

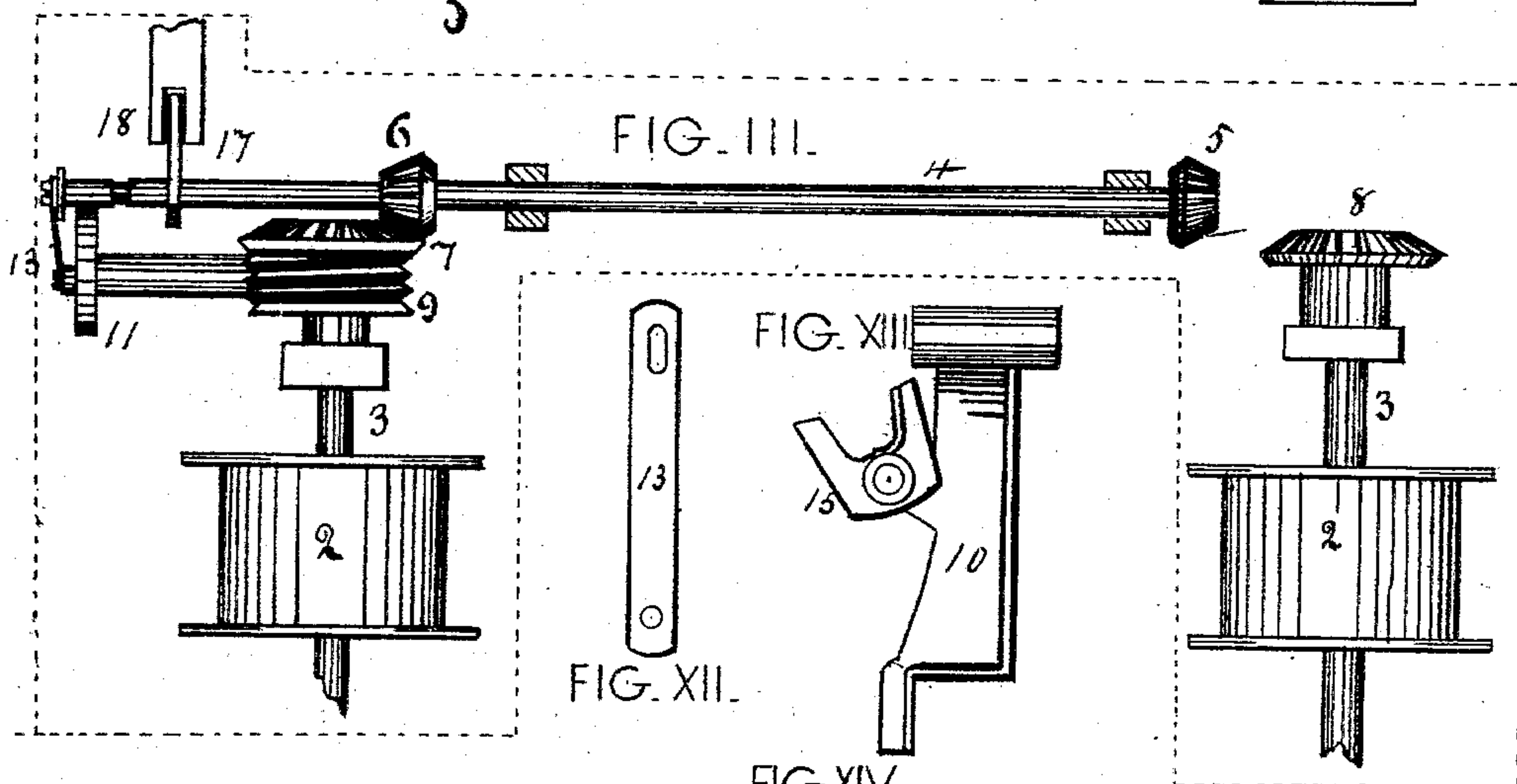
