

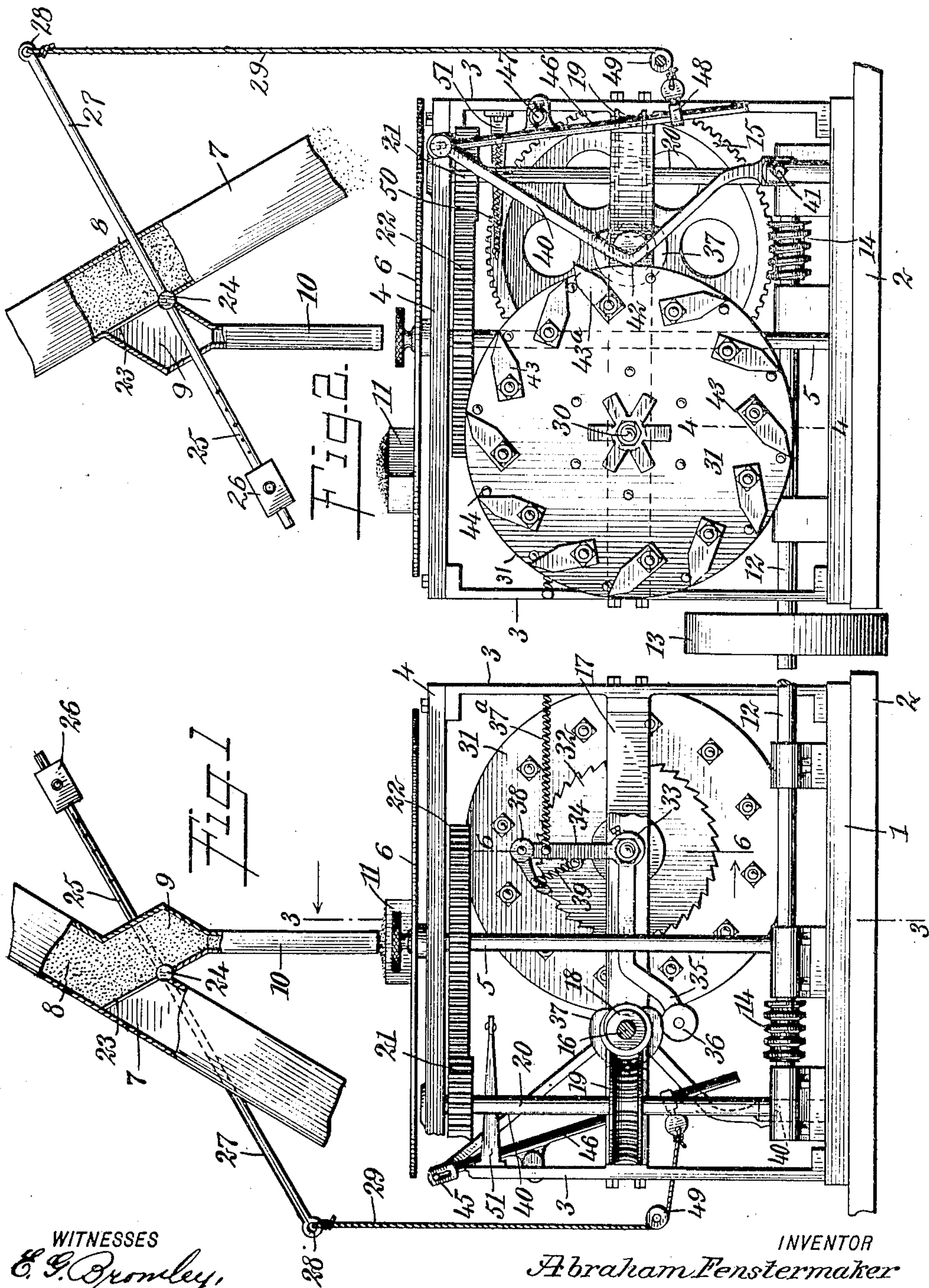
No. 887,615.

