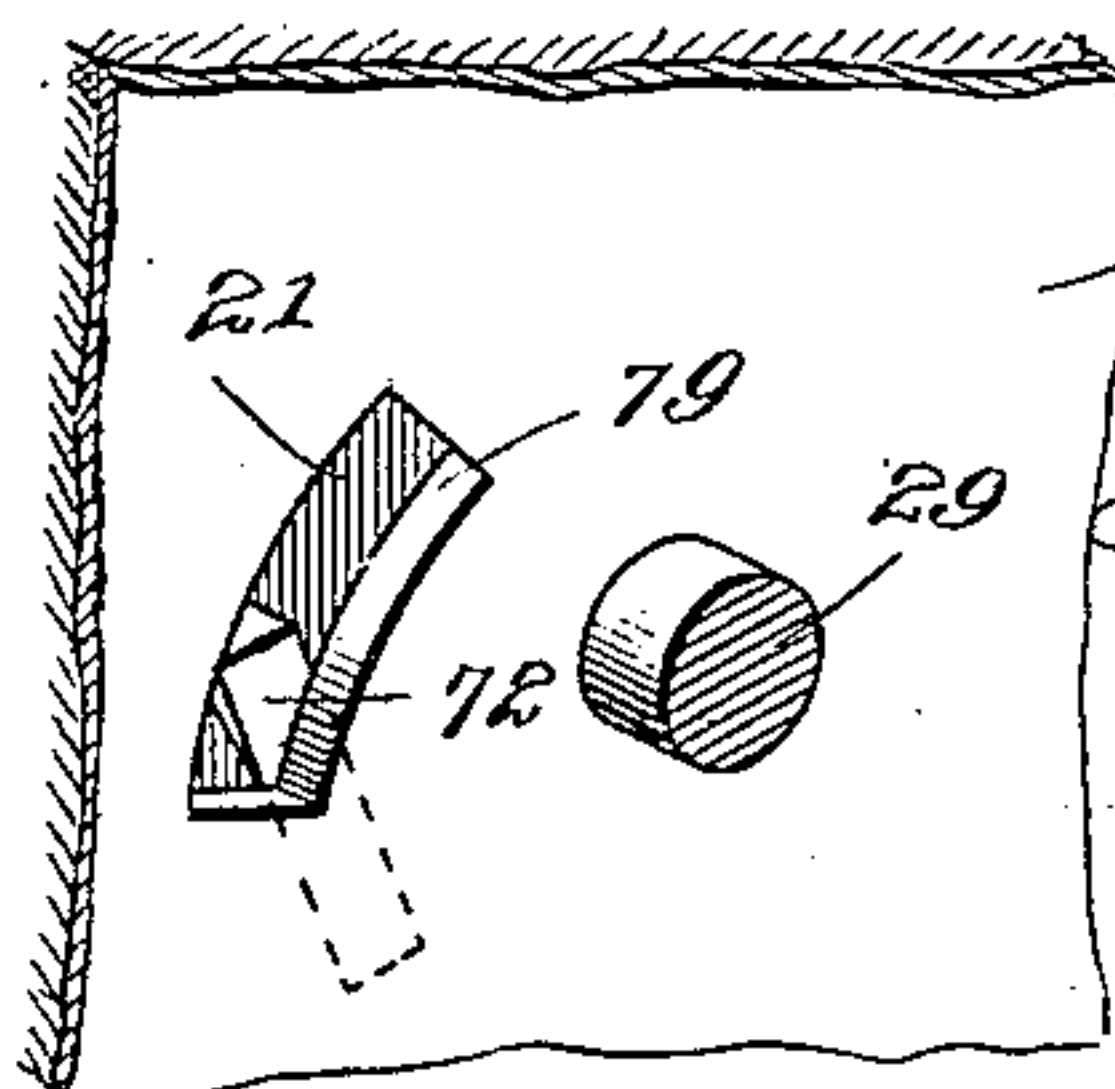
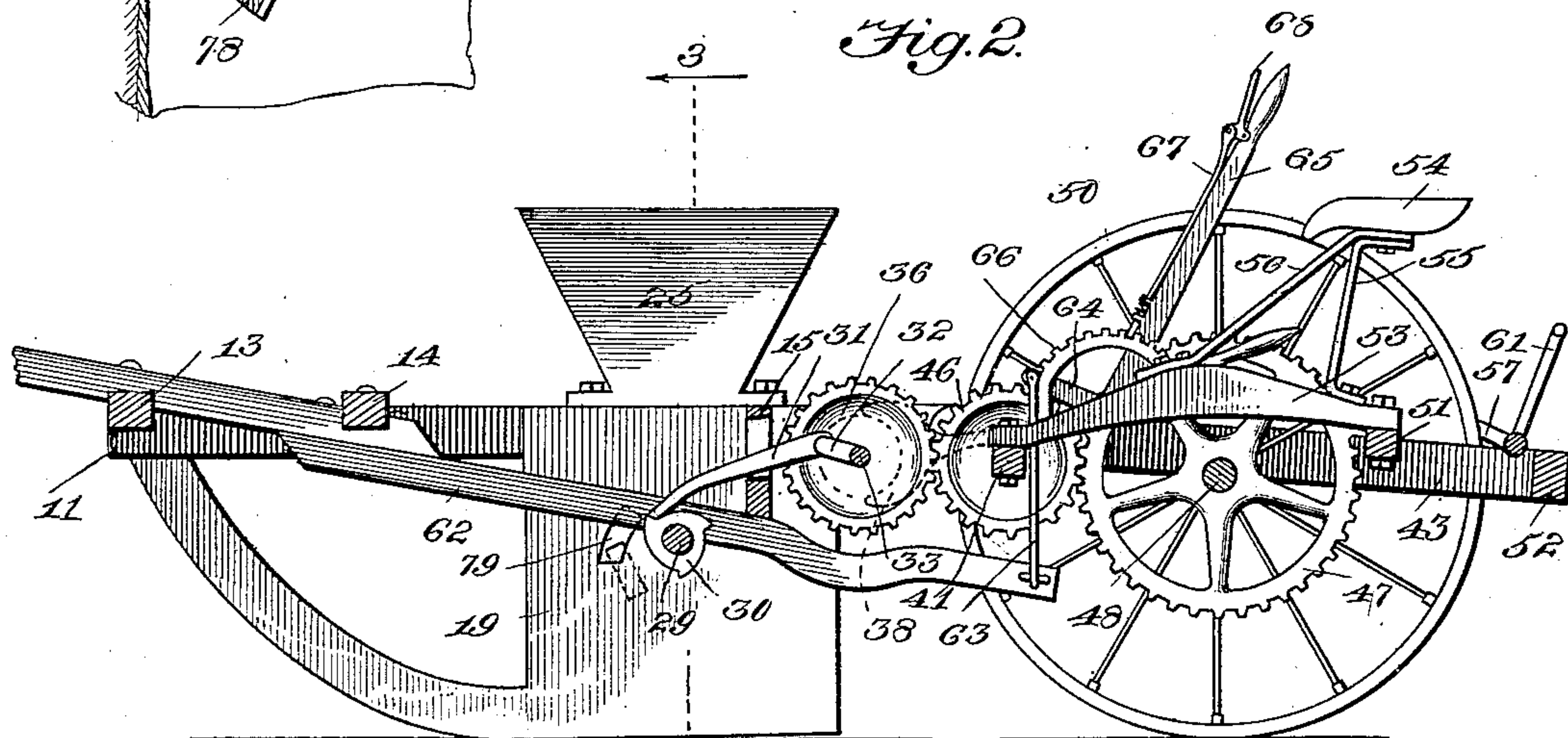


