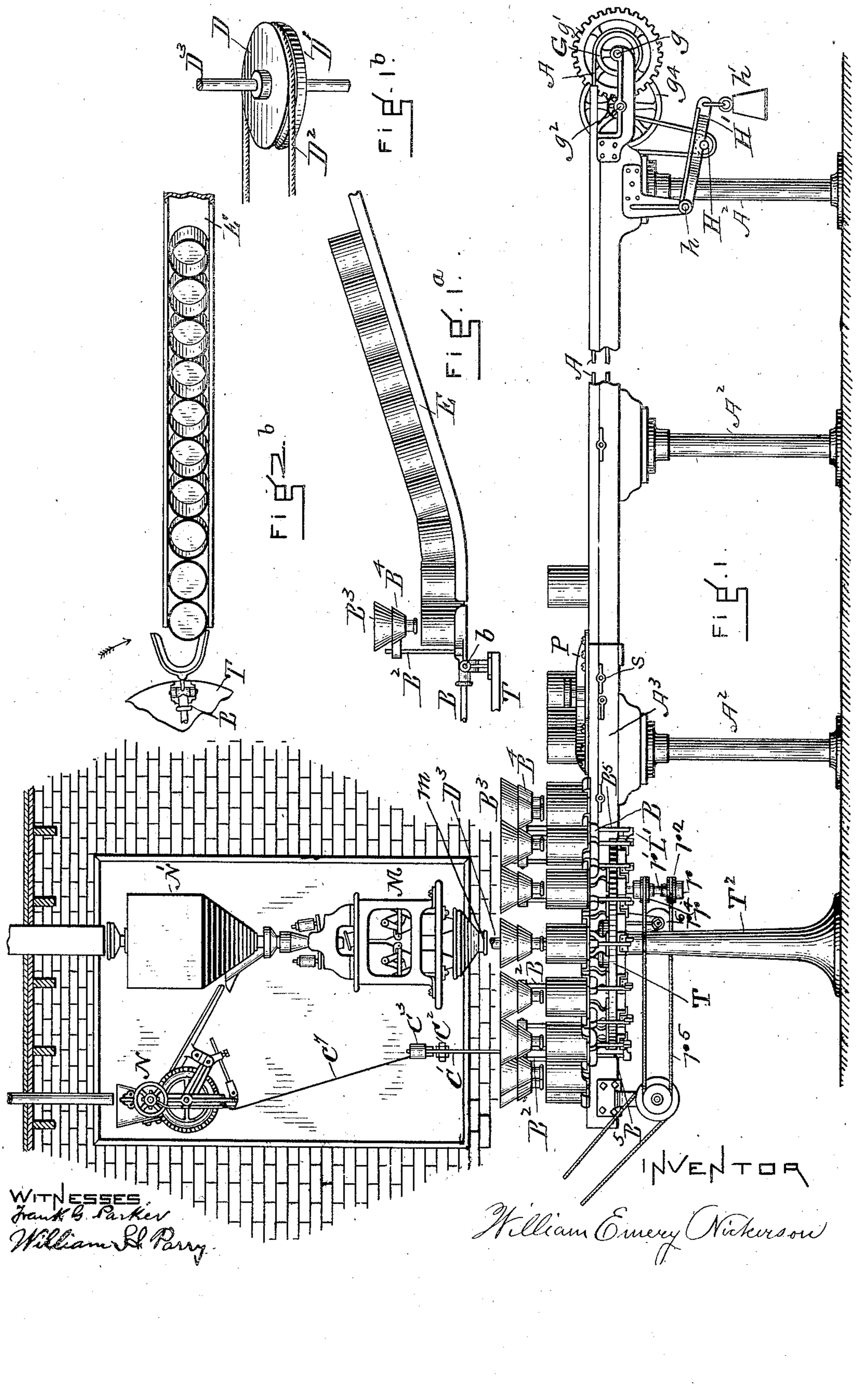
(No Model.) 6 Sheets—Sheet 1.

W. E. NICKERSON.

CAN FILLING MACHINE.

No. 574,444. Patented Jan. 5, 1897.



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(No Model.) 6 Sheets—Sheet 2.

W. E. NICKERSON.

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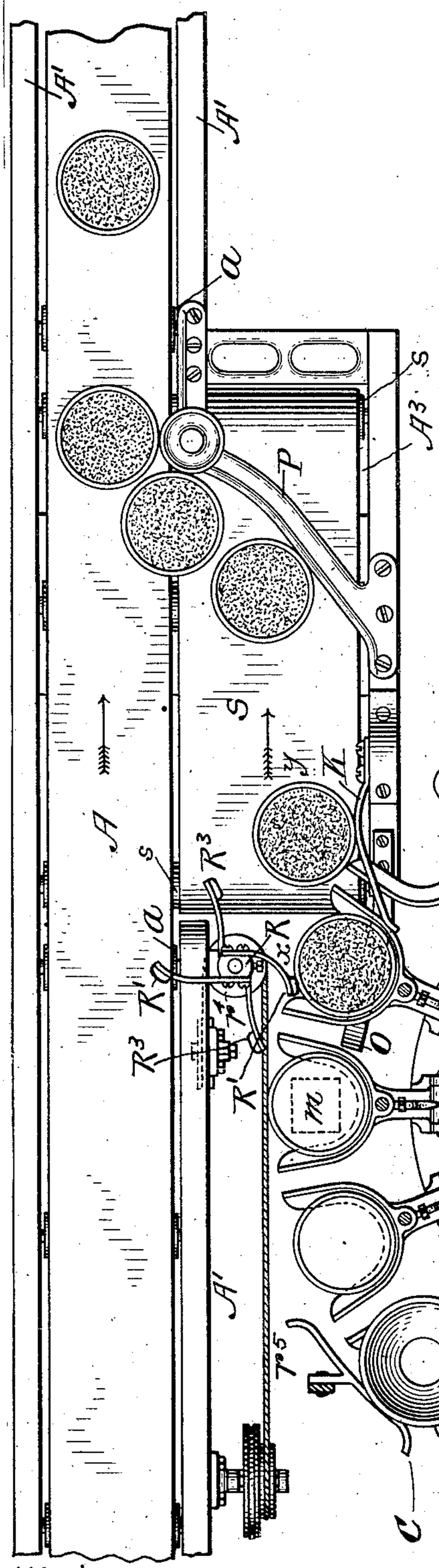

Fig. 1.