PATENTED MAY 12, 1908.

A. FENSTERMAKER.
SAMPLE TAKING MACHINE.

APPLICATION FILED OCT. 4, 1907.

2 SHEETS—SHEET 1.



WITNESSES
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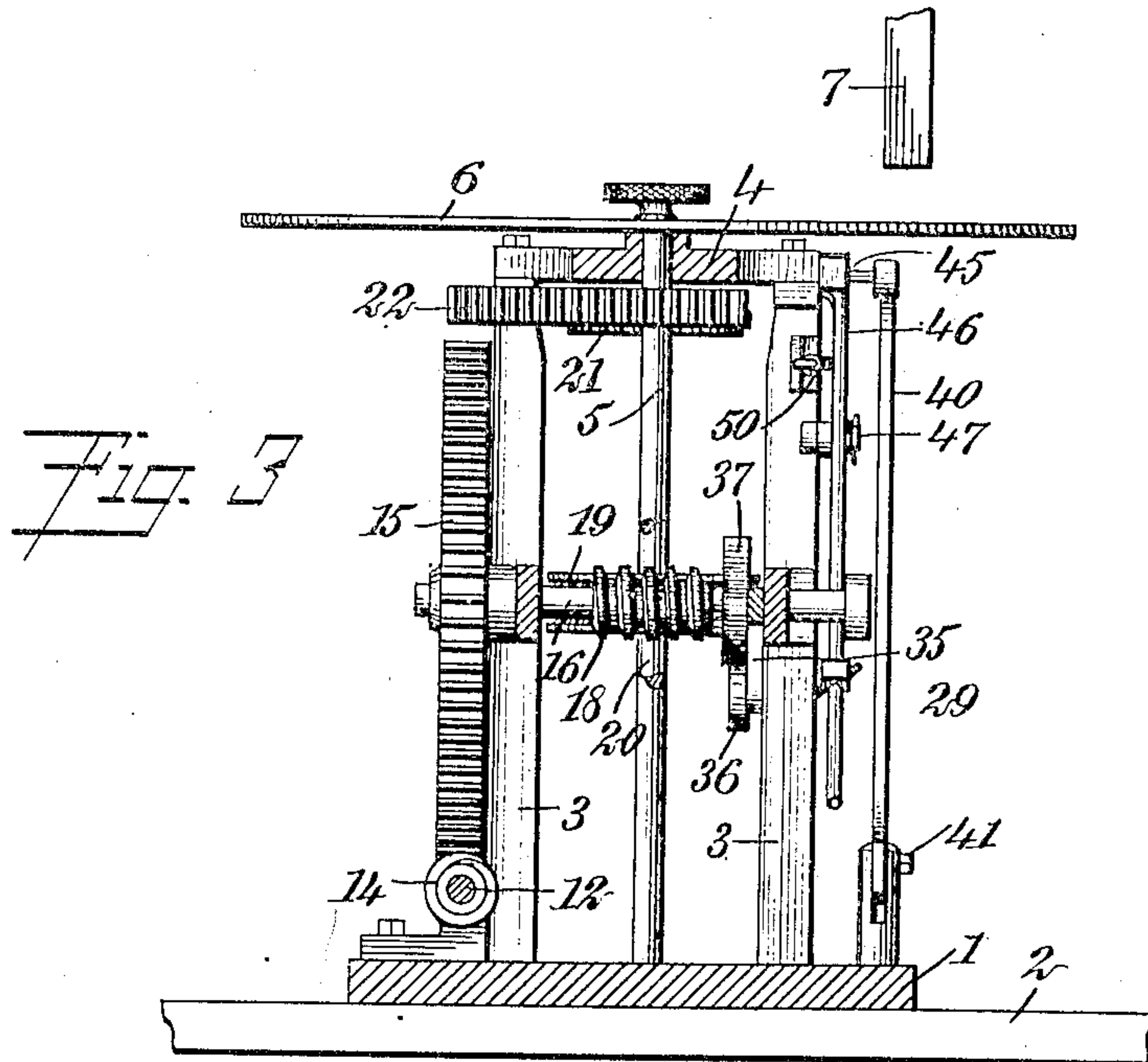