Fig. 2.



Witnesses

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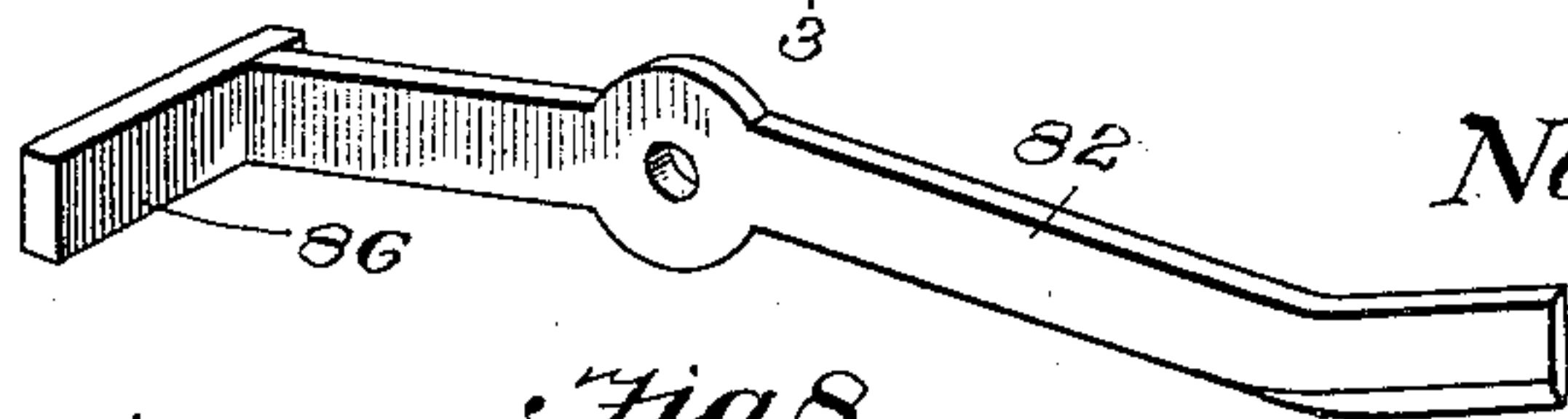


Fig. 8.

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Fig. 3.