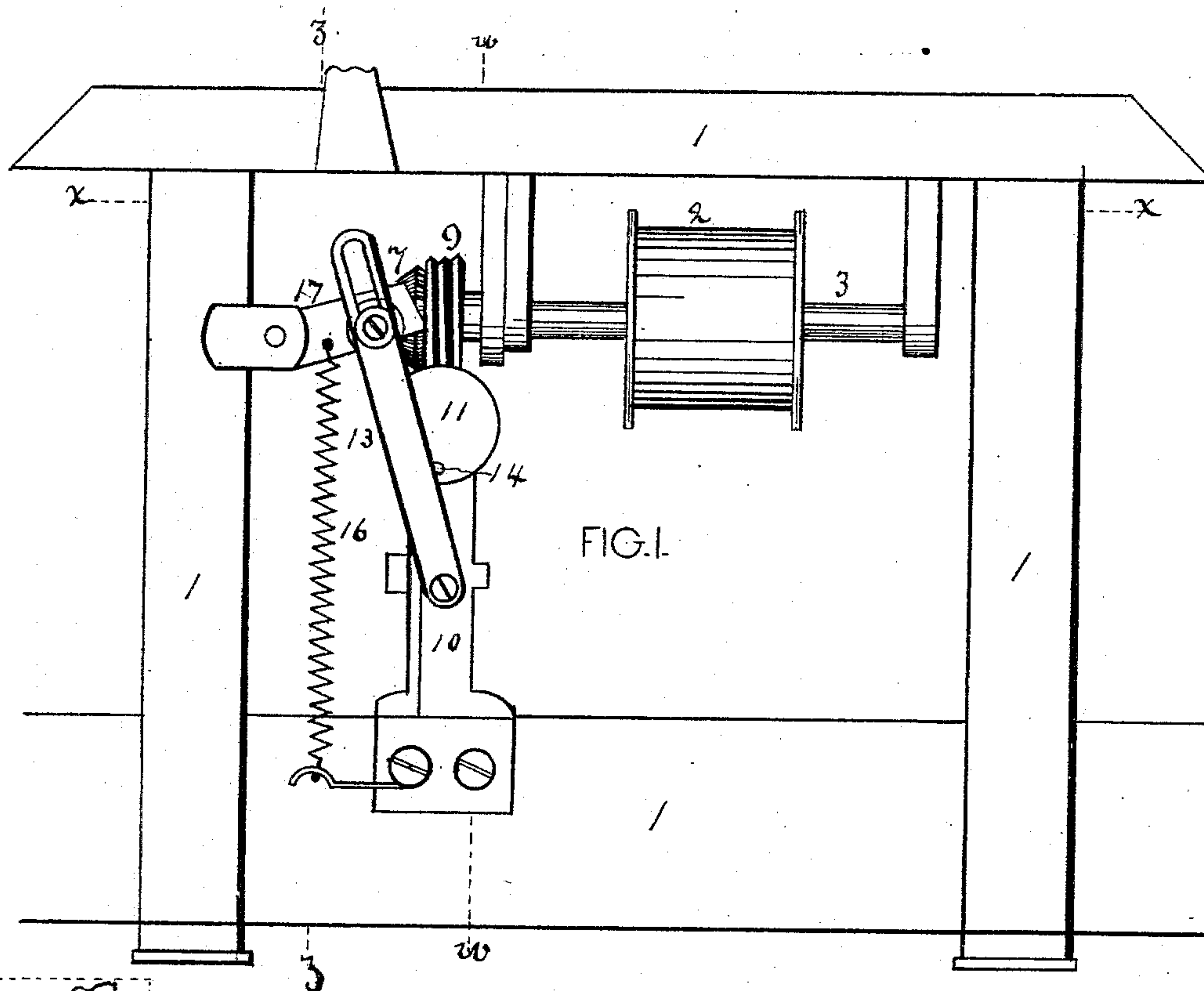
(No Model.)

