

No. 771,494.

PATENTED OCT. 4, 1904.

E. PETERSON, E. SNYDER & C. E. LARRABEE.

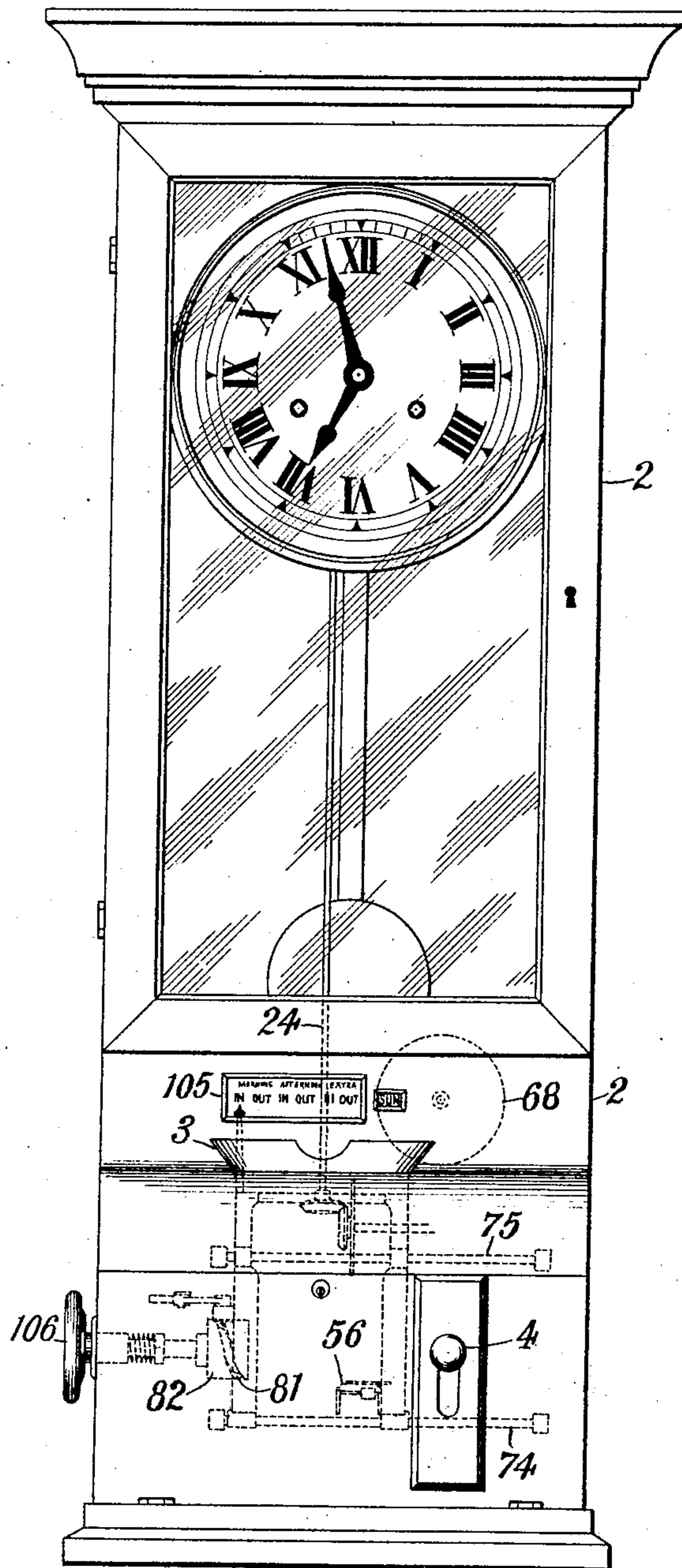
TIME RECORDER.

APPLICATION FILED OCT. 31, 1903.

NO MODEL.

8 SHEETS—SHEET 1.

*Fig. 1*



Witnesses:  
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*A. S. Dunham.*

*Eric Peterson, Edward Snyder, } Inventors*  
*and Clinton E. Larrabee }*

*by Kerr, Page & Cooper, Attys.*

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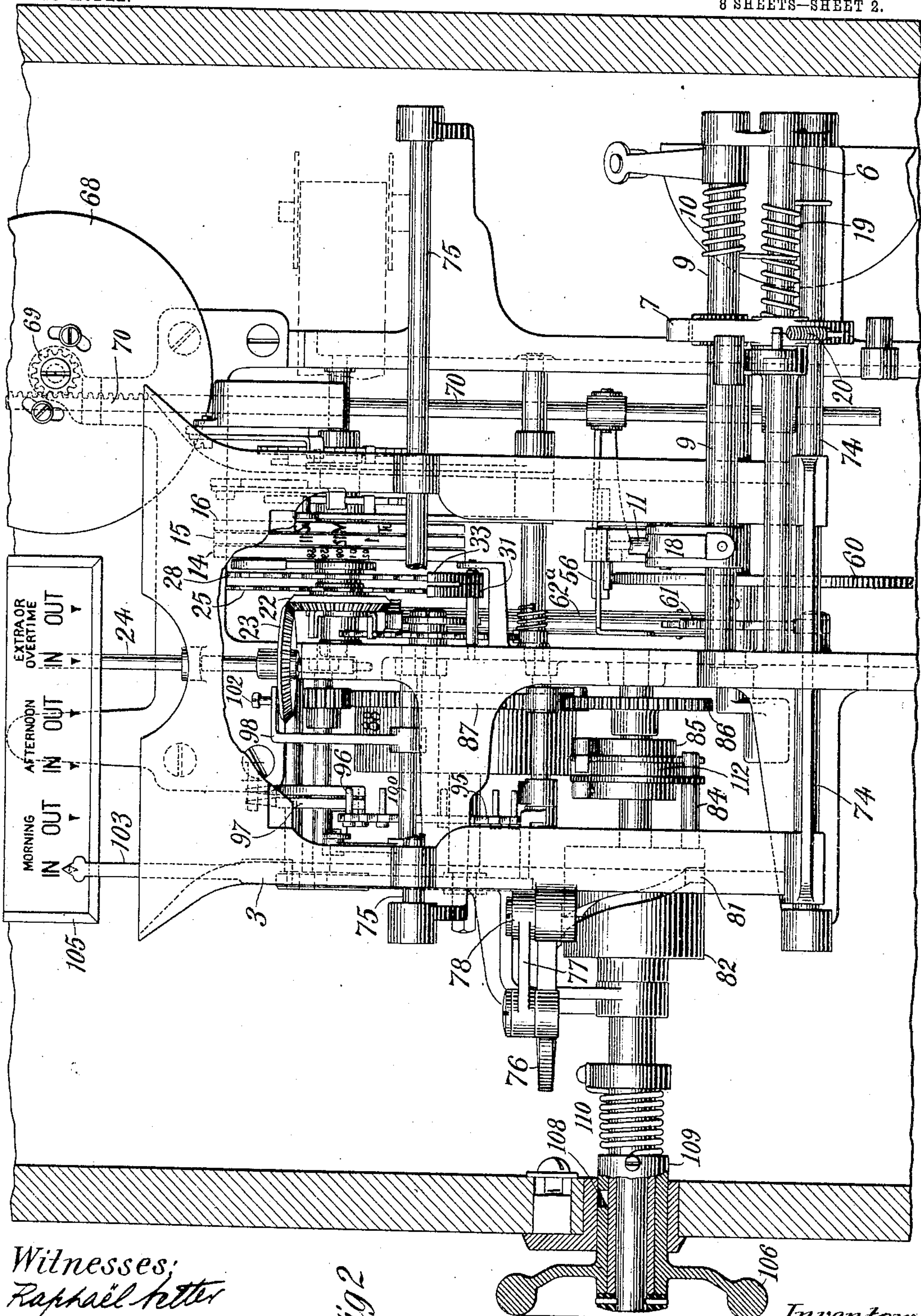
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8 SHEETS—SHEET 2.



