

4 Sheets—Sheet 1.

No. 441,581.

Patented Nov. 25, 1890.

Fig. 1.

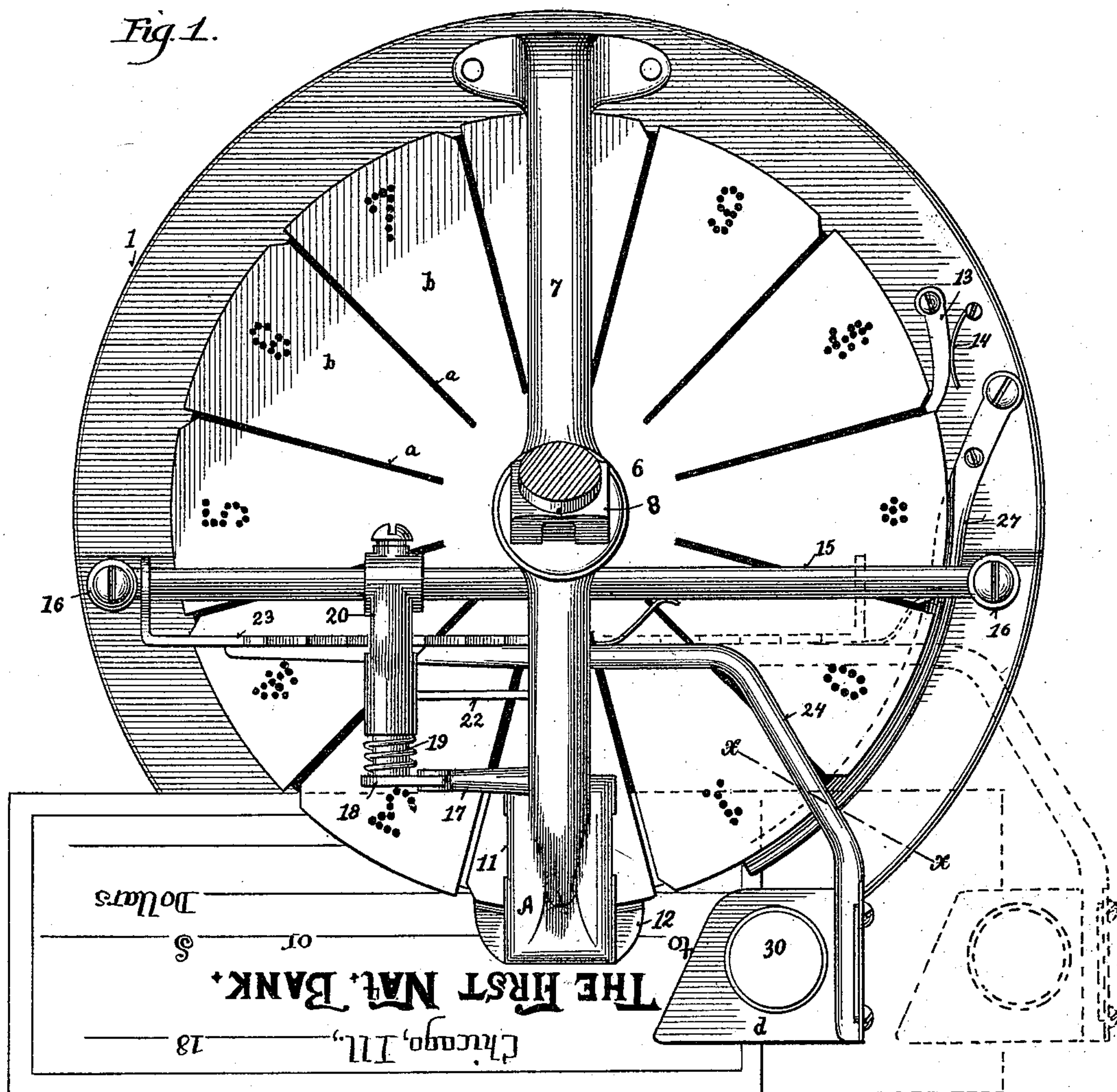
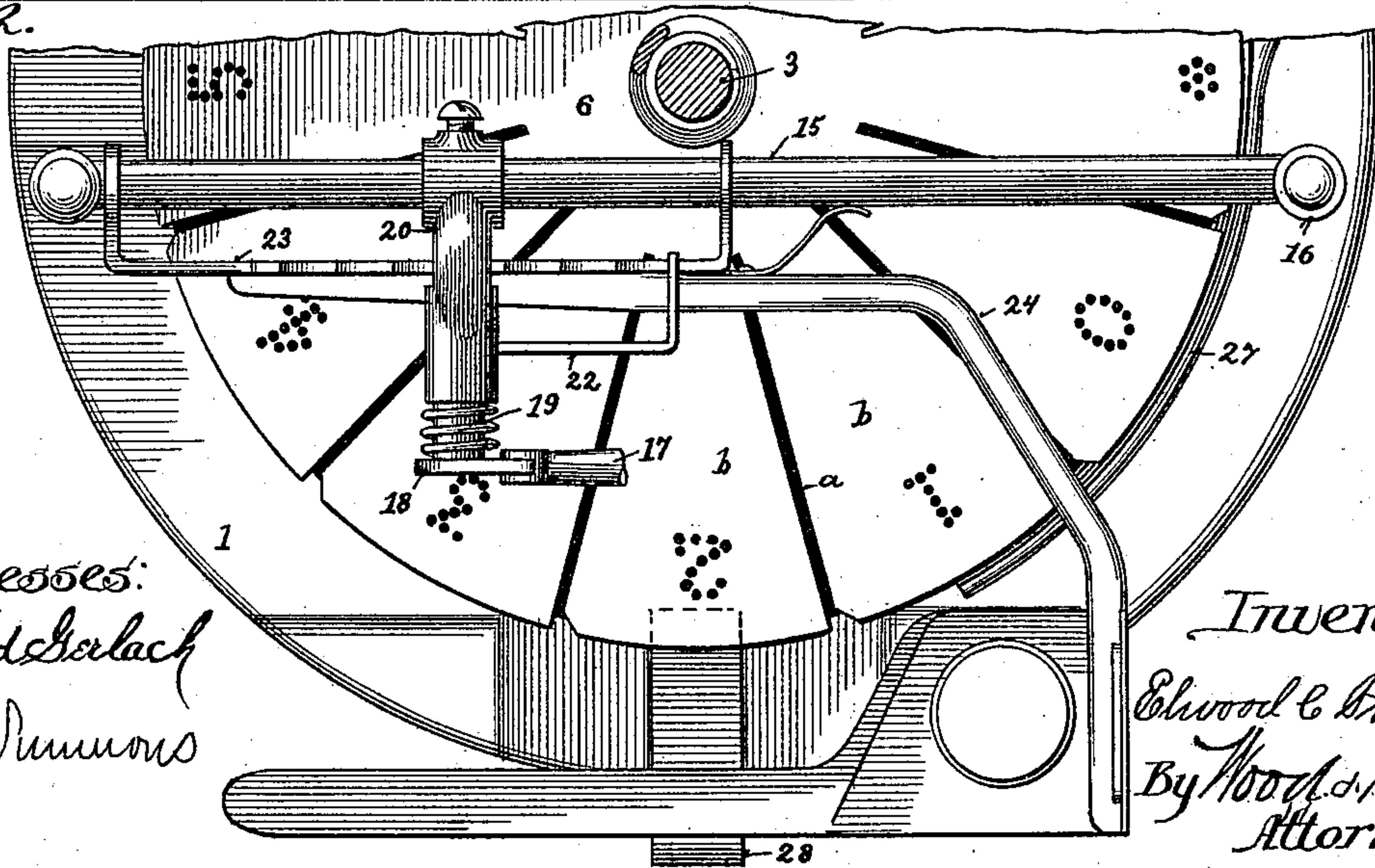