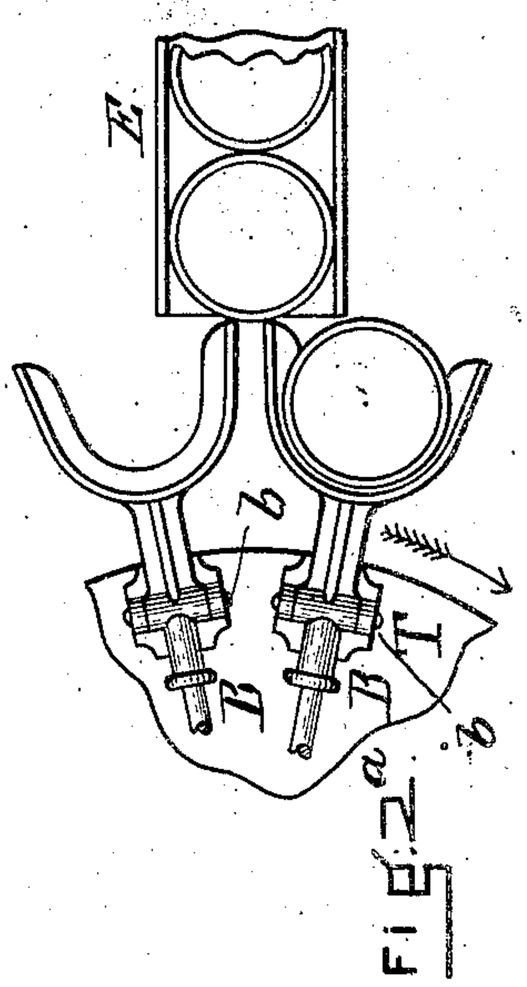

Fig. 2.

Fig. 3.

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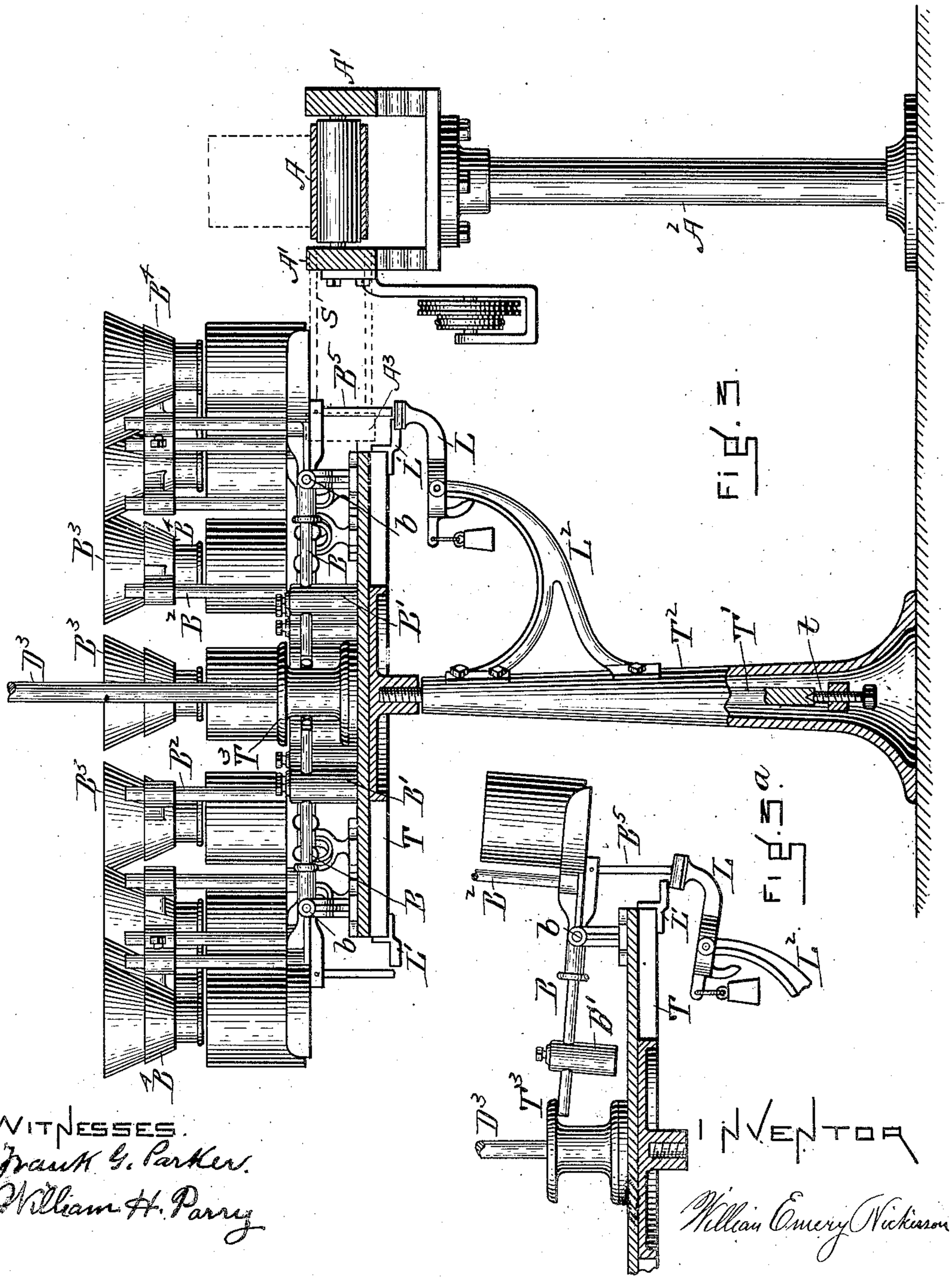

Fig. 5.

Fig. 5a.