Fig. 4

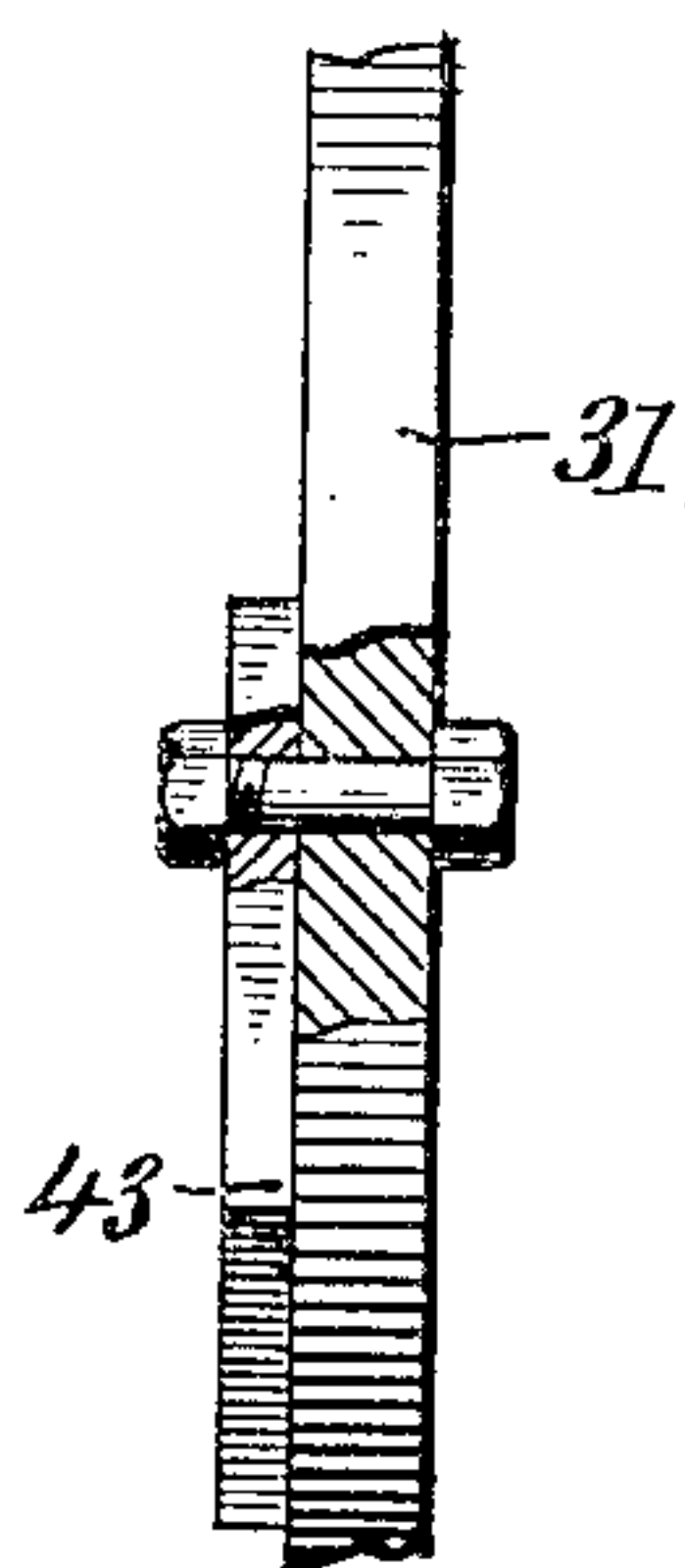