Fig. 2.



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(No Model.)

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E. C. PHILLIPS.
MACHINE FOR PERFORATING CHARACTERS.

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Fig. 3.

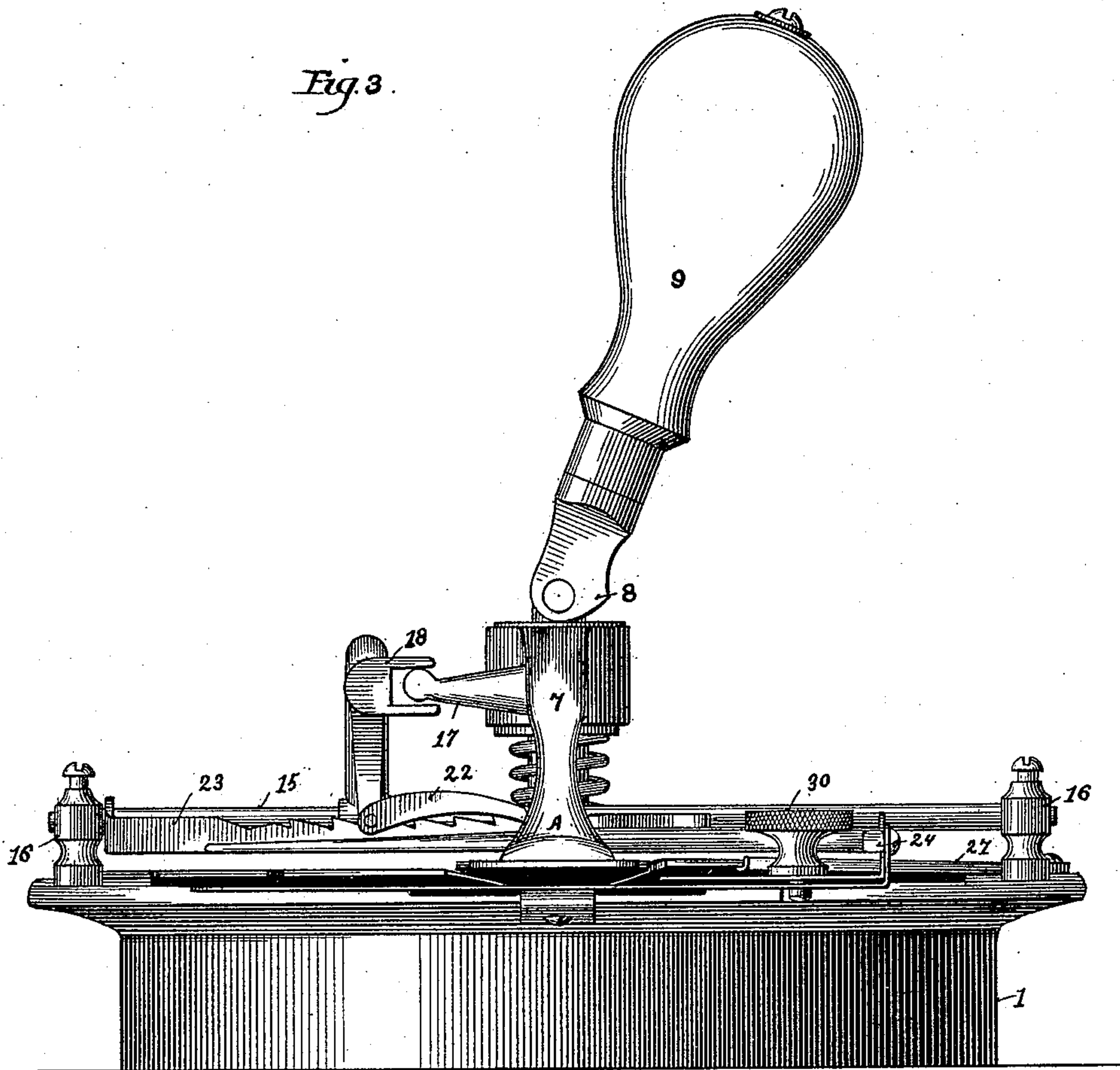
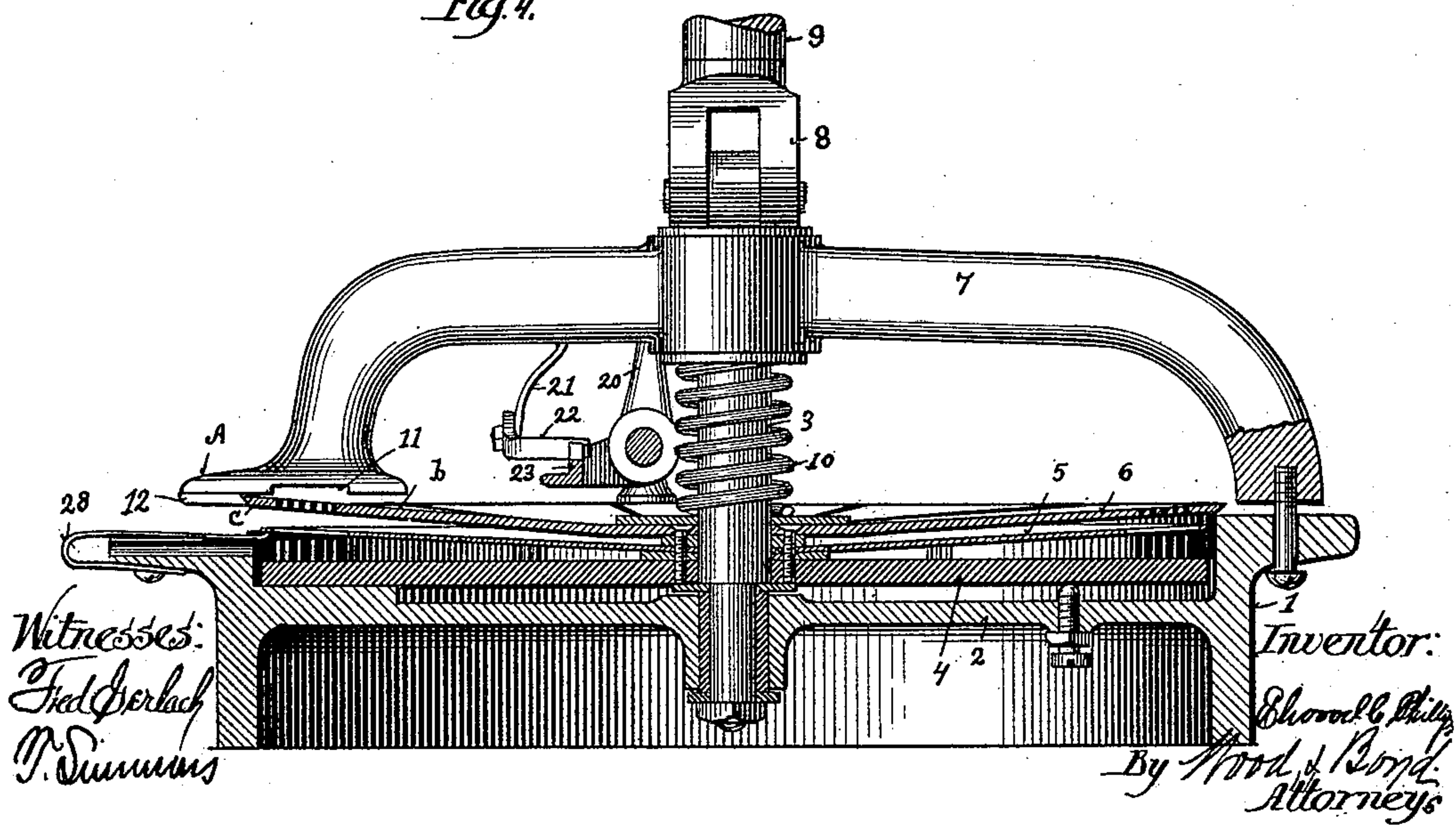


