No. 641,432. Patented Jan. 16, 1900.

M. BRAUNSTEIN & L. CHAMBON.

CIGARETTE MACHINE.

(Application filed Nov. 13, 1897.)

(No Model.) 7 Sheets—Sheet 1.

Fig. 1

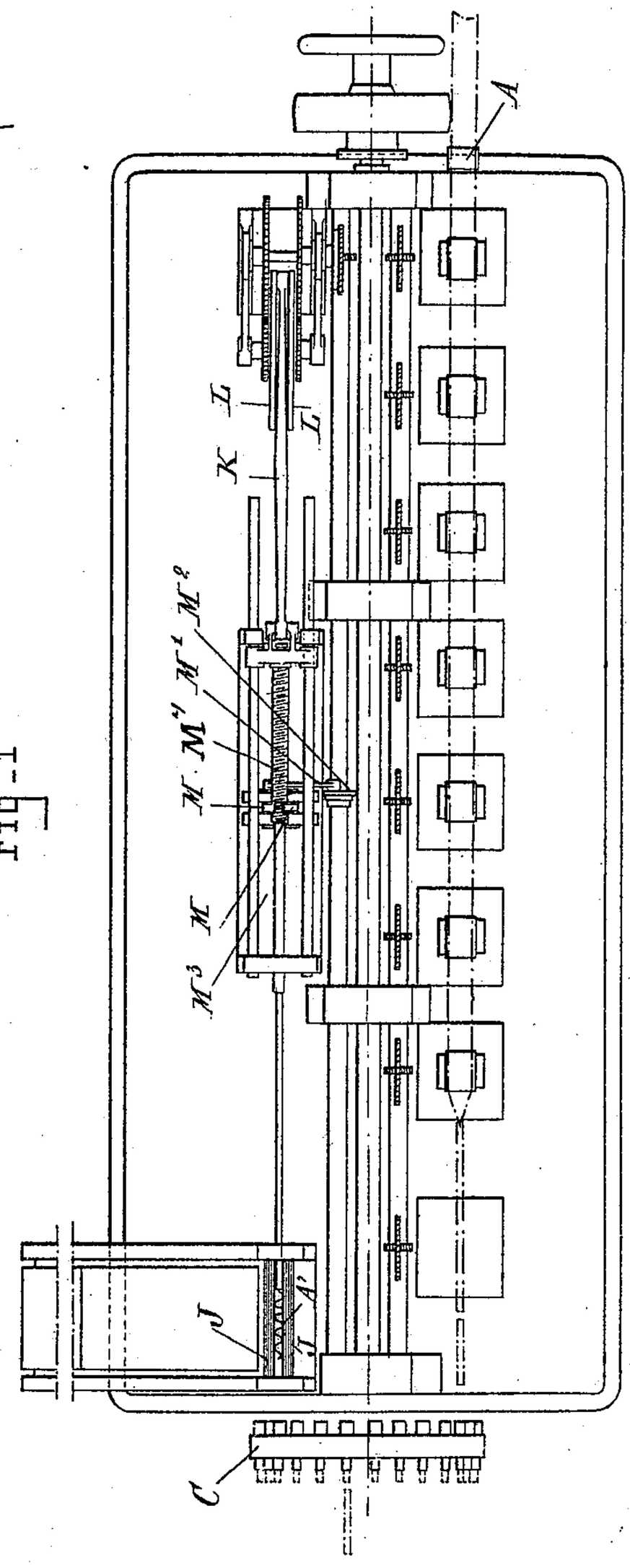


Fig. 2

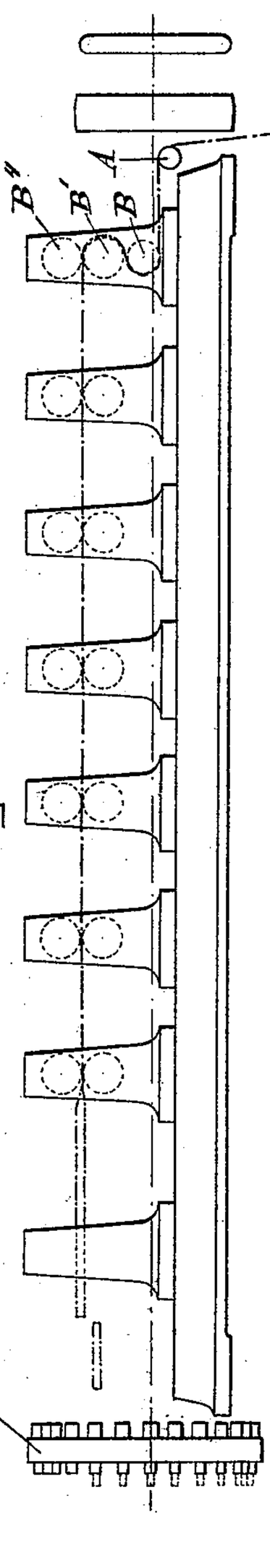
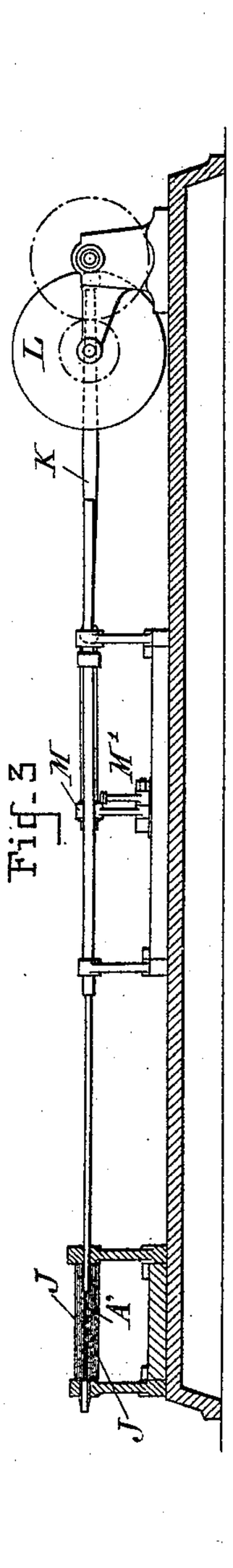


