

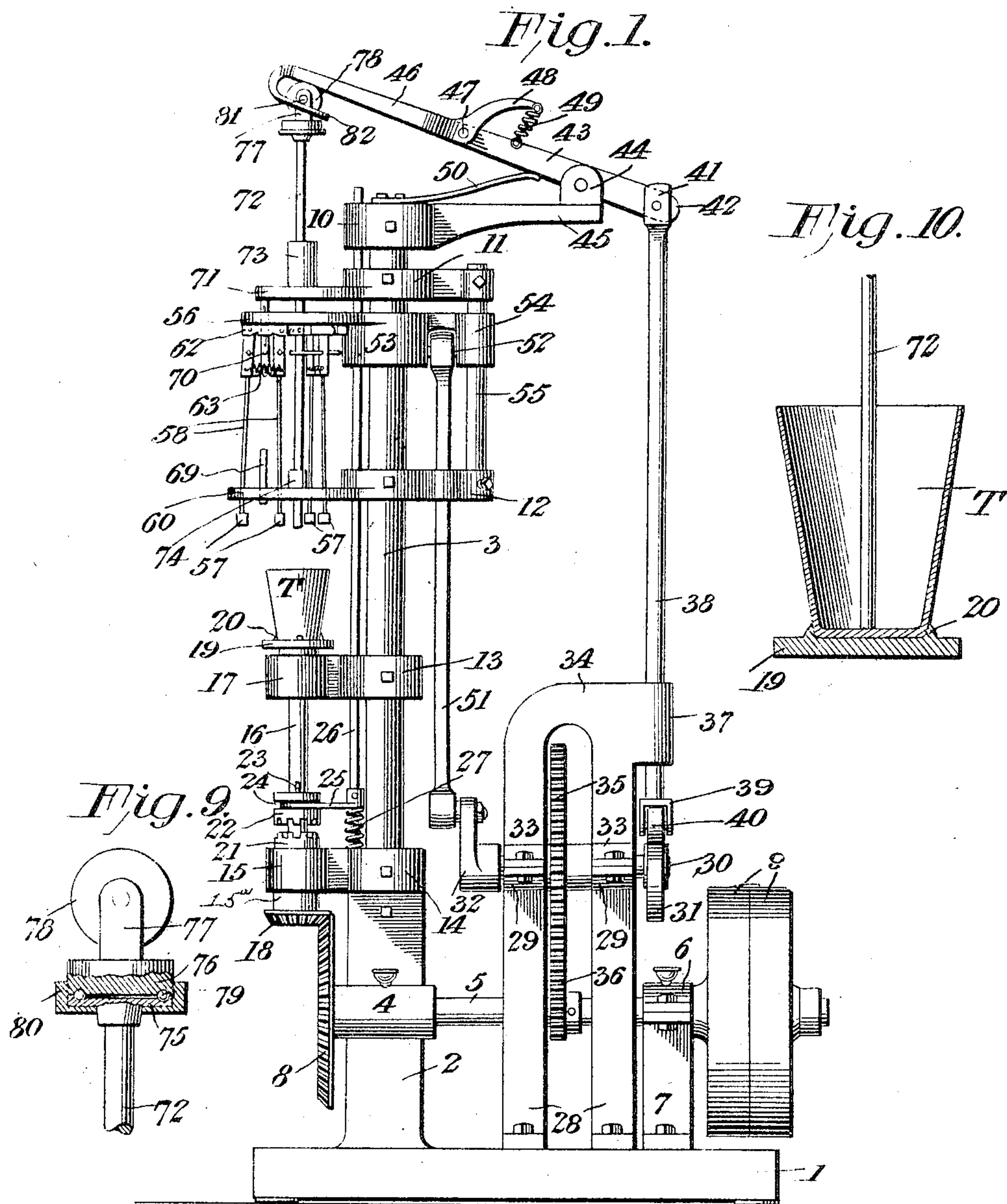
No. 798,151.

PATENTED AUG. 29, 1905.

W. F. ALTENBAUGH.
TUMBLER CLEANING MACHINE.

APPLICATION FILED FEB. 15, 1905.

3 SHEETS—SHEET 1.



Witnesses:

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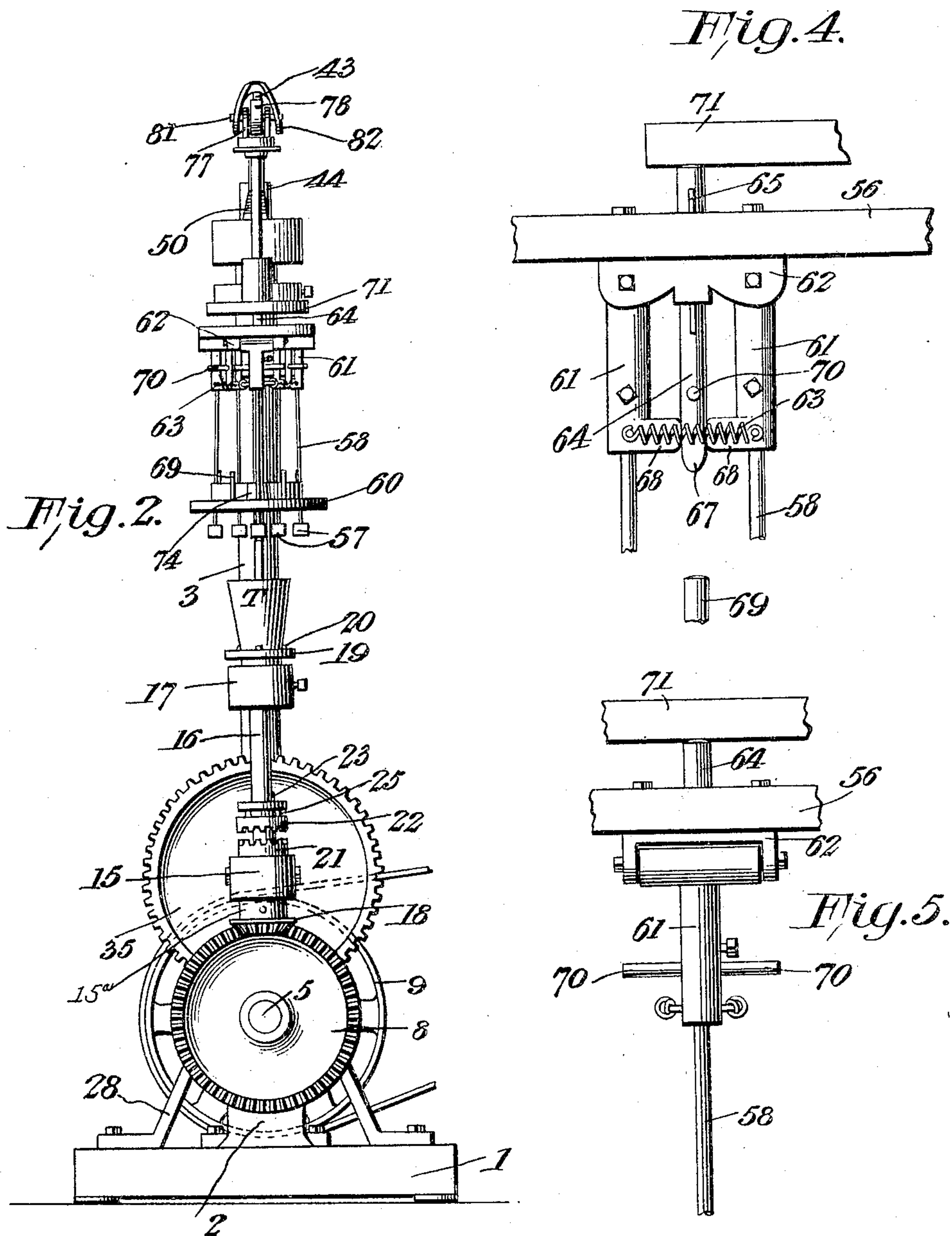
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3 SHEETS—SHEET 3.

Fig. 3.