Fig. 4.



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Fig. 5.

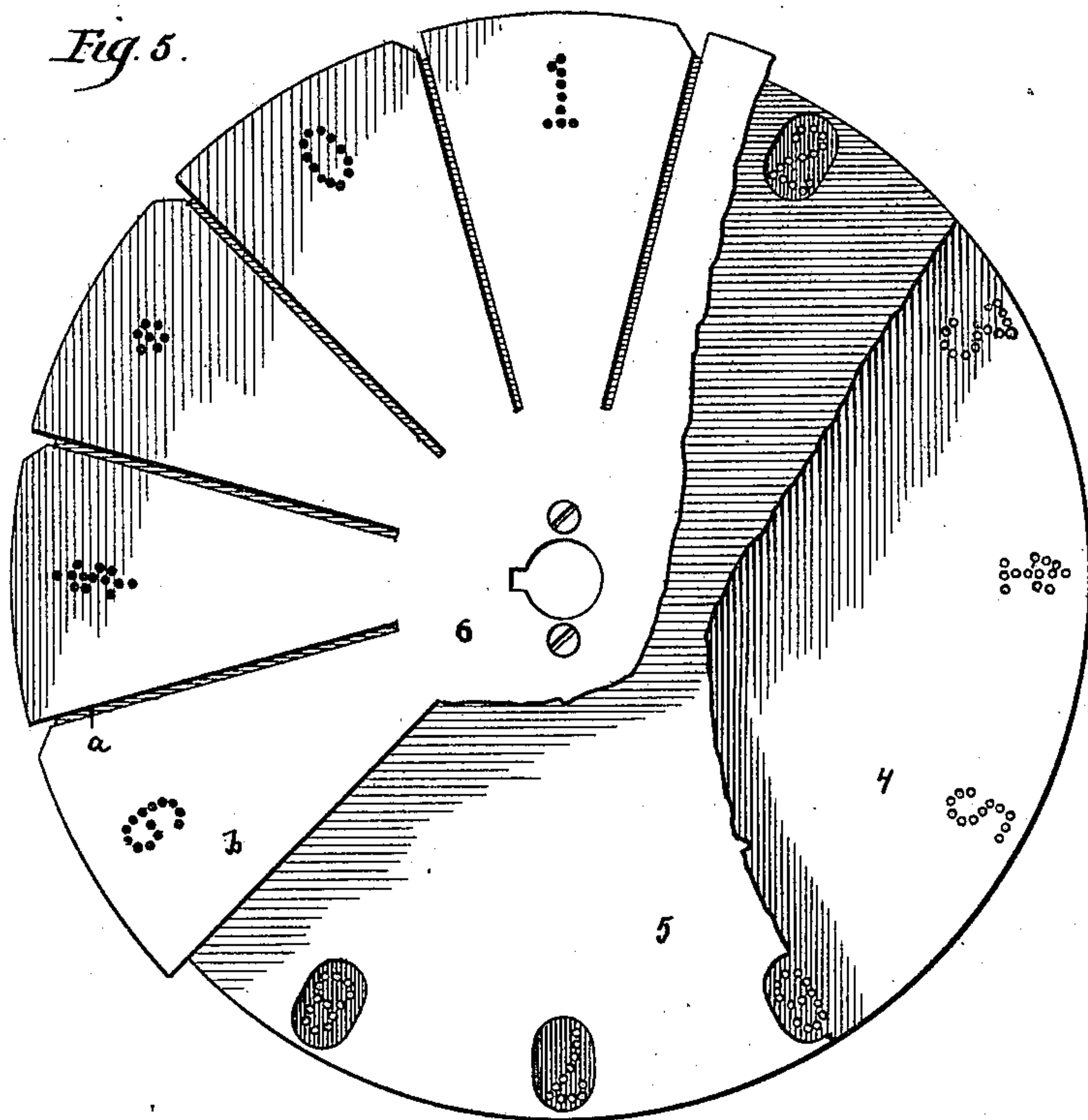
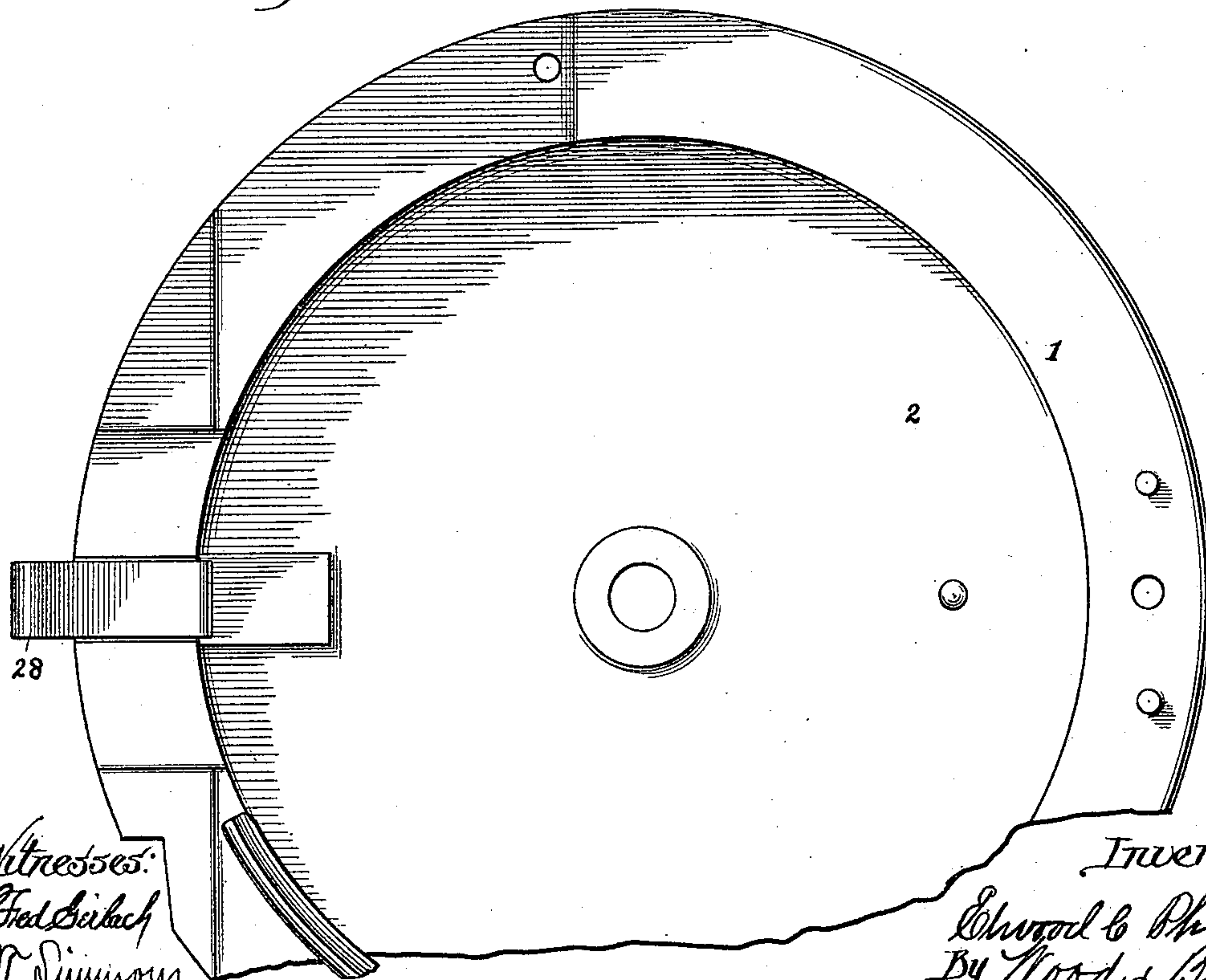