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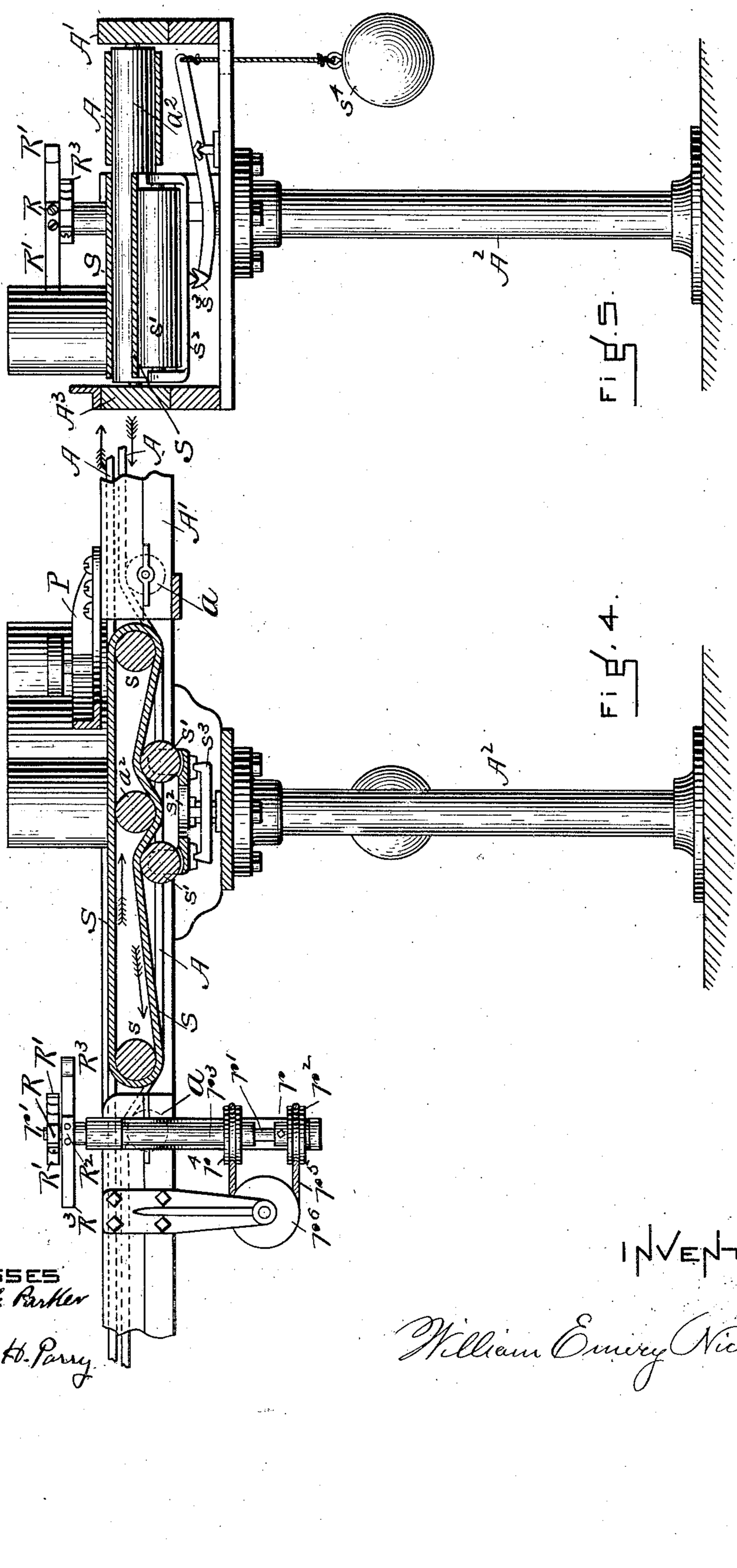

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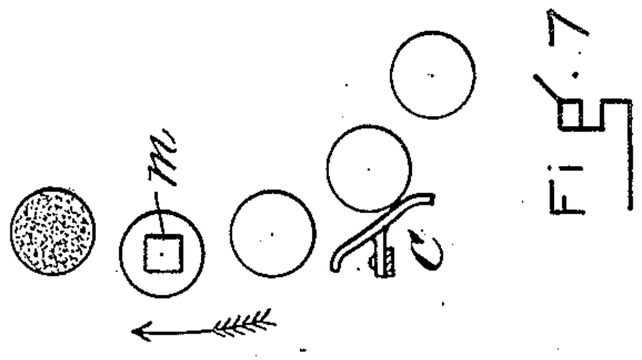

Fig. 7.

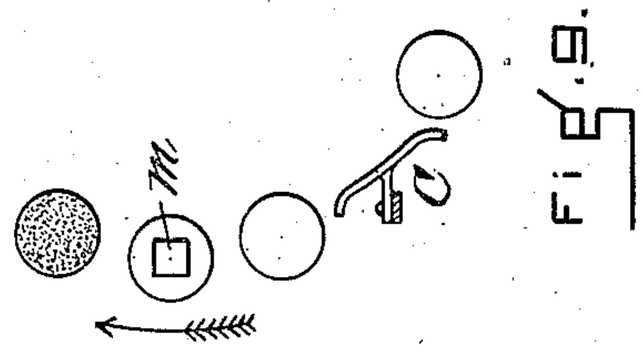

Fig. 9.

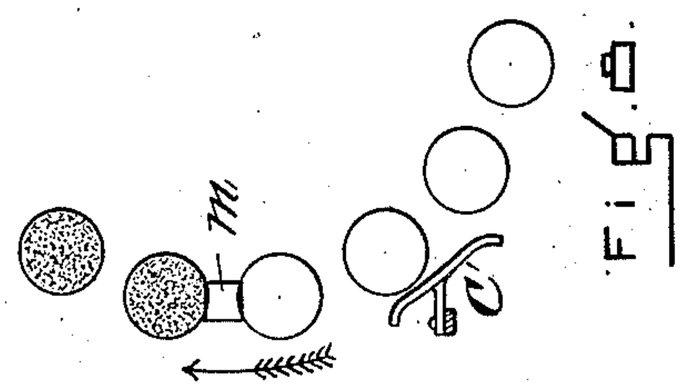

Fig. 8.