3 Sheets—Sheet 1.

W. C. ACKLEY.
TYPE WRITING MACHINE.

No. 551,343.

Patented Dec. 10, 1895.



WITNESSES:

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W. North

INVENTOR

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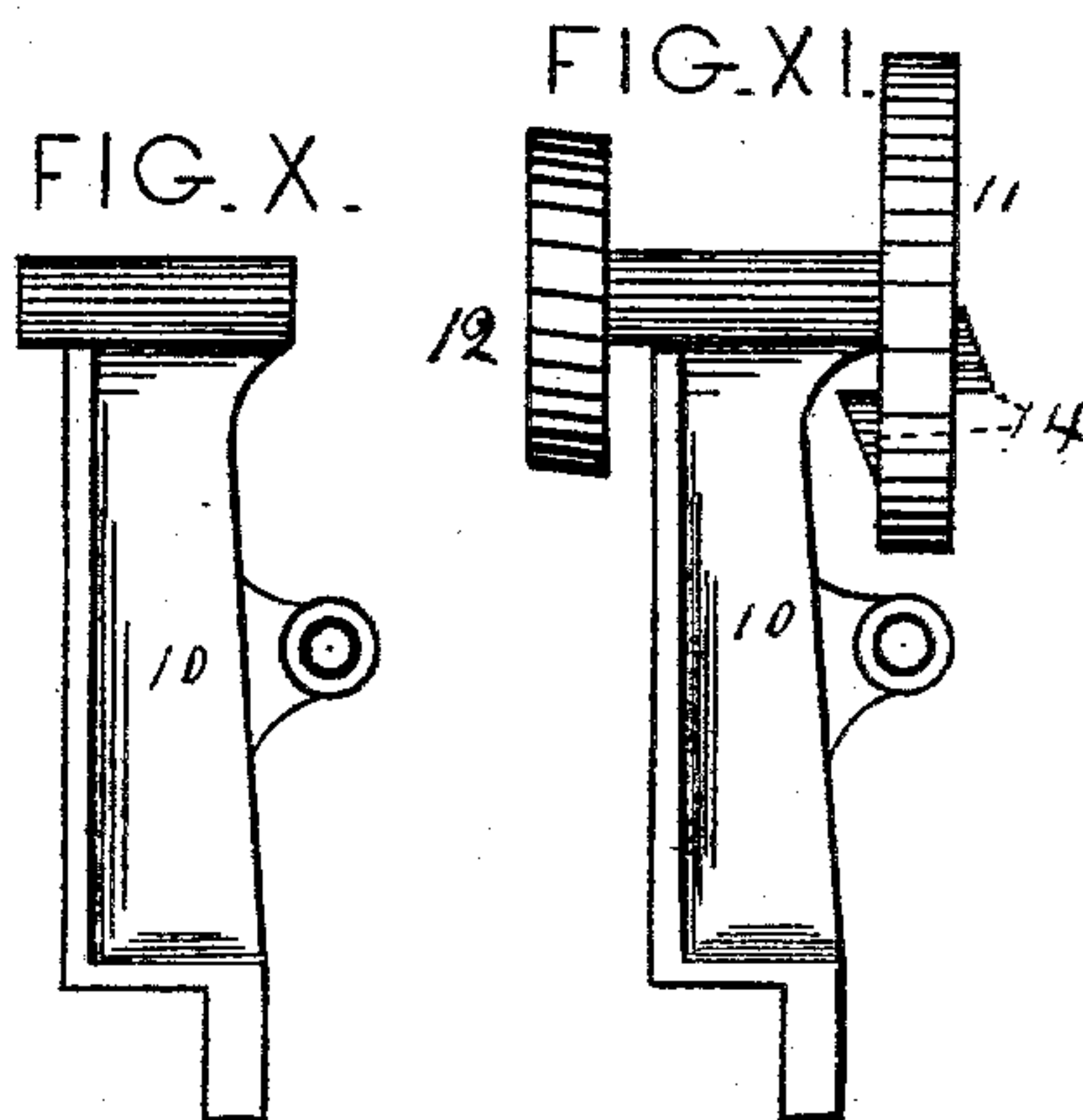