Fig. 6.



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Fig. 7.

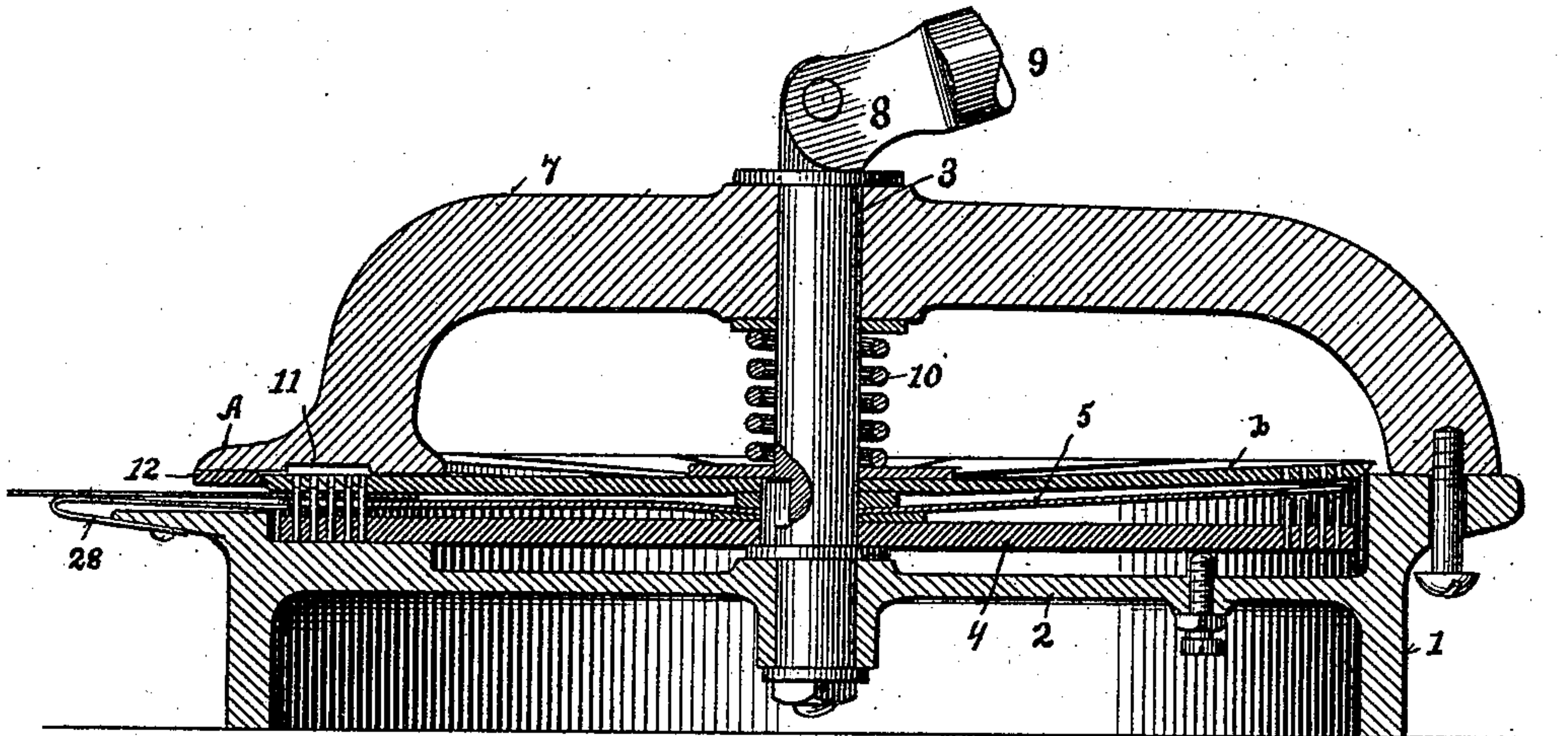


Fig. 8.

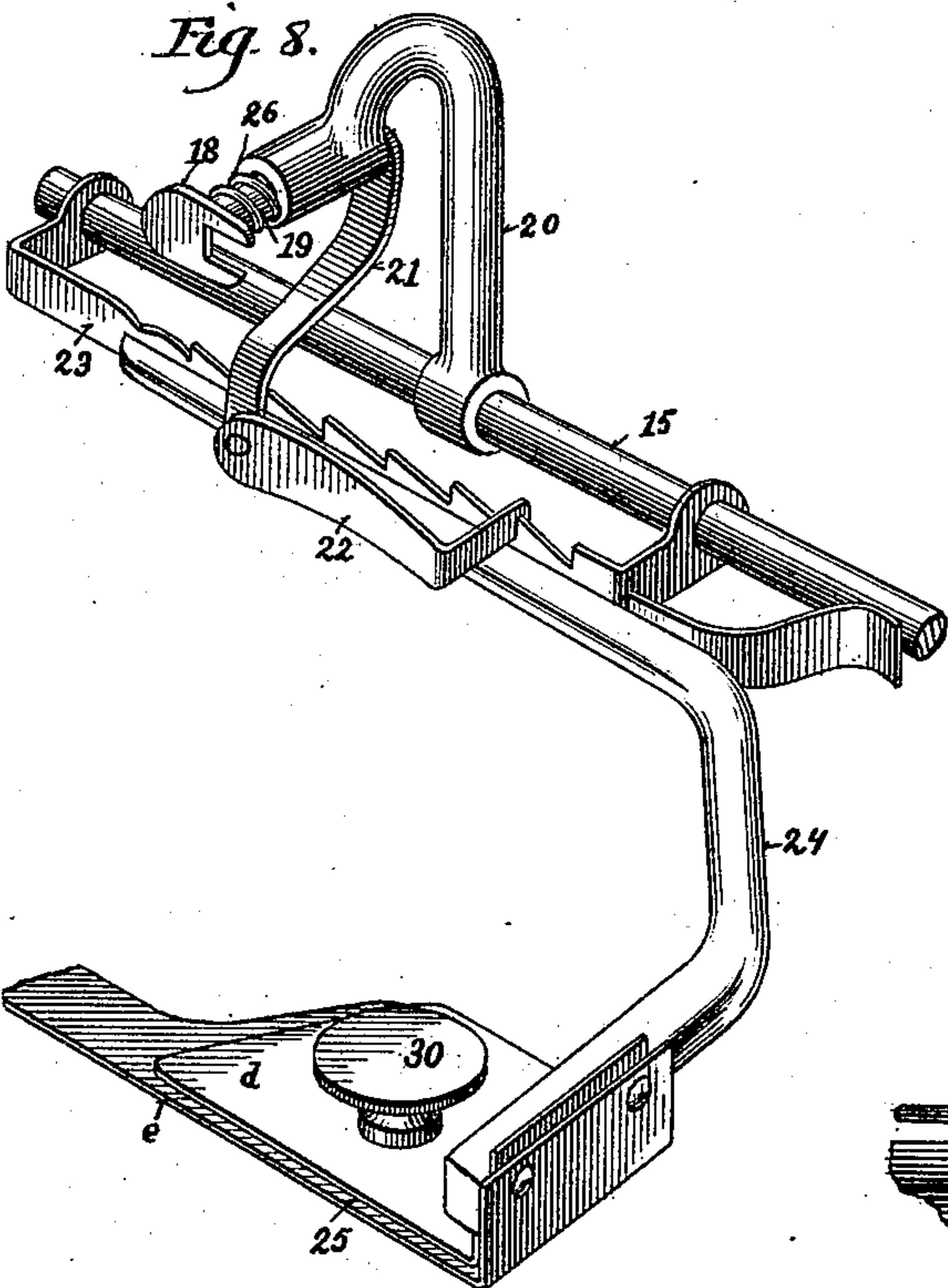


Fig. 9.

