

No. 625,505.

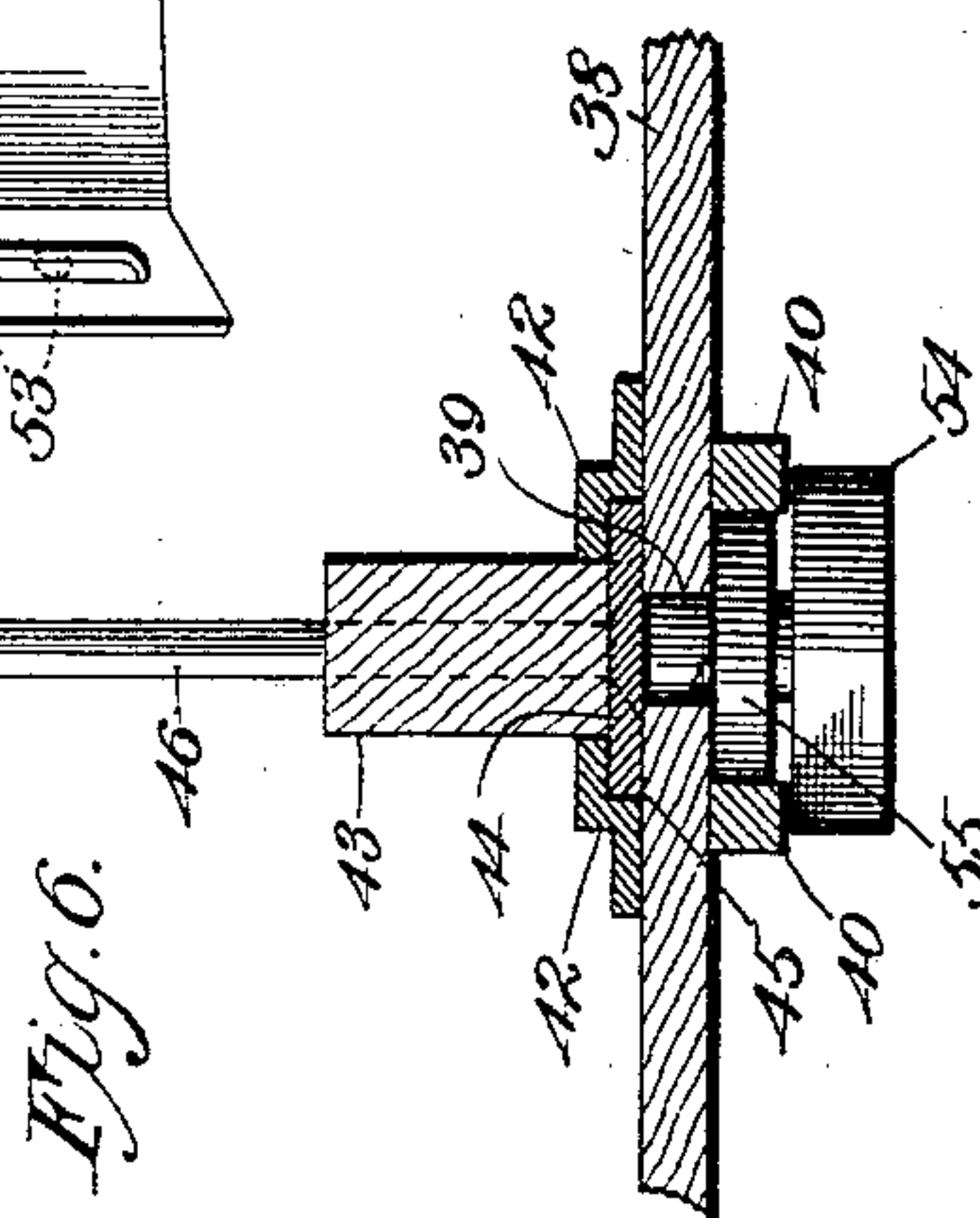