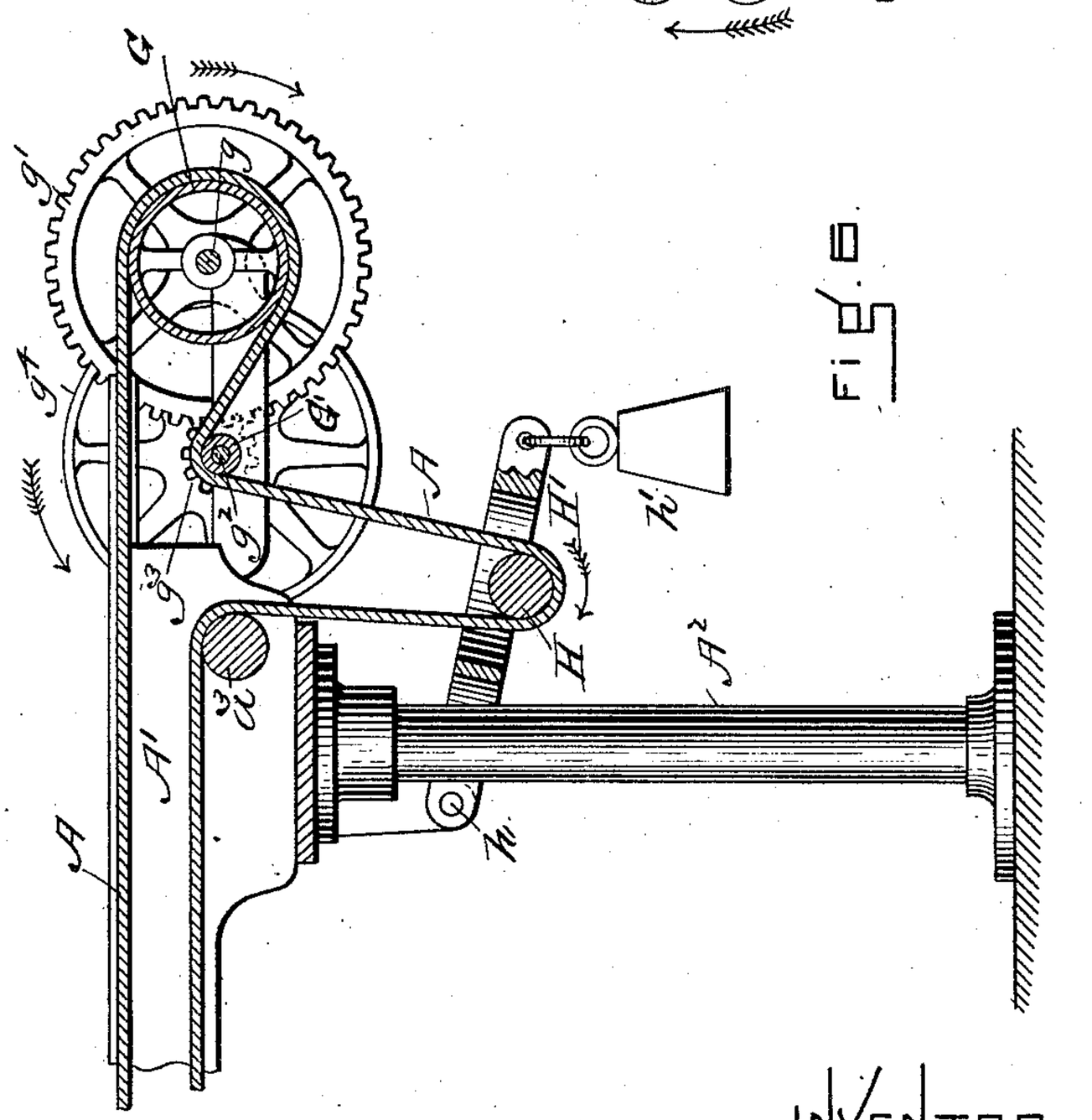

Fig. 6.

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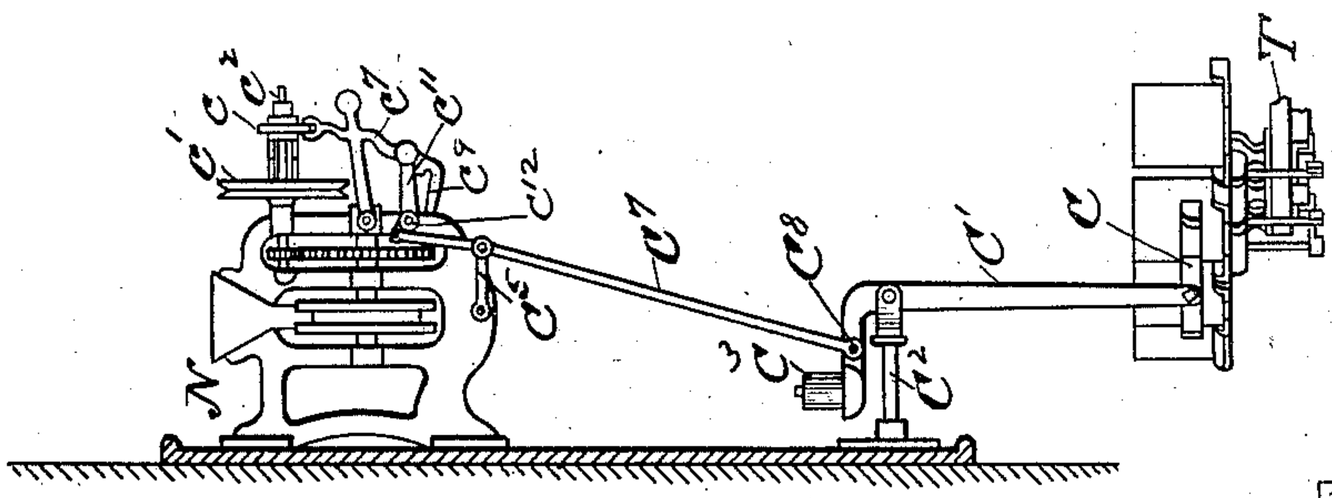

Fig. 10.

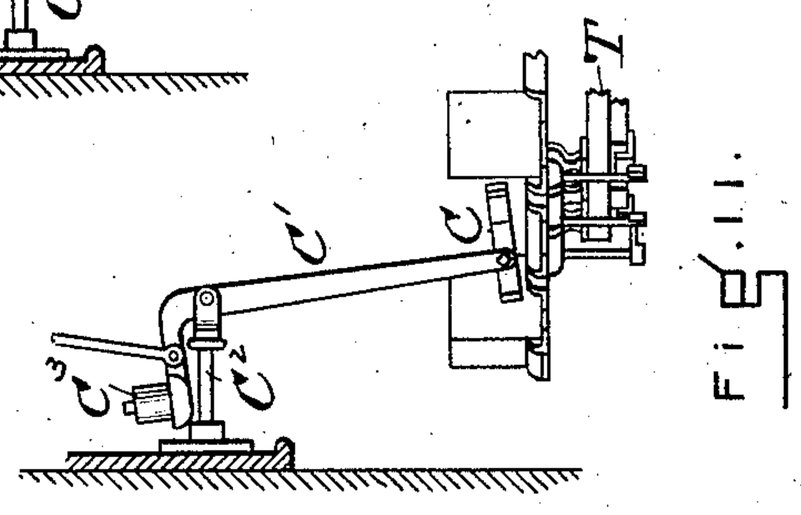

Fig. 11.

