No. 719,413. PATENTED FEB. 3, 1903.

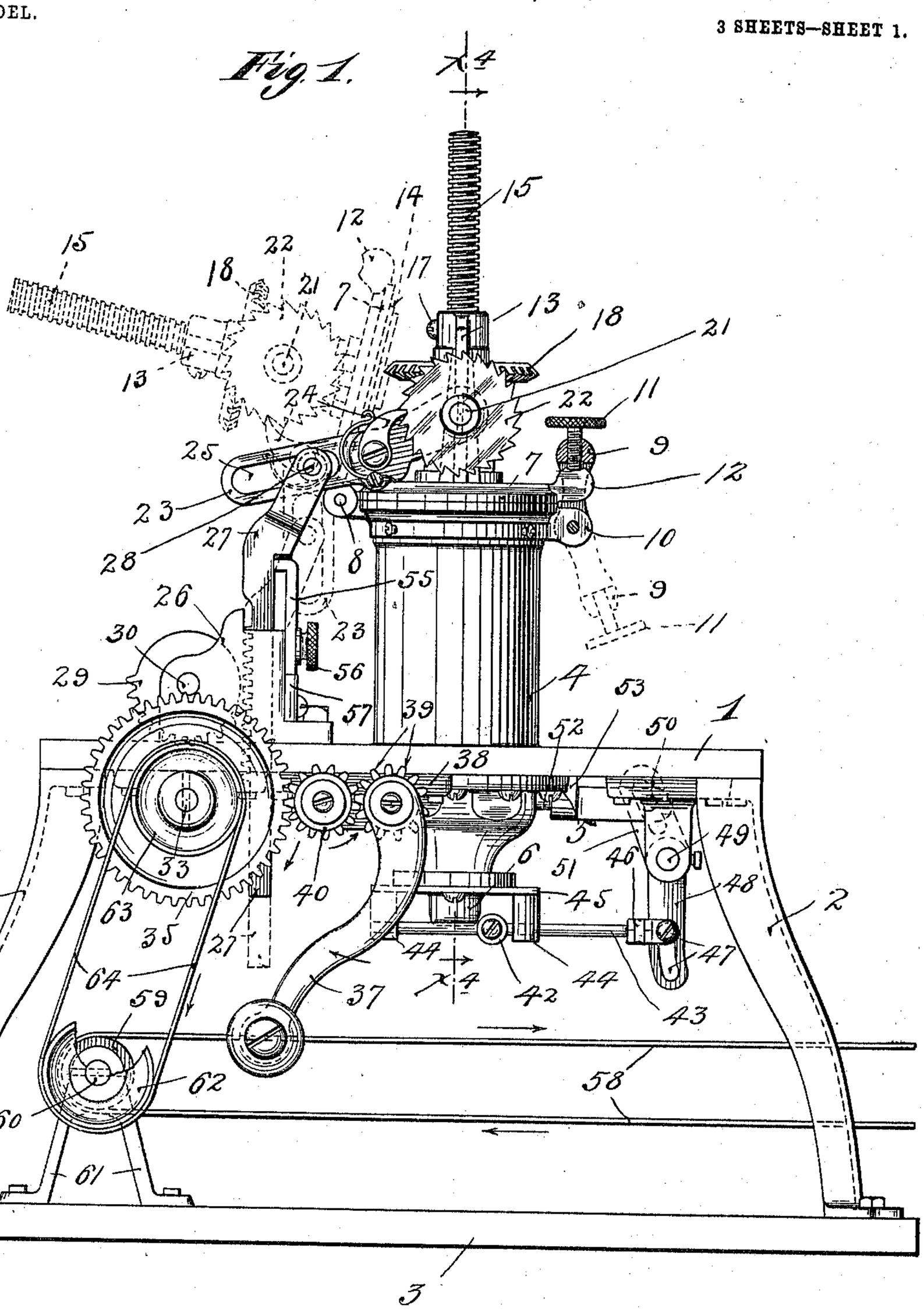
A. ANDERSON.

BUTTER PRINTING MACHINE.

