

(No Model.)

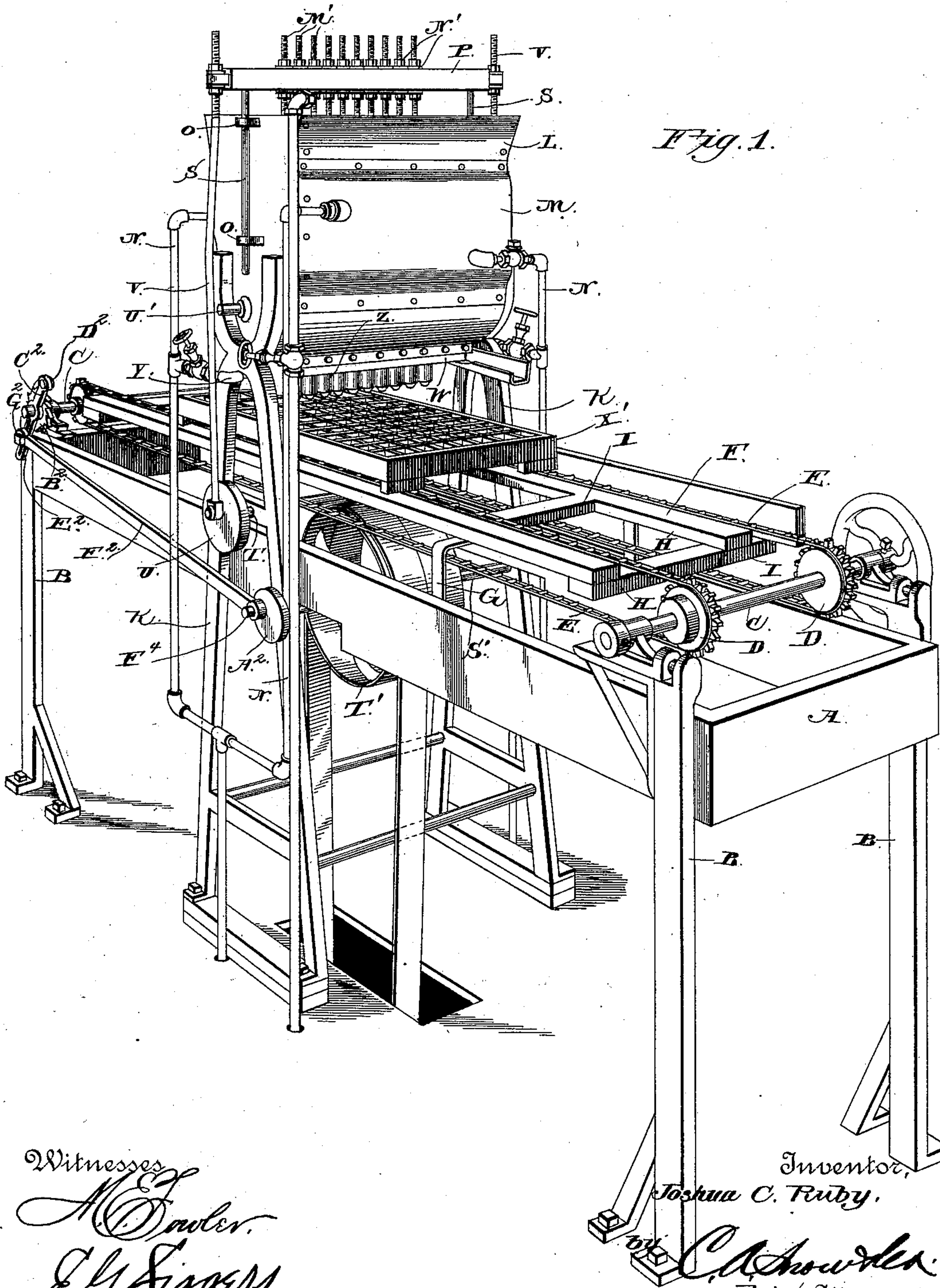
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J. C. RUBY.