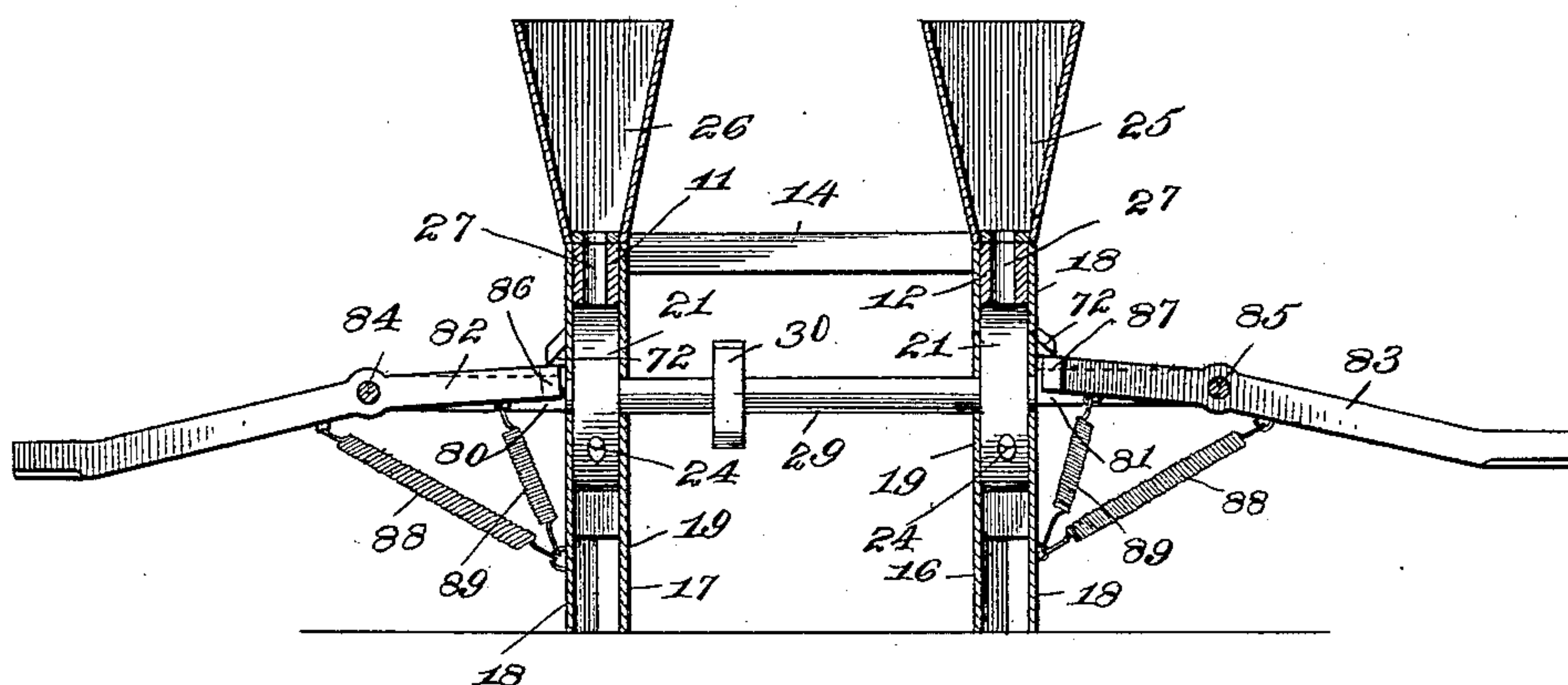


Fig. 4.