APPLICATION FILED APR. 10, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

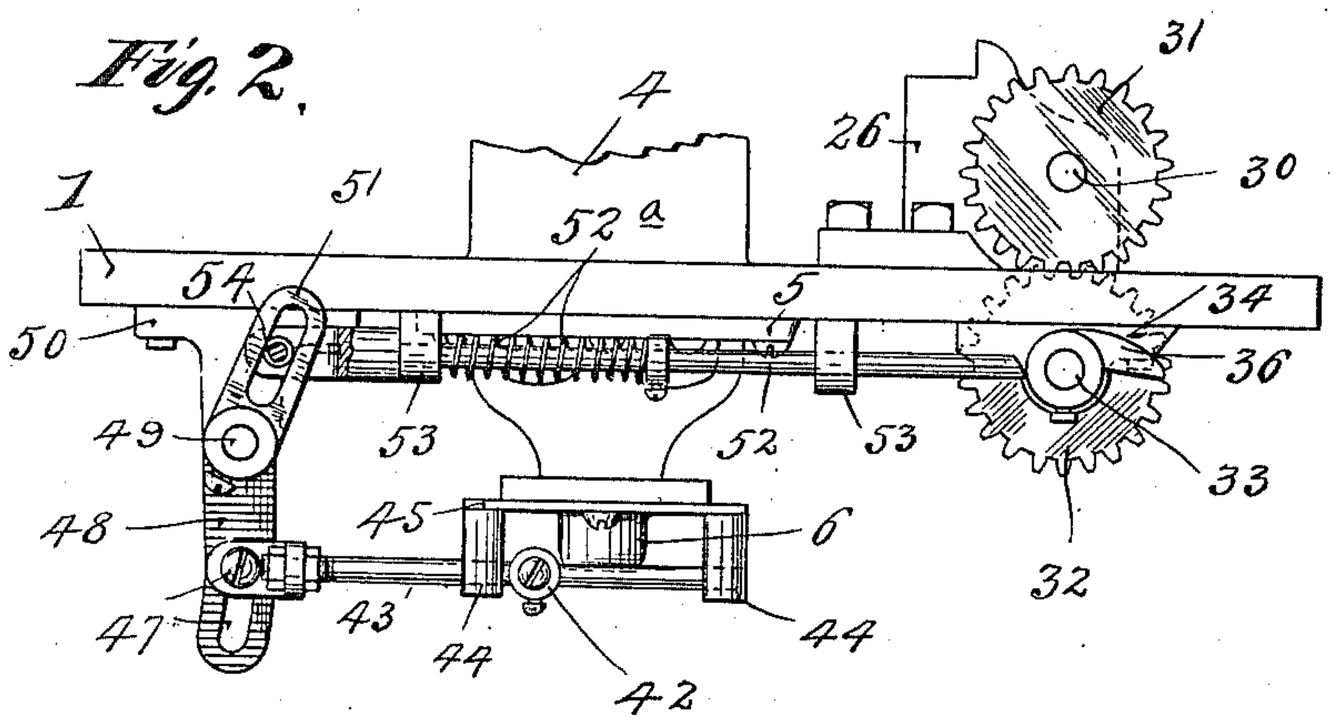


Fig. 3.