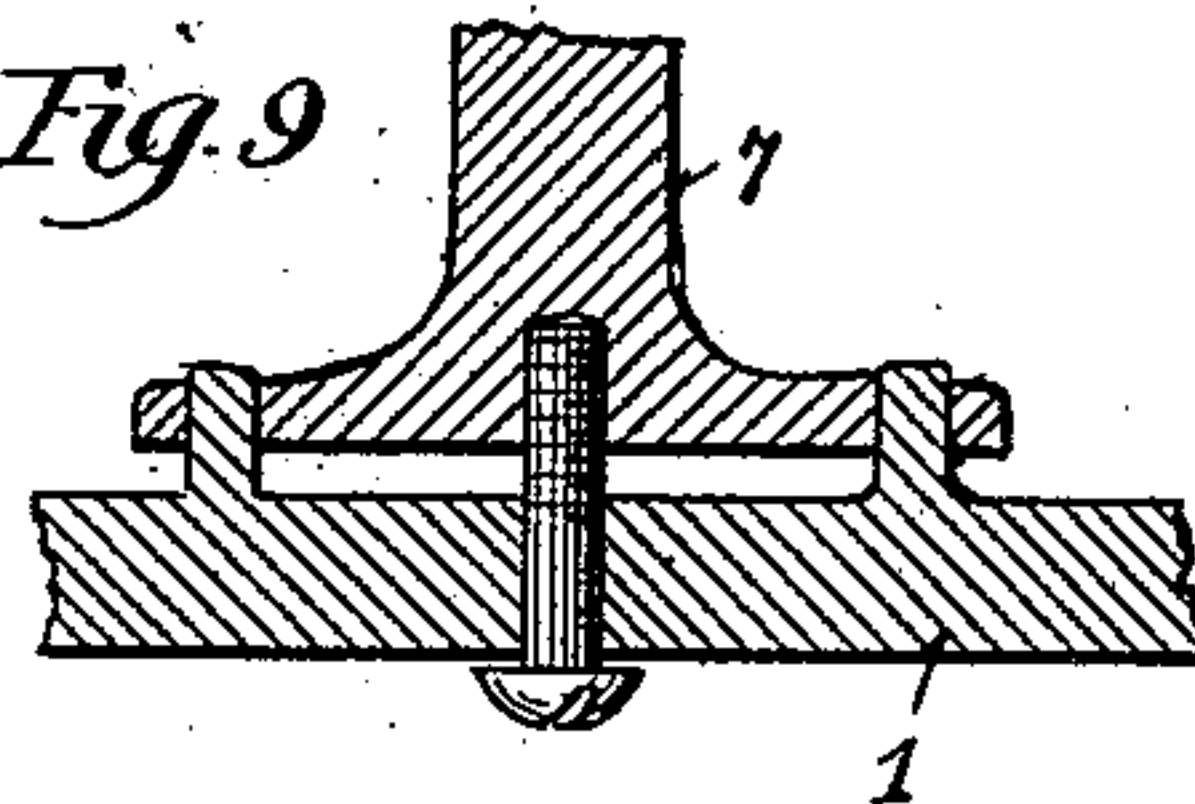


Fig. 10.

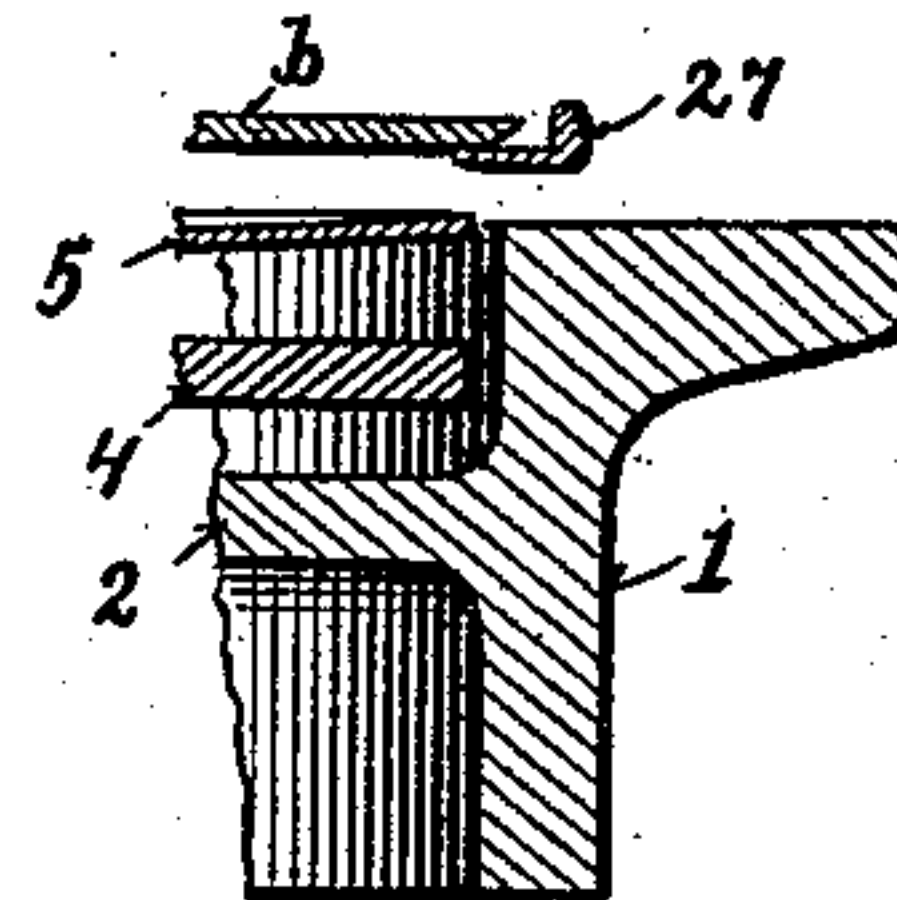


Fig. 11.