Fig. 3



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Otto Munn

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Fig. 4

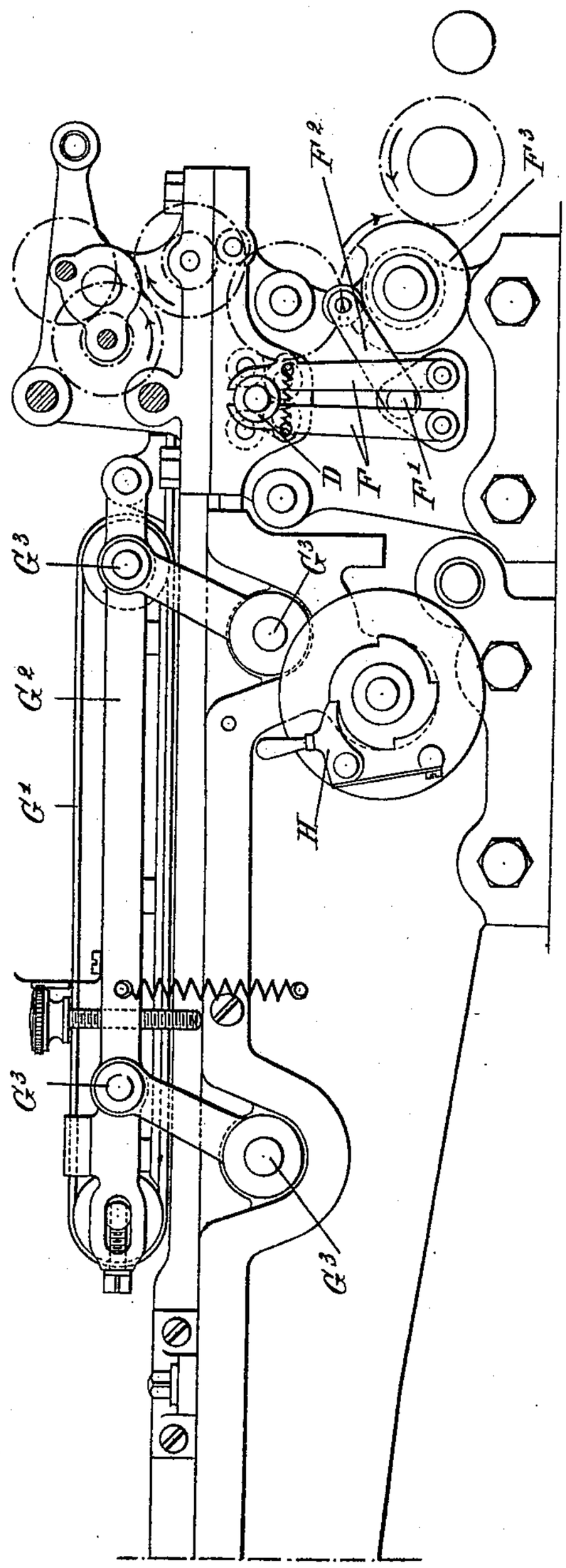

Fig. 4a

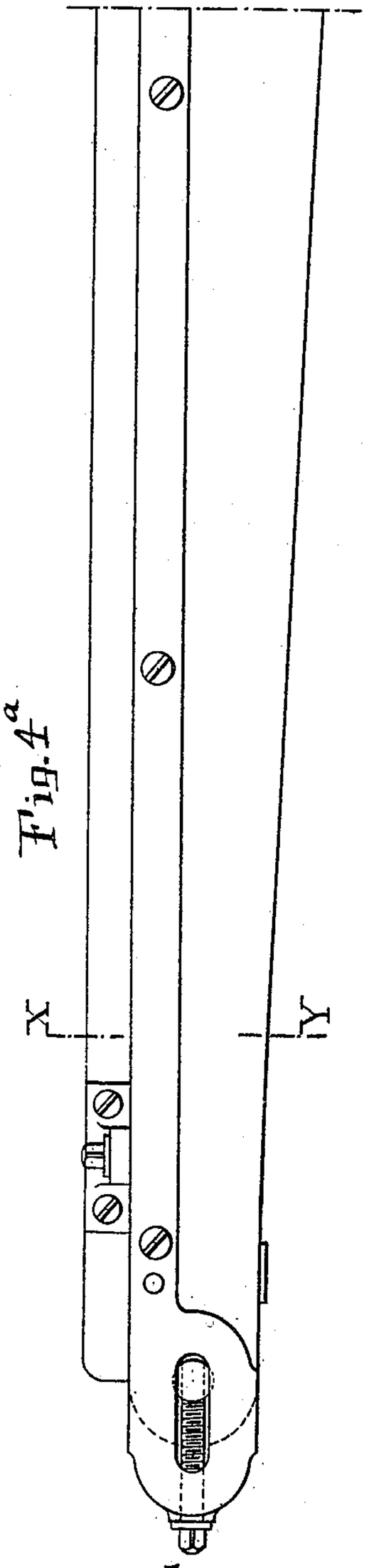

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Fig. 5