Witnesses:  
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Fig 2

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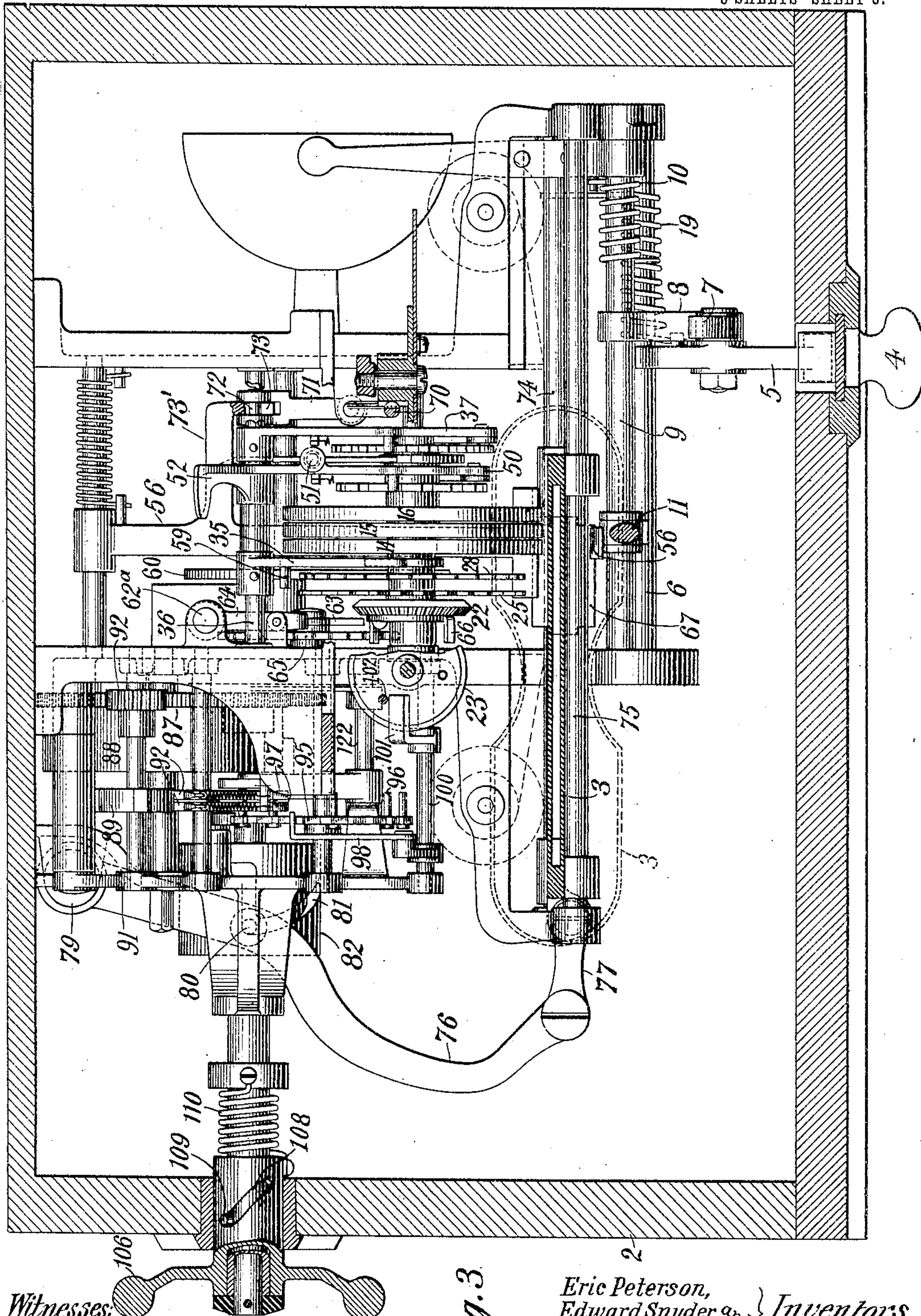
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8 SHEETS—SHEET 3.



Witnesses:

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Fig. 3.