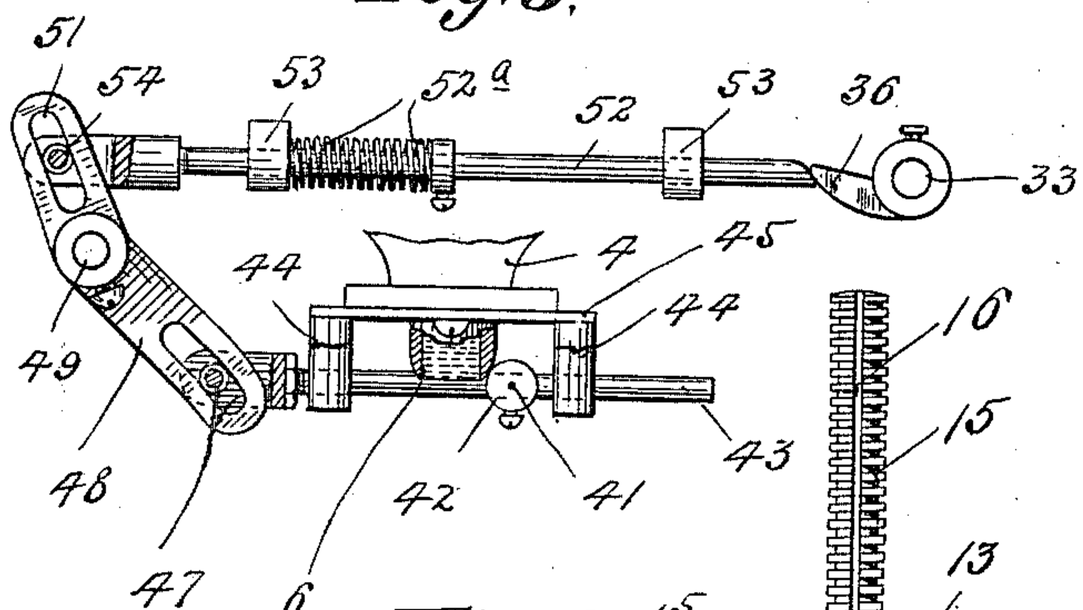


Fig. 4.

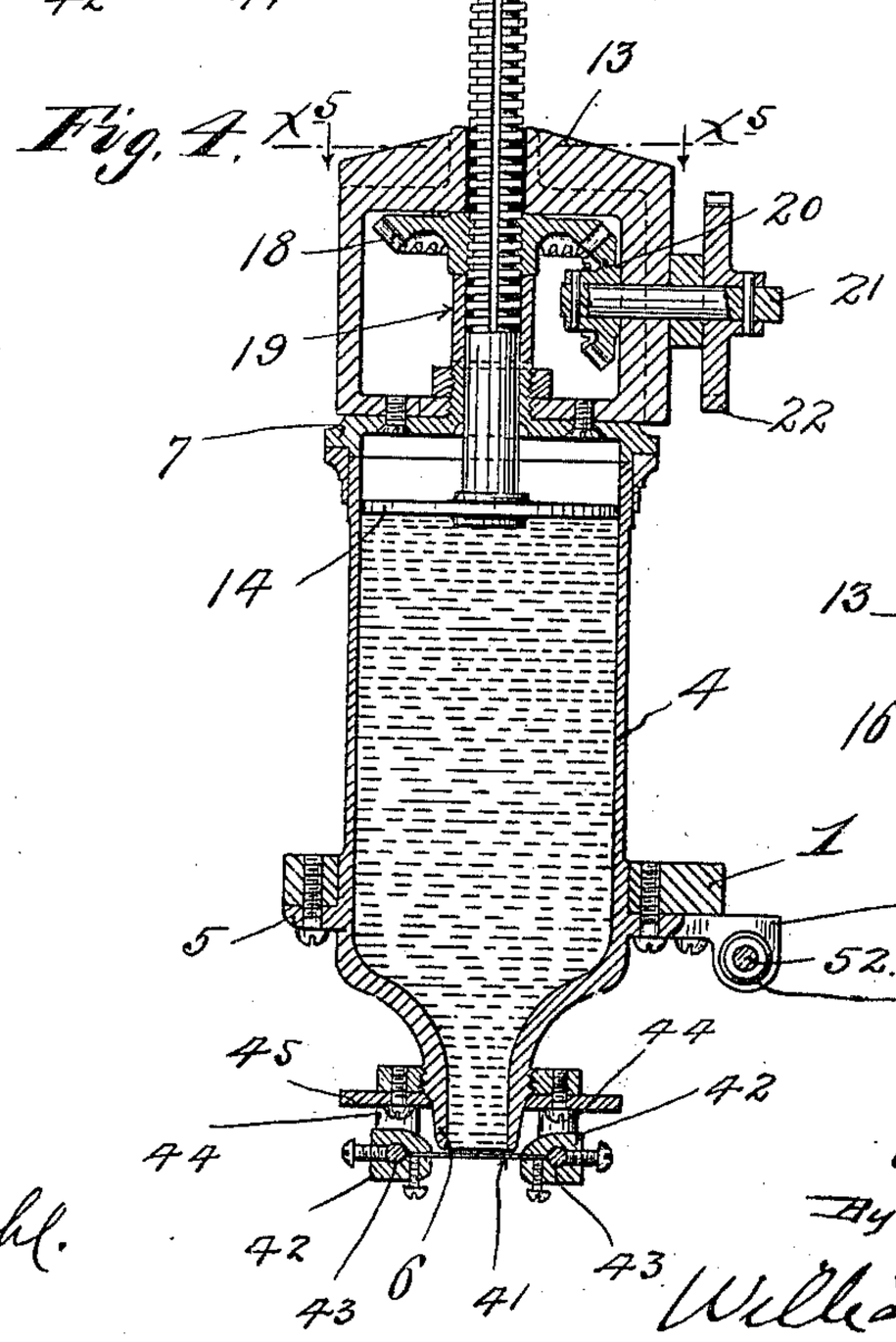
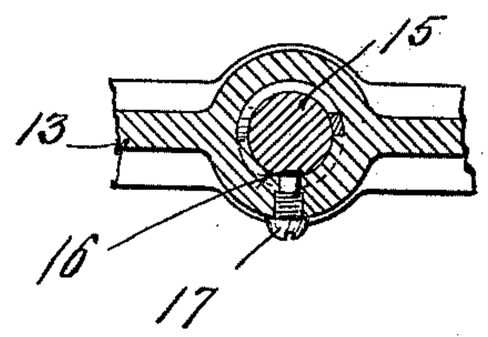