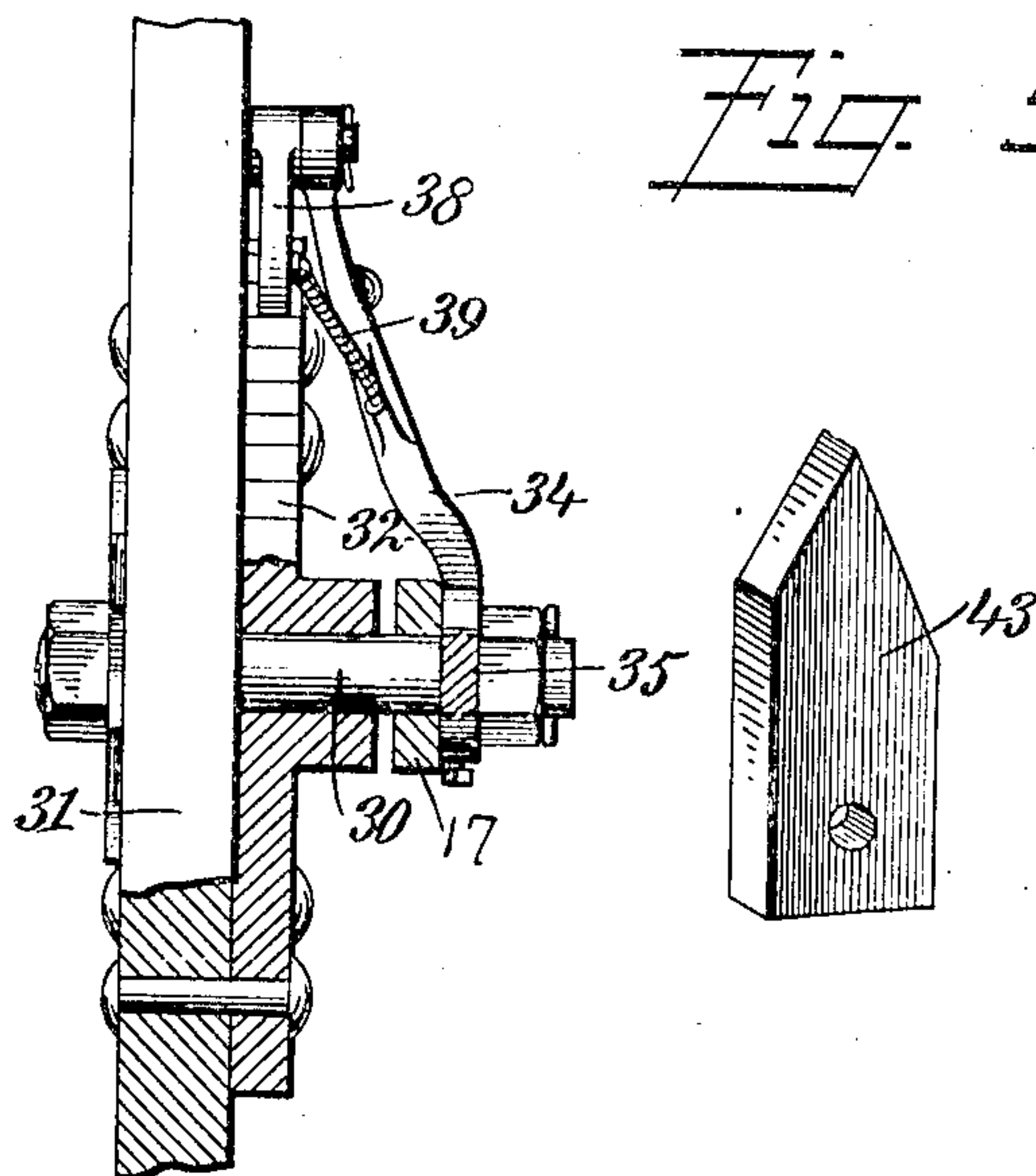