MACHINE FOR MOLDING CONFECTIONS.

No. 393,665.

Patented Nov. 27, 1888.



(No Model.)

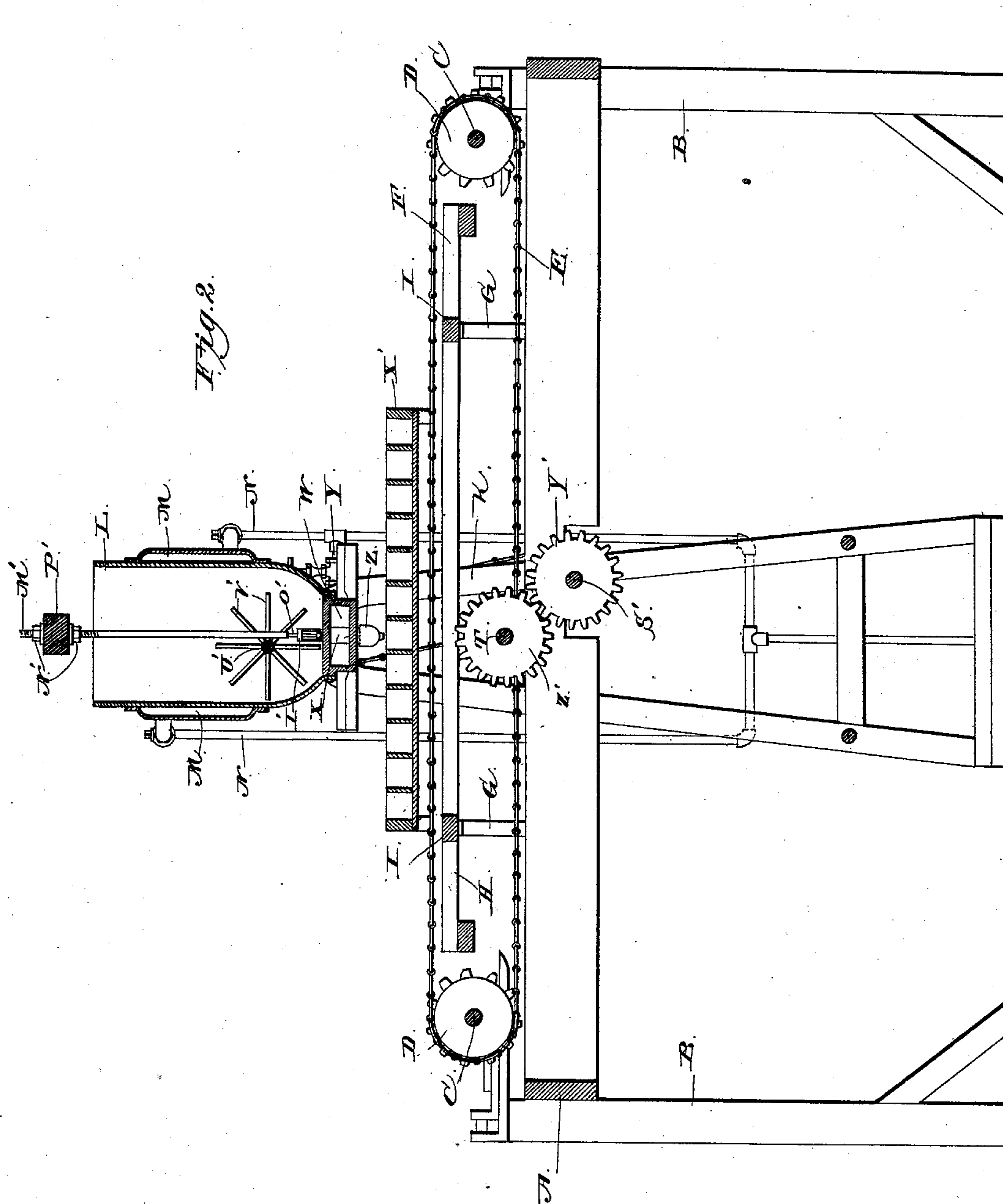
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Witnesses.