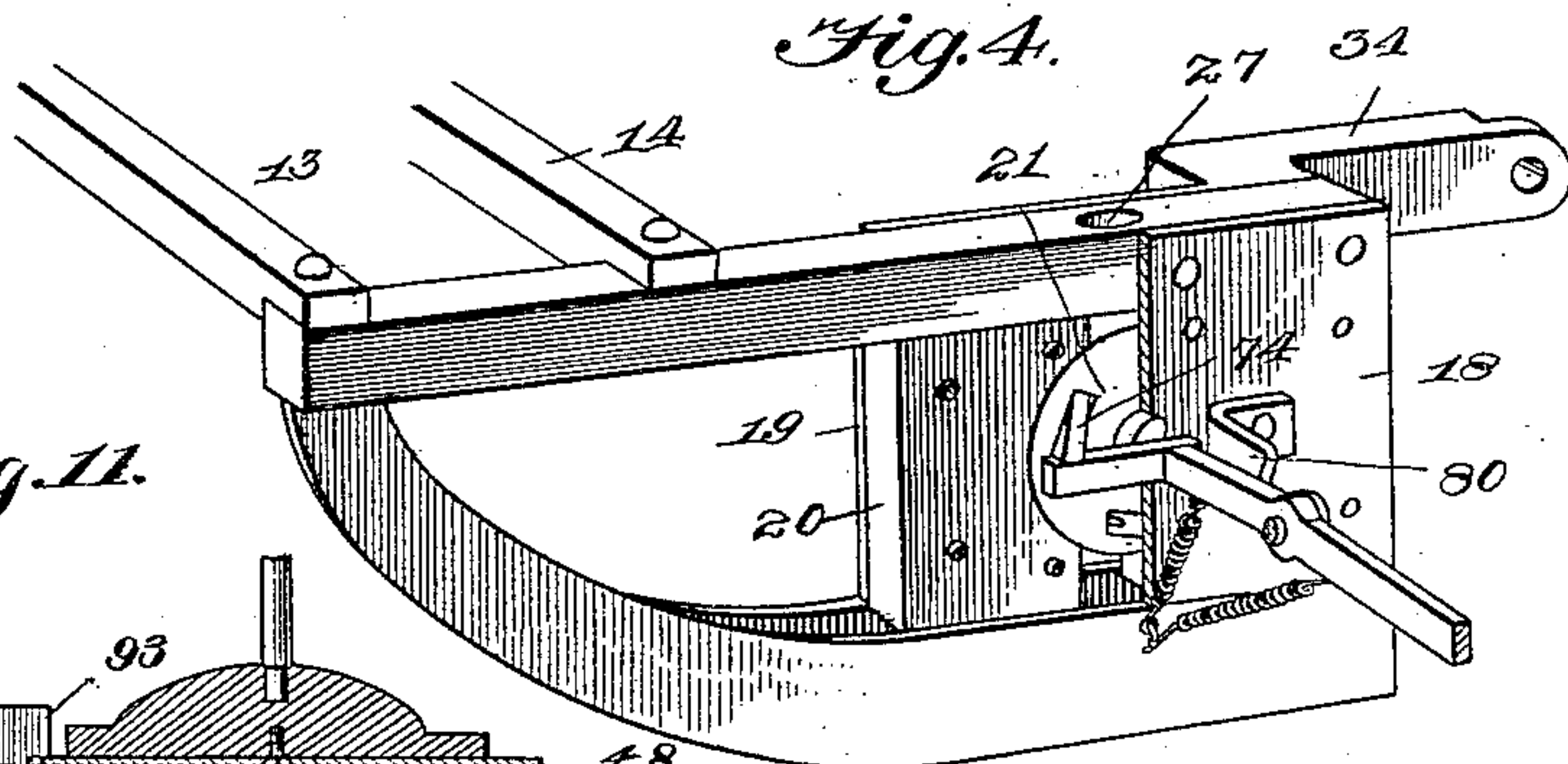


Fig. 11.

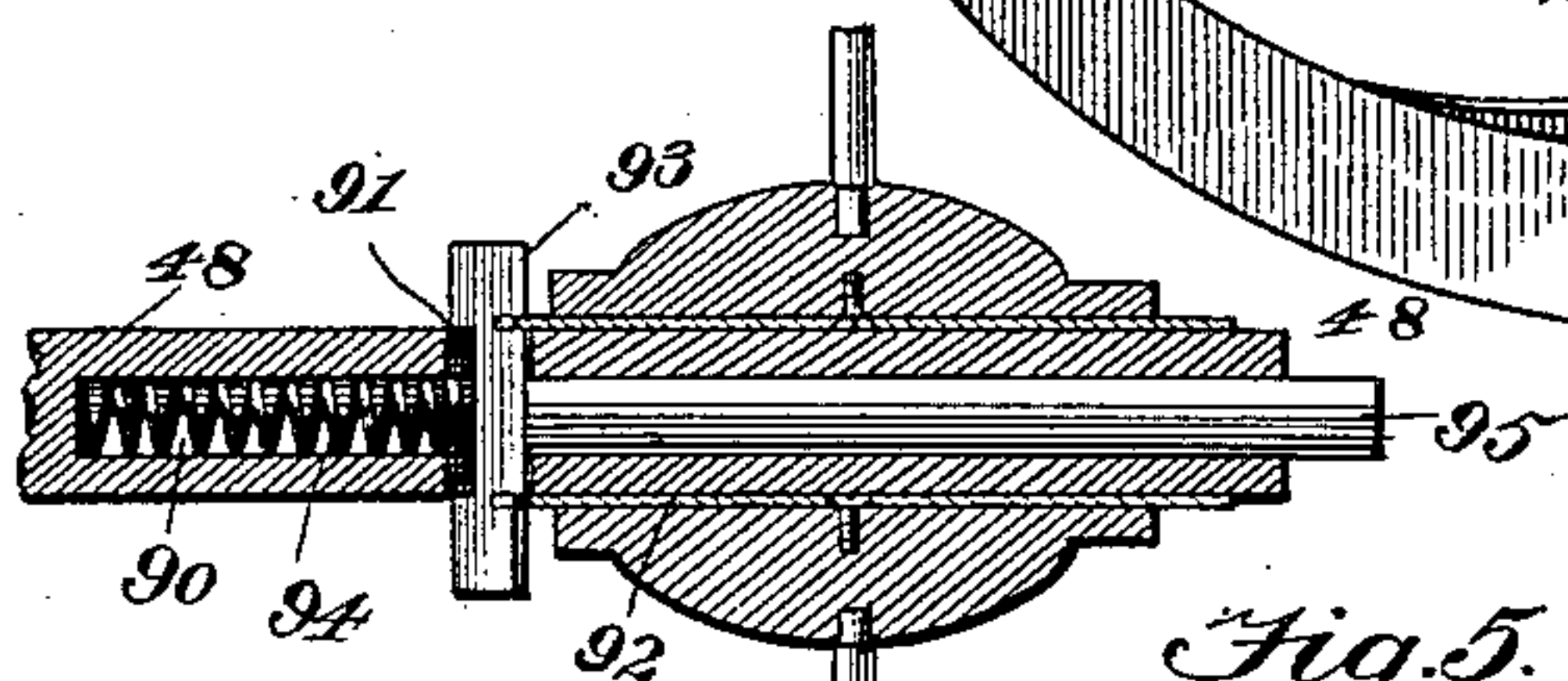


Fig. 5.