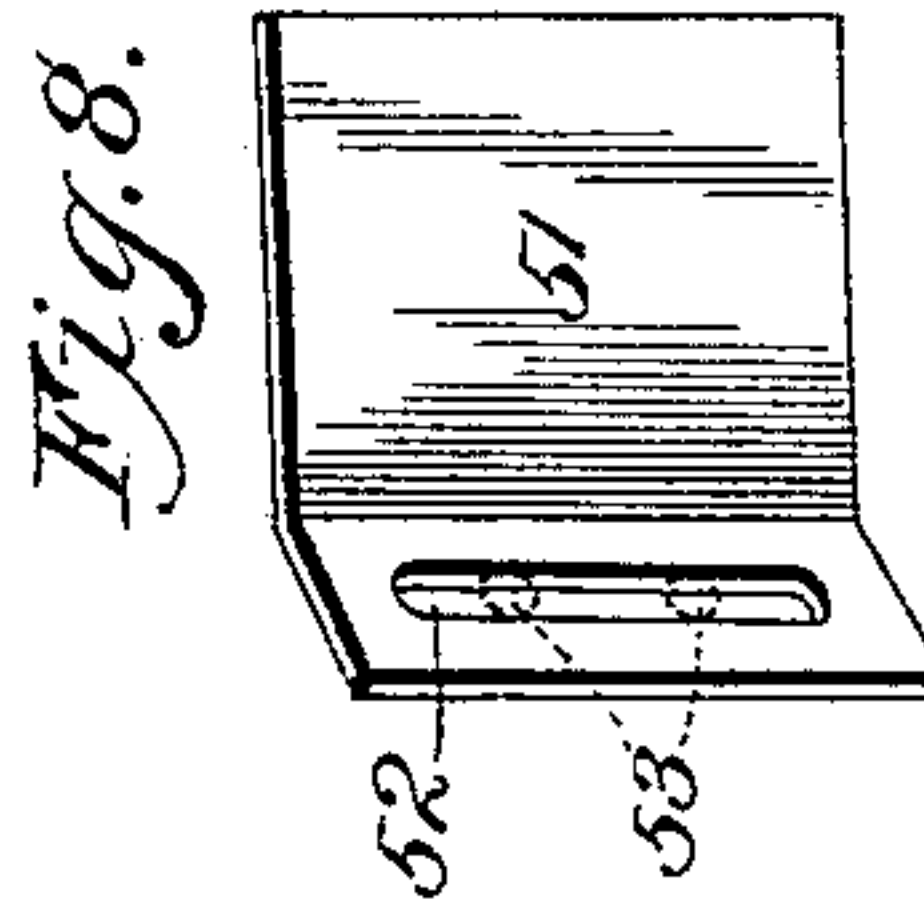
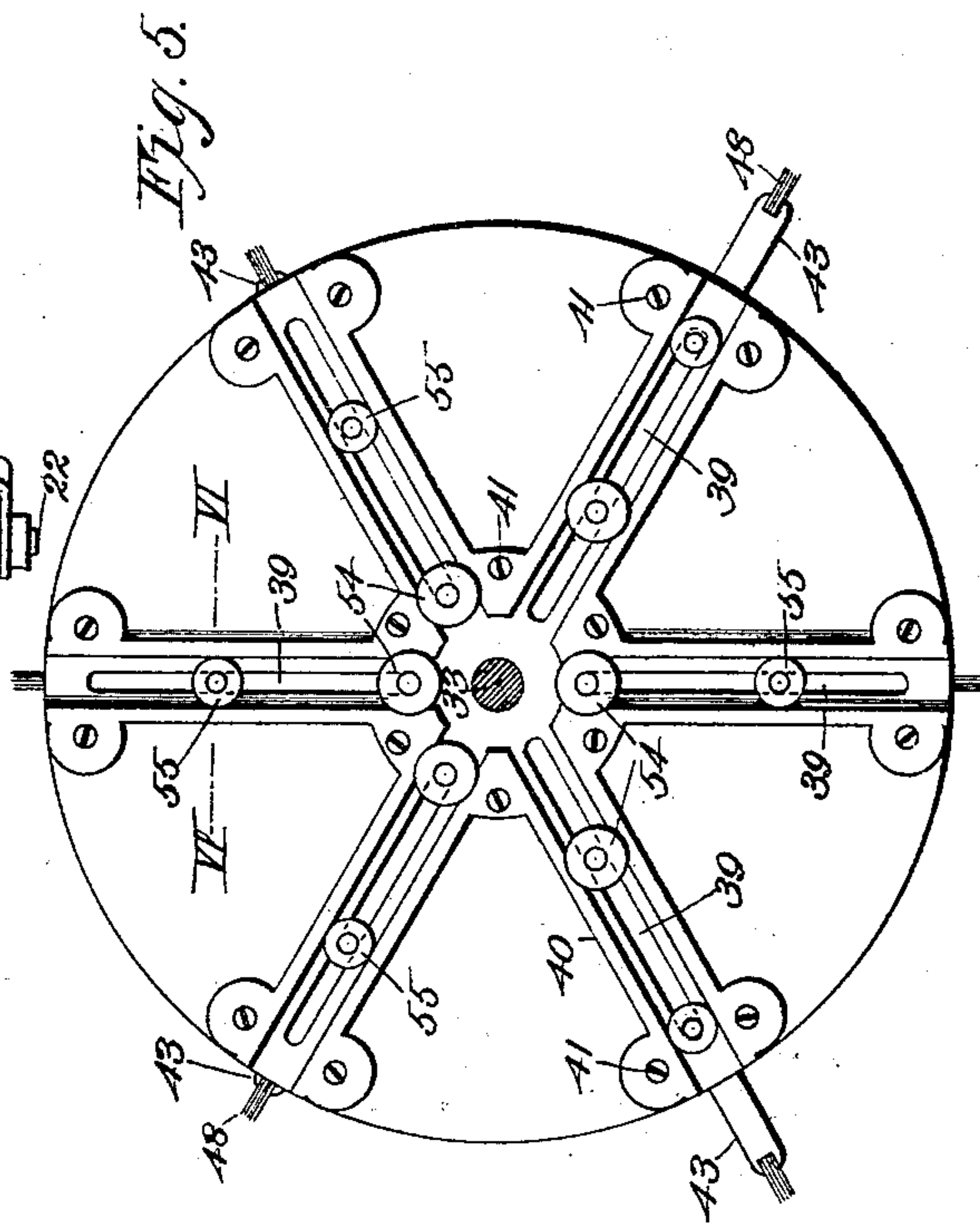