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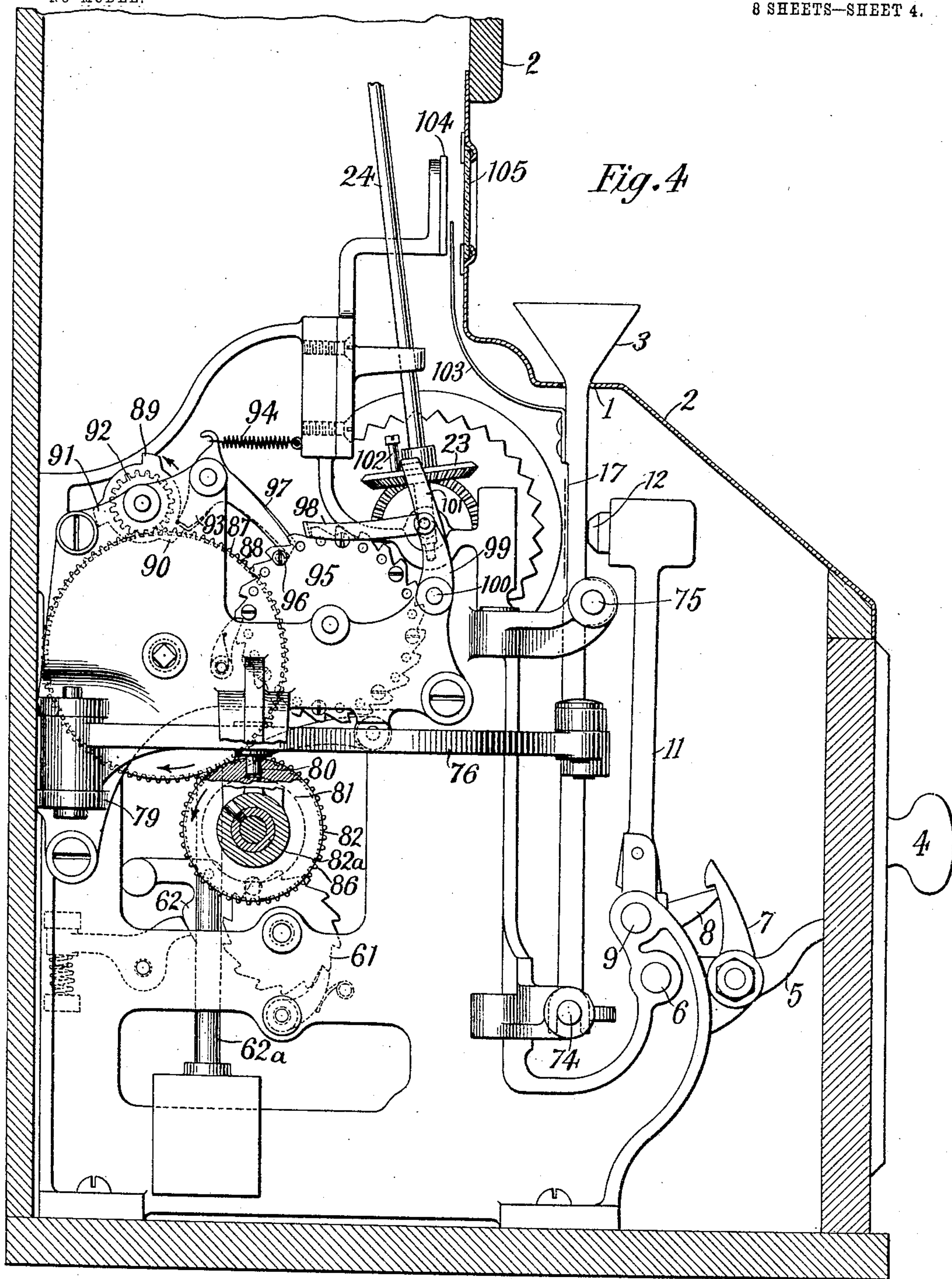
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8 SHEETS—SHEET 4.



Witnesses:  
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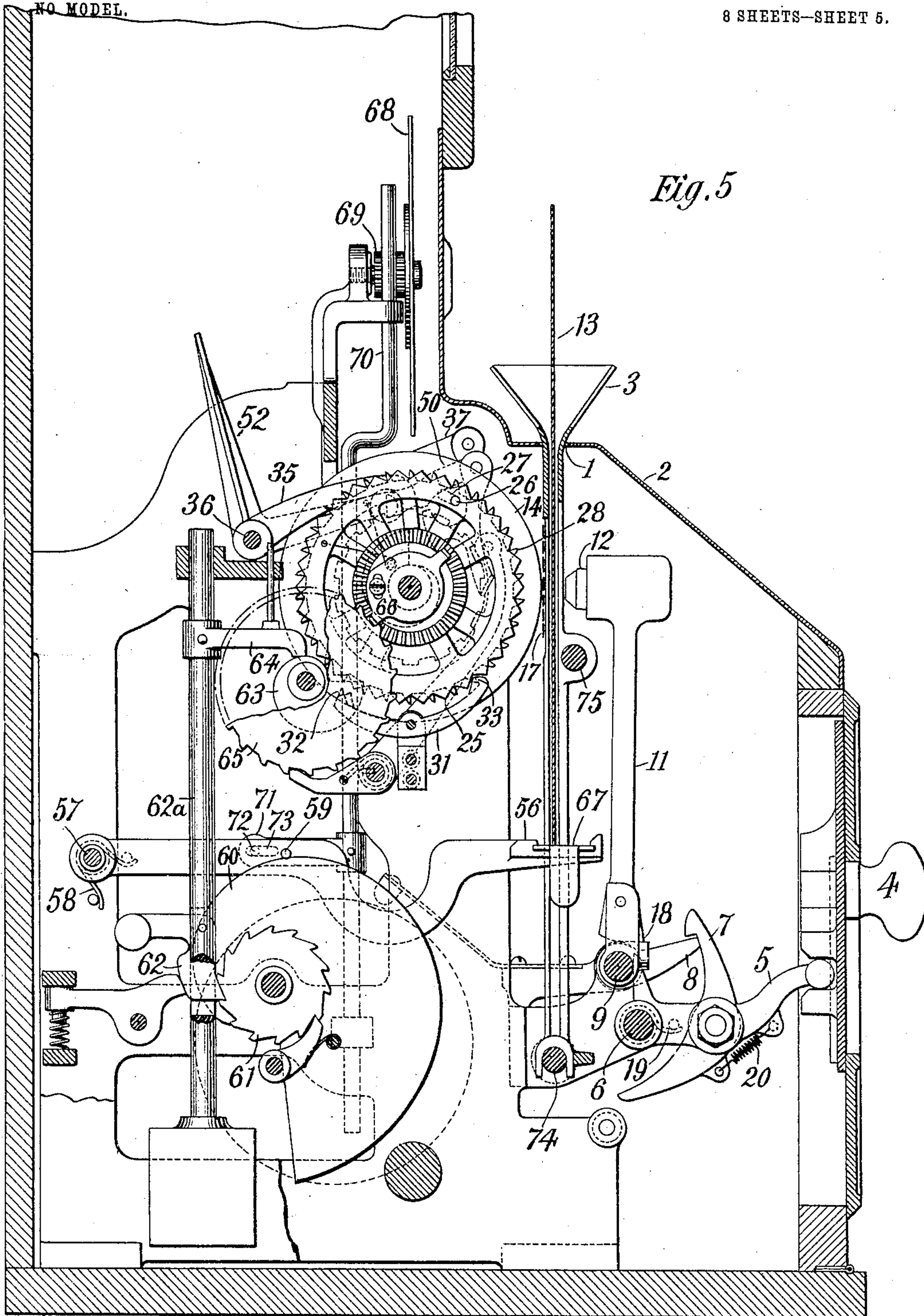
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NO MODEL.