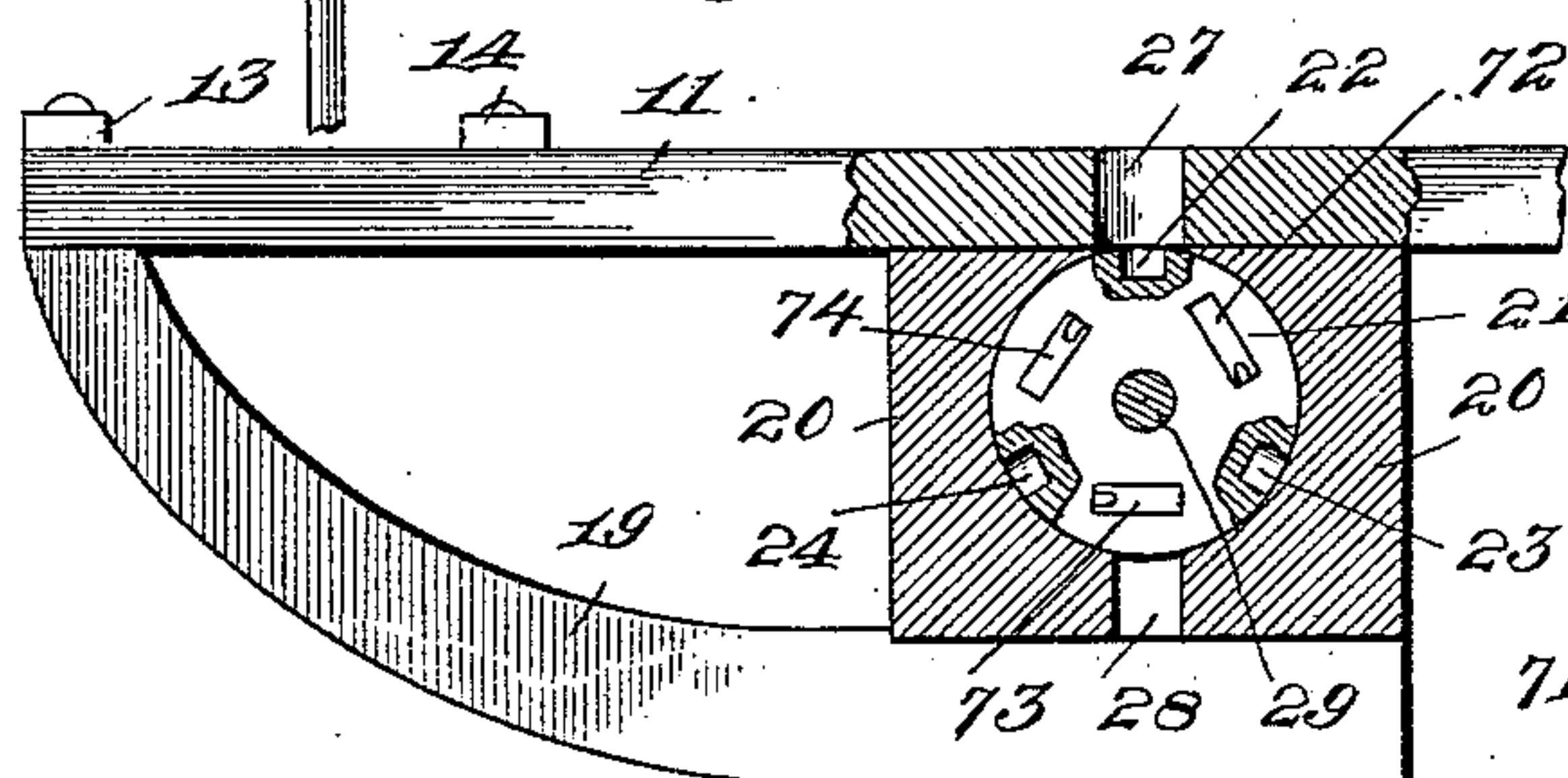


Fig. 6.