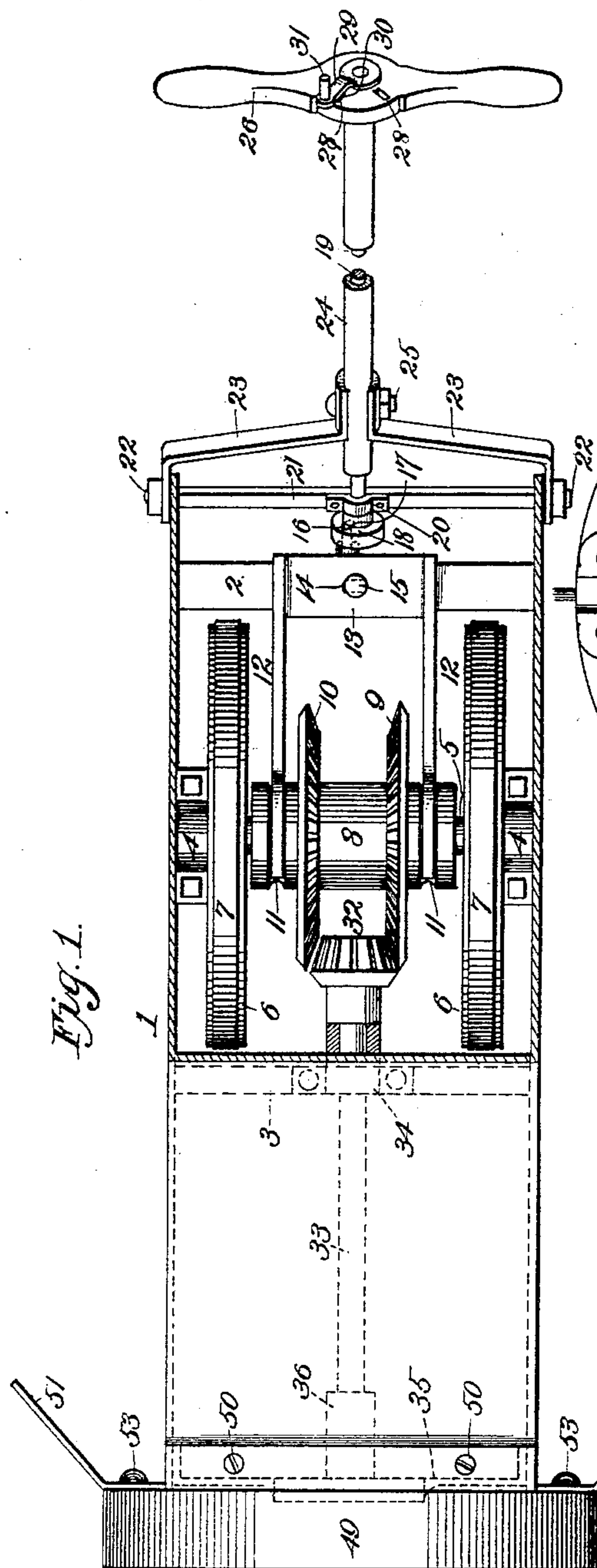
Patented May 23, 1899.