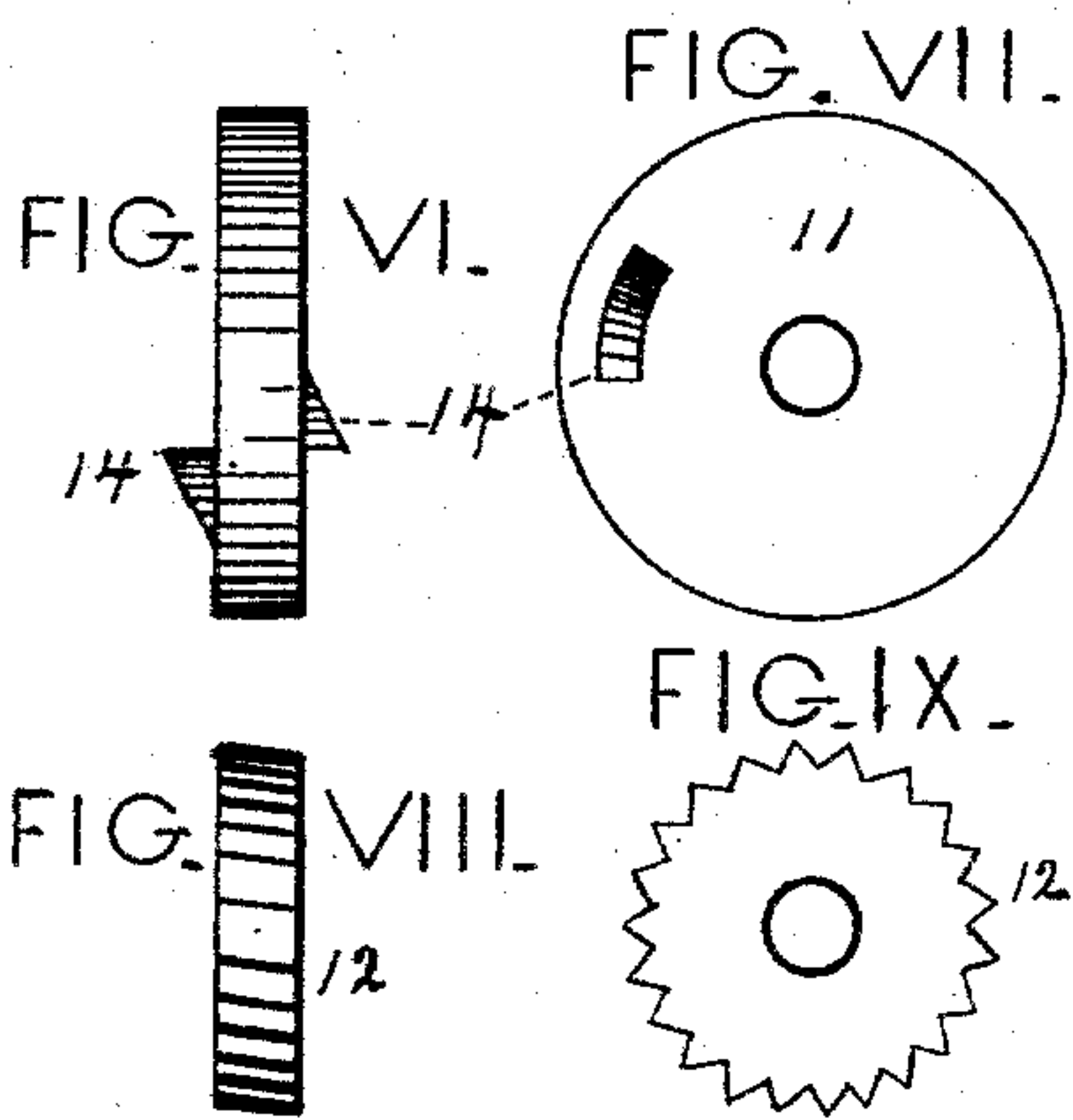
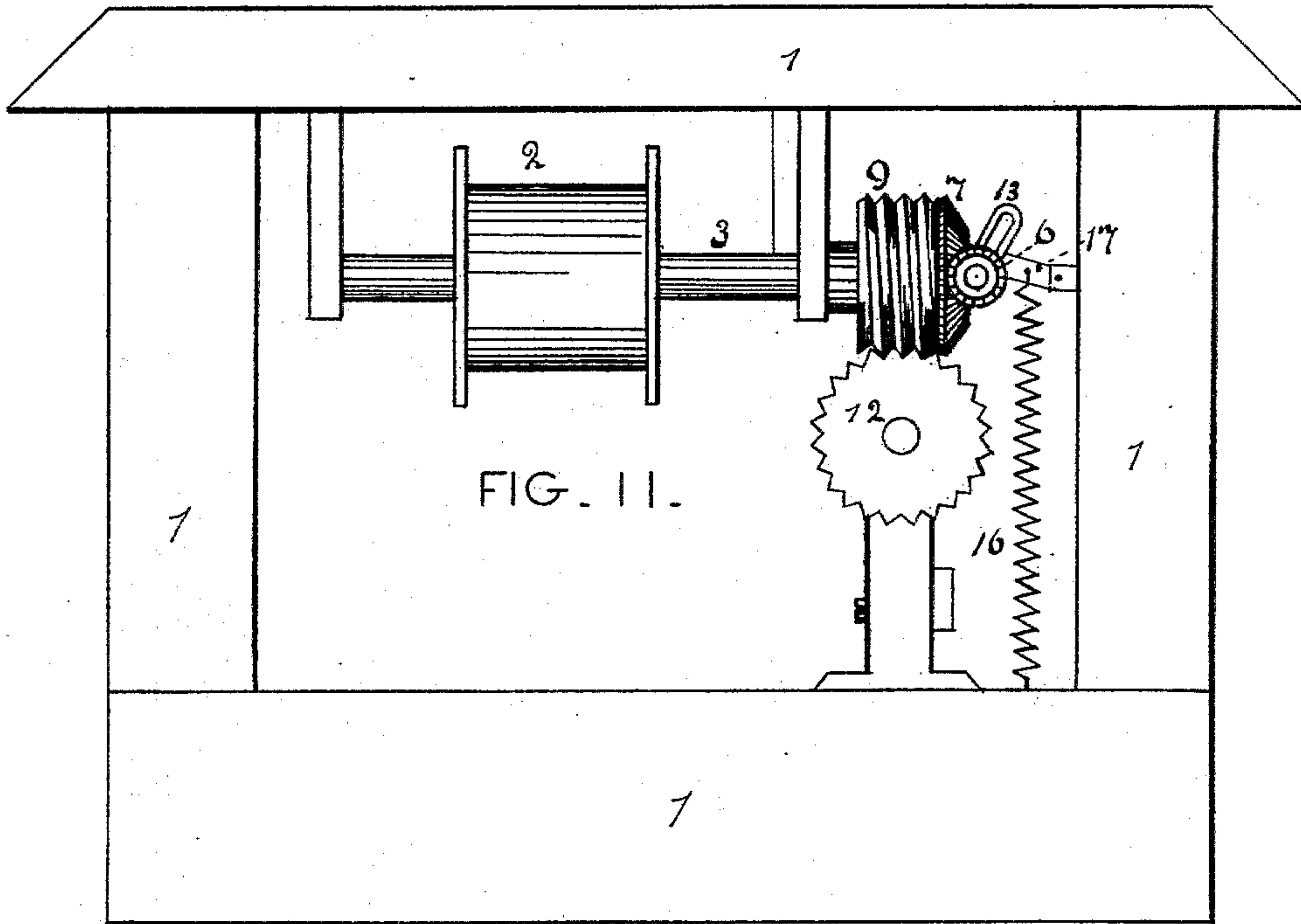
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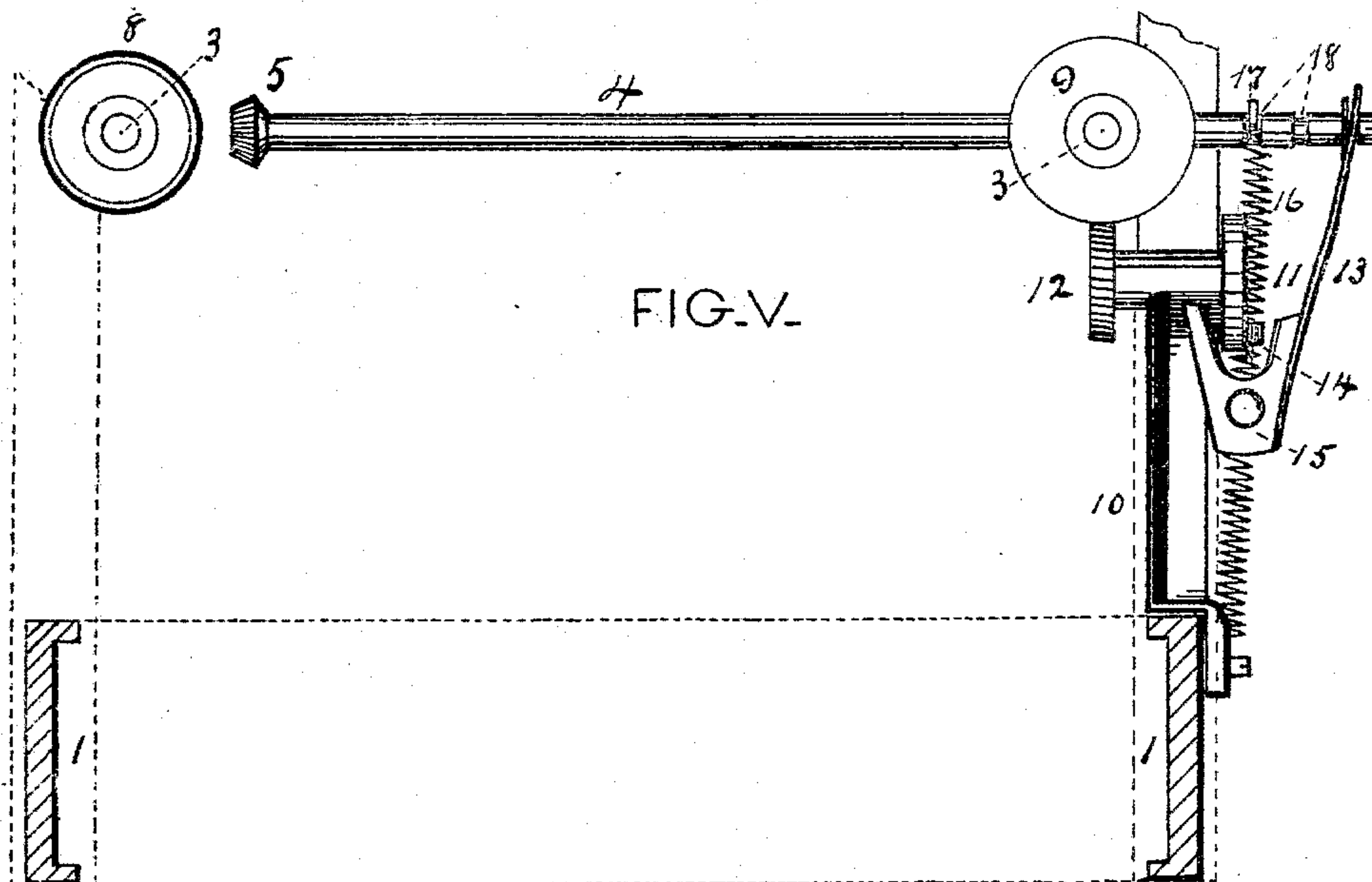