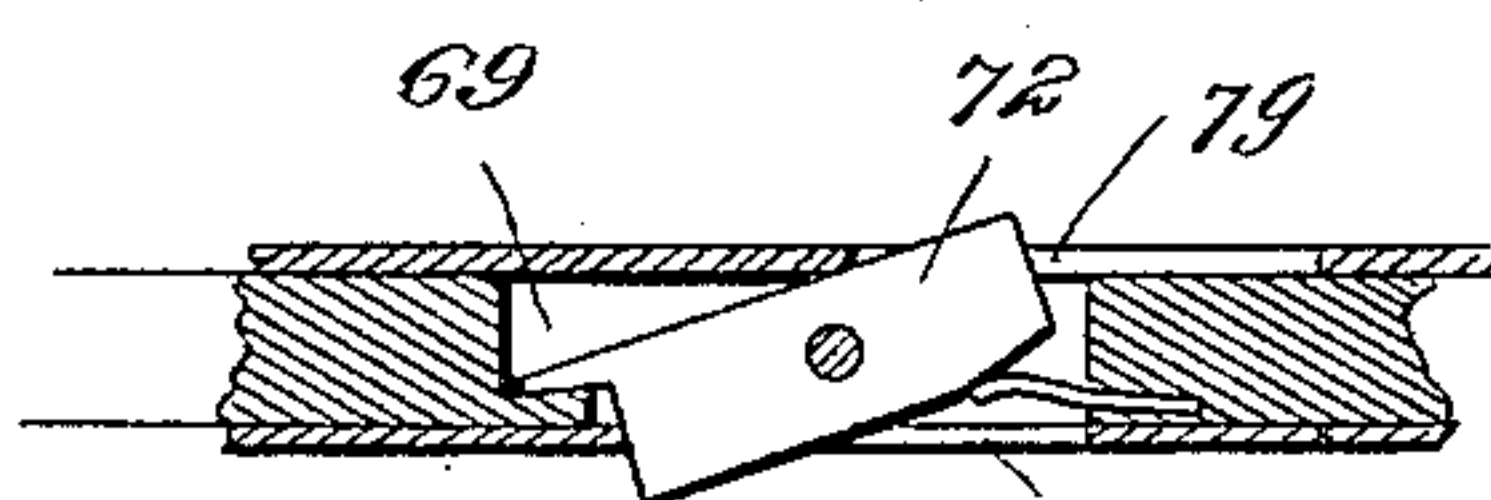
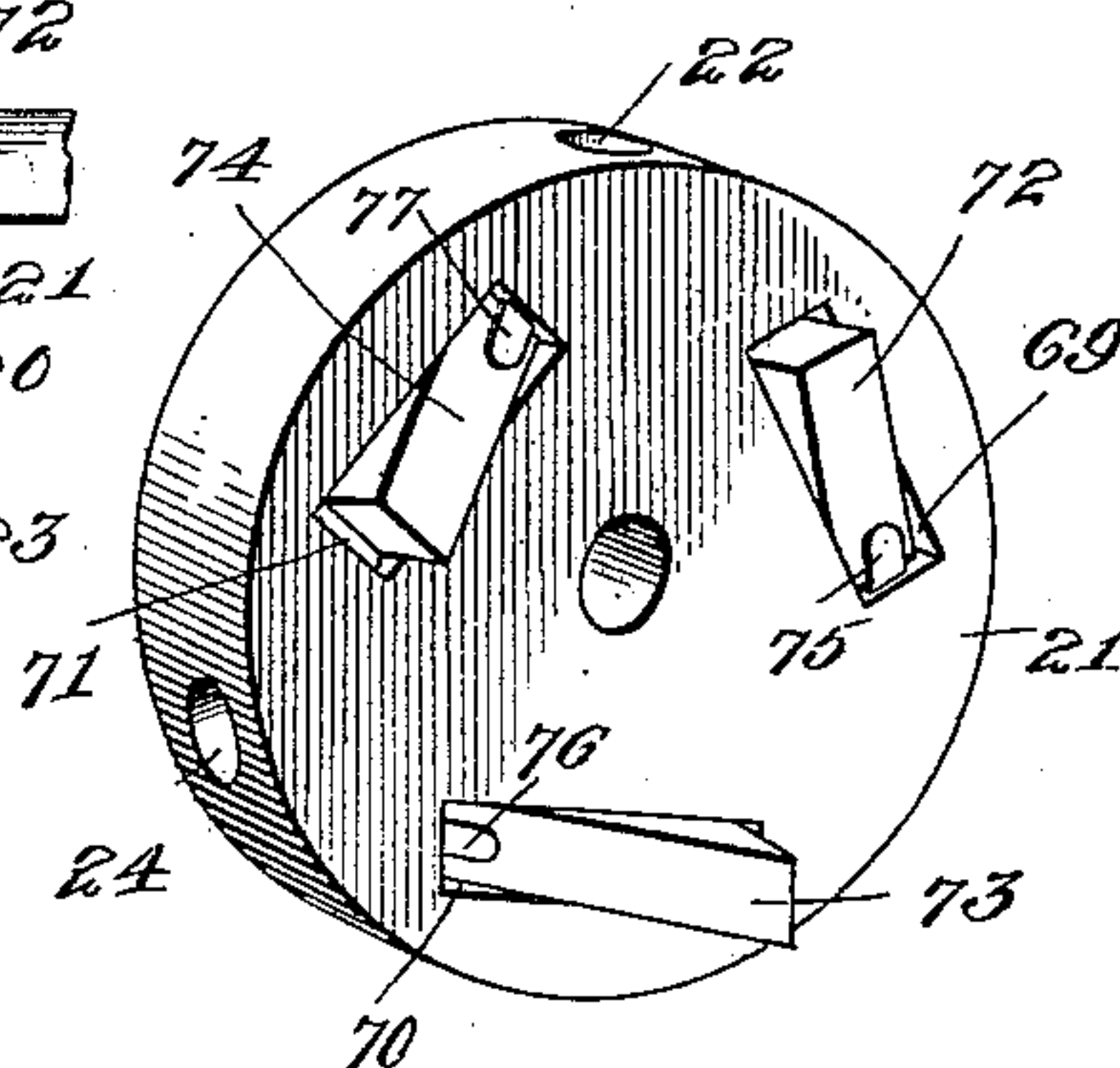


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

NOAH ELI SCHOONOVER, OF AKRON, IOWA, ASSIGNOR OF ONE-HALF TO
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CHECK-ROW CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 618,209, dated January 24, 1899.