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E. Siggers.

Inventor.

Joshua C. Ruby.

by *C. A. Snow & Co.*
Attorneys.

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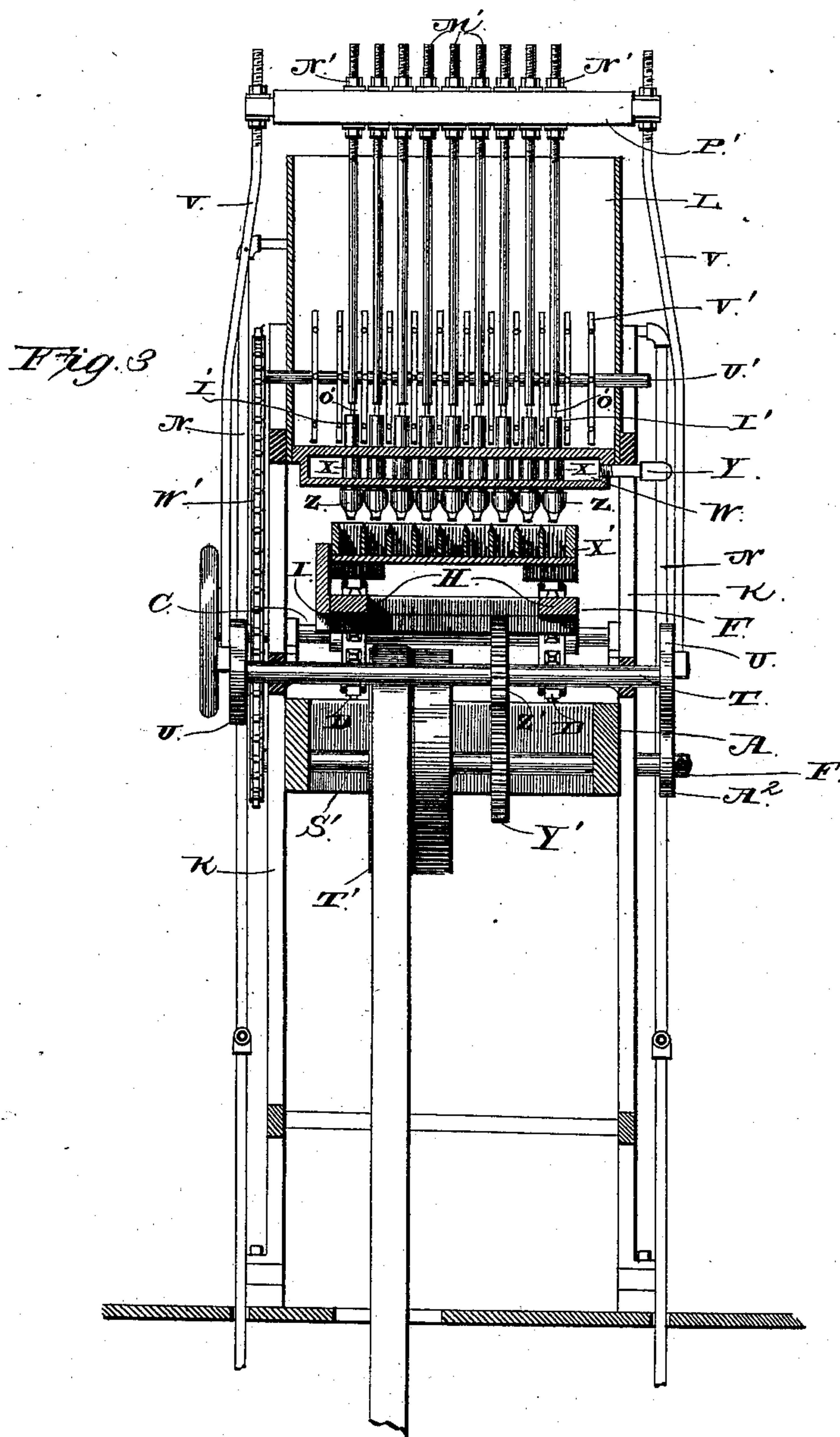
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