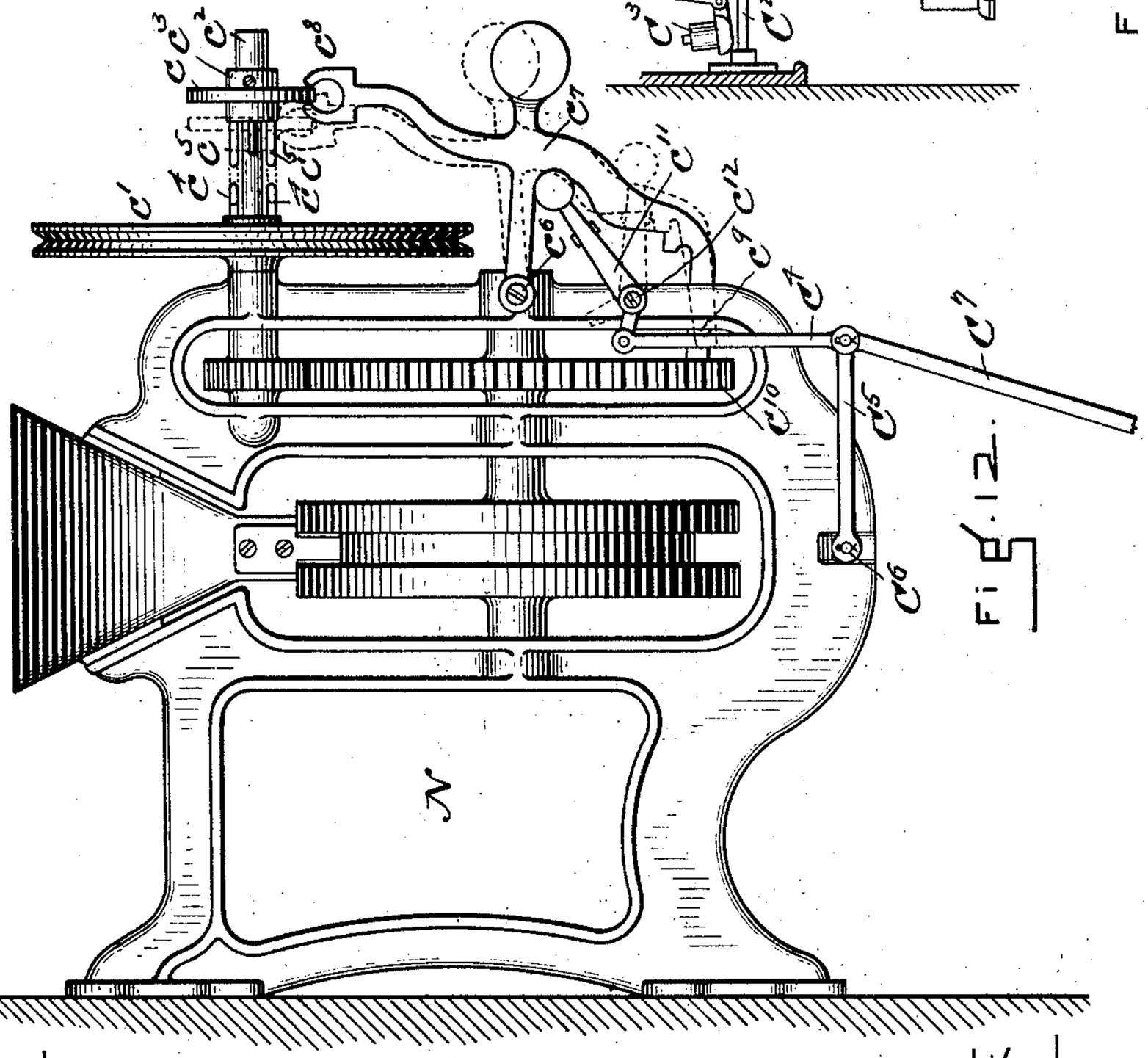

Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM EMERY NICKERSON, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO THE NEW ENGLAND WEIGHING MACHINE COMPANY, OF BOSTON, MASSACHUSETTS.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,444, dated January 5, 1897.

Application filed April 16, 1896. Serial No. 587,763. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EMERY NICKERSON, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Can-Filling Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in can-filling machines.

It is especially adapted to operate in connection with automatic weighing-machines, and is hereinafter fully set forth and described.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a general view, in front elevation, of a weighing-machine, and in connection therewith my novel apparatus, excepting a part consisting of a can-delivering chute or raceway, which if shown in position in this view would obscure other parts, said raceway being shown in Fig. 1^a and also in plan in Figs. 2, 2^a, and 2^b. Fig. 1^a is a side elevation of a raceway which serves to deliver empty cans to a rotating table. Fig. 1^b is a perspective view of a pair of friction driving-disks. Fig. 2 is a plan of a portion of my apparatus, including a rotating table, traveling aprons, rapping device, and can-delivering chute or raceway. Fig. 2^a is a detail explanatory of the action of the delivering chute or raceway. Fig. 2^b is also a detail pertaining to the same subject-matter as Fig. 2^a. Fig. 3 represents, partly in side elevation and partly in vertical section, a rotating table having can-holding beams and a latch device. Fig. 3^a shows, partly in side elevation and partly in vertical section, a portion of Fig. 3, but with a can-holding beam in the position which it tends to take when holding a filled can. Fig. 4 shows, partly in front elevation and partly in vertical section, traveling aprons or conveyers and other parts, including a device for tightening one of the aprons and also a rapping device. Fig. 5 is a view, partly in side elevation and partly in vertical section, of the matter disclosed in Fig. 4. Fig. 6 shows, partly in front elevation and partly in vertical section, driving and tightening gear for the main traveling apron. Fig. 7 shows diagrammatically in plan the mode of operation of a part of the apparatus. Fig. 8 is supplementary to Fig. 7, showing the parts in another position. Fig. 9 is also supplementary to Fig. 7 in the same manner as Fig. 8. Fig. 10 is a view in side elevation (agreeing with Fig. 7) of a device for stopping the weighing-machine if cans are not properly presented, a portion of the rotating table with can-holding beams being shown at the lower part of the figure and a feeding device for the weighing-machine at the upper part. Fig. 11 represents a part of the mechanism shown in Fig. 10 in a different position—viz., with a can missing from a can-holding beam—and agrees with Fig. 9. Fig. 12 is an enlarged view, in side elevation, of a part of the mechanism shown in Fig. 10, and especially shows a clutch mechanism and clutch-latch.

My invention has to do with a coöperating system of devices whose complete function is to present, as required, empty cans or other receptacles to an automatic weighing-machine and after they have been filled thereby to shake down or settle the charge therein and to automatically convey them from the weighing-machine to the place where the sealing up, wrapping, or labeling is done; also, to shut off the flow of material to the weighing-machine in case the cans or other receptacles are not regularly presented, and, further, when desired, to enable multiples of the weight delivered by each discharge of the weighing-machine to be introduced into each can.

I shall use, for the sake of convenience, the word "can" as representing any sort of package or receptacle to be filled, including bags in supporting-frames, boxes of wood or pasteboard, bottles, or jars.

In the drawings, M, Fig. 1, represents a weighing-machine adapted to discharge at intervals uniform weights of material. As the construction of this machine is not involved in this application, and since the machine itself is simply introduced in order to disclose a complete working system, a detailed description of it will not be necessary.

N is a feeding device consisting principally of a hopper, independently-driven feeding-

wheel, and a spout and is adapted to deliver into the weighing-machine the last portion of each charge of material in a uniform stream.