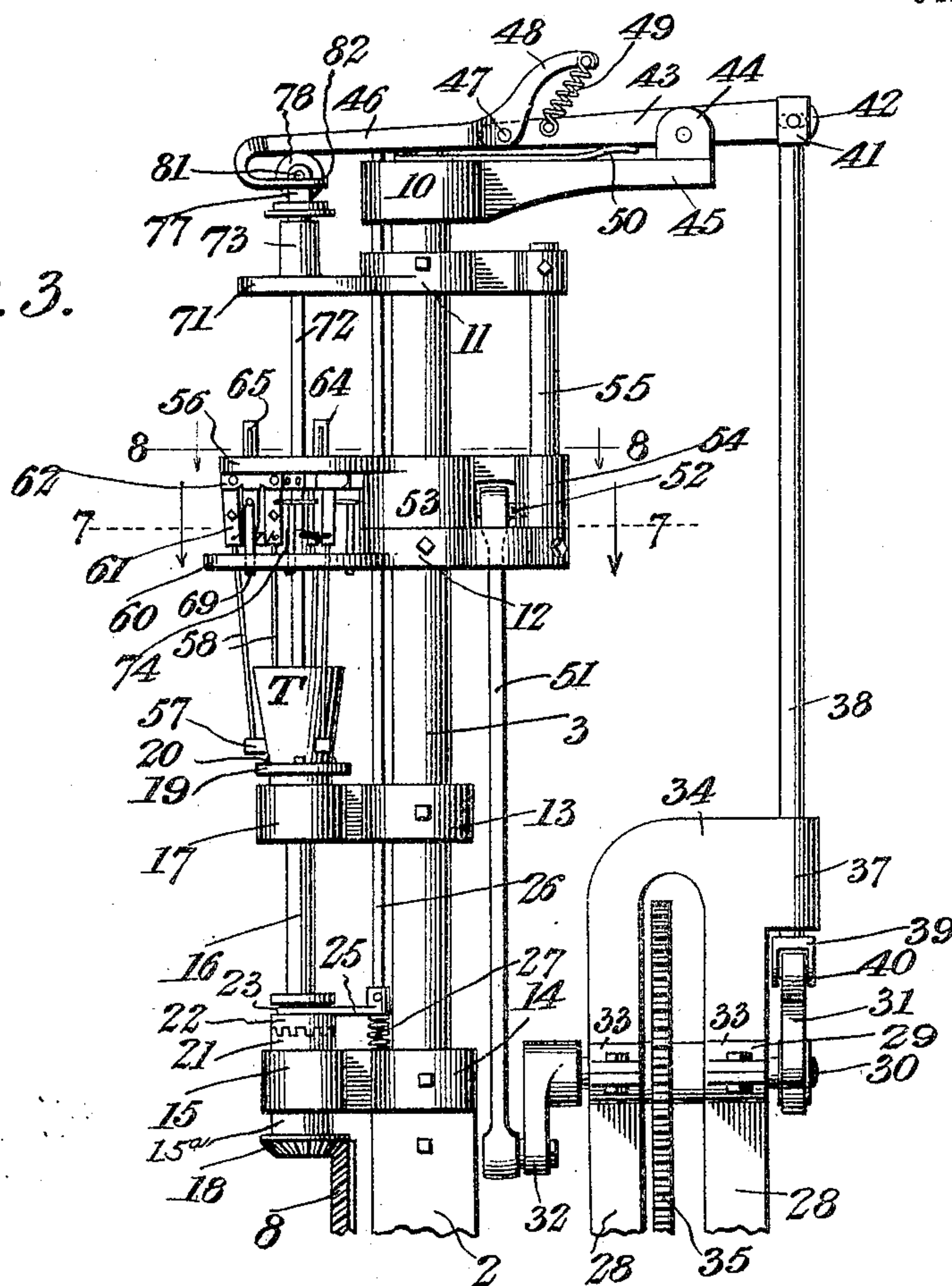


Fig. 11.

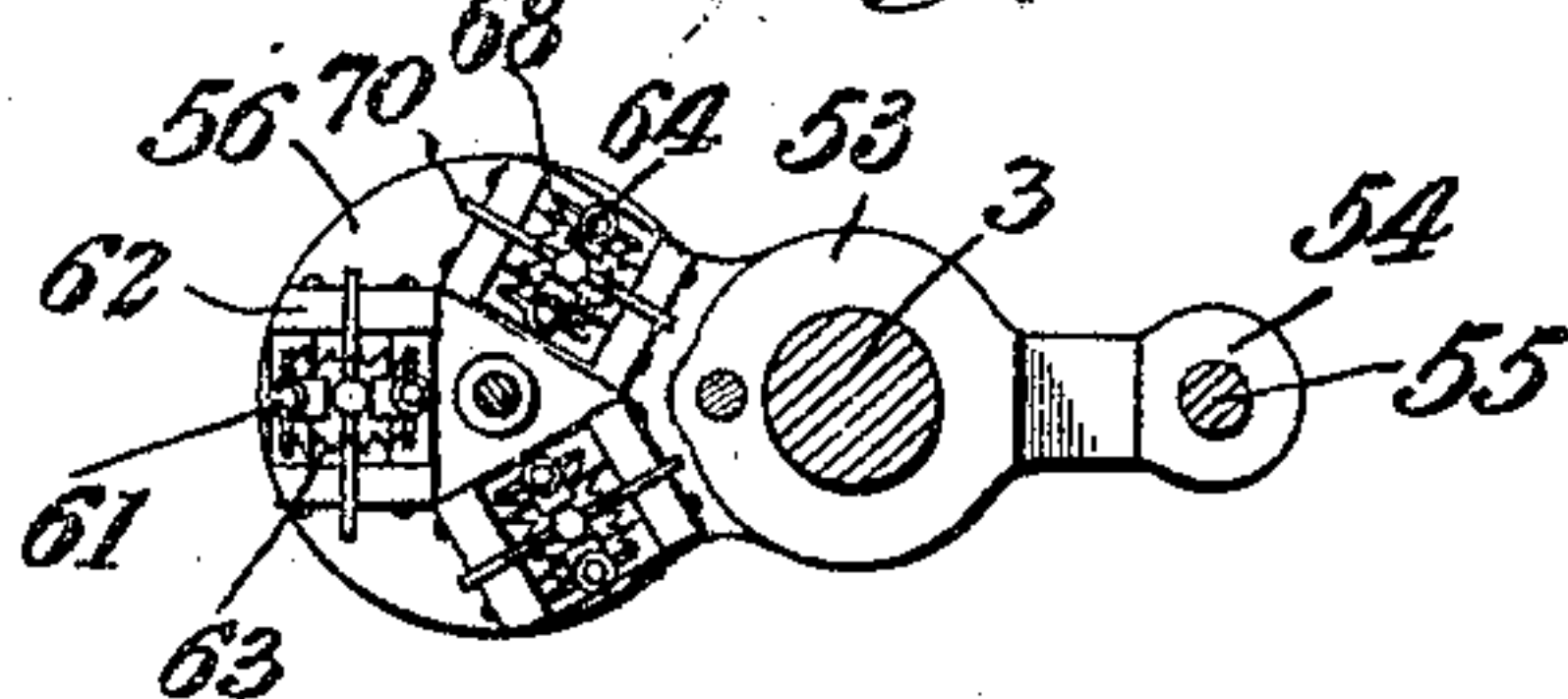


Fig. 8.