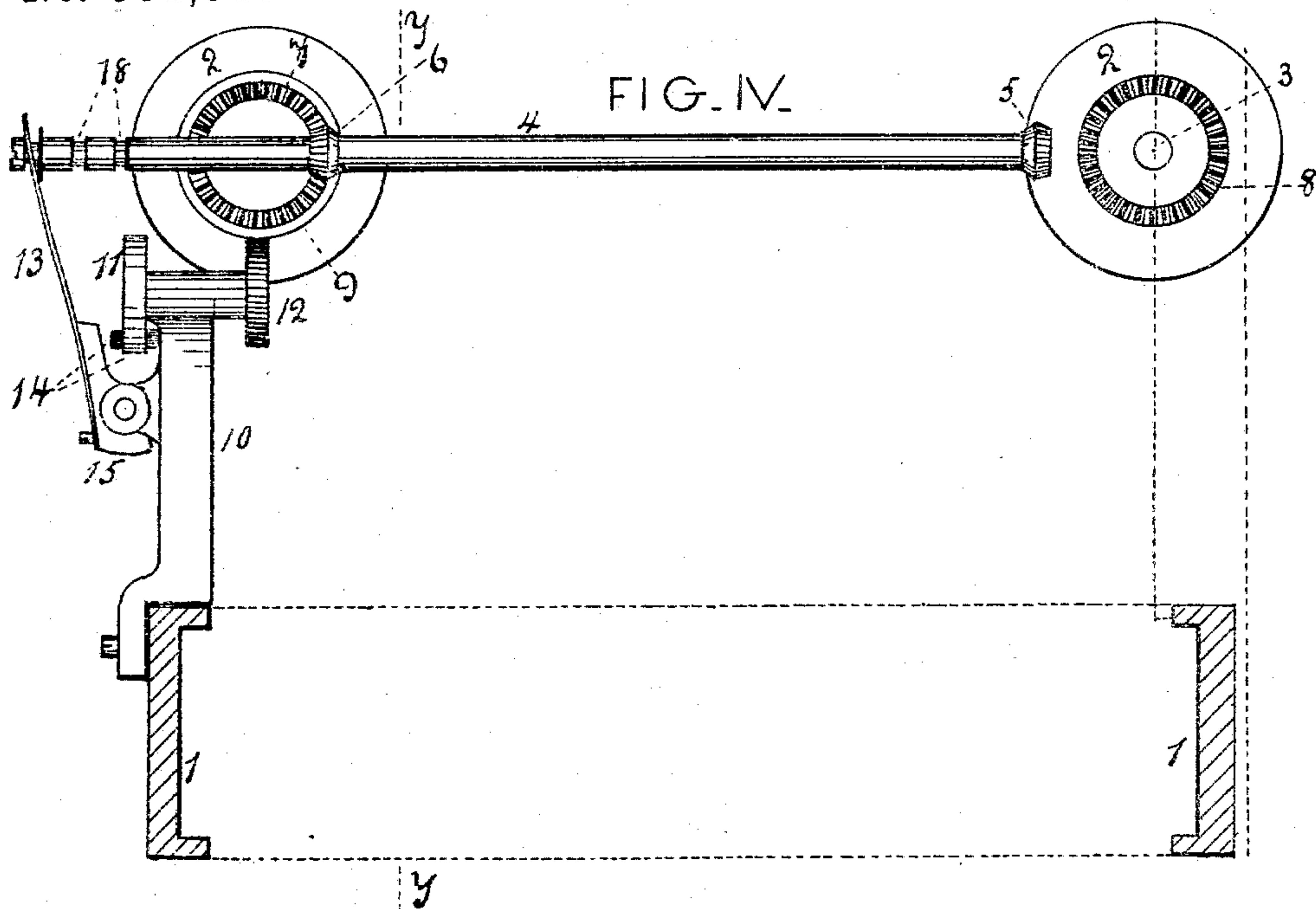
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UNITED STATES PATENT OFFICE.