Application filed August 2, 1898. Serial No. 687,530. (No model.)

To all whom it may concern:

Be it known that I, NOAH ELI SCHOONOVER, a citizen of the United States, residing at Akron, in the county of Plymouth and State of Iowa, have invented a new and useful Check-Row Corn-Planter, of which the following is a specification.

My invention relates to check-row corn-planters, and has for its object to simplify and cheapen the construction of this class of machines, while rendering them more effective in operation and less liable to breakage or wear by ordinary usage.

With this object in view my invention consists in certain improvements in the construction, arrangement, and combination of the parts of such machines for driving and operating the dropping and marking mechanism, all as will be hereinafter fully described, and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part hereof, in which—

Figure 1 is a top plan view of my invention in position for practical operation, part of the tongue or pole and the hoppers being broken away. Fig. 2 is a vertical longitudinal sectional view of the same, taken on the plane indicated by the dotted line 2 2 of Fig. 1, looking in the direction of the arrow. Fig. 3 is a vertical transverse section on the dotted line 3 3 of Fig. 2. Fig. 4 is a fragmentary detail perspective view illustrating one side of the sled with one of the marking-levers and its operative mechanism, the outside plate being broken away to expose the interior mechanism. Fig. 5 is a vertical longitudinal sectional view through the runner of the sled illustrated in Fig. 4. Fig. 6 is a detail perspective view of the rotating cupped disk, showing the pawls for depressing the inner end of the marking-levers. Fig. 7 is a fragmentary detail sectional view through the disk and side plates of the runner, exposing the side of one of the pawls and its spring. Fig. 8 is a detail perspective view of one of the marking-levers. Fig. 9 is a fragmentary perspective view of a section of the outside

plate of the runner, illustrating the concentric slot therein with one of the marking-lever pawls projecting therethrough. Fig. 10 is a similar view of a section of the inside plate of the runner, illustrating the slot therein and one of the marking-lever pawls being closed in as it passes out of the slot. Fig. 11 is a detail sectional view of the traction-wheel hub and its ratchet mechanism.

Referring to the drawings by numerals, 11 and 12 indicate the longitudinal beams of the top frame of the planter, said top beams being connected to cross-bars 13, 14, and 15. Beneath this top frame are secured the runners 16 and 17, each of which consists of outer and inner sheets of metal 18 and 19, separated by blocks 20, recessed to receive the dropping-disk 21. This disk is provided with the usual cups 22, 23, and 24 in its periphery, to be supplied with corn from hoppers 25 and 26, mounted on the frame of the machine and discharging through a vertical opening 27 in each of the longitudinal beams 11 and 12. The corn is discharged through a space between the blocks 20 and the side sheets 18 and 19. The dropping-disk is mounted upon a shaft 29, having its bearings in the sheets 18 and 19 of the runners 16 and 17, said shaft carrying a ratchet-wheel 30, adapted to be rotated one-third of a revolution at each movement of a pawl 31, pivoted after the manner of a pitman in a crank 32 of a shaft 33, journaled in short extensions 34 and 35 of the longitudinal beams 11 and 12, said extensions being nearer together than the beams, as clearly shown in Fig. 1. Upon the shaft 33 is keyed a gear-wheel 36, having an extended hub on one side provided with an annular groove 37, in which engages the forked end 38 of a hand-lever 39, pivoted on a vertical pin 40, mounted on a fixed shaft 41, secured at its ends in beams 42 and 43, which are pivotally connected at 44 and 45 to the rear ends of the extensions 34 and 35. A gear-wheel 46 is loosely mounted on the fixed shaft 41 and meshes with a gear-wheel 47, rigidly secured upon the axle 48, which has its bearings under the beams 42 and 43 and carries traction-wheels 49 and 50. The beams 42 and 43 are further connected by cross-bars 51 and 52, and a supporting-bar 53 is secured upon the upper sides of the fixed shaft 41 and the

beam 51, a seat 54 being mounted upon the support 53 by means of metal bars 55 and 56. Brake-shoes 57 and 58 are mounted on the ends of a shaft 59, journaled in bearings 60 on the top of the beams 42 and 43, a handle-bar 61 projecting from the shaft 59 within reach of the driver mounted on the seat 54, whereby the shaft may be rotated and the brake-shoes applied to the wheels 49 and 50 when desired.

62 indicates the tongue, to which the team is to be harnessed and which projects rearwardly beyond the runners 16 and 17 at the center of the machine. At its rear end it is pivotally connected to a rod 63, which at its upper end is connected to the short arm 64 of an elbow hand-lever 65, pivoted at its angle to the frame of the machine concentrically with a curved toothed rack 66, a spring-pawl 67, mounted on the lever 65 and operated by a hand-lever 68, engaging in the teeth of said rack to hold the lever 65 in any desired adjustment.

The dropping-disk 21 is provided about midway of the space between the cups 22, 23, and 24 with elongated slots 69, 70, and 71, in which are pivotally secured pawls 72, 73, and 74, the forward ends of which are normally pressed outward by springs 75, 76, and 77, which press inward against the rear ends of said pawls, causing the forward ends, which are mounted in the track of curved slots 78 in the plates 18, to project through said slots. The rear ends of the pawls are projected through curved slots 79 in the plates 19 at the same moment that the forward ends of the pawls are projected through the slots 78 in the plates 18.