The case N′ contains a mechanism not concerned in this description, which supplies to the weighing-machine that part of the load not furnished by the feeding device N.

The specific construction of the weighing-machine M and feeding devices N and N′ forms the subject-matter of previous patents and applications.

T is a rotating table, Figs. 1, 2, and 3, mounted upon a vertical spindle T′ and is supported by the pedestal T^2. The height of the table is adjusted by means of the pivot-screw *t*, located in the base of the pedestal. Upon the table are mounted a number of pivoted can-holding beams B B. These beams oscillate at *b b* upon supports attached to the top of the table, as shown, and carry near their inner ends the weights B′ B′, adapted to slide along the inner part of the beams for the purpose of adjustment and to be held at any desired point by set-screws. The inner ends of the beams project slightly under the cap-piece T^3, which prevents them from rising beyond a limited distance. The outer ends of the beams are bifurcated or otherwise adapted to receive and hold the cans into which is to be introduced a weighed charge of material from the weighing-machine. The relation of the weights to the filled and empty cans upon the beams is such that when an empty can is on the beam the weight preponderates, but when the charge is introduced into the can the weight is lifted and the can and the outer end of the beam become depressed.

The beams B B are provided with the vertical standards B^2 B^2, which serve to support the funnels B^3 B^3 by means of the holders B^4 B^4, said holders being adjustably mounted upon the standards and secured thereto by set-screws. The table is also provided with a series of stop-pieces L′ L′, one for each arm, and with a latch L, mounted upon the bracket L^2 and adapted to engage with the stop-pieces L′ L′ in succession, thus preventing the table from rotating until its disengagement, and then only allowing a movement from one stop-piece to the succeeding one. The beams B B are further provided with the drop-pieces B^5 B^5, which upon the depression of the outer ends of the beams respectively come in contact with the latch L, forcing it downward and disengaging it from the respective stop-piece, (see Fig. 3^a,) thus allowing the table to rotate until the latch comes in contact with the next stop piece in succession. The table T is caused to rotate in the direction of the arrow, whenever the latch L is disengaged, by means of a pair of friction-disks, the upper one of which, D, is driven by the belt D^2 and rests upon its complementary disk D′, the latter being rigidly attached to its shaft. These disks are mounted upon the vertical shaft D^3, which is secured at its lower end in the cap-piece T^3 and at its upper end by a suitable housing. (Not shown.)

The table T is so placed with reference to the discharge-orifice *m* (see Figs. 1 and 2) of the weighing-machine that when one of the stop-pieces L′ L′ is in engagement with the latch L one of the funnels B^3 B^3, with its corresponding can and arm, is directly beneath said orifice, and that upon a discharge of the weighing-machine the material will fall into the can.

Suitably located with reference to the table T is a main conveying belt or traveling apron A, adapted to transport the filled cans or packages to such places as are required for labeling or other operations.

S is a supplementary conveying belt or apron next to and extending for a limited distance parallel with the main apron A. This supplementary apron is used when more than one weighing-machine is to be operated in connection with the main apron A. By the use of this supplementary apron with each weighing-machine and rotating table the cans from a number of such machines may be conveyed upon the main apron without interference with each other.

When one weighing-machine only is employed, the supplementary apron may be dispensed with and the cans received directly upon the end of the main apron in the same manner in which they are shown as entering upon the supplementary apron.

The rollers upon which the main apron A travels are supported by a framework A′, of wood or other suitable material, supported upon the legs A^2 and having the portion A^3 offset, as shown, for the accommodation of the supplementary apron S.

The supplementary apron S is driven by the main apron A in the manner shown in Figs. 4 and 5. The under or return part of the main apron runs over the rollers *a a* (shown by dotted lines) and under the rollers *s s*, causing sufficient friction upon the rollers *s s*, around which the supplementary apron runs, to cause them to turn, and thus drive the supplementary apron. Tension is maintained on the supplementary apron by means of the tightening-rollers *s′ s′*, mounted upon the frame s^2, said frame being balanced upon the arm s^3. The tightening-rollers *s′ s′* are pressed against the under side of the supplementary apron S by means of the weight s^4 and cooperate with the roller *a* to take up the slack.

The main apron is driven by the mechanism disclosed in Fig. 1 and enlarged and shown partly in section in Fig. 6.

G is a driving-drum mounted upon the shaft *g*, said shaft also carrying the gear-wheel *g′*. The secondary shaft g^2 is provided with the pinion g^3, engaging with the said gear-wheel *g′*, and also with the pulley g^4 and the small secondary roller or drum G′.

H′ is a swinging frame pivoted at *h* and provided with a weight h^2. This frame H′ carries the tightening-roller H. The apron A

passes around the drum G and over the small drum G′, (whereby it is doubly driven,) then under the tightening-roller H and over the idler-roller a^2. The circumference of the small drum G′ bears approximately the same ratio to that of the larger drum G as the pitch-line of the pinion g^3 bears to that of the gear-wheel g'. The small drum is preferably, however, slightly larger than the strict proportion, whereby it exerts a strong pulling force upon the apron after it has passed round the drum G, causing the latter to drive thereby with great power. The tightening-roller H serves to take up the stretch of the apron A and to maintain an even tension thereon.

The empty cans are delivered to the table by means of the inclined chute or raceway E. (See Figs. 1^a, 2^a, and 2^b.) The row of cans upon the raceway, by their tendency to slide downward, serve to force the last or lowest can of the row upon one of the beams B B whenever such beam is presented empty at the foot of the raceway. The raceway is made preferably curved at the lower end, so as to bring the lowest can into a nearly upright position. If there is a can on the beam presented, the downward movement of the row of cans on the raceway is checked by it, nor is there space for a can to enter between any two of the beams B B, and as the table rotates the ends of the beams hold back the cans until an empty beam is presented, whereupon the next and lowest can is forced into it. (See Figs. 2, 2^a, and 2^b.)

The framework A^3 is provided with a shear-arm K, which serves to move filled cans off the beams B B to the apron S upon a movement of the table. This framework is also provided with an inclined arm O, Fig. 2, which serves, upon a movement of the table, to successively elevate the outer ends of the beams B B after they have been depressed by receiving a discharge from the weighing-machine and preparatory to moving the filled cans off the beams to the apron.