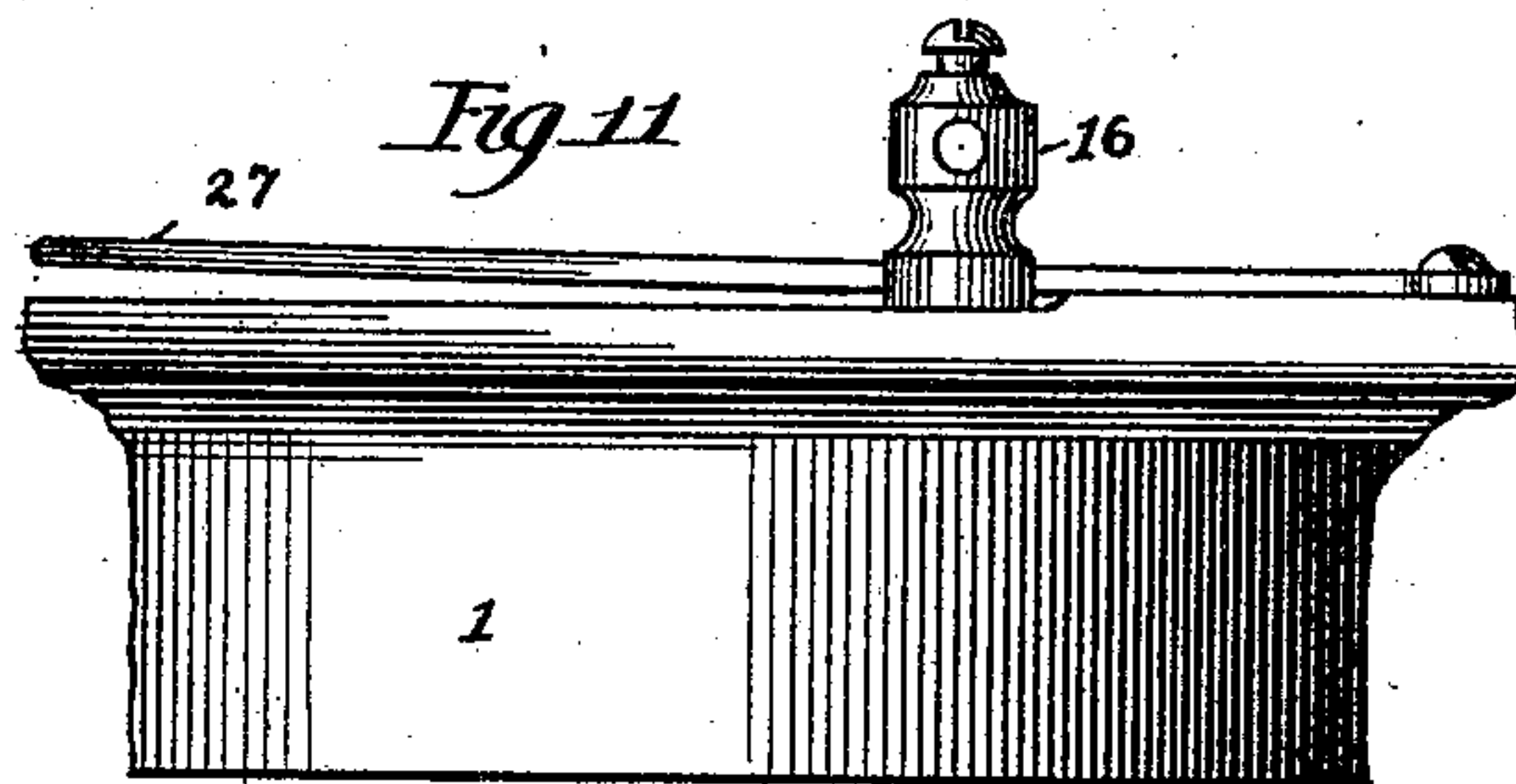
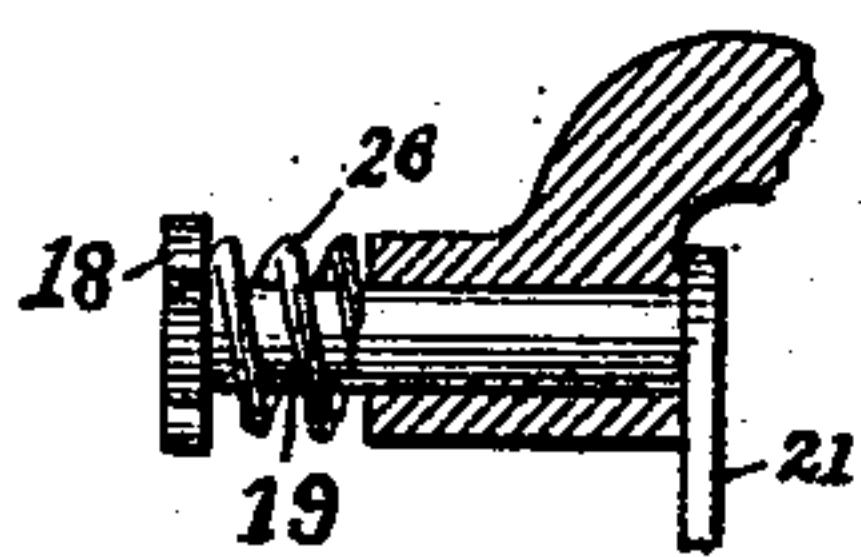


Fig. 12.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR PERFORATING CHARACTERS.

SPECIFICATION forming part of Letters Patent No. 441,581, dated November 25, 1890.

Application filed July 19, 1890. Serial No. 359,293. (No model.)

To all whom it may concern:

Be it known that I, ELWOOD C. PHILLIPS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Perforating Characters, of which the following is a specification.

The object of my invention is to provide a machine which will serially perforate a series of letters or characters through a piece of paper, whereby permanent characters are obtained.

My invention is primarily adapted for perforating numbers in checks, bills of exchange, notes, or other instruments to prevent changing or erasing the same.

The various features of my invention will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top plan view of my machine, showing a piece of paper in position for use. Fig. 2 is a similar plan view of one-half of the machine with the check removed. Fig. 3 is a side elevation of Fig. 1. Fig. 4 is a transverse side elevation of Fig. 3. Fig. 5 is a top plan view of the perforating-plate with the index-plate partly broken off to show the same. Fig. 6 is a top plan view of the casing, having the operating parts removed. Fig. 7 is a central vertical section of Fig. 1. Fig. 8 is a detail view of the spacing mechanism. Fig. 9 is a sectional detail view of the spring-yoke. Fig. 10 is a detached sectional elevation on line $x x$, Fig. 1. Fig. 11 is a side elevation on the same line. Fig. 12 is a sectional elevation of the rock-shaft and journal.

1 represents the supporting base, frame, or case, which is preferably made of a ring provided with a diaphragm 2, which serves as a yoke, in which is journaled the main shaft 3. Shaft 3 carries a plate 4, and is feathered or secured to it in any suitable manner, which carries a series of perforating-needles. In the design shown I have represented the nine digits, naught, dollar, and period characters. Above the needle-plate is a stripper-plate 5, which is pierced with holes to allow the needles to pass through and puncture the paper.