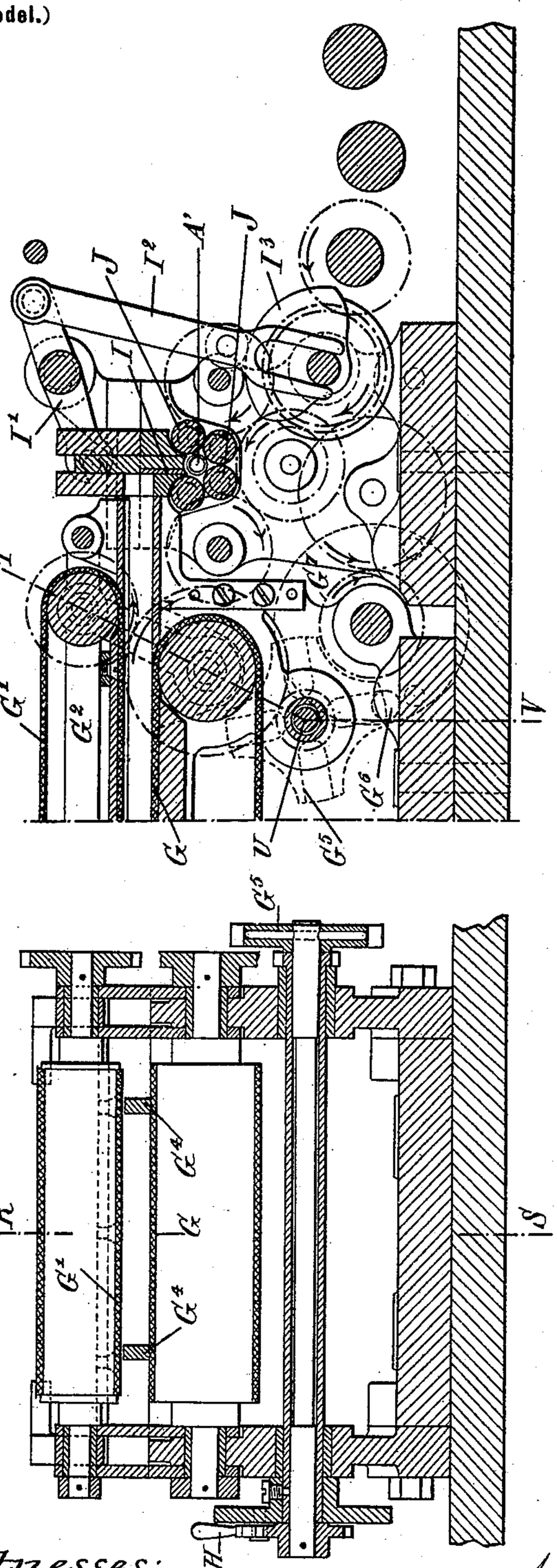

Fig. 7

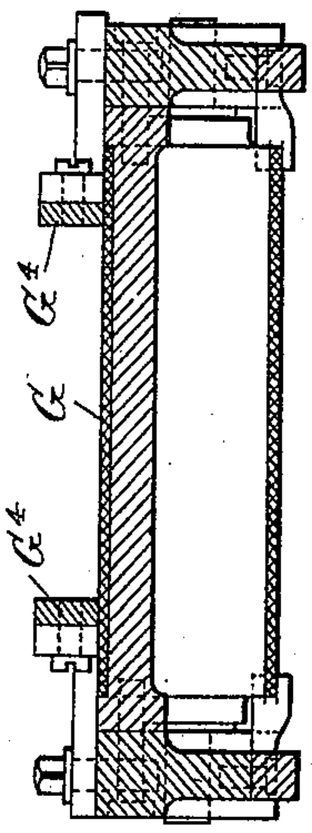

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Fig. 8

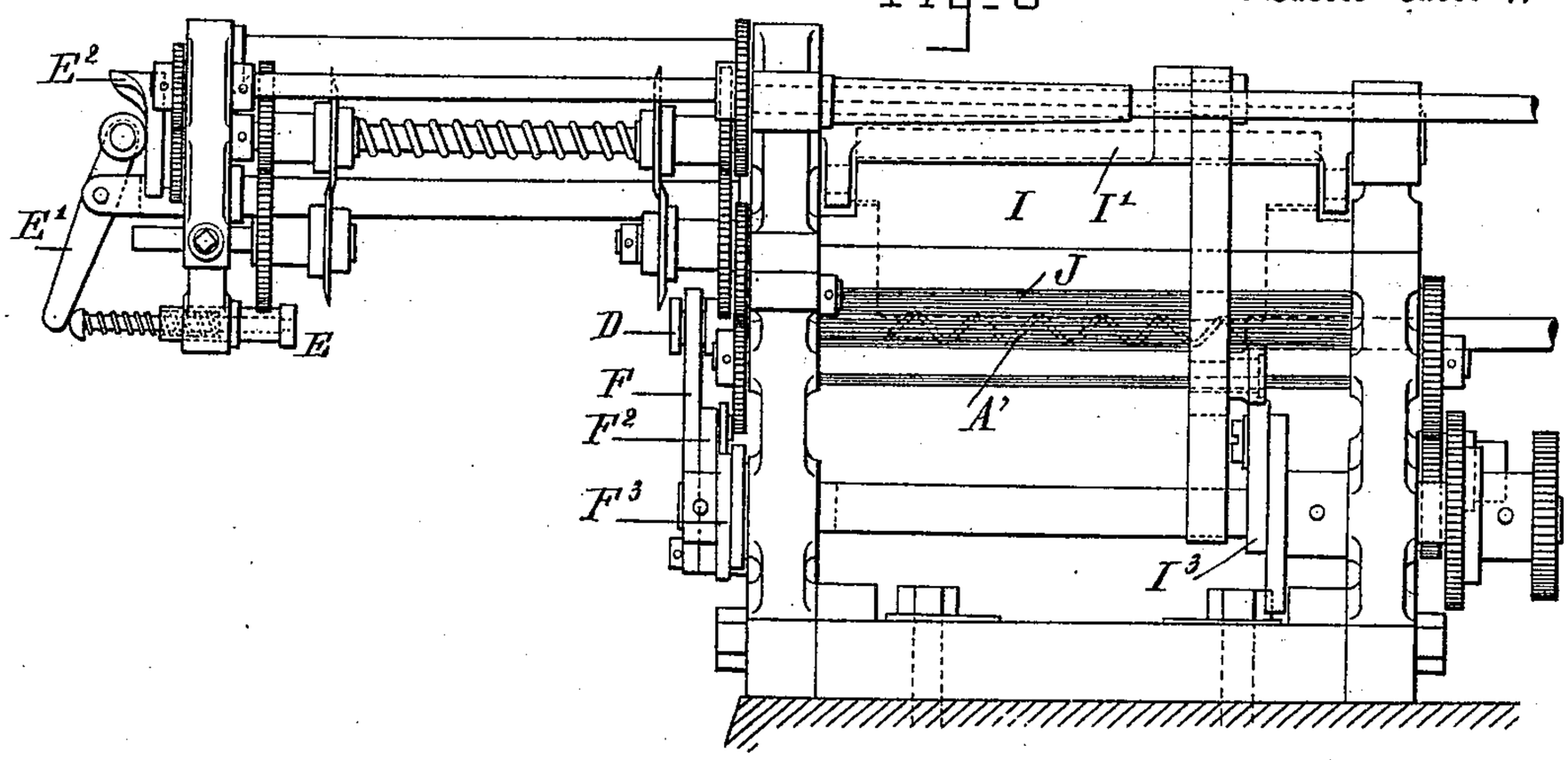

Fig. 10

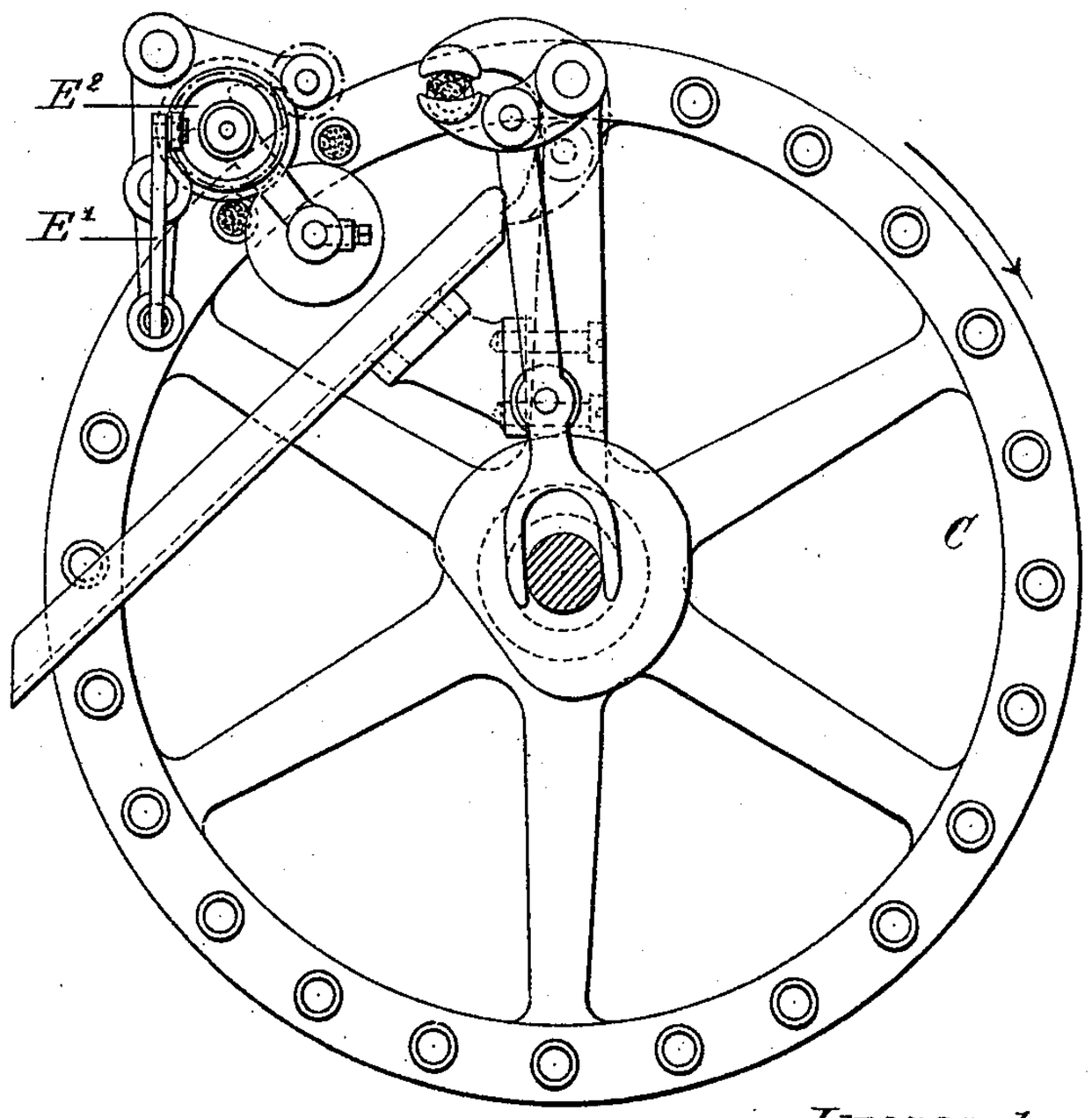

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Fig. 9.