F. HERSTER.
MALT TURNER.

(Application filed Apr. 2, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

F. L. Thrasher
M. R. Remley

Inventor
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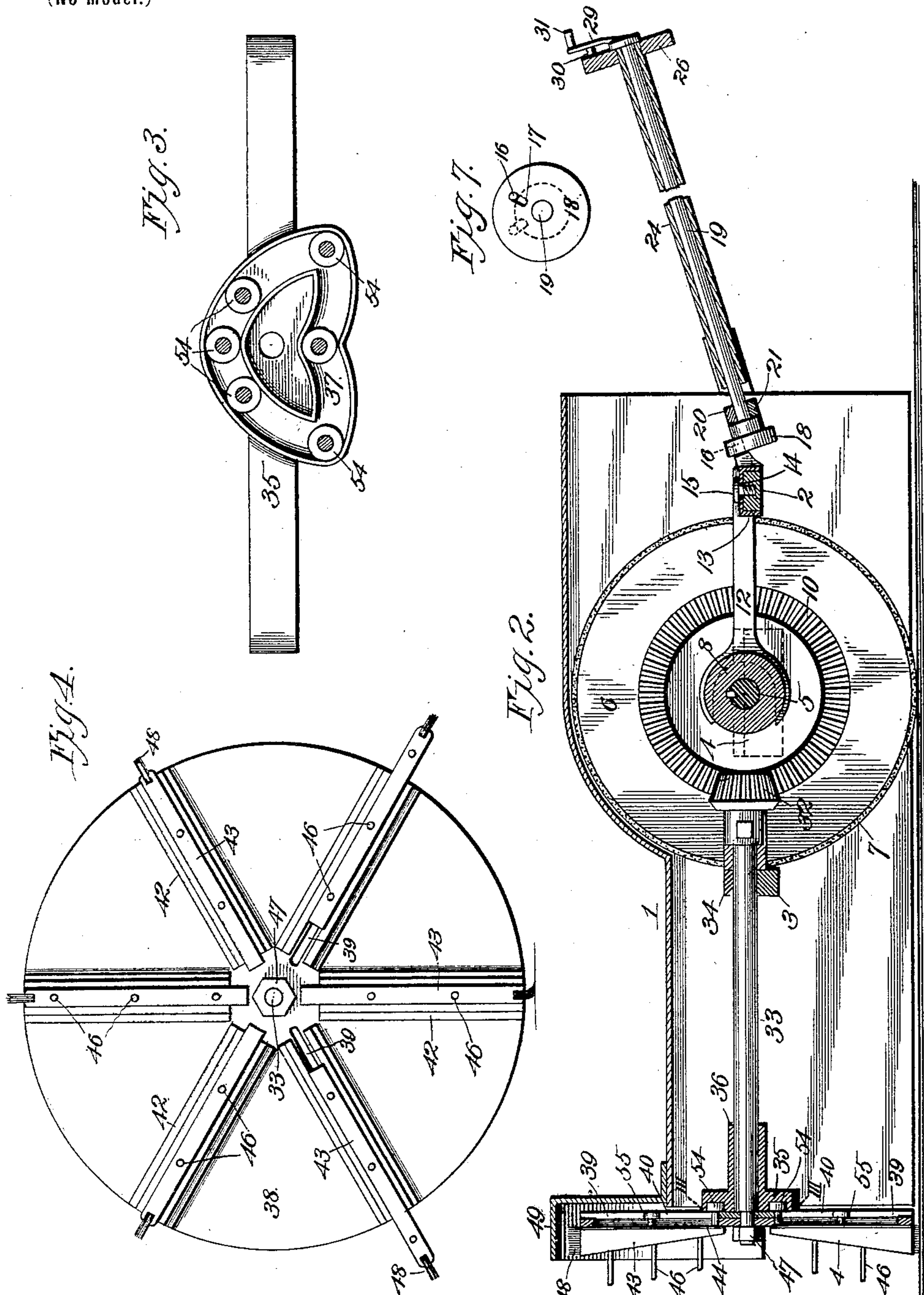
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UNITED STATES PATENT OFFICE.