Fig. 5.



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BUTTER PRINTING MACHINE.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6.

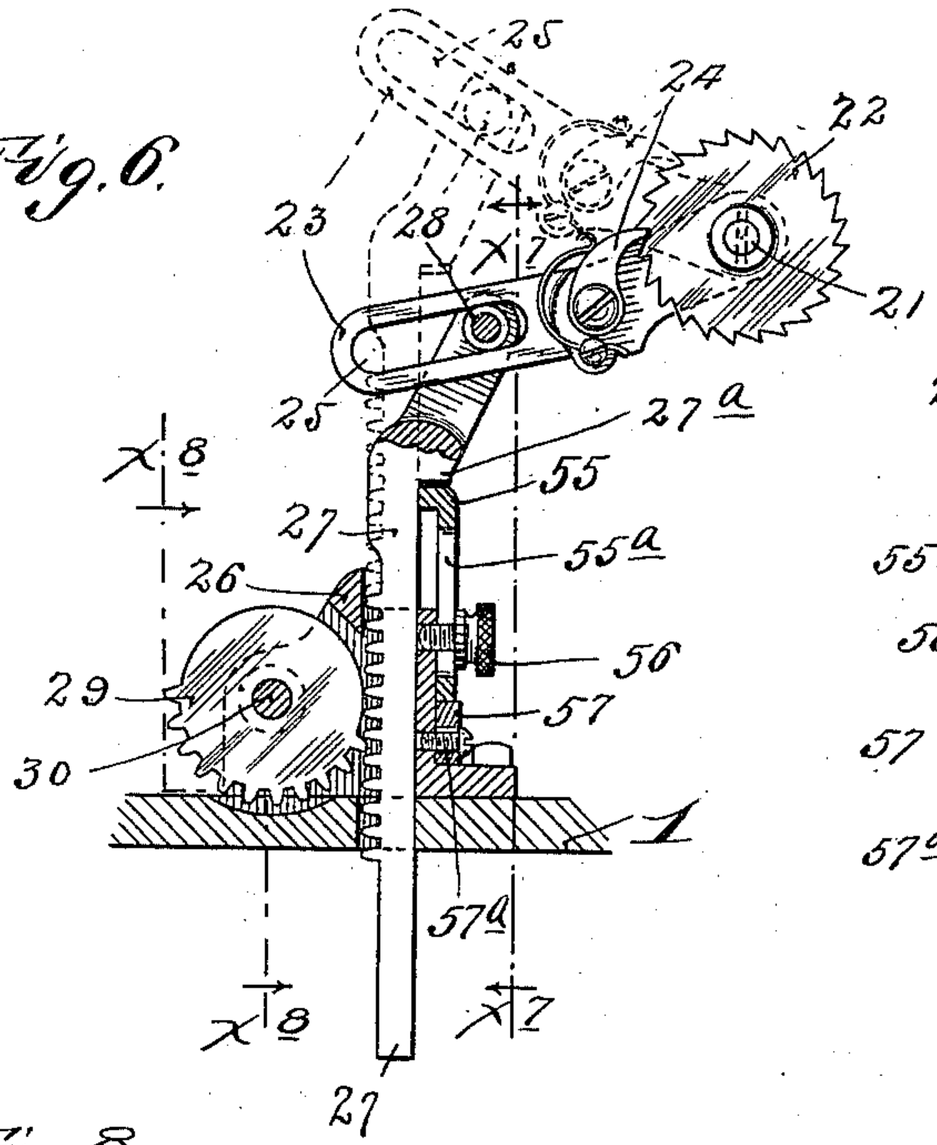


Fig. 7.

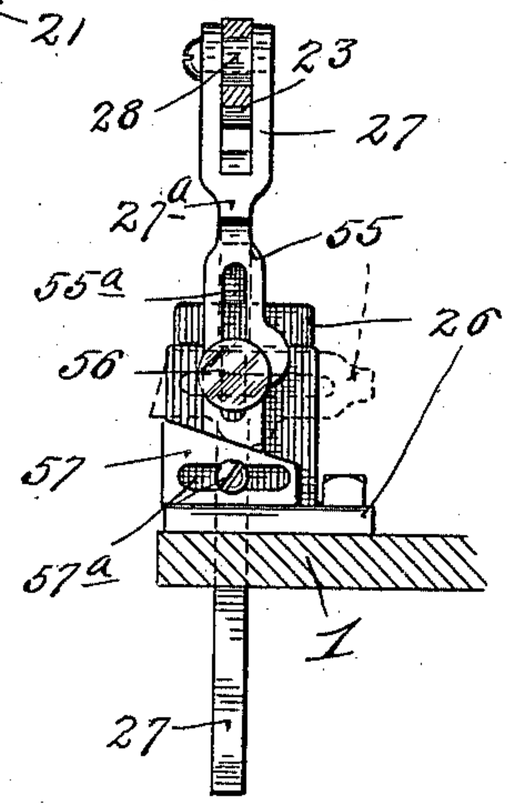


Fig. 8.

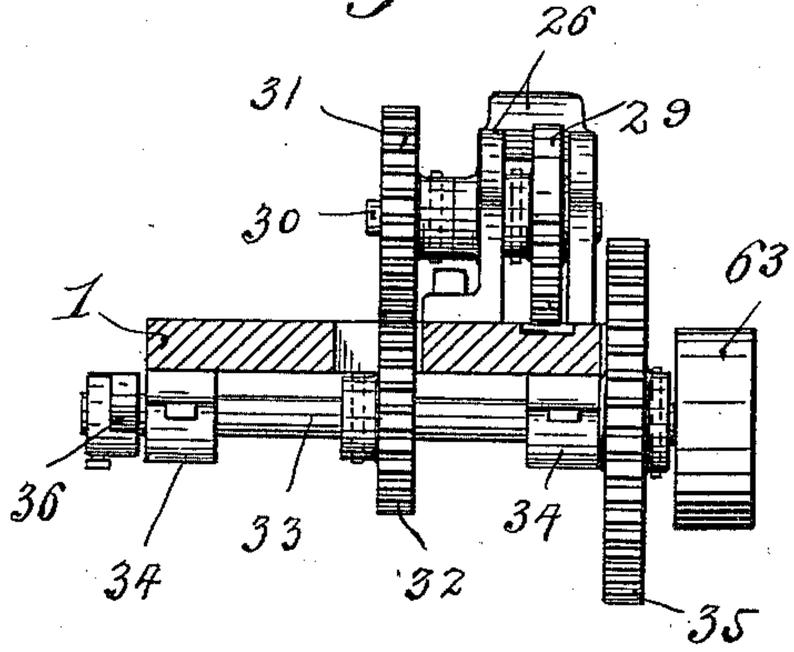
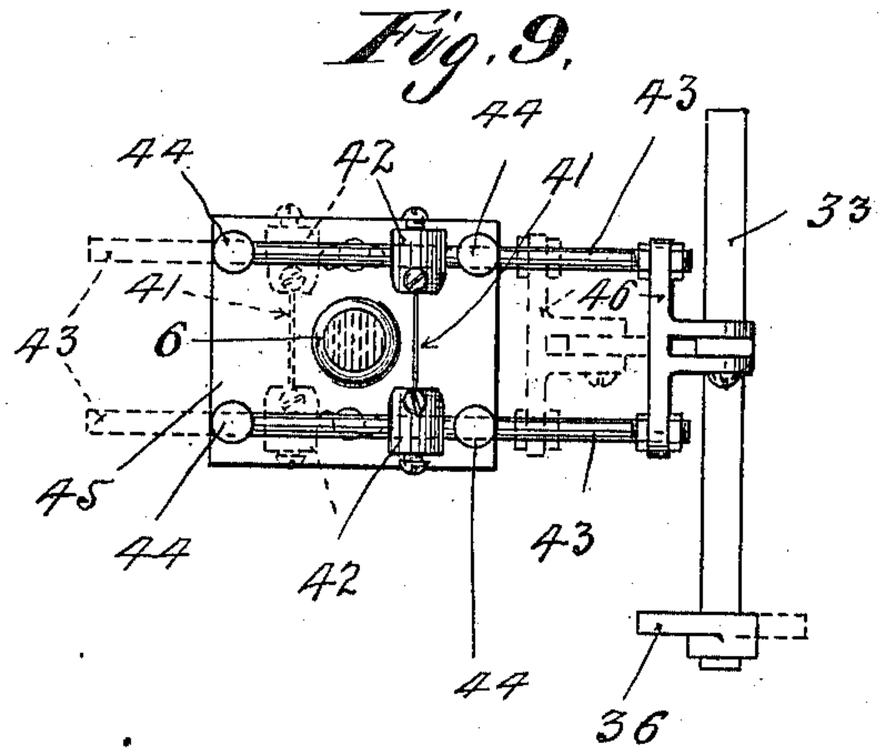