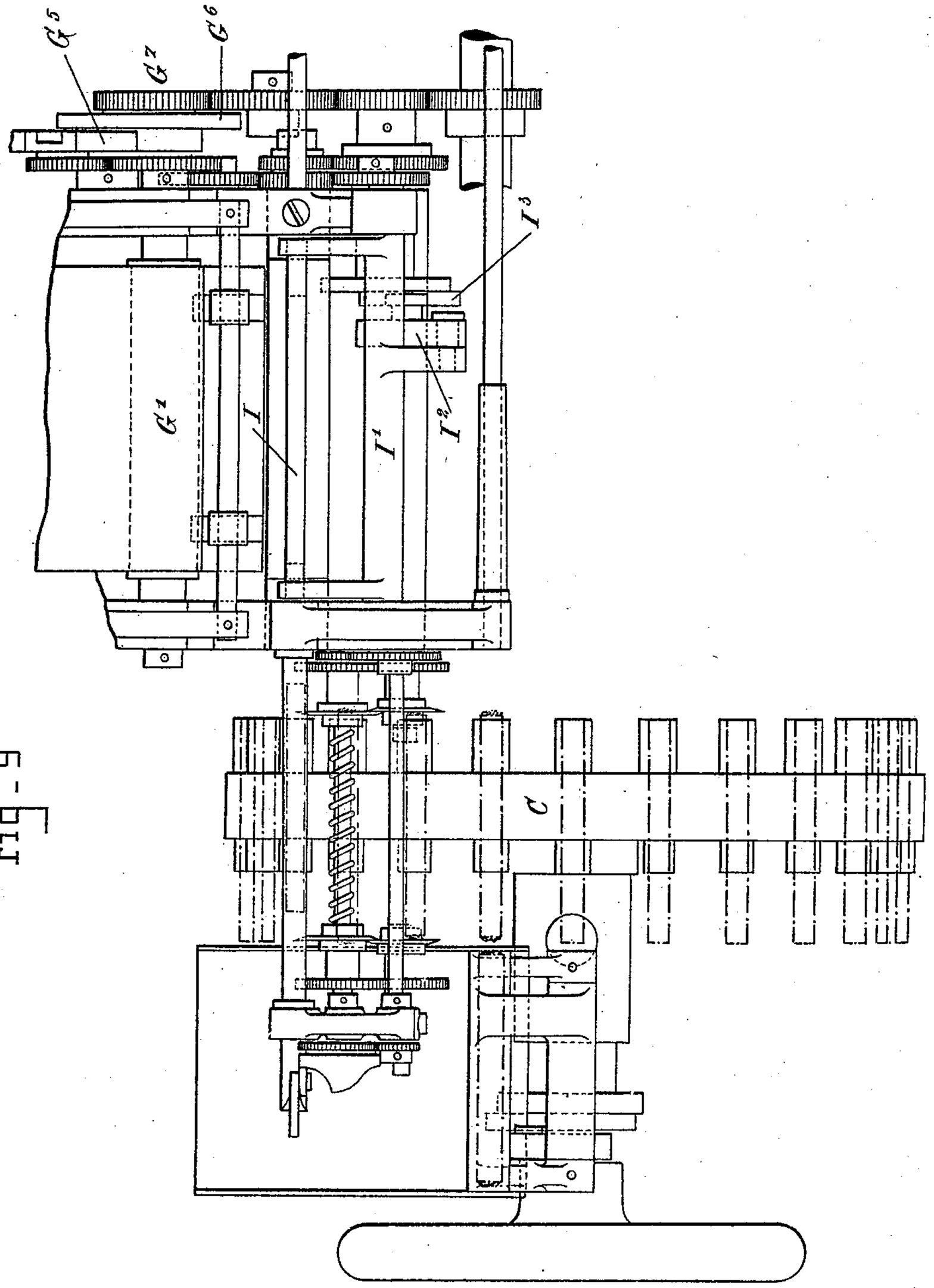

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Fig. 9

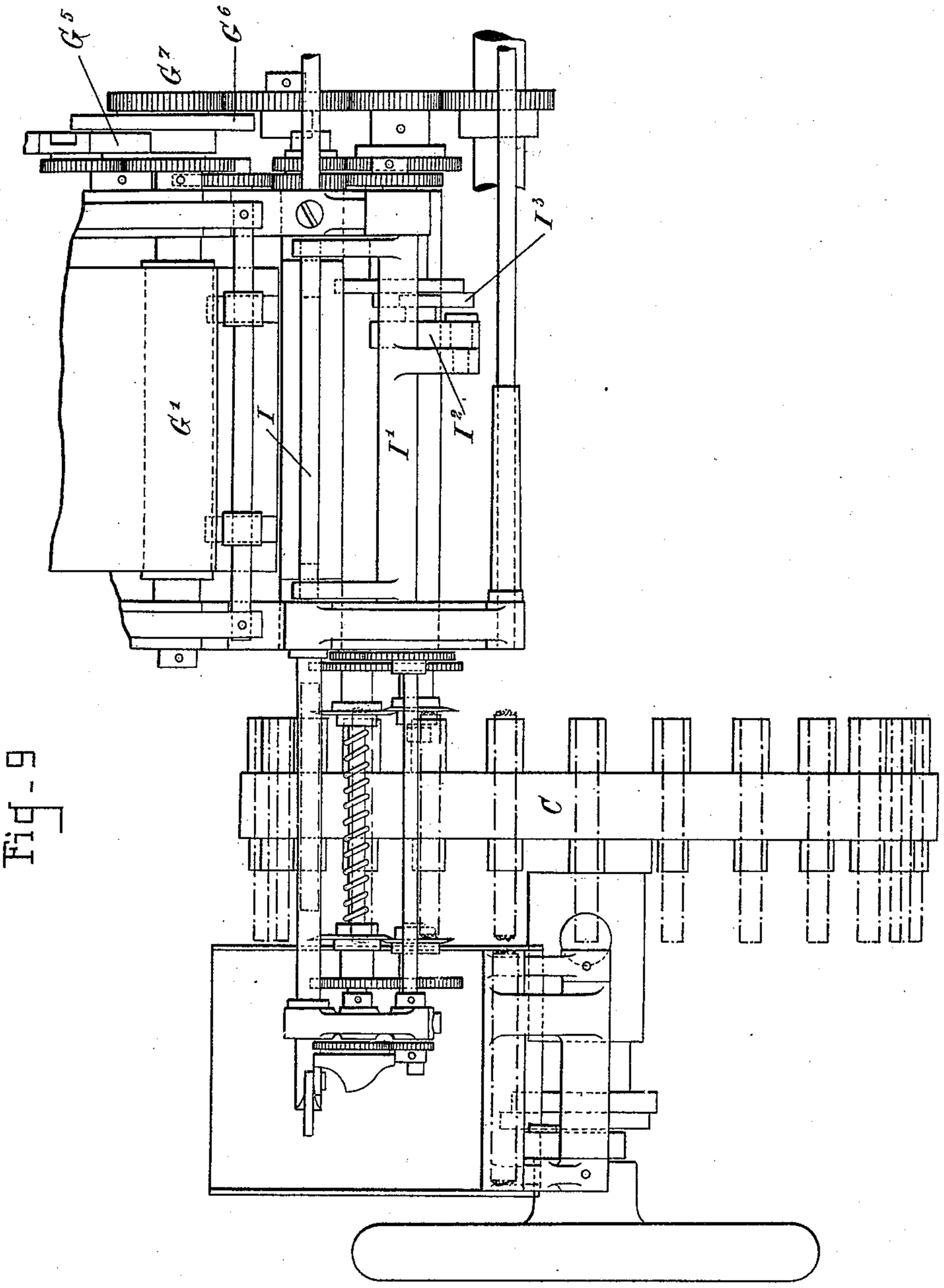