Housed in a supporting-piece r (see Figs. 2, 4, and 5) is a vertical spindle r'. This spindle has rigidly attached to it a pulley r^2, and mounted upon it and attached to a long sleeve r^3 is a pulley r^4, which with its sleeve r^3 is free to turn upon the spindle. Upon the upper end of the spindle r' is mounted a hub R, carrying two flexible spokes R′ R′, preferably of leather, reinforced at their outer ends. Upon the upper end of the sleeve r^3 is attached a similar hub R^2 and spokes R^3 R^3. A belt r^5, running around the pulley r^2 and the idler r^6 and back over the pulley r^4, causes the hubs R and R^2 to rotate in opposite directions, so that their flexible spokes shall strike the sides of the cans which have just been filled with material, thereby shaking down or settling the charge, in order that it may not be spilled upon the movement of the cans off the beams B B to the apron S. The rapping device is fully operative if only one of the hubs with flexible spokes is used, but two hubs with opposite motions are more effective.

Since a discharge of material into a can causes the depression of the corresponding beam of the series B B, and thereby the releasement of the latch L, and consequent movement of the table T, whereby an empty can is again brought under the discharge-orifice m of the weighing-machine, and since if such empty can was not presented to the orifice the table would not move and the weighing-machine would continue to discharge upon the floor, I have provided a safety mechanism which, in case any arm as it approaches the position under the weighing-machine is not provided with a can, will shut off the feeding device of the weighing-machine. This safety device is shown in Figs. 1, 10, 11, and 12, and its action is diagrammatically illustrated in Figs. 7, 8, and 9.

C′ is a bent arm pivoted upon a support at C^2 and carrying upon its lower end the curved piece C, which I will call a "shoe." The bent arm C′ is provided at its upper extremity with the weight C^3, which tends to make its lower end carrying the shoe swing outward or toward the table T. The shoe C is adapted to press against and slide along the sides of the cans which are upon the beams B B as, on the movement of the table, they pass by it. This shoe is of such length approximately as to reach from the center of one can to that of the next, and, when all the beams are full, is prevented by the cans from swinging toward the table. It also serves incidentally to push the cans well back into their proper positions on the beams if any have not been so placed. If, however, one or more cans are missing from the beams, there is then no hindrance to the movement of the shoe, and impelled by the weight C^3 it will move toward the table when such empty beams pass by it.

Mounted upon the shaft c^2 of the feeding device N, Fig. 12, are the loose pulley c' and the sliding clutch-piece c. The pulley c' turns freely upon the shaft c^2 when not in engagement with the clutch-piece c. The clutch-piece c can slide a limited distance upon the shaft c^2, but is made to rotate with it by means of a spline and slot in the usual manner, its sliding movement along the shaft being limited outwardly by the collar c^3. The pulley c' is provided with two engaging pins c^4 c^4, which serve, by locking with the similar pins c^5 c^5, fixed in the clutch-piece c, to cause the shaft c^2 to be driven whenever the clutch-piece is moved toward the pulley c'. Pivoted upon the frame of the feeding device at c^6 is the clutch-arm c^7, the upper end of which is bifurcated at c^8 in order to engage with the clutch-piece c and is adapted to move the clutch-piece along the shaft c^2 as required. The clutch-arm is bent at its lower end c^9 so as to project between the spokes of the wheel c^{10} and securely lock it when the clutch c is out of engagement with the pulley c', in order that the feeding device N may not be started

by any possible sticking of the loose pulley c' upon its shaft c^2. The clutch-latch c^{11}, pivoted at c^{12}, serves when in engagement with the clutch-arm c^7 (see Fig. 10 and dotted lines in Fig. 12) to hold the clutch-piece c in engagement with the pulley c'. The clutch-latch c^{11} is forced out of engagement with the clutch-arm c^7 (see whole lines, Fig. 12) by the rod C^4, which is connected with the guiding-arm C^5, pivoted at C^6, and with the rod C^7, the latter being attached at C^8 to the arm C' before described.

In the plan shown in Fig. 2 some of the funnels B^3 B^3 are left out in order to better disclose some of the parts located underneath them.

Starting with the raceway filled with cans and with such of the beams B B as may be necessary, each holding a can, the operation of the apparatus is as follows: Upon a discharge of the weighing-machine into the can which is under the discharge-orifice m the outer end of the corresponding beam is depressed and its weight raised until the movement is checked by the contact of the inner end of the beam with the cap-piece T^3. This movement of the beam causes, through its drop-piece B^5, the disengagement of the latch L from the respective stop-piece L'. The table T is now free to rotate, through the action of the friction-disks D and D' and vertical shaft D^3, until the stop-piece corresponding to the succeeding beam comes in contact with the latch L, whereupon the table again comes to rest, having advanced the distance between two beams and having brought another empty can into position under the discharge-orifice m of the weighing-machine. During this movement the following operations have taken place: First, by the pressure of the row of cans in the raceway E a can has been introduced into the empty beam which was presented at the foot of the raceway; second, the can just filled has been brought within striking distance of the rapping device R R, &c., whereby the charge is soon settled or shaken down in the can, and the beam holding the aforesaid can has, by sliding up the inclined arm O, Fig. 2, been elevated to the position in relation to the table which it had occupied before its can was filled, and the can (shown at x, Fig. 2) is now ready to be moved upon the apron S; third, the can which had been filled immediately previous to the movement of the table just described has been moved off its beam and upon the apron S through the action of the shear-arm K and occupies the position shown at y, Fig. 2. At each successive movement of the table T these operations are repeated, that is, a can is taken on from the raceway E, an empty one brought under the weighing-machine, the charge in the one previously filled is shaken down, and the immediate predecessor of the last mentioned is moved off its beam and placed upon the apron S. After a can has been moved upon the supplementary apron S it travels with it until it strikes the shear-piece P, which causes it with a turning and laterally-sliding motion to move across upon the main apron A, as shown in Fig. 2. By means of the main apron A the can may be transported to any distance from the weighing apparatus.

In the event that the supply of cans is interrupted, or if one or more are for some cause missing from their respective beams B B, the supply of material will be shut off from the weighing-machine in the following manner: When a beam holding no can comes opposite the shoe C, the bent arm C' is allowed to swing toward the table (see Figs. 9 and 11) through the action of the weight C^3, and this movement, acting through the rods C^7 and C^4, causes the clutch-latch c^{11} to be moved out of engagement with the clutch-arm c^7, and the latter by its gravity slides the clutch-piece c out of engagement with the pulley c', thereby stopping the feeding device, locking the wheel c^{10}, as described, and preventing the weighing-machine thereby from discharging material upon the floor.

By means of the adjustable weights B' B' the arms B B may be so balanced as not to be moved by one discharge of the weighing-machine, but only upon the second discharge thereof into the same can, or only by the third discharge, and so on, whereby multiples of the quantity discharged by the weighing-machine may be introduced into one package. By this means a machine whose capacity is one pound may be used in putting up packages of two or three or more pounds.