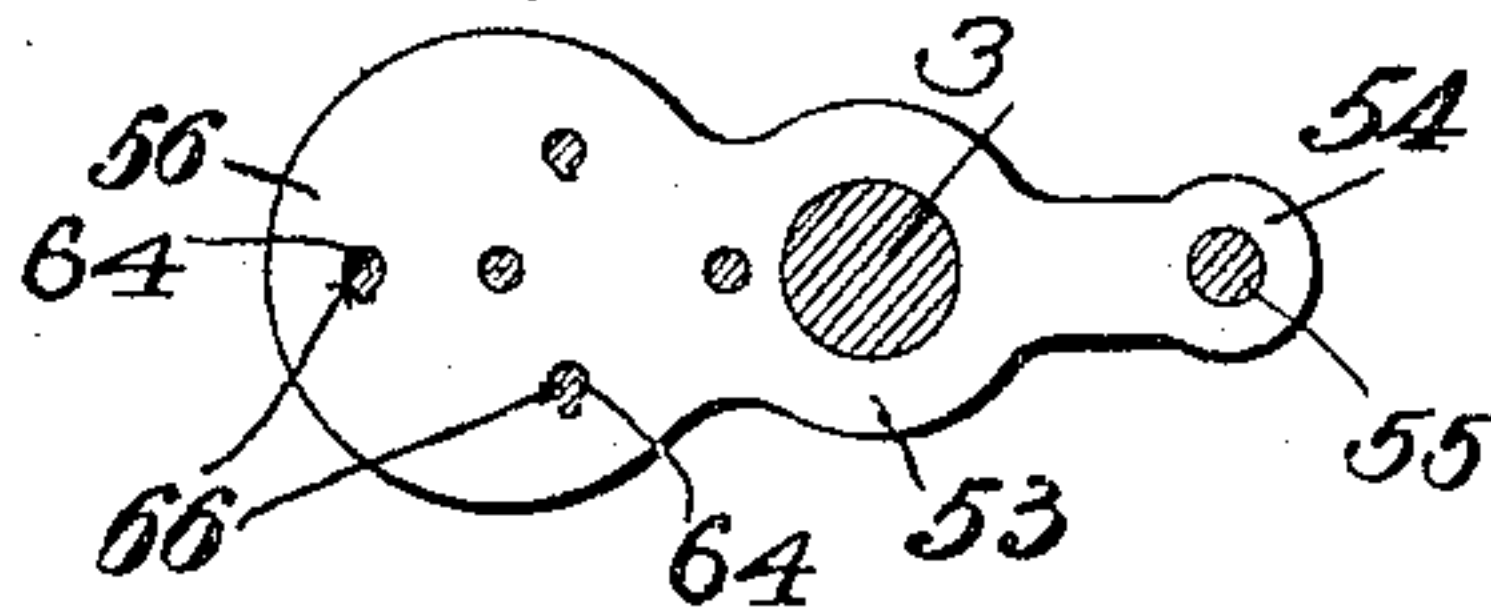


Fig. 7.