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Fig. 11

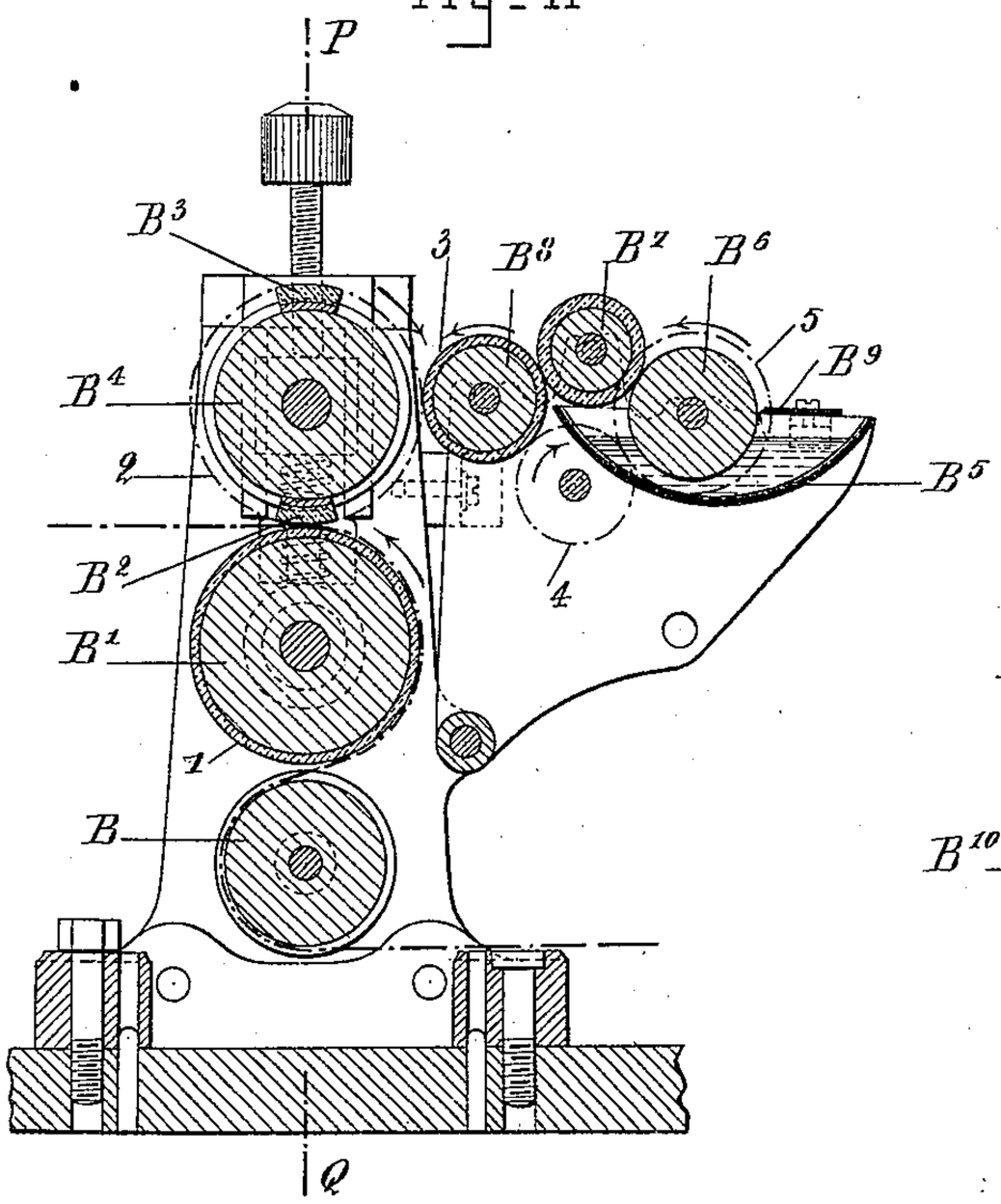

Fig. 12