Fig. 9.



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UNITED STATES PATENT OFFICE.

AUGUST ANDERSON, OF MINNEAPOLIS, MINNESOTA.

BUTTER-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 719,413, dated February 3, 1903.

Application filed April 10, 1902. Serial No. 102,162. (No model.)

To all whom it may concern:

Be it known that I, AUGUST ANDERSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Butter-Printing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple and efficient machine for making butter chips or prints; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In restaurants, hotels, and other public eating-houses and elsewhere a great deal of time is consumed in the molding or printing of chips or small cakes of butter. Furthermore, in the usual process of molding the chips of butter the butter must be handled in the hands, and to permit of the proper working must be quite soft.

In my improved machine the hands need not be brought into contact with the butter and the butter may be worked while in very hard condition.

My improved machine is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, with some parts broken away, showing the complete machine. Fig. 2 is a detail view with some parts broken away, showing portions of the machine in side elevation, looking at the opposite side from that shown in Fig. 1. Fig. 3 is a view corresponding to Fig. 2, but illustrating different positions of the parts and with some of the parts shown in Fig. 2 removed. Fig. 4 is a transverse vertical section approximately on the line x^4 x^4 of Fig. 1, some parts being left in full. Fig. 5 is a detail in horizontal section on the line x^5 x^5 of Fig. 4. Fig. 6 is a detail in vertical longitudinal section, showing the means for moving the piston or follower of the butter-molding device. Fig. 7 is a transverse section on the line x^7 x^7 of Fig. 6. Fig. 8 is a transverse section taken approximately on the line x^8 x^8 of Fig. 6, and Fig. 9 is a bottom plan view of the lower end of the butter-containing cylinder and of the cutting device for severing the chips or prints of butter.

The numeral 1 indicates a suitable bed-plate, shown as supported by legs 2 from a support 3, which may be assumed to be the top of a table or bench. A vertically-disposed cylinder 4 projects through the bed-plate 1 and is provided with a flange 5, by means of which and screws or other devices it is rigidly secured to the said bed-plate. The lower end of the cylinder 4 is contracted and terminates in a centrally-depending funnel-like discharge neck or nipple 6. (Best shown in Figs. 2, 3, and 4.) At its upper end the cylinder 4 is adapted to be normally closed by a hinged cover or head 7, pivoted thereto at 8 and adapted to be swung open into a position indicated by dotted lines in Fig. 1. The cover 7 is adapted to be tightly clamped and held in its closed position by means of a latch-link 9, pivoted to a lug 10 on the cylinder 4 and provided with a thumb-screw 11, which is engageable with a lug 12 on said cover 7. A rectangular yoke or bearing-bracket 13 is rigidly secured on top of the cover 7.