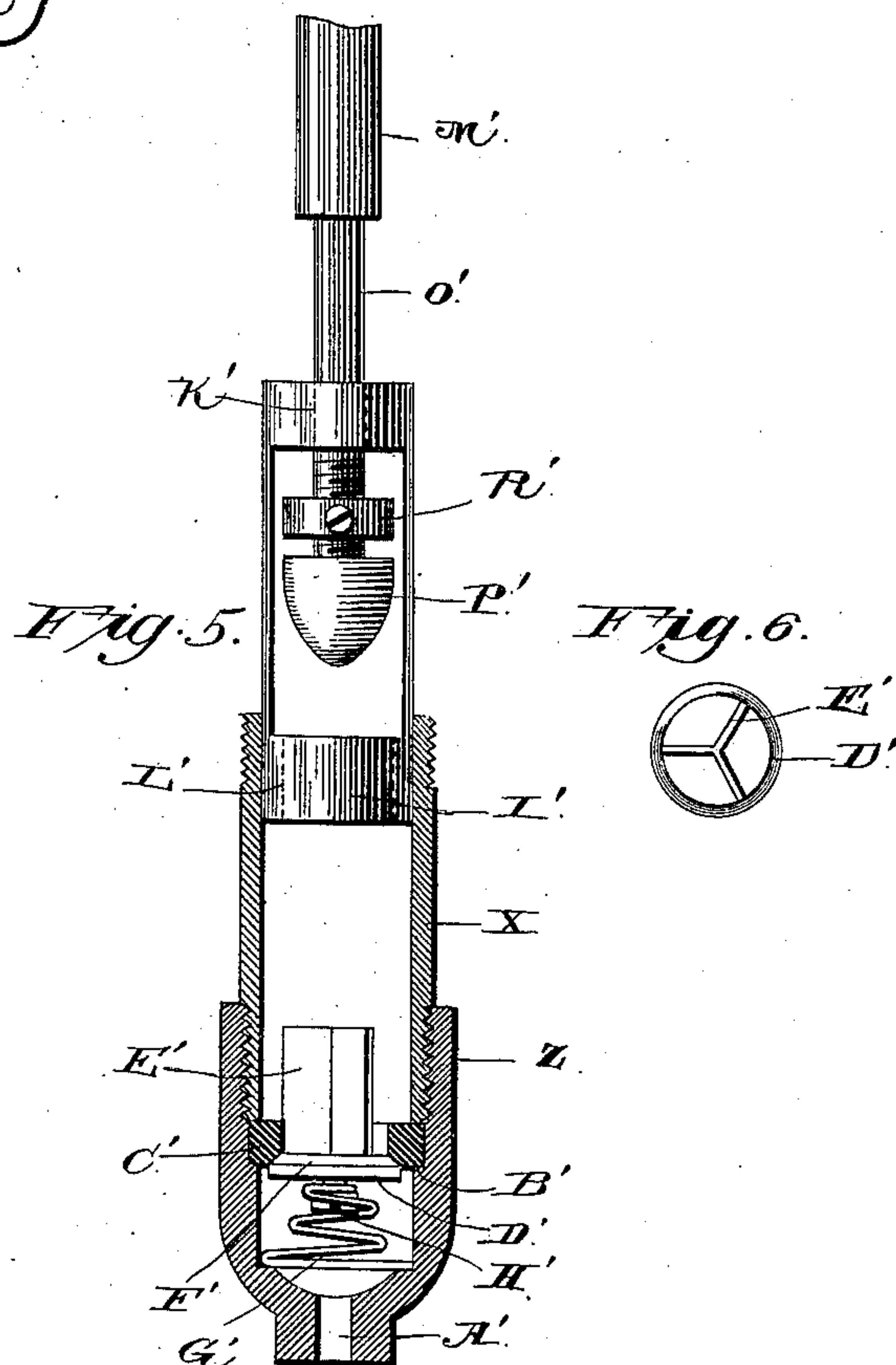
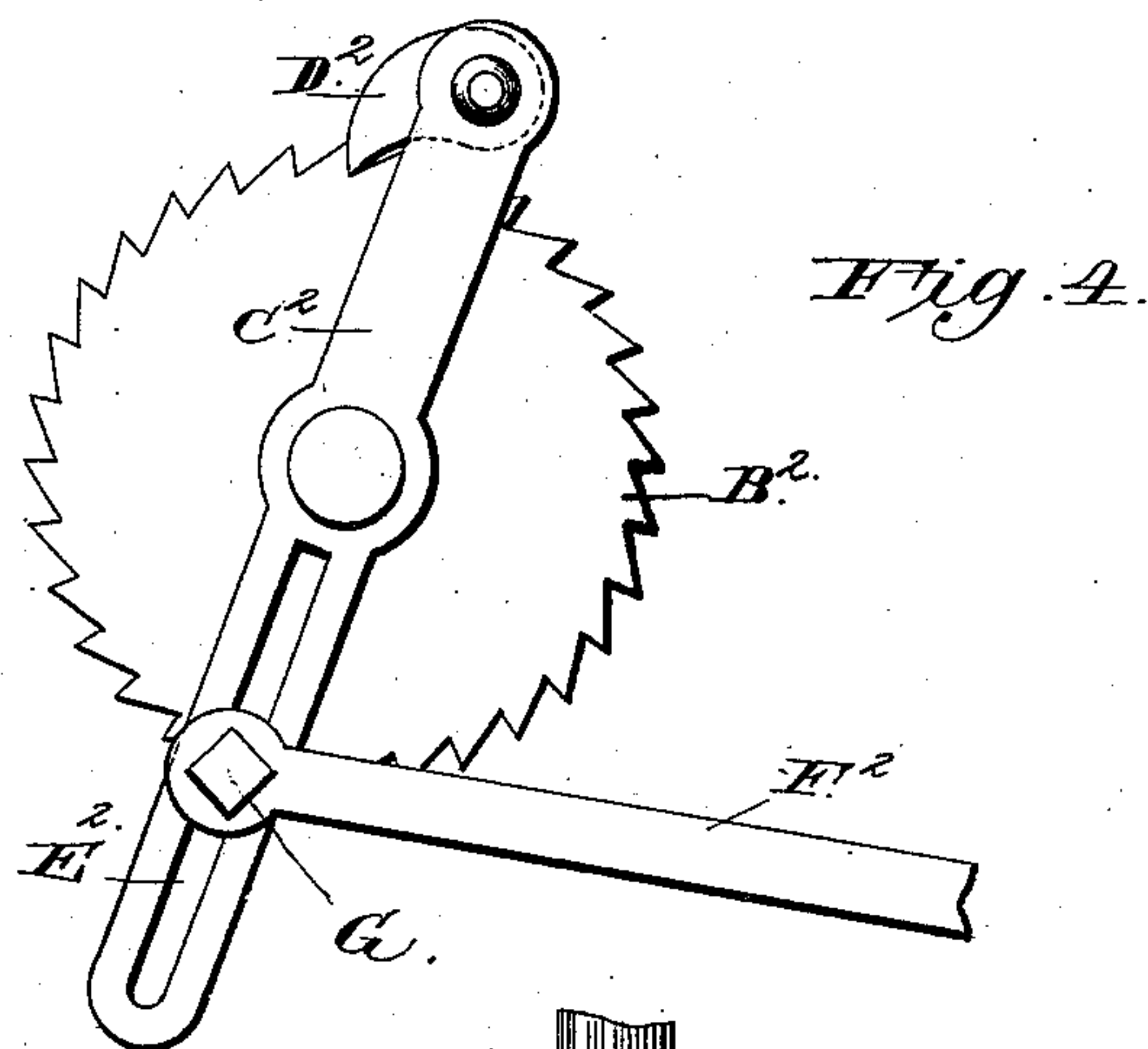
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Witnesses,