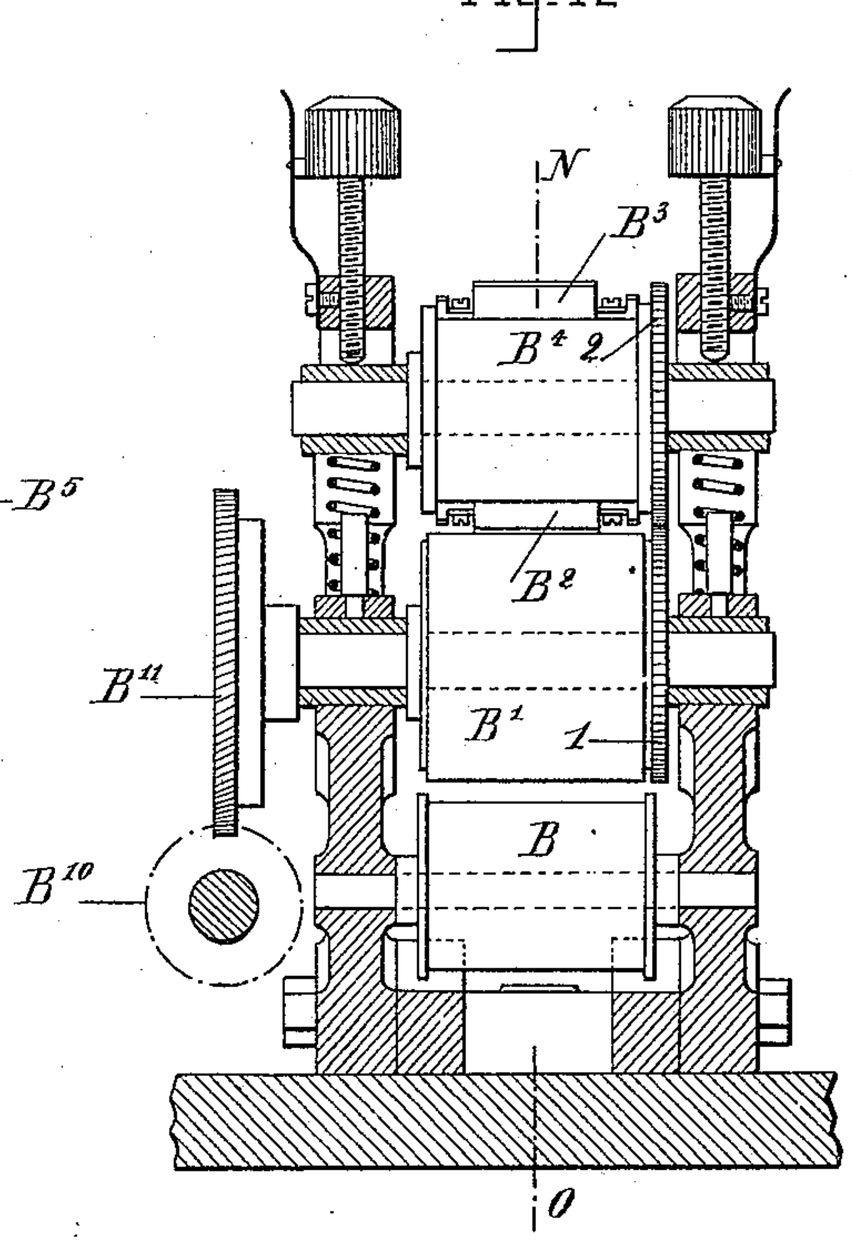

Fig. 13

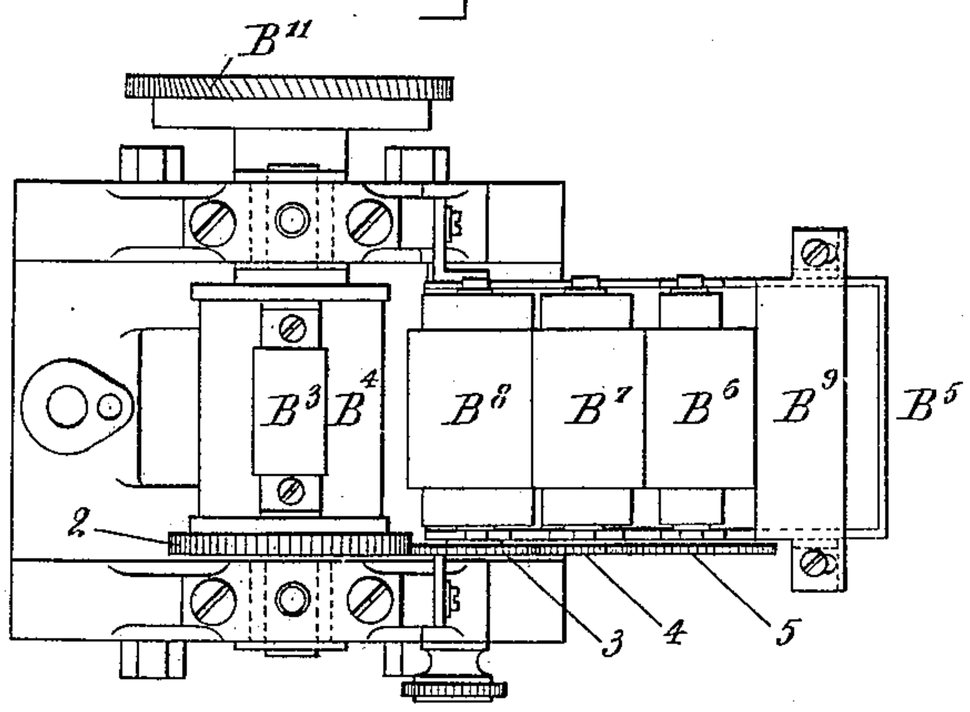

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Fig. 14.