A thin piston or follower 14 works within the cylinder 4 with its screw-threaded stem 15 projecting upward and working freely for axial movements through the cover 7 and through the yoke 13. The stem 15 is provided with a long keyway 16, in which, as shown, the inner end of a screw 17, passed through the hub of the yoke 13, works to prevent rotations of the said stem and the follower.

A bevel-gear 18 works as a nut on the screw-threaded stem 15. This bevel-gear is held against vertical movements, but with freedom for rotation, by the hub of the yoke 13, and, as shown, also by a spacing-thimble 19. A bevel-pinion 20, carried by a short shaft 21, journaled in one side of the yoke 13, meshes with the bevel-gear 18. A lever 23, provided with a spring-pressed pawl 24, which coöperates with the ratchet-wheel 22, is loosely pivoted on the shaft 20. At its outer end the lever 23 is provided with a long slot 25.

Working with freedom for vertical movements in a keeper-bracket 26, secured on the base-plate 1, is a rack 27, provided at its up-

per end with a roller-equipped pin 28, which works in the slot 25 of the lever 23. A segmental gear 29, secured to a short shaft 30, mounted in the bracket 26, coöperates with the teeth of the rack 27. At one end the shaft 30 is provided with a spur-gear 31, which meshes with a similar spur-gear 32, carried by a counter-shaft 33, journaled in suitable bearings 34, secured to the base-plate 1, as best shown in Fig. 8. At one end the counter-shaft 33 is provided with a relatively large spur-gear 35, (best shown in Figs. 1 and 8,) and at its other end it is provided with a cam 36. (Best shown in Figs. 2, 3, and 8.) As shown, motion is imparted to the counter-shaft 33 from a hand-crank 37, suitably pivoted to a bracket 38, secured to the base-plate 1. This hand-crank 37 is provided on its hub with a spur-pinion 39, which meshes with a spur-pinion 40, also mounted on the bracket 38, which pinion in turn meshes with the spur-gear 35.

As a cutter to cut into sections the contracted bar or column of butter which is forced downward through the depending neck of the cylinder 4, I employ a fine wire 41, which is shown as carried by a pair of blocks 42, secured to parallel plungers 43, mounted to slide through suitable bearings 44 of a plate 45, rigidly secured to the nipple 6 of the cylinder 4. The plungers 43 are rigidly connected by a cross-head 46, which in turn is pivotally connected by a slot-and-screw engagement 47 to the depending end of a lever 48, which lever is pivoted at 49 to a depending bracket 50 of the base-plate 1 and is provided with a slotted upper arm 51. One end of a spring-pressed plunger 52, mounted in bearings 53 on the face-plate 1, is connected by a pin or screw 54 to the slot of the arm 51. The cam 36 operates on the other end of the plunger 52 to force said plunger against the tension of its spring 52^a, as will be hereinafter more fully described.

The downward movements of the rack 27 are variably intercepted by means of an adjustable stop-clip 55, the upper end of which engages with a shoulder 27^a of said rack, as best shown in Figs. 1, 6, and 7. This stop-clip 55 is provided with a slot 55^a, through which a screw 56, screwed into the bracket 26, works to adjustably hold the said clip. To further hold the stop 55 in its set position, an adjustable wedge 57 is secured to the bracket 26, just below the stop 55, by means of a slot-and-screw connection 57^a. As is evident, the farther the rack 27 is permitted to drop the greater will be the upward or operative stroke thereof.

To carry off the chips or prints—to wit, the small cakes of butter cut and dropped from the nipple end of the cylinder—I have shown an endless conveyer or apron 58, which runs over a roller 59, carried by a counter-shaft 60, mounted in bearings 61, shown as secured to the support 3. Said apron 58 also runs over another roller, (not shown,) but which would be suitably mounted at the point where it is desired to deliver the chips or prints into a jar or other suitable receptacle. The shaft 60 has a pulley 62, over which and another pulley 63 on the counter-shaft 33 a belt 64 runs to impart motion from said shaft 33 to said shaft 60, and hence to the conveyer 58.