Fig. 5



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UNITED STATES PATENT OFFICE.

ABRAHAM FENSTERMAKER, OF COLTON, CALIFORNIA.

SAMPLE-TAKING MACHINE.

No. 887,615.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed October 4, 1907. Serial No. 395,875.

To all whom it may concern:

Be it known that I, ABRAHAM FENSTERMAKER, a citizen of the United States, and a resident of Colton, in the county of San Bernardino and State of California, have invented a new and Improved Sample-Taking Machine, of which the following is a full, clear, and exact description.

This invention relates to mechanism for taking samples from time to time, of a manufactured material or product, and is especially useful for the purpose suggested in connection with the manufacture of granular or pulverized material such as powder or flour.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine, certain parts being broken away and shown in cross section; Fig. 2 is an elevation showing the opposite side from that shown in Fig. 1; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1 and illustrates details of the construction; Fig. 4 is a vertical section on the line 4—4 of Fig. 2 and further illustrates details of the construction; Fig. 5 is a perspective view of one of the dogs which are attached to a part of the machine; and Fig. 6 is a cross section on the line 6—6 of Fig. 1 and illustrates details of the construction.

Referring more particularly to the parts, 1 represents the base-plate of the machine which is adapted to rest upon the horizontal support 2, and is provided with standards or uprights 3, which support a horizontal cover or table 4. Passing downwardly through the table 4 I provide a rotatable spindle 5, which extends above the table, at which point it carries a turn table or receptacle holder 6. At a suitable point above the turn table 6 a chute 7 is provided, through which the material 8 to be sampled, passes. This chute is provided with an offset branch 9; from which a sample chute 10 extends downwardly, the lower end of the sample chute being disposed near the face of the turn table 6, so that as the turn table revolves the receptacle 11 placed thereupon may come under the chute as illustrated in Fig. 1.

I provide means for driving the turn table from the machine which is producing, or operating upon the material 8. For this purpose on the base plate 1 of the machine I provide a driving shaft 12, which is provided with a belt wheel 13, adapted to be driven from some moving shaft of the main machine. At a suitable point, this shaft 12 is provided with a worm 14, and this worm meshes with a worm wheel 15, as illustrated in Fig. 2. The said worm wheel 15 is rigidly attached to a horizontal shaft 16, mounted in horizontal frame bars 17 as shown. On the shaft 16 there is provided a worm 18, and this worm meshes with a worm wheel 19, carried rigidly by a vertical shaft 20. The upper end of this shaft 20 carries rigidly a pinion 21, which meshes with a large gear wheel 22, which is rigidly attached to the main spindle 5. From this arrangement it should be understood that when the shaft 12 rotates, a continuous rotary movement will be transmitted to the turn table 6.

I provide means for automatically admitting a quantity of the material 8 into the sample chute 10 at regular predetermined intervals. For this purpose, at the point of junction of the branch 9 and the main chute 7 I provide a gate 23, attached to a rocking stem 24. This stem carries rigidly, a balance arm or lever 25, the tail end of which is provided with an adjustable counter-weight 26. The operating arm 27 of this lever is provided with an eye 28 to which a cord 29 is attached, the said cord extending down to the mechanism of the machine for the purpose of enabling the gate to be operated from time to time as suggested. The mechanism for operating this cord will now be described. In this connection it should be understood that the gate is held in a closed position as indicated in Fig. 2, by the counterweight 26.

On one of the bars 17 there is rotatably mounted a stub shaft 30, which carries rigidly a time disk 31, on the face of which there is rigidly attached a ratchet wheel 32. On the stub shaft 30 there is loosely mounted a crank lever 33, having a vertical arm 34 and a horizontal arm 35. The horizontal arm 35 is provided with a roller 36, which is disposed under a cam 37, rigidly carried by the aforesaid shaft 16. A spring 37^a connects the vertical arm 34 with one of the standards 3 so as to hold the roller 36 against the cam, and maintains the arm 34 in a vertical position as shown. The arm 34 carries

a pivoted pawl 38, the point whereof is in engagement with the teeth of the ratchet wheel 32, being held thereagainst by a suitable spring 39 attached to the arm 34. From this arrangement it should be understood that with each rotation of the shaft 16 the cam operates to depress the arm 35 of the crank lever 33. In this way the arm 34 is swung toward the left so as to advance the ratchet wheel 32 and the time disk 31 through one tooth space; then the cam allows the spring 37^a to bring the crank lever 33 back to its normal position. It is to be understood that a plurality of receptacles will be placed upon the turn table at equal distances apart, and the mechanism is arranged so that the gate 23 is opened when these receptacles come under the sample spout 10. In this way samples can be taken periodically as desired.