Fig. 5



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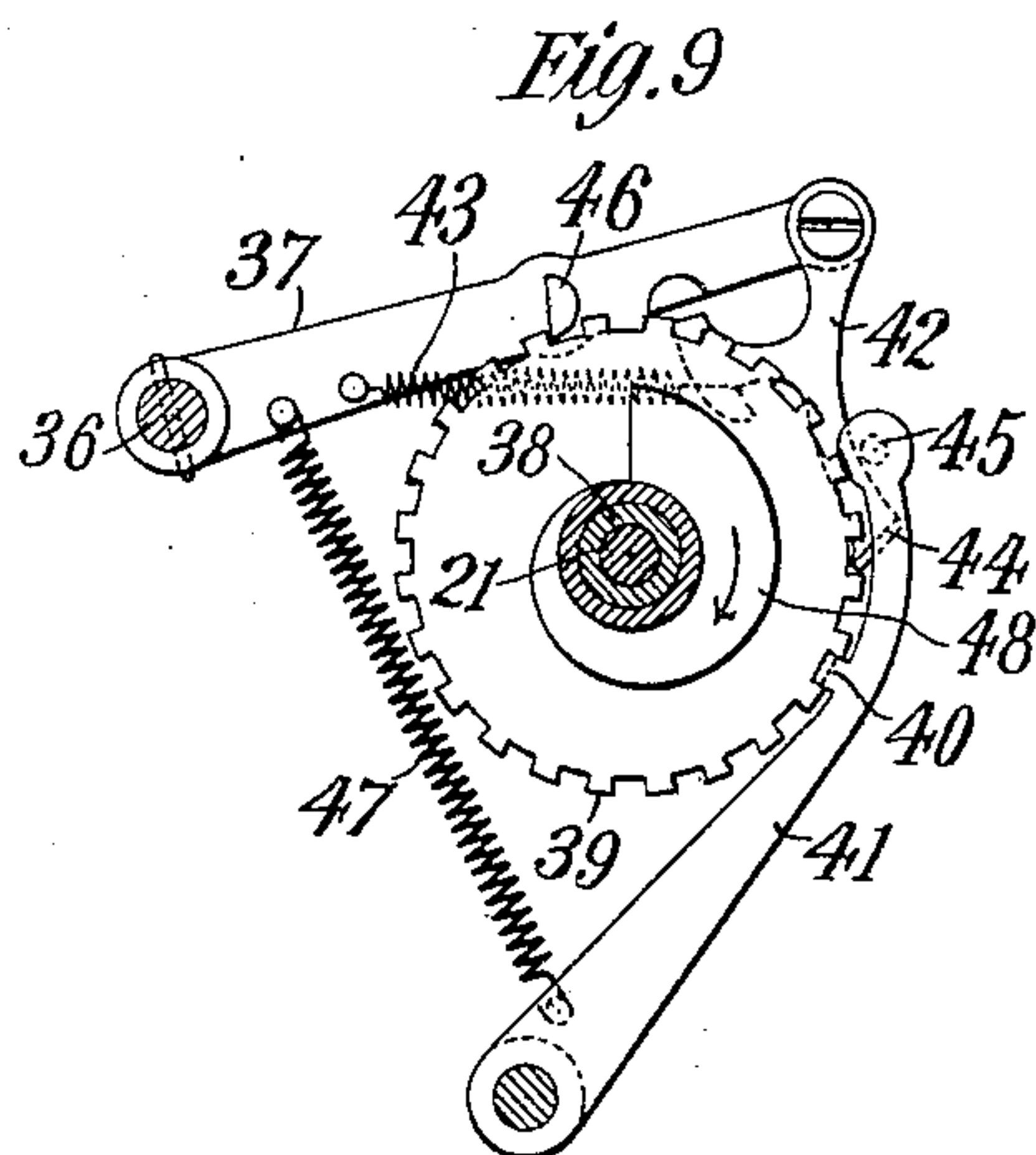