6 represents a female die-plate, which is rigidly secured to shaft 3. It is provided with a series of slots a , so as to separate each segment from the other in its vertical movement. Each of said segments b carries its appropriate character or letter, being perforations in the form of the character to be delineated. Said plate is made, preferably, of spring metal, so that it will occupy the position shown at c , Fig. 4.

7 represents a yoke journaled upon the shaft 3. It carries presser-foot A and is operated by cam 8 of the lever 9.

10 represents a spiral spring, which normally holds the yoke upward in the position shown in Fig. 4. The presser-foot A on the yoke is provided with slot or recess 11 to prevent contact of the perforating-needles with the presser-foot.

The yoke 7 is preferably made to operate as a spring. As the cam 8 depresses the yoke, the forward end carrying the foot A is brought down upon one of the segments. When the lever is raised, the spring of the yoke assists in carrying it back into position, which is further assisted by the spring 10. Attached to the foot A is a lifting-plate 12, which is beveled to receive the outer edge of one of the segments b , so as to lift up said segment when the foot A is raised.

The stripper-plate 5 is preferably made of spring metal, so that it will rise and lift the paper off of the perforating-needles when the yoke is raised to release the foot A. In order to bring either one of the perforating-needles and its corresponding perforated plate or segment b into position under foot A, the handle 9 is turned, which rotates the shaft 3, moving said plates around, bringing the requisite index-plate and perforating-needles into position for use. In order to stop the revolution at the appropriate point, I provide a pawl 13, held by the spring 14 against the periphery of the series of segments or index-plates b , and they are beveled off slightly, so as to cause the hook of the pawl to engage with the same. As the series of plates b are revolved, the pawl 13 will drop into the notch and stop it approximately in the right position, and the shaft with the notch and pawl will automatically rise as the plates b are re-

volved forward, dropping consecutively into each notch as the said plates are revolved.