FREDERICH HERSTER, OF ROSEDALE, KANSAS, ASSIGNOR OF ONE-HALF TO
CHARLES HERSTER, OF SAME PLACE.

MALT-TURNER.

SPECIFICATION forming part of Letters Patent No. 625,505, dated May 23, 1899.

Application filed April 2, 1898. Serial No. 676,245. (No model.)

To all whom it may concern:

Be it known that I, FREDERICH HERSTER, of Rosedale, Wyandotte county, Kansas, have invented certain new and useful Improvements in Malt-Turners, of which the following is a specification.

My invention relates to malt-turners, and more particularly to machines whereby the malt stored in breweries may be thoroughly and effectively aired, thereby preventing it from getting so hot that it might sprout and grow together and be rendered difficult of separation; and the object of the invention is to produce a machine whereby the malt may be turned at frequent intervals with ease and despatch.

To this end the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a plan view of my improved malt-turner with part of the casing or frame in section. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a section taken on the line III III of Fig. 2, but on a larger scale. Fig. 4 is a front view of the rotating disk provided with radially-adjustable arms for turning the malt. Fig. 5 is a rear view of said disk. Fig. 6 is a cross-section taken on line VI VI of Fig. 5, but on a larger scale. Fig. 7 is a view showing the end of the shaft and rear face of the slotted disk for throwing the machine in and out of gear. Fig. 8 is a detailed perspective view of one of the wings or levelers.

In the said drawings, 1 designates a suitable casing or frame of substantially rectangular configuration and preferably open at its lower side and ends.

2 designates a cross-bar near the rear end, and 3 a cross-bar about the middle of the frame.

4 designates bearings, which are formed or secured at the inner sides of the casing or frame, and 5 a shaft journaled therein and provided with carrying-wheels 6, having rub-

ber tires 7, in order that the wheels shall have no possible chance to slip when the machine is pushed across the floor of the room containing the malt, but will positively and reliably rotate, and thereby operate the malt-turning wheel, to be hereinafter described. The rubber tires also prevent the wheels from cutting or otherwise injuring the malt. 8 designates a sleeve which is keyed to rotate with and slide upon said shaft, and secured to or formed with said sleeve are similar but oppositely-disposed beveled gears 9 and 10. Said sleeve is also formed with annular grooves 11, engaged by the forked arms 12 of a sliding sleeve 13, mounted upon cross-bar 2. Said sleeve is provided with a longitudinal slot 14, and extending down through the same and engaging the cross-bar is a headed-pin 15, which holds the frame down in position and at the same time limits its sliding movement. Said frame is also provided with a rearwardly-projecting pin 16, engaging a radial slot 17 of a small disk 18, mounted upon the front end of a shaft 19, and said shaft is journaled in a bearing 20 of a cross-bar 21, said cross-bar being provided with cylindrical ends 22, upon which are pivotally mounted the brackets 23, forming branch arms at the lower end of the tubular handle 24, said arms being bolted to the handle 2, as shown at 25, or in any other suitable manner. Said tube carries at its rear end a handle-bar 26, provided with a pair of similar notches 27 28.