The operation is substantially as follows: When the lid 7 is released from the clamp 9 while the piston or follower is raised upward against the same, it, together with the follower, may be turned back into the position indicated by dotted lines in Fig. 1. In this way the upper end of the cylinder is opened, so that the same may be filled with butter. Then the lid is turned downward and secured by the clamp 9 and the machine is ready for action. All the parts of the machine are driven when the crank 37 is rotated. The parts will normally stand as indicated in Figs. 1, 2, 6, 7, and 9. The first one-half rotation of the counter-shaft 33 will impart a one-half rotation to the gear 29 and will cause the latter to raise the rack 27 to its limit. At the limit of this one-half rotation the teeth of the segmental gear 29 are carried out of engagement with the teeth of the said rack, and the rack is then permitted to drop under the action of gravity. The upward movement of the lever 23 under the action of the plunger 27 operates through the pawl 24, ratchet-wheel 22, and bevel-gears 18 and 20 and forces downward the follower or piston 14 the proper distance to eject enough butter from the nipple 6 to form a butter cake or chip of the desired size. As is further evident, the size of the butter chip or cake may be varied by varying the amount of drop which is given to the rack 27. The initial part of the second half-rotation of the counter-shaft 33 throws the cam 36 into engagement with the plunger 52 and through the lever 48 and plungers 43 causes the cutting-wire 41 to move across the lower end of the discharge-nipple 6 and sever or cut off the protruding portion of the butter, as indicated in Fig. 3.

It will of course be understood that the machine above described is capable of many modifications within the scope of my invention as herein set forth and claimed. It will also be understood that the machine may be used for other purposes than the ones stated. The terms "cylinder" and "piston" are herein used in a broad sense. Both the cylinder and the piston or follower, instead of being circular in cross-section, might be angular, although such modification would not be very good construction.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a cylinder having a contracted discharge-neck, of a cutter working over the outer end of said neck, a bearing secured to the receiving end of said cylinder, a piston working within said cylinder and provided with a stem mounted to slide

through said bearing but held against rotation, a gear working as a nut with screw-threaded engagement on the stem of said piston and finding a base of reaction against said bearing, and means for moving said gear and said cutter intermittently and alternately, substantially as described.

2. The combination with a cylinder and a coöperating piston, the former having a contracted discharging-neck, of a cutter working over the outer end of said nut, and means for intermittently moving said piston involving a ratchet-wheel with connections to said piston, an oscillating pawl-equipped arm coöperating with said ratchet-wheel, a reciprocating rack operating on said oscillating lever, and a continuously-driven segmental gear operating on said rack to alternately raise and drop the same, substantially as described.

3. The combination with a cylinder and coöperating piston, the former having a contracted discharging-neck, and the latter having a screw-threaded stem, and a gear working as a nut on said screw-threaded stem and fixed against endwise movement, another gear meshing with the former gear, a ratchet-wheel movable with the latter gear, a lever equipped with a pawl for action on said ratchet-wheel, a reciprocating rack acting on said lever, a segmental gear for raising said rack and dropping the same, and an adjustable stop for limiting the downward movement of said rack and to thereby vary the feed movement of said piston, substantially as described.

4. The combination with a cylinder having a hinged cover and a contracted discharging-neck, of a piston working in said cylinder and provided with a screw-threaded stem working through said cover, means for securing said cover in its closed position, a cutting-wire mounted to reciprocate over the outer end of said neck, a gear working as a nut on the stem of said piston and anchored against endwise movements, a second gear engaging the first gear, a ratchet-wheel movable with the second gear, a lever having a pawl coöperating with said ratchet-wheel, a variable throw-reciprocating rack acting on said lever, a segmental gear operating on said rack to raise and drop the same, a power device for driving said segmental gear, a cam driven from said power device, and a spring-pressed plunger subject to said cam and having connections to said cutting-wire for imparting reciprocations thereto, substantially as described.

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

AUGUST ANDERSON.

Witnesses:
E. H. KELIHER,
F. D. MERCHANT.