In order to open the gate at the required time, I provide at one side of the machine as illustrated in Fig. 2, a bent lever 40 the lower end whereof is mounted upon a horizontal pivot bolt 41. By reason of the fact that this lever is in bent form it presents an angular nose 42, which projects across the edge of the time disk 31. On this disk, I pivotally attach a plurality of dogs 43, the form of which is clearly illustrated in Fig. 5. These dogs have pointed forward ends which may project from the edge of the disk. The operative position of one of these dogs is illustrated by the dog 43^a in Fig. 2. Any of the dogs 43 may be moved into this position by hand. The other dogs represented in this figure lie in a closed or folded position, their sharpened forward ends being received against stops 44, arranged an equal distance apart around the edge of the disk. When in this position the nose 42 does not project into the path described by the ends of the dogs, and hence they pass the lever 40 without operating it. The upper end of the lever 40 has a pin-and-slot connection 45, illustrated most clearly in Fig. 1, with a lever 46, which is pivotally mounted at 47 on the frame of the machine. The lower end of the lever 46 projects a considerable distance below the pivot point 47 and is provided with an adjustable collar 48, to which the cord 29 is attached, said cord being first passed around a guide pulley 49, as shown, the support for which is omitted for the sake of clearness. A spring 50 is attached to the upper end of the lever 46, and holds the lever 40 in a forwardly disposed position so that it is in the path of the dogs 43 if they project as at 43^a. The outer end of this spring 50 is attached to a suitable bracket 51 carried by one of the standards 3, as shown in Fig. 2.

The mechanism of the machine is so designed that the time disk 31 will make one revolution in an hour, when driven at a uniform speed from the main machinery. For

convenience, the ratchet wheel 32 is provided with sixty teeth, so that at the expiration of each minute the time disk is advanced through one-sixtieth of a complete revolution. I prefer to employ twelve of the dogs 43 arranged an equal distance apart as shown, so that if desired, the gate may be opened at the expiration of periods of five minutes' duration.

The mode of operation of the machine will now be briefly described: A plurality of receptacles 11 are placed upon the turn table 6, the same being disposed an equal distance apart, and one of them being under the spout 10. As the main machine operates, the rotation of the shaft 12 operates through the worm 14 and worm wheel 15 to drive the shaft 16. As this shaft 16 revolves, its cam 37 periodically operates the bell crank lever 33. In this connection it will be understood that when the depressed portion of the cam arrives at the roller 36, it permits the spring 37^a to draw the vertical arm 34 toward the right. In this way the pawl 38 is made to engage with the tooth disposed toward the right. As the cam continues to rotate, it depresses the roller 36 again and advances the ratchet wheel 32 and the attached time disk 31 toward the left, as indicated in Fig. 1, or toward the right as viewed in Fig. 2. If a sample is to be taken every five minutes, all of the dogs 43 will be thrown around into the position shown by 43^a in Fig. 2; that is, they will all project beyond the rim of the disk 31. As each dog strikes the lever 40, it forces the lever toward the right, which pulls on the cord 29 and opens the gate 23 so as to permit a quantity of the material to pass downwardly into one of the receptacles which will be under the spout.

The machine may evidently be used to effect the taking of samples through a number of spouts, carrying different materials, by simply duplicating the spout 10 and the operating lever connections controlling the valve thereof.

Having thus described my invention I claim as new, and desire to secure by Letters Patent:—

1. In mechanism of the class described, in combination, a turn table adapted to carry a receptacle, a sample spout adapted to deliver to said receptacle, means for rotating said turn table a time disk, means for advancing the same with a step-by-step movement, and means for admitting the material to said spout when said receptacle is disposed therebelow, actuated by said time disk, and a plurality of movable actuating dogs carried by said disk.