80 and 81 indicate brackets secured to and projecting horizontally outward from the plates 18, serving as supports to which are pivotally connected marking-arms 82 and 83 by means of pins 84 and 85. These arms 80 and 81 are provided with arms 86 and 87 at their inner ends, which are normally and yieldingly held in the track of the pawls 72, 73, and 74, when projected through the curved slots 78 in the plates 18, by means of springs 88 and 89.

The construction of my invention will be readily understood from the foregoing description, and its operation may be described as follows: The position of the runners with relation to the traction-wheel frame being properly adjusted by means of the lever 65, rack 66, and connecting-rod 63, and the gear-wheel 36 being shifted by the lever 39 into engagement with the gear-wheel 46, the team is started. The rotation of the traction-wheels 49 and 50 carries the axle 48 and gear-wheel 47 with them, the rotation of the gear-wheel 47 being communicated by the gear-wheel 46 to the gear-wheel 36 and shaft 33. The rotation of the shaft 33 reciprocates the pawl 31 upon the ratchet-wheel 30, causing said ratchet-wheel, the shaft 29, and dropping-disks 21 to be rotated one-third of a revolution, the

gearing being so graduated that this third of a rotation of the dropping-disks will take place while the machine is being moved forward on the traction-wheels four feet, being the usual distance between hills of corn in the row. During this motion one of the pawls, as 72, will have its forward end projected through the slots 78 in the plate 18, as before described, by means of its spring 75. When so projected, the forward end of the pawl 72 will press downward upon the laterally-projecting arm of the marking-lever on that side of the machine, raising the outer end of the marking-lever some distance above its normal position against the force of the spring 88. When the forward end of the pawl has nearly reached the end of the slot in the plate 18, the rear end will have reached the end of the slot 79 in the plate 19, and the continued motion of the dropping-disk will cause the pawl to be folded into the slot in the dropping-disk, thus withdrawing its forward end from contact with the projecting arm of the marking-lever and liberating the rear end of said lever. As soon as its inner end is liberated the outer end of the marking-lever will be quickly and forcibly drawn downward by the spring 88 and caused to strike the ground at the same moment that one of the cups has dropped its corn into the hill, the result of the whole operation being to make a mark on each side of the machine opposite to the point where each dropping-disk has planted the corn to indicate where the corn shall be dropped in the next rows.

In Fig. 11 I have shown in detail how the traction-wheels are prevented from turning, and the dropping and marking mechanism consequently prevented from working, when the machine is moved backward. The axle or shaft 48 is bored centrally, as at 90, to a point a considerable distance inward beyond the inner end of the hub. Just within the hub is a transverse slot 91 through the shaft intersecting the bore 90. Secured within the hub is a sleeve or box 92, of a size to fit the shaft, projecting beyond the inner end of the hub, the projecting portion being formed as ratchet-teeth. A bar 93 is fitted in the slot 91, with its outer beveled edge held normally in contact with the ratchet-teeth by means of a spiral spring 94, seated in the bore 90. A plug 95, seated in the bore 90 outside of the bar 93, is provided on its inner end with a pin, which enters an aperture in bar 93 and holds it from dropping out of the slot 91. If the machine is moved backward, the ratchet-teeth on the sleeve or box 92 will slip over the edge of the bar 93, none of the dropping or marking mechanism being affected by the backward rotation of the wheels.

While I have illustrated and described the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown, but hold that any slight variation therefrom, such as might suggest

itself to the ordinary mechanic, would clearly be comprehended within the limit and scope of my invention.

5 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a corn-planter, of a runner consisting of inner and outer metallic plates separated by blocks provided with circular recesses, a dropping-disk provided with a plurality of seed-cups, pawls pivoted in recesses in the disk and adapted to be tilted to throw their inner and outer ends through curved slots provided in the side plates, brackets projecting laterally from the outside plates, a marking-lever pivoted in said brackets and provided with a laterally-projecting arm in the path of the forward end of the pawls when projected through the slots in the outer plate, and springs for normally holding the arm of the marking-lever in the path of said pawls, substantially as described.

2. In a check-row corn-planter, the combination with a runner consisting of inner and outer metallic plates provided with curved slots, those of the outer plate being in advance of the inner plate, blocks separating

the outer and inner plates and provided with a circular recess, a dropping-disk journaled in the plates and seated in the recess in the blocks, said disk being provided with seed-cups and intermediate slots arranged between said cups, the slots of the disk being adapted to periodically register with the slots in the plates during the rotation of the disk, and springs adapted to normally hold the rear ends of the pawls inward and their forward ends outward, substantially as described.

3. The combination in a check-row corn-planter, with the runners, the marking-levers, the dropping-disks, their pawls, the shaft upon which they are mounted and the ratchet-wheel on said shaft, of the rear traction-wheel frame pivoted to the runner-frame, the crank-shaft mounted in the runner-frame, the pawl actuated thereby and engaging the ratchet-wheel, the traction-wheels, their shaft mounted in suitable bearings, and gearing connecting the axle with the crank-shaft, substantially as described.

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Witnesses:

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