29 designates a spring-metal arm which is secured rigidly upon the rear end of shaft 19 and is provided with a tooth 30 for engagement with one or the other of the notches 27 or 28 and is also provided with a handle 31, by which it may be conveniently manipulated to disengage the tooth from either of said openings and the shaft rotatably moved in the proper direction, this movement of the shaft drawing the gear-wheel 9 or the gear-wheel 10 into engagement with a small pinion 32, mounted rigidly upon the rear end of the longitudinal shaft 33, said shaft being journaled in a bearing 34 of the cross-bar 3 and at its front end in the cross-bar 35, said cross-bar 35 being provided with a sleeve ex-

tension 36 in order to give a longer bearing for the shaft. Said cross-bar is also provided at its center with a heart-shaped enlargement to provide an annular groove 37 of corresponding form and with its narrowest width in the vertical plane of the axis of the shaft 33, for a purpose which will hereinafter appear.

38 designates a disk which is provided with a plurality of radial slots 39. The disk is preferably of wood and is provided at its rear side and at opposite sides of the slots 39 with metallic guide-strips 40, said strips being secured independently in position or in the form of a single casting secured by screws 41 to the disk, as shown in Fig. 5. At the opposite side of the disk are secured guide strips or cleats 42, also arranged at opposite sides of the slots 39.

43 designates arms, which preferably taper or narrow inward and fit between the guide cleats or strips 42, and as said arms are preferably of wood I secure at their rear edges the plates 44, which, being wider than the arms, snugly engage the grooves 45, formed by and between the disk and the strips or cleats 42, as shown clearly in Fig. 6, and said arms are provided with outwardly-projecting pins or tines 46, which preferably are also utilized to secure the plates to the arms, as indicated by dotted lines in said figure. The arms are alternately provided by preference with a different number of pins differently located in order that the pins of each arm may obtain a firm and reliable grip upon the malt as the machine is pushed across the room like an ordinary lawn-mower, it being assumed, of course, that the malt is spread out upon the floor to a depth of several inches, as is customary. The malt-turning disk is clamped rigidly upon the front end of the shaft 33 by means of a nut 47, as shown in Fig. 2, or may be secured rigidly thereon in any other suitable manner, and each arm 43 at its outer end is provided with a resilient brush, preferably a steel-wire brush, 48, in order to insure that all of the malt shall be operated upon—that is to say, shall be agitated—even if the floor happens to be uneven or irregular in some places. In this case it is obvious that these brushes accommodate themselves to the surface.

49 designates an arched plate which is secured by screws 50 or in any other suitable manner to the front end of the casing or frame and overhangs said wheel like a hood and is adapted to dislodge the loads of malt successively elevated by the upwardly-moving arms 39 and insure its redistribution over the floor to a substantially uniform depth, the malt previously at the bottom being now at the top. This is accomplished by simply pushing the machine across the room like a lawn-mower, as hereinafter explained.

To level the malt as nearly as possible, I employ a pair of rearwardly-diverging wings

51, secured, preferably, to the rear side of the arched plate or bracket, and these wings or levelers are provided with vertical slots 52, engaged by guide and clamping screws 53, that the levelers may be adjusted in order to accommodate varying quantities of malt.

By reason of the peculiar configuration of the groove 37 as the shaft 33 is rotated the rollers 54, carried by pins projecting rearward from the inner ends of the arms 43, cause said arms to slide inward and outward, and friction is reduced to the minimum in this action by means of antifriction-rollers 55, also carried by said arms and traveling between the guide-strips 40, the pins upon which rollers 54 and 55 are mounted extending through the radial slots 39 of the disk.