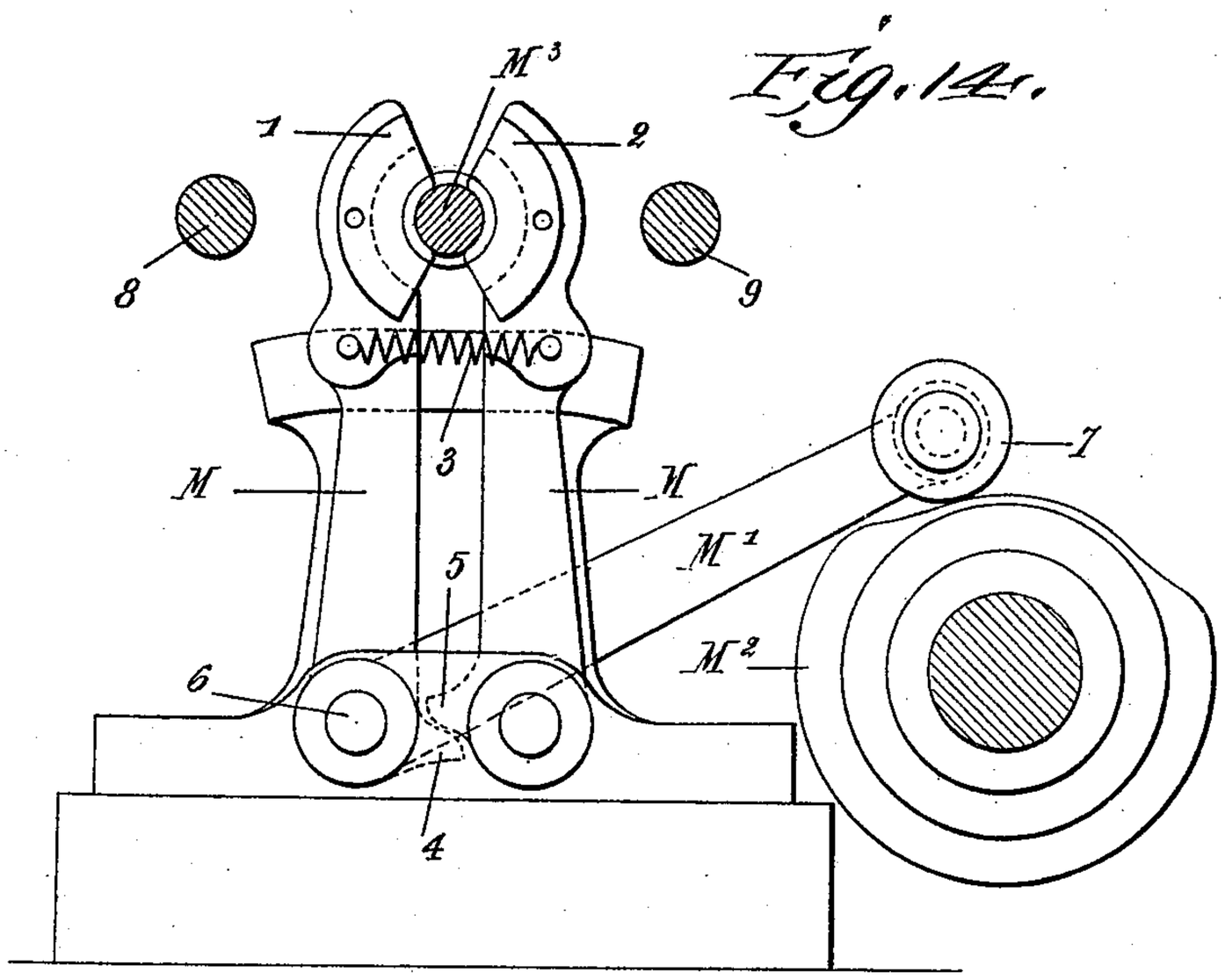
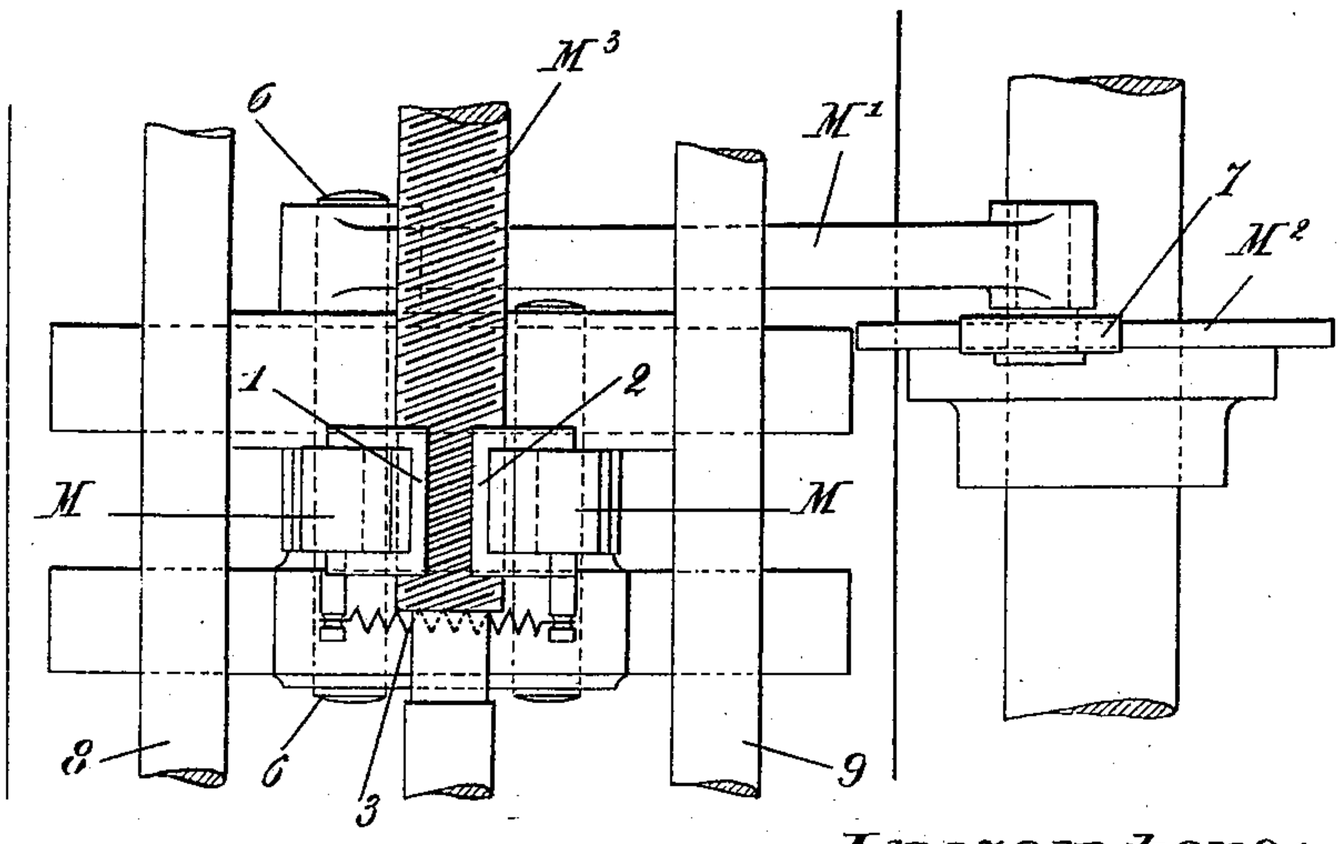


Fig. 15.



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UNITED STATES PATENT OFFICE.

MAURICE BRAUNSTEIN AND LOUIS CHAMBON, OF PARIS, FRANCE.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 641,432, dated January 16, 1900.

Application filed November 13, 1897. Serial No. 658,424. (No model.)

To all whom it may concern:

Be it known that we, MAURICE BRAUNSTEIN and LOUIS CHAMBON, citizens of the Republic of France, and residents of Paris, France, have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a specification, this invention having been patented in France April 22, 1896, No. 255,774; in England February 19, 1896, No. 4,562; in Spain April 8, 1897, No. 20,466, and in Belgium February 17, 1897, No. 126,420.

This invention has for its object a machine for the manufacture of cigarettes of various sizes and lengths in a manner entirely mechanical and automatic.

This machine is characterized by the combination, with the parts necessary for making a tube of cigarette-paper by means of a continuous strip of paper previously printed or paraffined, as desired, of a mechanical arrangement for rolling the tobacco in the form of a sliver around a spiral or screw arrangement and for introducing it without packing by means of this same screw device into the tube which has been previously made by the machine and been lodged in a wheel, which conveys it opposite the rolling apparatus, said tube being at this moment pushed into a hopper and held there by grips. The tube once filled, the screw receives a backward or recoil movement combined with a rotary movement, the speed of which depends on the thread of the screw in such a way as to allow it to be withdrawn without dividing the tobacco. During the rotation of the wheel which carries the tubes the cigarette which has just been made passes between circular knives, which cut off the excess of tobacco at each end. The said cigarette is then pushed between two jaws, which give it an oval form and allow it to fall into a receiving-box.