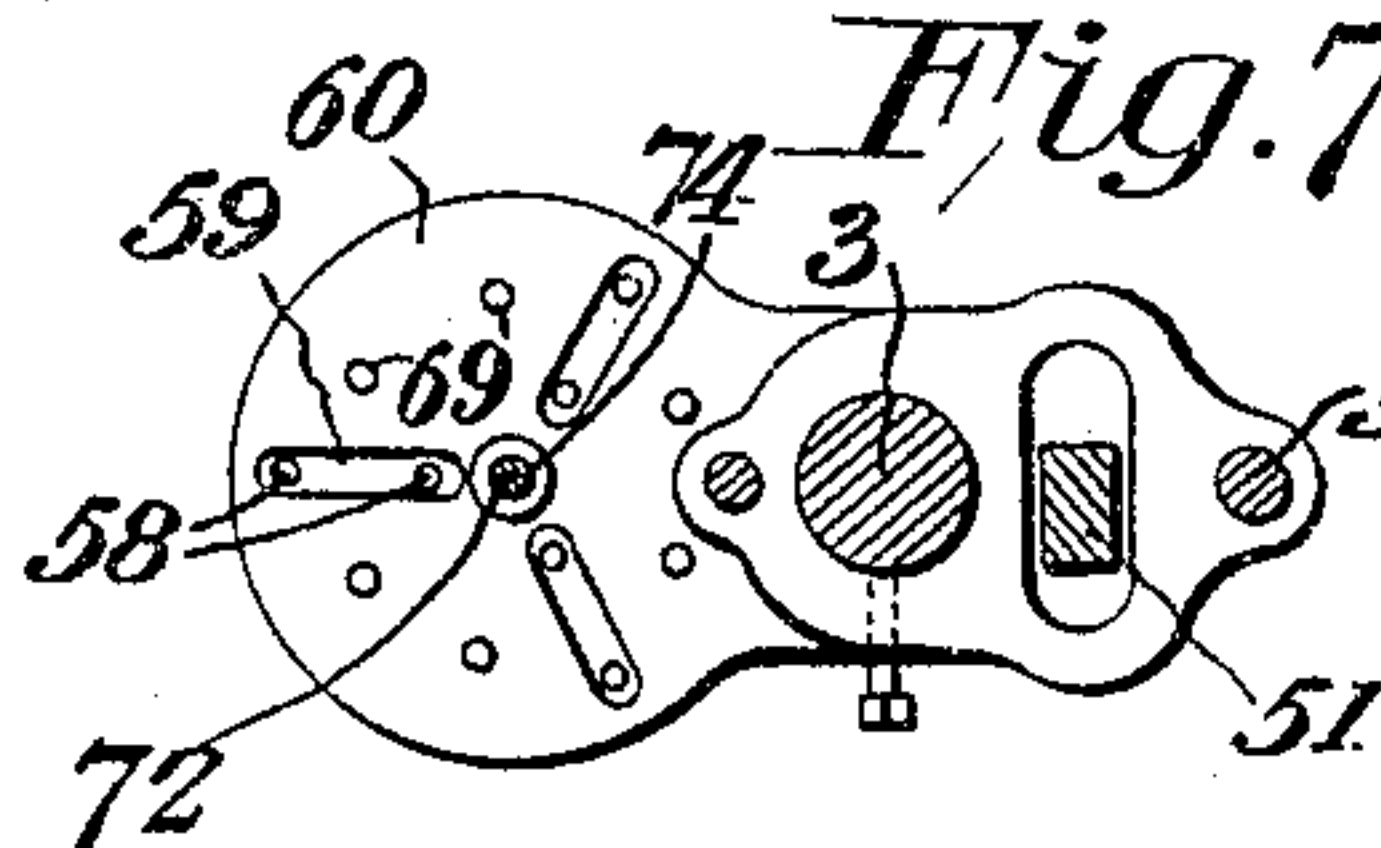
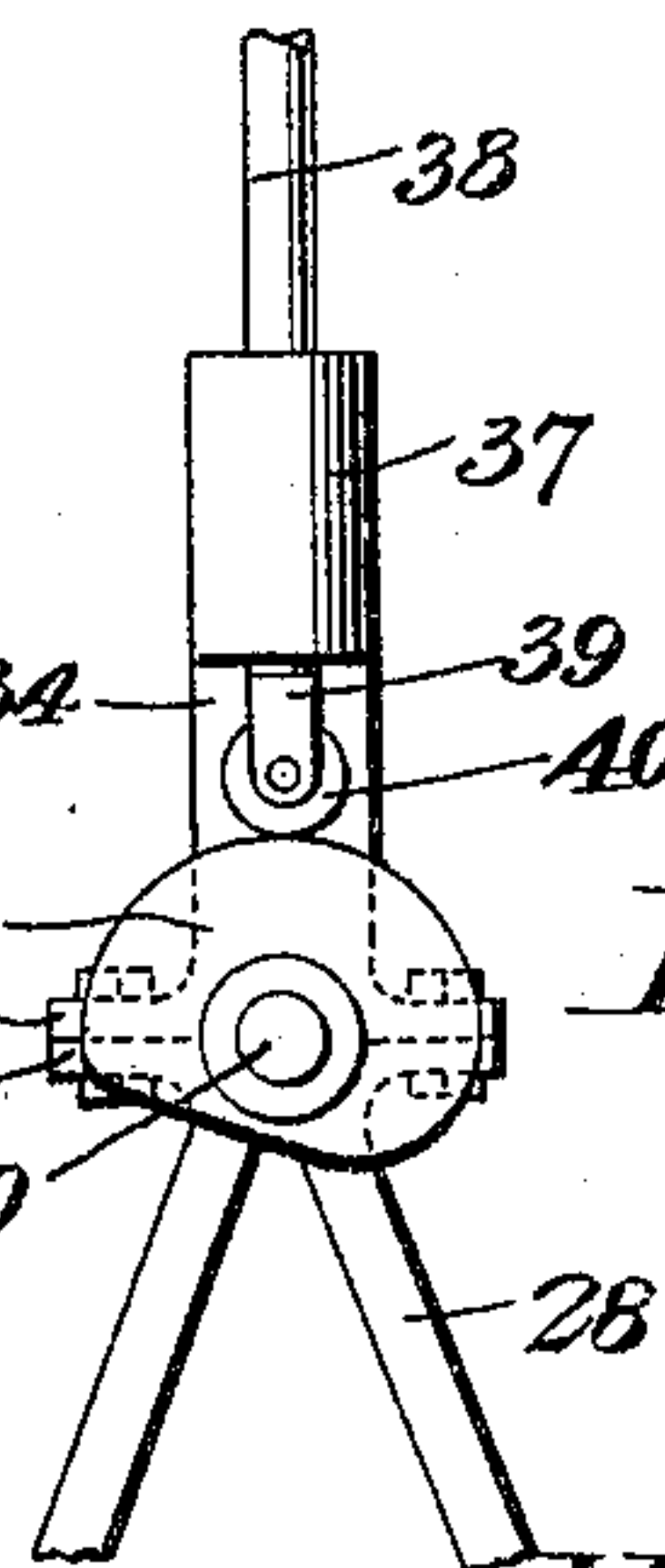


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM FRANCIS ALTENBAUGH, OF TIFFIN, OHIO.

TUMBLER-CLEANING MACHINE.

No. 798,151.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed February 15, 1905. Serial No. 245,775.

To all whom it may concern:

Be it known that I, WILLIAM FRANCIS ALTENBAUGH, a citizen of the United States, residing at Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Tumbler-Cleaning Machine, of which the following is a specification.

This invention relates to tumbler-cleaning machines.