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E. S. Siger,

Inventor,

Joshua C. Ruby.

by *C. A. Snowden,*
his Attorneys.

UNITED STATES PATENT OFFICE.

JOSHUA CLAY RUBY, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR MOLDING CONFECTIONS.

SPECIFICATION forming part of Letters Patent No. 393,665, dated November 27, 1888.

Application filed January 5, 1888. Serial No. 259,839. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA CLAY RUBY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Machines for Molding Confections, of which the following is a specification.

My invention relates to an improvement in machines for molding confections, such as bonbons, marsh-mallows, and the like; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a confection-molding machine embodying my improvement. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view. Fig. 4 is a detail view of the means for operating the carrier. Fig. 5 is a detail sectional view of one of the tubes X and cups Z. Fig. 6 is a plan view of the valve.

A represents a rectangular frame, which is provided at its corners with vertical supporting-legs B. Near opposite ends of the frame A are journaled transverse shafts C, each of which is provided with a pair of sprocket-wheels, D.

E represents a pair of endless chains, which connect the wheels on one shaft to the wheels on the opposite shaft, the said chains thereby extending nearly throughout the entire length of the frame A, as shown.

F represents a table-frame, which is supported at a suitable height above the frame A by means of brackets or standards G. The said frame F is composed of a pair of side bars, H, and a series of cross-bars, I, which connect said side bars.

K represents a pair of standards, which are arranged on opposite sides of frame A, at or near the center of the same, have their lower ends secured to the floor, and have their upper ends extending a suitable distance above the frame A. To these standards is secured a hopper, L, which is provided on its sides with water-compartments M, with which communicate pipes N, and by means of which a constant circulation of hot water may be main-

tained in said compartments for the purpose of keeping the contents of the hopper hot and in fluid or semi-fluid condition. On the ends of the hopper are guiding ears or lugs O, having vertical aligned openings.

P represents a cross-head, which is arranged across the upper side of the hopper, has its ends projecting beyond the ends of the hopper, and is provided with a pair of vertical depending guide-rods, S, which work in vertical openings in the lugs O.

On the upper side of frame A, midway between the diverging arms of standards K, are secured bearing blocks, in which is journaled a transverse shaft, T. The said shaft is provided at its ends with crank-wheels U.

V V represent a pair of pitmen, which have their lower ends connected to the crank-wheels and their upper ends connected to the ends of the cross-head, and thereby, when the shaft T rotates, the crank-wheels and pitmen communicate vertical reciprocating motion to the cross-head P, as will be very readily understood.

The bottom of the hopper is provided with a longitudinal closed chamber, W.

X represents a series of short cylindrical tubes, which extend through vertical openings in the bottom of the hopper, the lower ends of said tubes extending below the bottom of the hopper and the upper ends thereof being flush with the upper side of the bottom of the hopper. These pipes X extend directly through the chamber W, and pipes Y communicate with the said chamber to supply steam thereto for the purpose of keeping the tubes heated. To the lower end of each tube is screwed a cup, Z, having a reduced discharge-opening, A', at its lower end, and the said cups are each provided with a shoulder, B', at a slight distance below the lower ends of tubes X, on which shoulders are supported annular plates C', having central openings, which form the seats for valves D'. The said valves have their studs or upper portions, E', which project through the openings in the plates, composed of the series of vertical radial wings, as shown, and the lower portions of the said valves are enlarged to form disks F', that bear against the lower side of plates C'.

G' represents coiled volute springs, which

are made of fine steel wire and bear between the bottoms of cups Z and the lower sides of valves D', the upper ends of said springs being engaged by screws II', which are secured

5 in the centers of the disks F' of the valves.

In each tube X is fitted a vertical cylindrical plunger, I', having openings in its sides, as shown, the said plungers having their upper ends closed and provided with central reduced

10 openings, K', and having their lower ends also closed and provided with larger openings, L'.