In order to appropriately space the characters, I have provided feed and spacing mechanism, which is constructed as follows:

15 represents a shaft supported by posts 16 above the machine, as shown in Fig. 3. This shaft serves as a way on which the feed mechanism is moved. The feeding mechanism is operated by means of the arm 17, attached to the yoke 7, the forward end of which engages with the forks of the bifurcated arm 18. Said arm is rigidly attached to the rock-shaft 19, which journals in the socket of the bent arm 20. Said arm journals upon the shaft 15 and travels longitudinally thereon.

21 represents a crank rigidly attached to the rock-shaft 19.

22 represents a pawl pivoted to said crank 21.

23 represents a rack-bar, the bent ends of which journal upon the shaft 15, as shown in Fig. 8.

24 represents an arm supporting the check-holder 25. This check-holder is composed of two plates *d e*, which are clamped together by means of the thumb-screw 30, so as to hold the check or paper to be perforated and cause it to move with the said arm. As the handle 9 is depressed to make the perforation, the arm 17 engages the forks of the rock-shaft 19, which oscillates the crank 21 and carries the pawl 22 forward to engage with another tooth of the rack-bar. When the lever 9 is raised upward, crank 21 is rocked in the opposite direction, moving the rack-bar 23 forward one notch, carrying with it the arm 24 and the check held between the plates *d e*. As the length of the teeth of the rack-bar approximately correspond with the size of the character made by the perforating-needles and the space between the characters, the check or paper to be perforated carried by the holder is moved a regular distance to receive the proper character with the space automatically obtained.

26 represents a retractile spring, which moves the pawl through the crank-arm 21 and moves the rack-bar and carrier.

27 represents a guard which extends forward under the segmental plates *b*, as shown in Fig. 1, so as to raise them up sufficiently to pass over the check held by the clamp under the presser-foot.

Mode of operation: The pawl 22 is set in the forward notch. The check or paper to be perforated is secured to the clamp *d e*, as shown in Fig. 1, being inserted under the segmental plates *b* a sufficient distance to bring the perforations into the right position. The lever 9 is turned to bring the desired set of perforating-needles and character—say the dollar-mark—under the presser-foot. The click of the pawl 13 enables the operator to stop at the desired point. The lever 9 is then depressed, carrying the presser-foot downward. This engages with the index-plate *b* of the dollar-sign, which presses the paper down

upon the perforating-needles. The needles pass through the openings in the stripper-plate and register in the corresponding opening of the index-plates *b*, thereby perforating holes through the check corresponding with the dollar-sign. As the lever is released the stripping-plate rises above the needle, as shown in Fig. 4. I have also shown an auxiliary spring 28, which passes under the stripper-plate, so as to insure its being raised off from the needles, thereby allowing the check to be moved along. The depression of the lever 9 has moved the pawl 22 forward one notch, and as said lever is raised the pawl is driven backward by the crank 21, and the retractile spring 26, moving the rack-bar 23 and the arm 24, carrying the check-holding plate forward one space, in which position it is ready to receive the second character, when the lever 9 is turned, rotating the shaft 3 and moving the perforating-needle plate and stripper-plate and index-plate to the desired position for a second character, when the operation is repeated.

Having described my invention, what I claim is—

1. A perforator composed substantially of the shaft 3, operated by lever 9 and carrying the perforating-plate 4, with a series of needles thereon, and the stripper-plate 5 and a series of segmental plates *b*, in combination with the presser-foot A, and mechanism for depressing the said plates *b*, substantially as specified.

2. In a check-perforator, the combination of the shaft 3, carrying revolving needle-plate 4, and the spring-perforated plates *b*, in combination with the lever 9 and yoke 7, by means of which said plates are rotated, and the presser-plate A, adapted to be depressed by the downward movement of said lever, substantially as described.

3. In a check-perforator, the combination of the rotating shaft 3, having the cam-lever 9 and carrying the needle-plate 4, the stripper-plate 5, and the female-die plate 6, and the yoke 7, forming a bearing for the rotating shaft, having its free end carrying a presser-foot A and depressed by the cam-lever, substantially as described.

4. In a check-perforator, the spring-yoke 7, carrying the presser-foot A, provided with recess 11, in combination with the perforating-plates 4 and 6, having needles and perforations adapted to be rotated and moving under said presser-foot, substantially as described.

5. In a check-perforator, the combination of the rotating shaft 3, carrying the cam-lever 9, the needle-plate 4, and the female-die plate 6, with the yoke 7, having its free end provided with the presser-foot A and depressed by the cam-lever, substantially as described.

6. In a check-perforator, the combination of the base-frame 1, the rotating shaft 3, carrying the lever 9, the needle-plate 4, the segmental plates *b*, and the yielding stripper-plate 5 between the needle-plate and segmental

plates, with the spring 28, secured to the base-frame and extending under the stripper-plate to lift it from the needles, substantially as described.

5 7. In a check-perforator, the combination of a base-frame 1, a revolving shaft 3, and a swinging cam-lever 9, pivoted to the shaft, with a needle-plate 4, and a series of perforated segmental plates *b*, secured to and revolving with the shaft, and a yoke 7, operated by the cam-lever to depress the segmental plates, substantially as described.

15 8. In a check-perforator, the combination of the rotating shaft 3, carrying the needle-plate 4 and female-die plate 6, a cam-lever 9, pivoted to the shaft, a yoke 7, having a presser-foot A and arm 17 and depressed by the cam-lever, a rock-shaft 19, operated by the arm on the yoke, a shaft 15, a rack 23, sliding on the latter and supporting a check-carrier 25, and a pawl 22, operated by the rock-shaft to move the rack on its supporting-shaft, substantially as described.

9. In a check-perforator, the combination of a rotating shaft 3, having a cam-lever 9 and carrying the needle-plate 4, the stripper-plate 5, and the perforated segmental plates *b*, with the yoke 7, secured at one end, carrying a presser-foot A at its free end, and depressed by the cam-lever, a check-carrier, and a spacing mechanism operated by the rising movement of the yoke to feed the check-carrier, substantially as described.

10. In a check-perforator, the presser-foot A, provided with a catch 12, adapted to engage consecutively and serially with the segments *b* of the register-plate 6, whereby the same are severally lifted by the raising of the presser-foot, substantially as described.

In testimony whereof I have hereunto set my hand.

ELWOOD C. PHILLIPS.

Witnesses:

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H. T. ROOP.