In order to allow of the invention being better understood, reference will now be made to the accompanying drawings, in which—

Figure 1 is a diagrammatic plan view of the whole machine arranged in accordance with this invention; Fig. 2, a diagrammatic elevation of the same; Fig. 3, a diagrammatic sectional elevation showing the arrangement for pushing the tobacco; Fig. 4, a side view in elevation of the apparatus for distributing the tobacco and the cutting and rolling apparatus, the left-hand portion being broken away. Fig. 4^a is a view of the broken-off portion forming a continuation of Fig. 4; Fig. 5, a sectional elevation of the tobacco-distributing apparatus and the cutting and rolling apparatus on the line R S of Fig. 6; Fig. 6, a view in transverse section of the tobacco-distributing apparatus made on the lines T U V of Fig. 5; Fig. 7, a transverse section of the tobacco-distributing apparatus made on the line $x\,y$ of Fig. 4^a; Fig. 8, an elevation of the apparatus for cutting and rolling the tobacco, pushing the tube into the hopper, and of the circular knives for cutting the cigarette ends; Fig. 9, a plan view of the apparatus for rolling and cutting the tobacco, of the circular knives cutting the ends of the cigarettes, of the wheel conveying the cigarettes, and of the apparatus for imparting to them an oval shape; Fig. 10, a side view of the wheel conveying the cigarettes, showing the circular knives and the apparatus for giving an oval form to the cigarettes; Fig. 11, a sectional elevation of the amber or other tipping apparatus on the line N O of Fig. 12; Fig. 12, a transverse section of the apparatus on the line P Q of Fig. 11; Fig. 13, a plan view of the tipping apparatus. Figs. 14 and 15 are details of the means for withdrawing the helix A′, Fig. 14 being an end view with parts in section and Fig. 15 a plan view.

The machine shown in the drawings includes a reel-carrier or spool-carrier (which is not shown) for a roll of continuous paper and a series of printing or bronzing apparatus serving both for drawing forward and printing the paper, at the head of which may be placed, as shown in Figs. 1 and 2, a tipping apparatus, (shown in detail in Figs. 11, 12, and 13,) it being understood that these printing, bronzing, and tipping apparatus do not form an essential part of the machine, which may by employed independently of them.

The tipping apparatus, Figs. 1 and 2 and 11, 12, and 13, is formed by two checks attached to the frame of the machine and between which three cylinders B B′ B^4 are mounted, one, B′, of these cylinders being covered with blotting-paper, serving to absorb the excess of liquid employed for producing the amber or wax tip. Two segments B^2 B^3 are

mounted on the top cylinder B^4 and serve to deposit on the paper a given breadth of paraffin and the position of which corresponds to a given length of tube. The melted paraffin is contained in a receptacle B^5 and is distributed by rollers B^6 B^7 B^8. A scraper B^9 allows of the distribution being regulated. Movement is transmitted to this apparatus by helicoidal gearings B^{10} B^{11}, and consequently to all the cylinders and rollers by a train of wheels 1 2 3 4 5. After the amber-tipping apparatus the printing devices are placed, which latter are already well known and are arranged in the ordinary manner, and then an apparatus serving for making and cutting the tube. The tube thus prepared and cut to a suitable length is pushed into a distributing-wheel C, Figs. 1, 9, and 10, having a suitable number of sockets easily dismountable for the various sizes of cigarettes. This wheel, which has an intermittent rotary motion, brings the cut tube in front of the apparatus for rolling the tobacco, Figs. 1, 3, 4, 5, 6, 8, and 9. The tube is then pushed into a guide D by a pusher E, operated by a roller-lever E′ and cam E^2, making one revolution per cigarette, Fig. 8. The tube is held in the funnel or hopper D by spring jaws or grips F, the separation of which is effected by a little cam F′ and a roller-lever F^2, operated by another cam F^3, Fig. 4. The tube being thus in position, the following are the parts which serve for the distribution and the filling of the tobacco:

The distributing apparatus is composed of two endless aprons or cloths G and G′. The upper cloth G′, mounted on rods G^2, pivoted on radius-rods G^3, enables the thickness of the layer of tobacco to be regulated. The latter is spread out on the lower cloth G and between guides G^4, which regulate the width. It is equalized in passing between the two cloths G G′, the latter having an intermittent advancing movement by means of a Maltese cross G^5, Fig. 5, which receives its movement from a roller-disk G^6, operated by a train of gearing G^7, engaging this disk. A catch or pawl device H, Fig. 4, allows the distributing movement of the tobacco to be arrested for the starting of the machine or when there is a want of tubes. The tobacco is cut by a knife I, actuated by a balancer I′, a roller-lever I^2, and cam I^3, Figs. 5, 8, and 9. The knife continuing its movement causes the tobacco to pass between milled rollers J, which have a rapid rotary motion in the same direction, which has for a consequence to roll the tobacco around spiral or helix A′, formed of steel wire wound helically and carried on the end of a rod M^3, forming an extension of the screw-rod M^4. The screw-rod M^4 is rotatably connected with the rod K, connected with the actuating crank-disks L. By the action of the rollers J a filler of tobacco is formed around the helical wire, and on the forward reciprocation of the rod K and screw-rod M^4, supported on suitable guides, the filler is inserted into the tube. At the moment when after having inserted the filler in the tube the screw-rod begins its return movement half-nuts, operated by a suitable lever M′ and cam M^2, tighten upon or engage the threads of the screw-rod, and as the nuts are held against longitudinal movement the rod is caused to rotate, and as the threads are arranged to correspond with the pitch of the helical wire the latter is unscrewed from the filler, leaving it intact in the tube. The mechanism by which this unscrewing of the helix is accomplished is shown more in detail in Figs. 14 and 15. The half-nuts 1 2 are mounted on the levers M under tension of the spring 3, which tends to bring the two half-nuts together into engagement with the screw-rod M^4, and as the screw is rotatably mounted on the support which connects it with the motion-rod K, as represented in Fig. 1, it is obliged to turn during its back movement by its threads engaging the two half-nuts 1 2, as the latter are stationary and the screw rotatable. During the forward movement of the helicoidal rod A′ the two half-nuts are disengaged from the screw M^4 by the following mechanism: Each of the levers M, in which the half-nuts are mounted, carries at its lower part a heel or projection 4 5, which projections contact with each other. The left lever M is keyed on a shaft 6, controlled by a lever M′, which carries at its extremity a roller 7, rolling on a cam M^2. This cam communicates to the connecting-rod M′, and consequently to the left lever M, an oscillating movement, which is transmitted to the right lever by means of the heels 4 5, which effects the separation of the half-nuts, and consequently the disengagement of the screw M^3, during the forward movement of the screw.

The rods 8 9 are simple guides, serving to direct the carriage which carries the rod M^3, as shown in Figs. 1 and 3.

The forms, dimensions, proportions, and auxiliary parts may be varied and any suitable materials may be employed for their construction without affecting in any way the principle of the invention.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a machine for making cigarettes, the combination with means for holding a cigarette-tube, of a rotatable and longitudinally-movable rod carrying a helical wire in line with said tube, means for rolling a filler of tobacco around said wire, means for advancing the rod without rotation to insert the filler within the tube, and means for rotating the rod on its return movement whereby the wire is unscrewed from the filler without removing it from the tube, substantially as described.

2. In a cigarette-machine, the combination with the tube forming and holding mechanism, of the rotatable and longitudinally-movable rod arranged in line with the tube-hold-

ing mechanism, the helical wire carried on the end of said rod, means for rolling a filler upon said helical wire, a pitman having a rotatable connection with said rod, means for reciprocating said pitman to advance and retract the helical wire, half-nuts adapted to engage the screw-rod and means for causing said nuts to engage the screw-rod on the return movement of the screw-rod whereby the helical wire is unscrewed from the filler, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

MAURICE BRAUNSTEIN.
LOUIS CHAMBON.

Witnesses:
EDWARD P. MACLEAN,
JULES FAYOLLET.