As is well known in the art of making tumblers, the edges of the mouth portion thereof have to be ground, and this is generally accomplished by the employment of a suitable stone and water. When the grinding is completed, there will be a deposit in the tumbler of sediment from the stone mixed with water, and this has heretofore been removed by hand. The objection to this procedure is that it is slow and expensive and materially reduces the profits of the manufacturer of glass tumblers.

It is the object of the present invention in a ready, simple, thoroughly feasible, practical, and rapid manner, mechanically to effect cleaning of the tumblers without danger of cracking or breaking the same.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a tumbler-cleaning machine, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in side elevation of a machine constructed in accordance with the present invention and exhibiting the wiping mechanism in its elevated or inoperative position. Fig. 2 is a front elevation of the machine. Fig. 3 is a view in side elevation of a portion of the machine, exhibiting the cleaning mechanism in coöperative relation with a tumbler. Fig. 4 is a fragmentary detail view of a portion of the upper part of the machine. Fig. 5 is a similar view of the parts shown in Fig. 4, but taken at right angles thereto. Fig. 6 is a fragmentary detail of a part of the lower portion of the machine. Fig. 7 is a horizontal sectional view

taken on the line 7 7, Fig. 3, and looking in the direction of the arrow thereon. Fig. 8 is a horizontal sectional view taken on the line 8 8, Fig. 3, and looking in the direction of the arrow thereon. Fig. 9 is a detail view in section of the upper portion of the tumbler-clamp. Fig. 10 is a view in elevation, partly in section, showing the manner in which the tumbler-clamp holds the tumbler in position while being operated upon. Fig. 11 is an inverted plan view exhibiting more particularly the manner in which the wipers are disposed.

Referring to the drawings, 1 designates the base of the machine, which has rising from it an arm 2, to which is securely bolted or otherwise secured a standard 3, herein shown as circular in cross-section, although it may be of any other preferred contour. The arm carries or has cast integral with it a journal-bearing 4, in which is mounted one end portion of a shaft 5, the other end portion of which is mounted in a journal-bearing 6, carried by a bracket 7, bolted to the base. The shaft 5, which constitutes the main shaft, carries at one end a bevel-gear 8 and at its other end, exteriorly of the bracket 7, a pair of pulleys 9, one of which is tight on the shaft and the other loose, as usual. Upon the standard are rigidly bolted or otherwise secured five castings 10, 11, 12, 13, and 14, which support the wiping and adjunctive mechanisms in operative position relatively to each other. The casting 14 has formed on one side thereof a bearing 15, in which is journaled a sleeve 15^a, having loosely mounted therein the lower portion of a shaft 16, the upper portion of which is journaled in a bearing on the outer end of the casting 13, the upper end of the shaft having secured to it a tumbler-rest 19, provided with lugs 20, which operate to hold the tumbler properly positioned upon the rest. The sleeve 15^a has rigidly secured to it at its upper end one member 21 of a clutch and at its lower end a bevel-gear 18, that meshes with the gear 8. The other clutch member 22 is mounted for sliding movement only on the shaft 16, being held against rotation thereon through the medium of a key 23. The clutch member 22 is provided intermediate of its ends with a circumferential groove 24, which is engaged by a yoke 25, carried by the lower end of a rod 26, that projects upward through the castings 13, 12, 11, and 10 and above the upper face of the latter, as clearly shown in Fig. 1. Interposed between the lower end of the yoke 25 and the

upper face of the casting 14 is a coil-spring 27, that operates normally to hold the clutch-faces out of engagement with each other, the locking of the clutch members being effected
 5 at the time the wipers are in operation, as will hereinafter appear.

The base has bolted to it two brackets 28, which, as shown in Fig. 2, are approximately A-shaped and carry at their upper ends bearings 29 to receive a shaft 30, one end of which carries a cam 31 and the other end a crank 32. The upper or cap members 33 of the bearings 29 are formed by a casting 34, and the brackets 28 and members of the casting 34 are spaced apart a sufficient distance to permit a gear-wheel 35 to be mounted between them, which wheel is carried by the shaft 30 and meshes with a smaller gear-wheel 36, carried by the shaft 5. The casting is provided on its outer side with a vertical bearing 37, in which is mounted a rod 38, having at its lower end a yoke 39, between the members of which is journaled a roller 40, that is adapted to bear upon the periphery of the cam 31, as clearly shown in Fig. 6, the greater portion of the perimeter of the cam being a true radius. The upper end of the rod 38 is provided with a yoke 41, which straddles and is pivotally connected with the end
 30 of one member 42 of a two-part lever 43, the said member being pivoted between a pair of ears 44, carried by an arm 45, forming a part of the casting 10. The other member 46 of the lever is pivotally connected at 47 to the member 43 and is provided with a rearward-projecting upwardly-curved extension 48, with which is connected one end of a coiled spring 49, the other end of which is connected to the member 42, the object of the
 40 spring, as will hereinafter appear, being to permit the member of the lever to yield under certain conditions during the operation of the machine. In order to cause the roller 40 always to contact with the perimeter of the cam, there is a leaf-spring 50 provided, which is secured to the upper side of the casting 10 and bears against the under side of the member 43 adjacent to the ears 44.