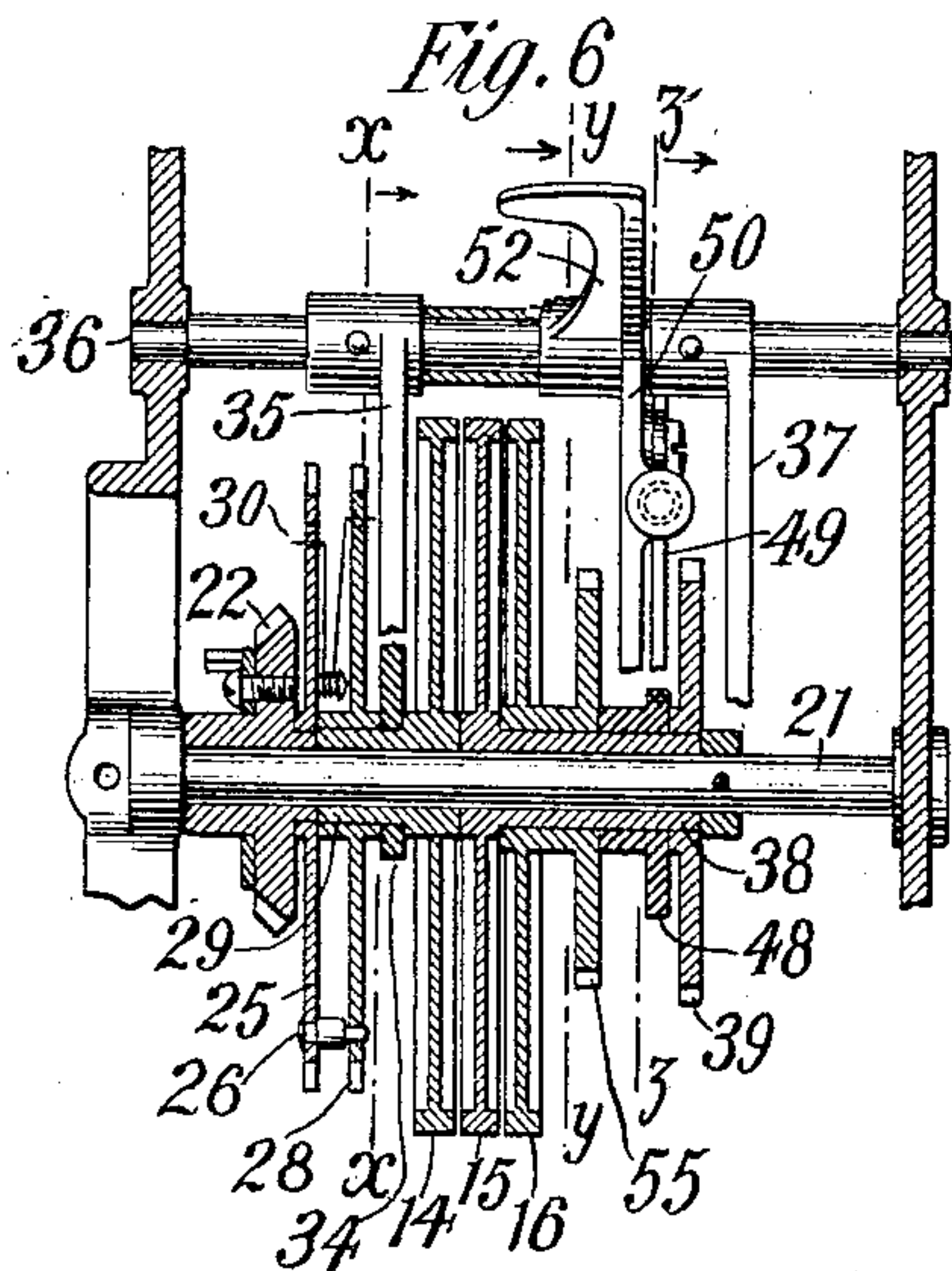
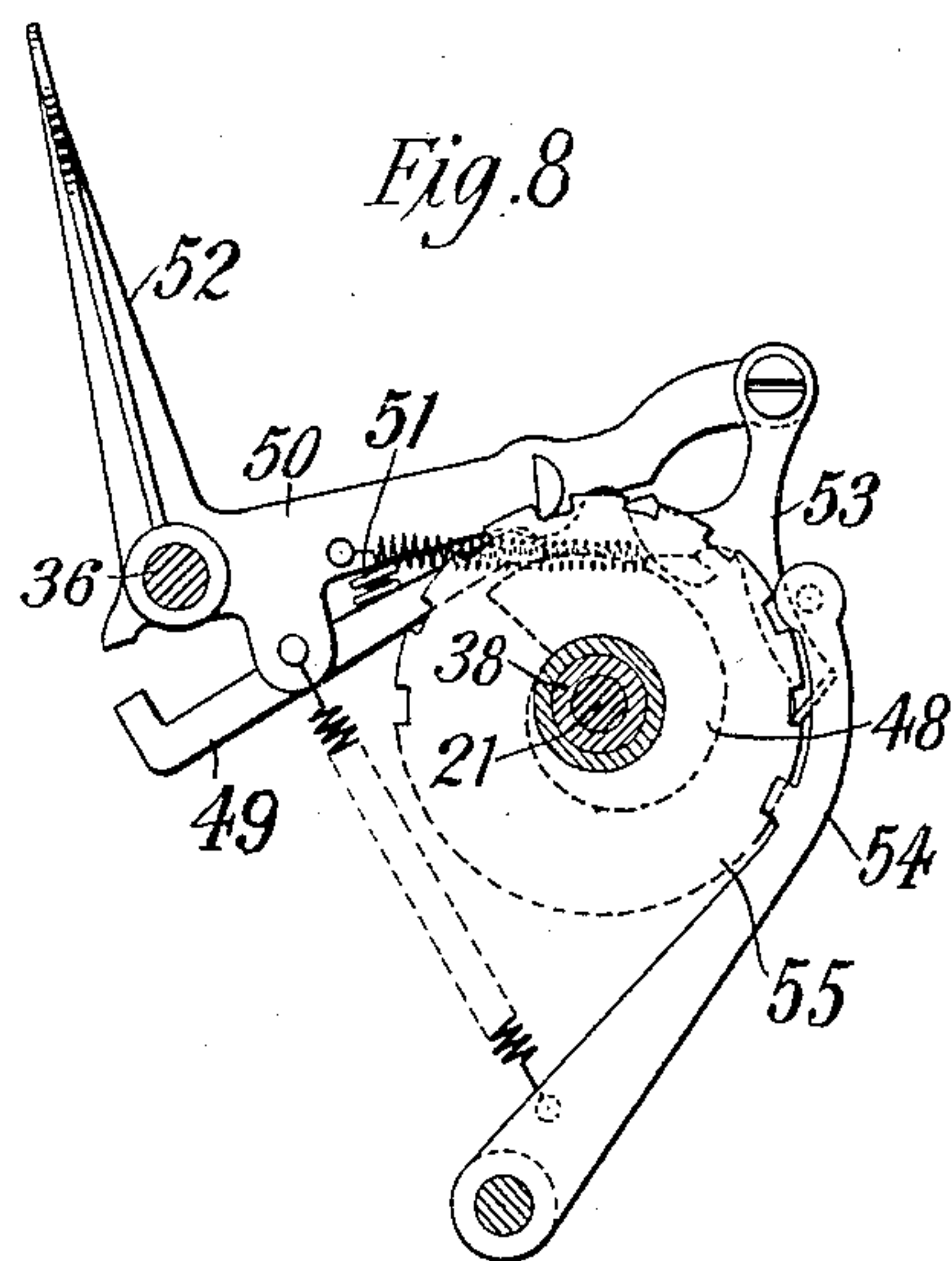