In practical operation the operator first adjusts the machine, so that the malt-turning wheel shall rotate in the desired direction, this being accomplished by grasping the handle 31 and throwing it to the right or left, as the case may be. When he throws it to the right, the tooth 30 engages the notch or cavity 26 and locks the shaft in such position. In this movement the pin 16, projecting from sleeve 13, mounted upon the cross-bar 2, is pushed to the right by reason of its engagement with the slot 17 of disk 18 on the shaft 19, and this lateral movement of the sleeve 13 by imparting a corresponding movement to the sleeve 8 moves the wheel 9 out of engagement and the wheel 10 into engagement with the small gear-wheel 32. When this operation is performed, the operator pushes the machine across the floor and the malt-turning disk, rotating in the same direction as wheel 32, engages the mass of malt upon the floor and throws it all to the same side of the machine. In this action the pins or tines 46 of the arms 43 engage the malt in rotation and raise it until it is dislodged from the upwardly-moving pins or tines by striking against the opposing end of the arch or hood 49, when it falls to the floor. By this operation the malt is turned over so that the malt formerly at the bottom of the mass will now be on top. When the operator reaches the opposite side of the room, he may, if desired, push the machine back to the side from whence he started and at the same time be enabled to throw the malt in the same direction as before. To accomplish this, he simply grasps and operates the handle 31 and throws it in the opposite direction or until the dog 30 engages the recess or cavity 27. This movement, through the medium of the slotted disk 18 and pins 16, slides the sleeve 13 on bar 2 in the opposite direction to that described, and consequently moves wheel 10 out of engagement and wheel 9 into engagement with wheel 32. By this disposition of parts it is obvious that the propulsion of the machine will cause the malt-turning wheel to turn in the opposite direction to that described, and consequently throw the malt in

the same direction it was thrown by the propulsion of the machine in the opposite direction.

From the above description it will be apparent that I have produced a machine by which malt may be easily and quickly turned and which is simple, strong, durable, and cheap of manufacture, and it is to be understood, of course, that I may resort to such changes as do not involve a departure from the spirit and scope of the invention.

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

15 1. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, and provided with radially-moving arms, for turning malt as the machine is pushed across the floor, substantially as described.

20 2. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, and provided with radially-moving arms, having resilient brushes at their outer ends, for turning malt as the machine is pushed across the floor, substantially as described.

30 3. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, and provided with radially-moving arms and with forwardly-projecting pins or tines for turning the malt as the machine is pushed across the floor, substantially as described.

35 4. A malt-turner, comprising a wheeled frame, a driven shaft, a rotatable disk at the front end of the frame and provided with radial arms for lifting the malt, said wheel being geared to said shaft, and a cam for radially adjusting said arms as the disk rotates, substantially as described.

40 5. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, and provided with radially-moving arms for turning the malt as the machine is pushed across the floor, and an arched plate or hood overhanging said disk, substantially as described.

50 6. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, and provided with radially-moving arms for turning the malt as the machine is pushed across the floor, an arched plate or

hood overhanging said disk, and rearwardly-diverging levelers carried by the machine, substantially as described. 55

7. A malt-turner, comprising a wheeled frame, a driven shaft, a longitudinal shaft geared thereto, a disk secured upon the front end of said shaft, and radially-moving arms carried by said disk, substantially as described. 60

8. A malt-turner, comprising a wheeled frame, a driven shaft, a longitudinal shaft geared thereto, a wheel mounted rigidly on the front end of the same and provided with radial slots, radial arms mounted upon said wheel and suitably guided, rollers carried by said arms, and a cam engaging said rollers and adapted to radially adjust said arms as the disk rotates, substantially as described. 65 70

9. A malt-turner, comprising a wheeled frame, a driven shaft, a sleeve keyed to slide but not to rotate on said shaft and provided with oppositely-disposed wheels, a longitudinal shaft carrying at its front end a malt-turning wheel and at its rear end a smaller wheel, and an adjustable frame for throwing one or the other of said sleeve-wheels in gear with the wheel upon the rear end of said shaft, substantially as described. 75 80

10. A malt-turner, comprising a wheeled frame, provided with a tubular handle, a driven shaft, a sleeve keyed to slide but not to rotate on said shaft, and provided with oppositely-disposed wheels, a longitudinal shaft carrying at its front end a malt-turning wheel and at its rear end a small wheel, an adjustable frame for throwing one or the other of said sleeve-wheels in gear with the wheel upon the rear end of said shaft, a shaft connected to said frame and carried by the handle of the machine, and a handle to operate said shaft and thereby adjust said frame, substantially as described. 85 90 95

11. A malt-turner, comprising a wheeled frame, a rotating disk at the front end of said frame, provided with radially-arranged arms, and pins or tines projecting from said arms, substantially as described. 100

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

FREDERICH HERSTER.

Witnesses:

M. R. REMLEY,
F. S. THRASHER.