To the crank 32 is connected one end of a
 50 pitman-rod 51, the other end of which is journaled upon a shaft or journal 52, carried by a casting 53, mounted for sliding movement upon the standard 3, the casting being provided with a bearing or sleeve 54 to slide
 55 upon a shaft 55, carried by the rear ends of the castings 11 and 12, as clearly shown in Fig. 1.

The casting 53 is provided with a forwardly-projecting extension 56, with the under side
 60 of which is combined the wiping mechanism, which consists in this instance of three pairs of wipers 57, that may be made of any suitable material—such as rubber, felt, or cork—and are carried by resilient arms 58, that project through slots 59, formed in an extension

60 of the casting 12, as clearly shown in Fig. 7. As therein shown, there are three sets of wipers of two each, and under ordinary circumstances this number will be sufficient for securing the objects designed; but it is to be
 70 understood that, if preferred, the number may be increased if found necessary or desirable and still be within the scope of the invention. Each wiper-rod 58 is secured at its upper end to a hanger 61, and each pair of hangers is
 75 pivotally combined with one of three brackets 62, depending from the under side of the extension 56 of the casting 53. The individual pairs of hangers are connected by coiled springs 63, disposed on their opposite sides, 80 as shown in Fig. 4, the normal tendency of which is to cause the hangers to approach each other. It is to be understood that the hangers will be so disposed as to cause two of the wiper-rods to extend through each of the
 85 slots 59, and by this arrangement the rods are guided for proper operation. It will of course be obvious that the rods must be flexible, thus to yield to permit the wipers properly to adjust themselves to tumblers of different thick-
 90 nesses and also to obviate the exertion of such pressure as would be liable to cause breakage of the ware.

In order to cause the wipers normally to remain open or in the position shown in Fig. 1,
 95 there is a push-rod 64 combined with each pair of hangers and provided with a key 65 to engage keyways formed in the openings 66 in the extension of the casting 53, as shown in Fig. 8. The lower end 67 of the push-rod
 100 is tapered, as shown in Fig. 4, and is adapted to project between inward projecting lugs 68, formed on the lower ends of the hangers. So long as the push-rods are in the position shown in Fig. 4 the wipers will be held apart;
 105 but as soon as the push-rods are forced upward and out of engagement with the lugs 68 the springs 63 will perform their function, and thus cause the wipers to approach each other and to grasp the interior and exterior
 110 of a tumbler. The mechanism to effect the release of a push-rod consists of a pair of studs 69, carried by the extension 60 of the casting 12, the studs being arranged in the path of movement of a cross-bar 70, projecting at right
 115 angles to the push-bar, as shown in Fig. 5. On the down motion of the crank the pitman-rod is depressed and with it the casting 53, and the latter brings the studs 69 into engagement with the cross-bars 70, whereupon the
 120 push-rods will be forced upward, and thus permit the springs 63 to exert inward draft upon the hangers and close the wipers around the tumbler T. The push-rods will remain in their shifted position until the casting 53
 125 is lifted by the up motion of the crank 32, whereupon the push-rods contact with an extension 71 of the casting 11, as shown in Fig. 1, and are moved downward, and their tapered ends are again forced between the lugs
 130

68, and thus open the wipers. As will be obvious, the tumbler will have to be firmly held upon the tumbler-rest during the operation of cleaning, and at the same time there must be no interference between the wipers and the means for securing this result. To clamp the tumbler in position, there is a rod 72 provided, which works in a bearing 73, carried by the extension 71 of the casting 11, and in a similar bearing 74, carried by the extension 60 of the casting 12, and projects beyond the under face of the latter. The upper end of the rod carries a disk 75, Fig. 9, in which is formed one member of a ball-bearing race, the other member of which is formed in a head 76, carried by a yoke 77, between the members of which is journaled a roller 78. The two races are engaged by balls 79 and are held operatively combined by a cap 80, which is threaded onto the head 76, as clearly shown. By this arrangement it will be seen that the rod 72 will be free to rotate with the tumbler without disturbing the positions of the yoke 77 and roller 78.

As will be noted by reference to Fig. 1, the bevel-gear 8 is of relatively large size, while the bevel-gear 18 is of relatively small size, and by this pronounced difference in the diameters of the two gears the shaft 16 is driven at a very high rate of speed, this being essential in order to secure the best results and to expedite the work. By the proper speeding of the different parts the complete cleaning of a tumbler is effected upon one downward and upward movement of the wipers, and the time that elapses between the passage of the roller from the flat to the rounded surface of the cam, during which period the wipers will be in the position shown in Fig. 1, will be ample to permit an operator to remove the cleaned tumbler from the rest and replace it by one to be cleaned.

The journal 81 of the roller 78 projects laterally beyond the sides of the yoke 77 and is designed to engage with the upper faces of a pair of spring-fingers 82, carried by the free end of the member 46 of the two-part lever 43, the roller being designed to engage with the under side of the member 46, as shown in Fig. 1. Upon downward movement being imparted to the lever 43 through the rod 38 the clamp-rod 72 is forced down into the tumbler and bears against the bottom thereof, as clearly shown in Fig. 10, and as the bottoms of all tumblers are not of the same thickness it is necessary that some means should be provided to compensate for this, and this is secured by the spring 49, which will yield as the rod 72 contacts with the bottom of the tumbler, and thus prevent damage which might otherwise result.