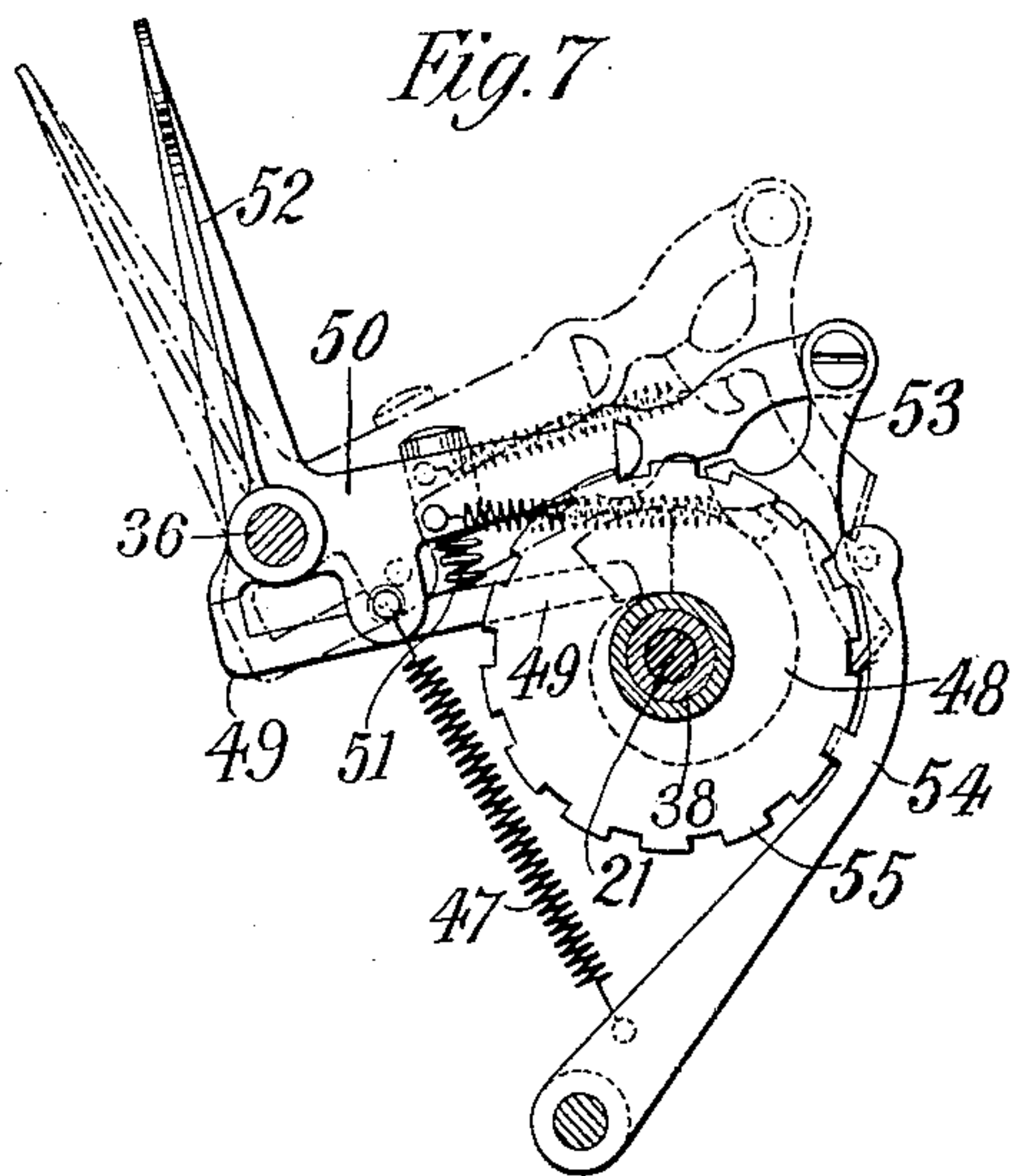
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TIME RECORDER.