M' represents a series of vertical plunger-rods, which have their upper ends extended through the cross-head P and secured thereto by means of clamping-nuts N', which are screwed to the rods and bear against the upper and lower sides of the cross-head. The lower ends of the rods M' are reduced in diameter for a suitable length to form spindles O', which extend through the openings K' in the upper ends of the plungers, and to the lower ends of these spindles are secured inverted conical or semi-spherical valves P'. It

20 will be observed by reference to Figs. 3 and 2 that the length of the stems O' is somewhat in excess of the length of the space between the upper and lower ends of the plungers I', and thereby lost motion of the rods M' is permitted in the plungers.

That portion of the stem of each rod M' above the valve is screw-threaded, and to the same is screwed an adjusting-nut, R', which may be turned and thereby caused to move

35 upward or downward on the stem and serve as a stop to engage the upper end of the plunger on the upstroke of the rod, so as to regulate or limit the lost motion of the rod in the plunger.

40 S' represents a driving-shaft journaled in the frame A and provided with a driving-pulley, T', to be operated by an endless belt, the said shaft being connected to the shaft T by means of gear-wheels Y' and Z'.

45 U' represents a shaft, which extends through the hopper and has its bearings in the ends thereof. The said shaft is provided with radial stirring-paddles V', adapted to keep the contents of the hopper agitated, and one end of the said shaft is provided with a sprocket-wheel, which is connected to a suitable sprocket-wheel on the driving-shaft S' by means of an endless chain, W'.

X' represents a tray, which is secured to and connects the endless chains E. The said chains and the shafts C and sprocket-wheels D constitute a carrier, which is adapted to move the tray longitudinally under the hopper. The said tray is divided into compartments of suitable size, as shown, which compartments are arranged in line with each other, and each series of the said compartments is adapted to register with the cups Z on the under side of the hopper in succession as the tray passes under the said hopper, the motion of the carrier being regulated so that on each upstroke of the cross-heads the tray will move so as to bring

another series of the compartments under the cups Z. On one end of the driving-shaft is a crank-wheel, A².

70 B² represents a ratchet-wheel, which is secured rigidly near one end of one of the shafts C. On the projecting end of said shaft is loosely mounted a rocking lever, C², which has a pawl, D², pivoted at its upper end, engaging the ratchet-wheel, and has a slot, E², in its lower end. 75

F² represents a pitman, which is connected to the crank-wheel A² by a pin or bolt, F', and is connected to the rocking lever by a bolt, G², that works in the slot, and thereby enables the pitman to be so adjusted as to regulate the throw of the rocking lever. 80

From the foregoing it will be understood that when the driving-shaft rotates motion will be communicated to the shaft T, and thereby cause the cross head and the plungers to reciprocate. The pitman communicates rocking motion to the lever C² and causes the pawl to partly turn the ratchet-wheel at each forward movement of the lever, giving an intermittent rotary motion to shaft C, and thereby moving the endless carrier and the tray thereon a suitable distance. 85

The table supports the tray; but the latter being connected with the chains is moved along by the movement thereof. As the shaft C is given an intermediate rotary movement, the chains will be given a horizontal intermittent longitudinal movement, and since the tray is connected to the chains the same intermittent movement will be imparted to the tray. The table supports the weight of the tray and keeps the weight off the chains. 90

The operation of my invention is as follows: On each upstroke of the cross-head the rods M' are elevated, so as to first raise the valves P' from the openings L' and then raise the plungers I' in the tubes X. A portion of the fluid or semi-fluid contents of the hopper then flows through the side opening in each plunger and through the opening L' in the lower end thereof into the tube X upon the upper side of the valve D'. On the ensuing downstroke of the cross-head the rods M' are lowered, which first cause the valves P' to close the openings L' in the lower ends of the plungers, and the shoulders at the upper ends of the reduced stems O' then engage the upper ends of the plungers and force the same downward in the tubes X, thereby exerting pressure on the mixture in the tubes X and causing the same to open the valves D' against the resilience of the springs G' and force the mixture into the cups Z, from which it escapes through the openings A' into the tray. 95 100 105 110 115 120 125