The operation of the machine is as follows: The parts being in the position shown in Fig. 1, a tumbler is placed upon the rest 19, and as soon as the roller 40 passes from the flat

portion of the cam the rod 38 is moved upward, thereby forcing down the lever 43 and bringing the lower end of the rod into engagement with the tumbler. At the same time downward movement is imparted to the casting 53 by the rod 51, but the movements of the cam 31 and crank 32 are so timed that the rod 72 will be in operative engagement with the tumbler before the wipers 57 are in position to perform their function. As the casting 53 descends the studs 69 engage the cross-bar 70 and force the push-rod 64 upward, thereby permitting the wipers to close upon the opposite sides of the tumbler, and at the same time or slightly in advance thereof the rod 26 is depressed by the member 46 of the two-part lever 43, thereby bringing the clutch members into locked engagement and starting the tumbler to rotate. This operation will continue until the roller 40 passes from the circular to the flat portion of the cam, whereupon the casting 53 will be raised, moving the wipers out of engagement with the tumbler, and the lever 43 will also be rocked, moving its member 46 out of engagement with the rod 26, whereupon the clutch members are disengaged and the movement of the tumbler-rest stopped.

The operation of the machine is exceedingly rapid and thorough in its action and will positively perform the functions designed.

Having thus described the invention, what is claimed is—

1. A tumbler-cleaning machine embodying a tumbler-rest rotatable in a fixed horizontal plane, and reciprocatory wipers coacting therewith.

2. A tumbler-cleaning machine embodying a tumbler-rest rotatable in a fixed horizontal plane, and vertical reciprocatory wipers coacting therewith.

3. A tumbler-cleaning machine embodying a tumbler-rest rotatable in a fixed horizontal plane, reciprocatory wipers coacting therewith, and means to cause the wipers to close on their descent and to open on their ascent.

4. A tumbler-cleaning machine embodying a rotatable tumbler-rest, a reciprocatory support carrying a plurality of wipers, and means to cause the wipers to close as they approach the rest and to open as they recede therefrom.

5. A tumbler-cleaning machine embodying a rotatable tumbler-rest, clutch mechanism coacting therewith, a plurality of reciprocatory wipers, means to cause the wipers to close and the clutch to lock as the wipers approach the rest, and means to cause the wipers to open and the clutch to unlock as the wipers recede from the rest.

6. A tumbler-cleaning machine embodying a rotatable tumbler-rest, reciprocatory wipers coacting therewith, and a reciprocatory tumbler-clamping rod.

7. A tumbler-cleaning machine embodying a rotatable tumbler-rest, reciprocatory wipers

coacting therewith, and a reciprocatory rotatable tumbler-clamping rod.

8. A tumbler-cleaning machine embodying a rotatable tumbler-rest, reciprocatory wipers coacting therewith, and a reciprocatory rotatable and vertically-yieldable tumbler-clamping rod.

9. In a tumbler-cleaning machine, the combination with a rotatable tumbler-rest, and reciprocatory wipers coacting therewith, of a lever having a yielding member, and a tumbler-clamping rod operatively combined with the said member.

10. In a tumbler-cleaning machine, the combination with a rotatable tumbler-rest embodying clutch mechanism, reciprocatory wipers, means for causing the wipers to close as they approach the rest and to open as they recede therefrom, a rock-lever, a tumbler-clamping rod connected therewith, and a clutch-operating member disposed in the path of movement of the rock-lever.

11. In a tumbler-cleaning machine, the combination with a rotatable tumbler-rest, of a reciprocatory member, spring-retracted hangers supported by the member, wipers carried by the hangers, a fixed member through which the stems of the wipers project, a push-rod operating normally to hold the wipers apart, a cross-bar carried by the push-rod, and studs carried by the fixed member and arranged in the path of movement of the cross-bar and operating to force the push-bar out of engagement with the hangers thus to allow the wipers to approach each other.

12. In a tumbler-cleaning machine, a shaft carrying a fixed and a movable clutch member, a tumbler-rest carried by the shaft, a

yoke engaging the movable clutch member, a spring-pressed rod connected with the yoke, reciprocatory wipers coacting with the rest, a rotatable tumbler-clamping rod, and a rock-lever to which the spring-pressed rod is connected, the lever being adapted to operate the clutch-rod to bring the movable clutch member into engagement with the fixed clutch member.

13. In a tumbler-cleaning machine, the combination with a rotatable tumbler-rest and reciprocatory wipers coacting therewith, of a rotatable tumbler-clamping rod, a rock-lever having a yielding member connected with the rod, a rod connected at one end with the lever and having its other end provided with a roller, and an eccentric engaging the roller to rock the lever to move the clamping-rod into and out of engagement with a tumbler.

14. In a tumbler-cleaning machine, a shaft carrying a fixed and a movable clutch member, a tumbler-rest carried by the shaft, a yoke engaging the movable clutch member and having means combined therewith to hold the clutch members normally separated, reciprocatory wipers coacting with the rest, a rotatable tumbler-clamping rod, and a rock-lever to which the clutch-rod is connected, the lever being adapted to operate the clutch-rod to bring the movable clutch member into engagement with the fixed clutch member.

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

WILLIAM FRANCIS ALTENBAUGH.

Witnesses:

RUSH ABBOTT,
CHANCE E. DEWALD.