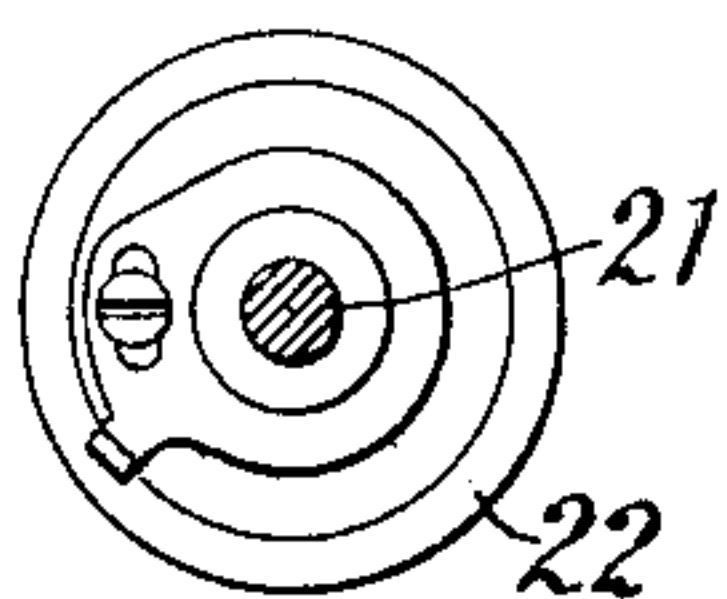
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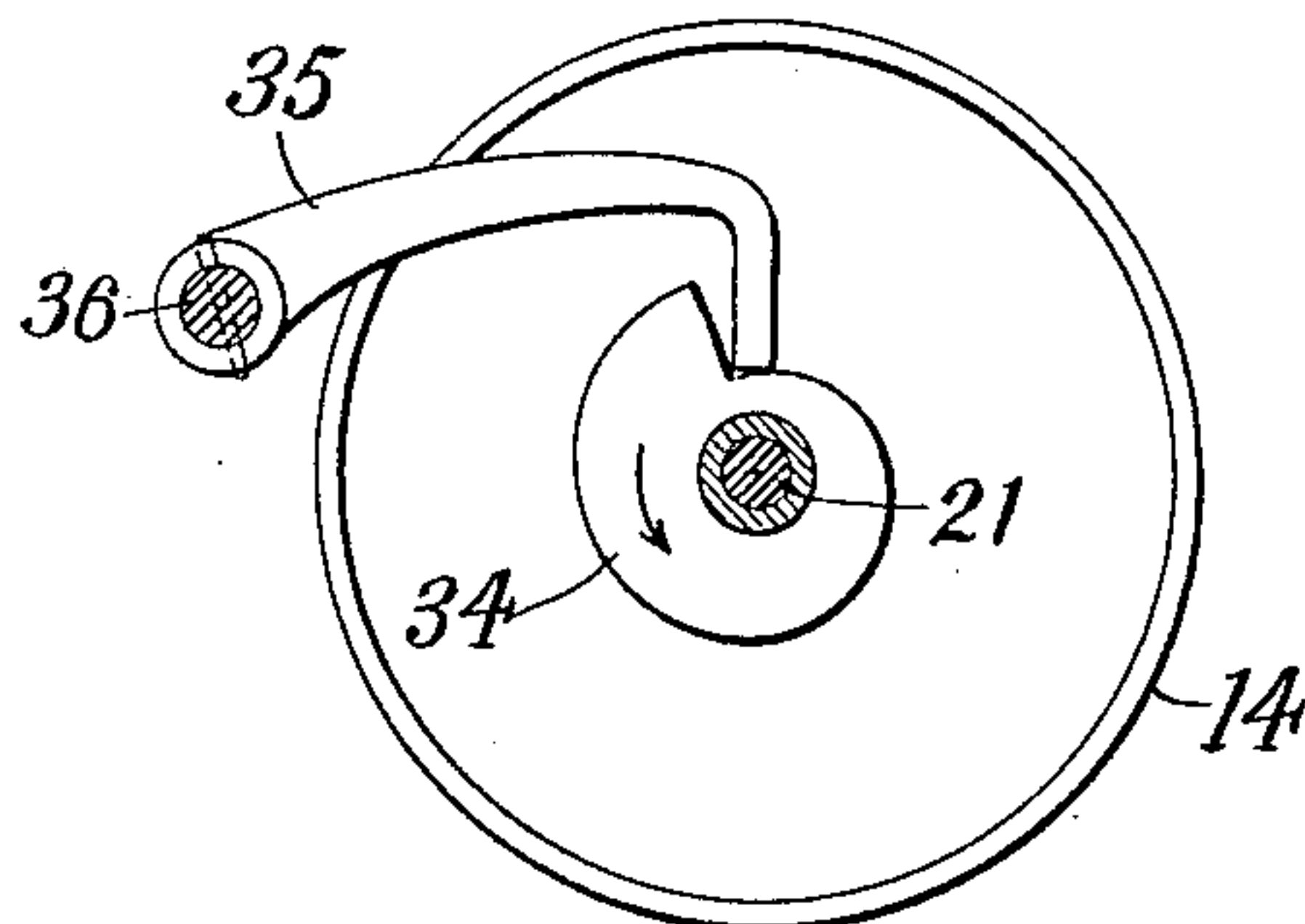
8 SHEETS—SHEET 6.