2. In mechanism of the class described, in combination, a turn table adapted to carry a receptacle, a supply spout adapted to deliver to said receptacle, a gate therein, means for rotating said turn table, a time disk, au-

automatic means for periodically advancing said time disk, mechanism for opening said gate, and means carried by said time disk for actuating said mechanism.

5 3. In mechanism of the class described, in combination, a turn table adapted to carry a receptacle, a sample spout adapted to deliver to said receptacle, a shaft affording means for advancing said turn table, a time
10 disk, means for advancing said time disk intermittently from said shaft, a gate controlling the flow of material through said spout, and means for actuating said gate from said time disk.

15 4. In a machine of the class described, in combination, a turn table, a shaft affording means for driving the same, said turn table being adapted to carry a receptacle, a sample spout adapted to deliver to said receptacle,
20 a gate controlling the flow through said spout, and mechanism actuated from said shaft for opening said gate.

5 5. In a machine of the class described, in combination, a turn table adapted to hold a
25 receptacle, a spout adapted to deliver to said receptacle, a shaft affording means for rotating said turn table, a time disk, means for advancing said time disk intermittently from said shaft, a plurality of dogs carried by said
30 time disk and having an operative and an inoperative position, a lever projecting into the path of said dogs when in their operative position, a gate controlling the flow through said spout, and mechanism connecting said
35 lever with said gate for opening the same.

6. In a machine of the class described, in combination, a turn table adapted to carry a receptacle, a sample spout adapted to deliver thereto, a gate controlling the flow
40 through said spout, a shaft affording means for rotating said turn table, a time disk having a plurality of pivoted dogs mounted thereupon, said dogs having an operative position and an inoperative, folded position,
45 a lever lying in the path of said dogs when in their operative position, and means actuated by said lever for controlling said gate.

7. In a machine of the class described, in combination, a sample spout, a gate controlling the flow therethrough, means for periodically bringing a receptacle under said
50 spout, a time disk, means for intermittently advancing said time disk, a plurality of dogs pivotally mounted on said time disk and having
55 an operative position and an inoperative,

folded position, and means actuated by said dogs when in an operative position, for controlling said gate.

8. In a machine of the class described, in combination, a sample spout, means for carrying a receptacle periodically under said
60 spout, a gate controlling the flow through said spout, a time disk, means for rotating said time disk, a lever lying near said time disk, means carried by said time disk for displac-
65 ing said lever, a second lever having a pin-and-slot connection with said first lever, and means actuated by said second lever for controlling said gate.

9. In a machine of the class described, in
70 combination, a sample spout, a gate controlling the flow therethrough, means for bringing a receptacle under said spout, a time disk, means for advancing said time disk, a lever rigid with said gate and adapted to open the
75 same, a cord attached to said lever, a lever lying near said time disk for periodically actuating said gate lever, and a connection between said lever and said cord for actuating
80 said gate.

10. In a machine of the class described, in combination, a sample spout, a gate controlling the flow therethrough, means for advancing a receptacle under said spout, a shaft advancing said means, a cam carried by said
85 shaft, a time disk, means for periodically advancing said time disk by said cam, and mechanism actuated by said time disk for controlling said gate.

11. In a machine of the class described, in
90 combination, a sample spout, a turn table adapted to carry a receptacle under said spout, means for advancing said turn table, a time disk, automatic means for advancing said time disk, a gate controlling the flow
95 through said spout, a plurality of pivoted dogs carried by said time disk, a lever projecting into the path of said dogs, a second lever having a pin-and-slot connection with said first lever, a cord attached to said second
100 lever, a third lever rigid with said gate and connected to said cord, and a counterweight for normally holding said gate closed.

In testimony whereof I have signed my name to this specification in the presence of
105 two subscribing witnesses.

ABRAHAM FENSTERMAKER.

Witnesses:

R. E. PRITCHETT,
WILLIAM C. BURR.