WARREN C. ACKLEY, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE WYCKOFF, SEAMANS & BENEDICT, OF NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 551,343, dated December 10, 1895.

Application filed October 14, 1890. Serial No. 368,156. (No model.)

To all whom it may concern:

Be it known that I, WARREN C. ACKLEY, a citizen of the United States, residing at the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention consists in certain features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

The object of the invention is to produce such an attachment for type-writers as will automatically shift the feed of the printing-ribbon, so that when such ribbon has been wound upon one spool in one direction the relative positions of parts of the mechanism will be altered, so that the said ribbon will be wound upon the other ribbon-spool in the opposite direction, thus shifting the motion of the printing-ribbon, automatically, from side to side, as the operator prints with the machine.

Figure 1 is an end view of part of a type-writing machine with my invention attached. Fig. 2 is a partly sectional view taken on the line *y y* of Fig. 4. Fig. 3 is a partially sectional view taken on the line *z z* of Fig. 1. Fig. 4 is another partially sectional view taken on the line *z z* of Fig. 1. Fig. 5 is another partially sectional view taken on the line *ww* of Fig. 1. Figs. 6, 7, 8, 9, 10, 11, 12, 13, and 14 are detail views illustrating various parts of the invention more fully hereinafter described.

In all the figures like numerals of reference denote similar parts of the mechanism.

In the example of my invention here given it is illustrated as adapted to a Remington type-writing machine. It can, however, be adapted to many other kinds of type-writers with equal facility.

The numeral 1 designates the frame of the machine, and the 2 ribbon-spools, which are mounted on the shafts 3. These shafts are journaled at each side of the machine parallel to each other and in the common and well-known way.

4 designates a sliding shaft, journaled in the machine in the same plane with the

shafts 3, at right angles to and between them. Upon the shafts 3 are mounted the wheels 7 and 8. Upon the sliding shaft 4 are mounted the wheels 5 and 6. These wheels 5, 6, 7, and 8 are all bevel-wheels, and are so arranged that when the shaft 4 is slipped one way the wheels 5 and 8 will be engaged, and when the said shaft is slipped the other way the wheels 6 and 7 will be engaged. When the wheel 5 engages the wheel 8, the spools turn one way, and when the wheel 6 engages the wheel 7 the spools turn the other way.

10 designates a post fastened to the frame of the machine, as illustrated. At the upper end of this post is a sleeve, in which, as a bearing, turns a revoluble shaft. On the ends of this shaft are mounted the wheels 11 and 12. The wheel 11 is a plain disk-wheel, provided with the lugs 14, the form and arrangement of which are illustrated in Figs. 6 and 7. The wheel 12 is a worm-wheel of disk form constructed with teeth adapted to engage an endless screw, as illustrated in Figs. 8 and 9, the screw being mounted upon the ribbon-shaft 3. Upon the post 10, a little below the periphery of the wheel 11 and bestriding said wheel, is also pivoted a fork designated by 15. The prongs of this fork engage the lugs 14 of the wheel 11. These lugs, which are integral with the wheel 11, are in the form of a right angle triangle prism, with one of the bases resting on the side of the wheel. These lugs are formed on opposite sides of said wheel, with their slanting faces in opposite directions, as illustrated. The distance between them is such that the fork is oscillated a little from side to side by the passing lugs. The outer prong of this fork is connected with the sliding shaft 4 by the spring-strap 13, so that when the said fork oscillates it will slip the shaft 4 a little endwise. This shaft 4 is propelled by the usual ratchet mechanism.

If the mechanism be in the position illustrated in Fig. 4 as the machine is operated the ribbon will be wound upon the left-hand spool and unwound from the right-hand spool, and at the same time, as the said left-hand spool turns, the endless screw 9 upon its shaft, engaging the wheel 12, will move the wheel through a distance equal to the pitch of one tooth for each revolution of said spool; but

when the ribbon on the right-hand spool has been exhausted and wound on the left-hand spool the mechanism will have carried the lug 14 around so far that it will strike upon the inside prong of the fork 15. This will oscillate the fork a little, and in so doing, by means of the connecting-spring 13, slip the shaft 4 endwise, so that the wheels 6 and 7 will be disengaged and the wheels 5 and 8 come into engagement. This will cause the spools to move in the opposite direction and the ribbon to be wound upon the right-hand spool. When the right-hand spool is filled, the other one of the lugs 14 will be carried far enough in the opposite direction to strike upon the outside prong of the fork 15 and oscillate it in the opposite direction and in so doing slip the shaft 4 so that the wheels 5 and 8 will be disengaged and the wheels 6 and 7 again come into engagement. The ribbon will then again wind on the left-hand spool, and thus the ribbon will be shifted from side to side as long as the machine is in operation. The stopping-latch 17, which is held with its notch in the groove 18 by the spring 16, has the interior edges of its notch beveled, so that while it holds the shaft 4 in position with sufficient steadiness it will at the same time not prevent the said shaft from being shifted. To further facilitate the shifting of said shaft, the interior edges of the fork, where they come into contact with the lugs 14, are beveled, as illustrated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a typewriting machine, the combination of an inking ribbon, ribbon-spools, gears for alternately turning said spools, and a mechanism geared to one of said spools so as to be driven thereby progressively and connected to the alternately-acting spool-turning gears, and arranged to automatically shift the latter at or about the time the ribbon has been unwound from one spool and wound upon the other, whereby the direction of movement of the ribbon is mechanically reversed.

2. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a shaft arranged to alternately drive each spool, and also arranged to slide endwise, and means geared to one of said spools and connected to said driving shaft for automatically moving the latter endwise to change the direction of rotation of the spools and reverse the longitudinal feed of the ribbon.

3. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a driving-shaft arranged to alternately rotate each spool and also arranged to slide endwise, a shifter connected to said shaft, a rotatory lug for moving said shifter, and gearing connected to one of said ribbon-spools and to the rotary lug which moves said shifter.

4. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a driving shaft arranged to alternately rotate

each spool and also arranged to slide endwise, a forked shifter connected to said shaft, a pair of rotatory lugs for moving said shaft in opposite directions, and gearing connected to one of said ribbon spools and to the rotary lug which moves said shifter.

5. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a driving-shaft arranged to alternately rotate each spool and also arranged to slide endwise, a shifter connected to said shaft, and rotatory lugs for moving said shifter in opposite directions operatively-connected to one of said ribbon-spools.

6. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a driving-shaft arranged to alternately rotate each spool and also arranged to slide endwise, a shifter connected to said shaft, a wheel provided with means to move said shifter in opposite directions, a worm wheel, and a worm on one of the ribbon-spool shafts.

7. In a type writing machine, the combination of a ribbon, a pair of ribbon-spools, a pair of ribbon-spool shafts having each a bevel gear, a driving-shaft adapted to move endwise and provided with two bevel gears, a worm on one of said ribbon-spool shafts, a worm wheel engaging therewith, a pair of lugs adapted to be rotated through said worm-wheel, and a vibratory shifter connected to said driving shaft.

8. The combination with the frame of a type writing machine, the ribbon spool shafts of such machine, bevel wheels mounted upon such shafts, a sliding shaft, bevel wheels mounted upon said sliding shaft, and adapted and arranged to alternately engage the said bevel wheels upon the ribbon shafts, of a post attached to said frame, a sleeve formed in the upper end of said post, a revoluble shaft turning in said sleeve, a disk wheel mounted upon one end of said shaft, and a worm wheel mounted upon the other end thereof, an endless screw on one of said ribbon shafts, adapted and arranged to engage said worm wheel, lugs substantially as specified upon said disk wheel, a fork pivoted to said post, and adapted and arranged to be oscillated by said lugs, a spring connecting said fork with said sliding shaft, and affording connection for shifting the same, a stopping latch constructed with a beveled notch, adapted and arranged to engage transverse grooves in said sliding shaft, and a spring adapted and arranged to hold said latch in position, all substantially as and for the purpose set forth.

9. In a type writing machine, the combination of a ribbon, a pair of ribbon spools, a shaft arranged to alternately drive each spool, and also arranged to slide endwise, a disk geared to one of said spools and provided with a pair of lugs, a pivoted fork adapted to be vibrated in opposite directions by said lugs, and a spring connecting said fork to said shaft.

10. In a type writing machine, and in an automatic ribbon reversing mechanism, the combination of a ribbon, a pair of ribbon spools, an endwise movable shaft arranged to
5 alternately drive each spool and provided with two adjacent grooves, and a single spring-pressed catch pivoted to the frame work and adapted to automatically leave one groove and snap into the other during an endwise
10 movement of said shaft, the said escape movement from one groove being effected solely by the lateral pressure of the said shaft upon said catch.

11. In a typewriting machine, the combination of a driving shaft adapted to alternately

rotate two ribbon spools, a shifter on the frame-work connected to one of said spools, means driven by such spool and acting on said shifter to move the latter, and an elastic connection between the said moving shifter 20 and the said driving shaft.

In testimony that I claim the foregoing as my invention I have hereto signed my name, in presence of two witnesses, this 7th day of October, 1890.

WARREN C. ACKLEY.

Witnesses:

WM. NORTH,
ARNOLD H. WAGNER.