By adjusting the nuts R' up or down on the stems O' the quantity of material fed to each cup at each upstroke of the cross-head may be regulated, as will be very readily understood, and thereby cause the machine to deposit the mixture in the molds or receptacles of the tray in exactly the desired quantities. 130

As will be seen from Figs. 2 and 3, the

chamber W closes the open bottom of the hopper and is detachably secured thereto by means of bolts, the latter being clearly shown in Fig.

1. By means of the detachability of the chamber the latter can be removed from the hopper and another chamber substituted having a greater or less number of tubes, or tubes of greater or less diameter. Thus the quantity and size of the confections can be regulated to suit the taste and fancy of the manufacturer.

In removing the chamber from the hopper of course it is necessary to separate the pipe-connections which supply it with steam.

Having thus described my invention, I claim—

1. In a confection-molding machine, the combination of the hopper with the discharge-tube X, the vertically-movable plungers I' in the said tubes, provided with the inlet-openings, and the vertically-movable rods M', having the stems O' extending through the upper ends of the plungers and provided at their lower ends with valves P', substantially as described.

2. In a confection-molding machine, the combination of the hopper, the discharge-tubes, valves D', reciprocating plungers I', and rods M', having valves P', substantially as described.

3. The combination, in a machine for molding confections, of the hopper, with the tubes X in its lower side, the cups Z, attached to the lower ends of said tubes, the spring-pressed valves D', the vertically-movable plungers I', arranged in the tubes and having the inlet-openings and the openings L' in their lower sides, and the vertically-movable rods M', playing loosely in the plungers and having the valves P' to open and close the openings L', substantially as described.

4. The combination, in a confection-molding machine, of the hopper having the discharge-tubes, with the plungers I' in said tubes and provided with the inlet-openings, and the vertically-movable rods M', having a limited independent movement in said plungers and provided at their lower ends with the valves P', substantially as described.

5. The combination, in a confection-molding machine, of the hopper having the discharge-tubes, the plungers I' in said tubes, provided with the inlet-openings, and the vertically-movable rods M', having a limited independent

movement in said plungers and provided at their lower ends with the valves P', with the adjustable stop R', to limit the independent movement of the rods in the plungers, for the purpose set forth, substantially as described.

6. In a machine for molding confections, the combination of the hopper with the rigid table, the horizontal tray resting on and supported by the table and divided into a series of compartments, the driving-shaft, the two shafts C, the chain running around the said shafts C, the pitman F², connecting at one end with the driving-shaft, the rocking lever C², to which the other end of the pitman is adjustably connected, the pawl carried by the lever, and the ratchet on one of the shafts C, to be engaged by the pawl, as set forth.

7. In a machine for molding confections, the hopper having an open bottom, combined with the closed hollow steam-chamber W, removably fitted within and closing the open bottom of the hopper, whereby the chamber can be removed and another chamber substituted having a greater or less number of tubes, and the pipes to supply the chamber with steam, substantially as described.

8. In a machine for molding confections, the combination of the hopper with the discharge-tubes X, the discharge cups Z, fitted to the tubes, and valves D' in the cups, the plungers I', having the inlet-openings and working in the tubes X, and the rods M', having a limited independent vertical movement in the plungers and carrying valves P', as set forth.

9. In a machine for molding confections, the hopper having an open bottom, combined with the closed hollow steam-chamber W, removably fitted within and closing the open bottom of the hopper, whereby the chamber can be removed and another chamber substituted having a greater or less number of tubes, and the pipes to supply the chamber with steam, and the said hopper having side compartments, M, and pipes N, to supply hot water thereto, the compartments N being entirely separate and independent of the chamber W.

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

JOSHUA CLAY RUBY.

Witnesses:

E. G. SIGGERS,
CHAS. F. VAN HORN.