My invention consists, chiefly, of the following: A rotating table having pivoted beams adapted to support cans, and having a latch device adapted to stop the rotation of the table as each successive beam comes into position and to be released by such beam upon a discharge of material from a weighing-machine into the corresponding can, and having means for causing rotation upon the release of the latch device until stopped by the next successive engagement of the latch; a rotating table having pivoted beams adapted to support cans, and having a latch device adapted to be released by a movement of each beam in due order, said movement being caused by two or more discharges of material into the corresponding can, and having means for causing rotation except when held by the latch device; a rotating table having pivoted beams adapted to support cans, and having a latch device adapted to be released by a movement of each of the beams in due order, caused by a discharge of material into the corresponding can, and having means for causing rotation excepting when held by the latch device, said table operating in connection with an inclined raceway, whereby an empty can is supplied to each beam as it is presented empty at the foot of the raceway; a rapping device consisting of rotating hubs with flexible spokes so located as to strike the filled cans and shake down the material therein;

a rotating table having pivoted beams adapted to support cans, and having a latch device adapted to be released by a depression of one of the arms caused by a discharge of material into the corresponding can, and having means for causing rotation excepting when held by the latch device, operating in connection with a traveling apron and an inclined arm, said arm being adapted to raise the depressed beam up to the level of the apron as the table rotates; a supplementary traveling apron parallel to and operating in connection with a main traveling apron, whereby a number of weighing-machines may be operated in connection with one main apron; a supplementary apron operating in connection with a main apron, the supplementary apron being driven by the under or return side of the main apron, the latter being forced against the driving-rollers of the supplementary apron; a rotating table for conveying cans to and from a weighing-machine, the table being rotated by friction-disks, as described; a novel tightening device for a traveling supplementary apron; a rapping device consisting of two hubs having flexible spokes, the hubs rotating in opposite directions, as described.

I claim—

1. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B; said table having a latch device adapted to be released by a movement of one of said beams, caused by a discharge of the weighing-machine; and means for causing the table to rotate upon the disengagement of the said latch, substantially as and for the purpose set forth.

2. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B, said beams being so adjusted as to require two or more discharges of the weighing-machine into their respective cans to move them, a latch device adapted to be released by a movement of the beams in due order, and means for causing the table to rotate upon the disengagement of the latch device; whereby multiples of the quantity discharged by the machine, may be introduced into a can, substantially as and for the purpose set forth.

3. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B, a latch device adapted to be released by a movement of the said beams in due order, means for causing the table to rotate upon the disengagement of the said latch, and the inclined raceway E, whereby cans may be successively and automatically placed upon the beams and presented under the discharge-orifice of the weighing-machine, substantially as and for the purpose set forth.

4. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B, the shoe C, said shoe being adapted to perform a movement if one or more of the cans are missing from the table, the loose pulley c', the clutch-piece c, clutch-arm c^{i}, clutch-latch c^{11}, arm C′, and appropriate connecting mechanism, whereby the supply of material is shut off from the weighing-machine when cans are not properly presented, substantially as and for the purpose set forth.

5. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; a rapping device, consisting of a rotating hub having flexible spokes, adapted to strike the filled cans, whereby the charge is shaken down in the can and spilling prevented, and means for conveying cans to and from the discharge-orifice of said weighing-machine, substantially as and for the purpose set forth.

6. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; the combination of the rotating table T, the pivoted can-holding beams B B adapted to be depressed at their outer ends by holding filled cans, a latch device adapted to be released by the depression of the said beams in due order, the traveling apron S, means for causing the table to rotate upon the disengagement of the said latch, and the inclined arm O, said arm being adapted to raise the depressed pivoted can-holding beams upon the rotation of the table, substantially as and for the purpose set forth.

7. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T adapted to present cans successively to the weighing-machine for filling, the main traveling apron A, the short supplementary traveling apron S, adapted to receive cans from the table T and deliver them to the said main apron A, and means for transferring the cans from the table T to the apron S, and from the apron S to the apron A, whereby the cans from several weighing-machines may be delivered to one main apron without interfering with each other, substantially as and for the purpose set forth.

8. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine, the main apron A, the short supplementary apron S adapted to receive filled cans from a weighing apparatus, and means for transferring said cans across from the said short supplementary apron to the main apron, whereby, by using a short supplementary apron with each weighing-machine, the cans from several weighing-machines may be delivered to one main apron without interfering with each other, substantially as and for the purpose set forth.

9. In a mechanism for filling cans, and adapted to operate in connection with a weighing-machine; in combination, the main apron A, the supplementary apron S, the rollers a, a,

and the rollers *s*, *s*, whereby the supplementary apron is driven by the under or return side of the main apron, substantially as and for the purpose set forth.

10. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T adapted to convey cans to and from the discharge-orifice of said weighing-machine, said table being provided with a latch device adapted to be released by the filling of a can presented to said weighing-machine and when not so released to prevent the rotation of said table, the vertical shaft D^3, the friction-disk D' fixed to the said shaft, the loose disk D resting upon the said disk D', and means for the continuous rotation of the said disk D, whereby the filling of a can presented to the weighing-machine allows the table to rotate and an empty can to be presented, substantially as and for the purpose set forth.

11. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating table T, the pivoted can-holding beams B B, the funnels B^3 B^3 said funnels being mounted upon said beams by suitable mechanism and adapted to transmit material into cans placed beneath them upon said beams, said table being provided with a latch device adapted to be disengaged whenever a can presented by said table to the weighing-machine has been filled, and means for rotating said table upon the disengagement of said latch device, substantially as and for the purpose set forth.

12. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the apron S, the rollers *s s* adapted to support and drive the said apron one at each end substantially as described, the rollers *s' s'* mounted in the frame s^2 and bearing upon the under or return part of the apron S and in opposition to the roller a^2, the roller a^2, the frame s^2 adapted to adjustably support the rollers *s s*, the pivoted arm s^3 adapted to carry the frame s^2 in opposition to the weight s^4, and the weight s^4, whereby tension is maintained on the said apron S, substantially as and for the purpose set forth.

13. In a mechanism for filling cans and adapted to operate in connection with a weighing-machine; in combination, the rotating hub R having the flexible spokes R' R', the spindle r' adapted to support the hub R, and the pulley r^2 fixed upon and adapted to drive the said spindle r'; with the hub R^2 having the flexible spokes R^3 R^3, and mounted upon the loose sleeve r^3, the sleeve r^3 rotating upon the spindle r', the pulley r^4 fixed upon the sleeve r^3 and a suitable supporting-frame, whereby the said hubs R and R^2 may be rotated in directions opposite to each other, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 15th day of April, A. D. 1896.

WILLIAM EMERY NICKERSON.

Witnesses:
FRANK G. PARKER,
WILLIAM H. PARRY.