*Fig. 17*



*Fig. 10*



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TIME RECORDER.

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NO MODEL.

8 SHEETS—SHEET 8.

Fig. 18

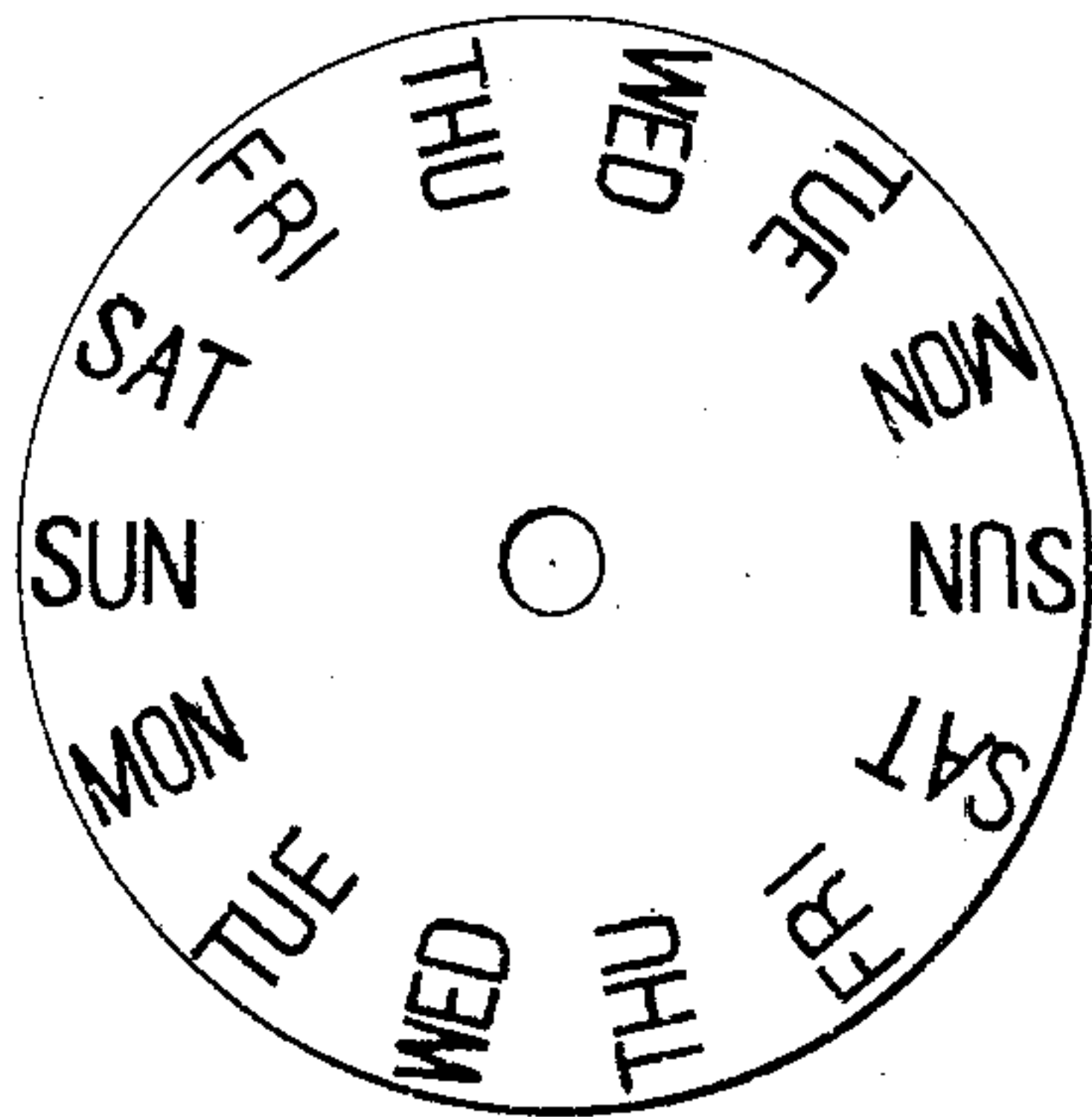


Fig. 19

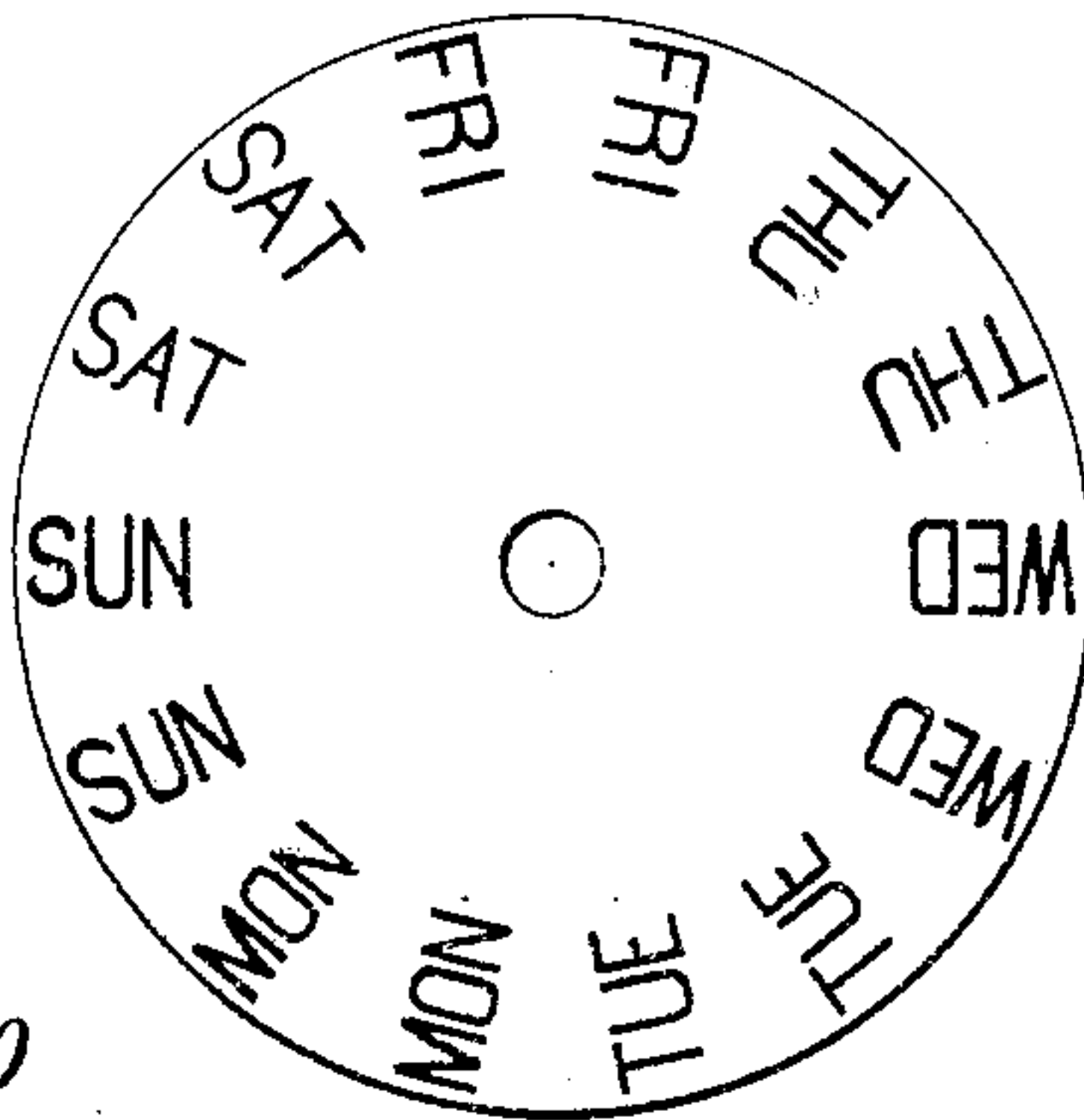


Fig. 20

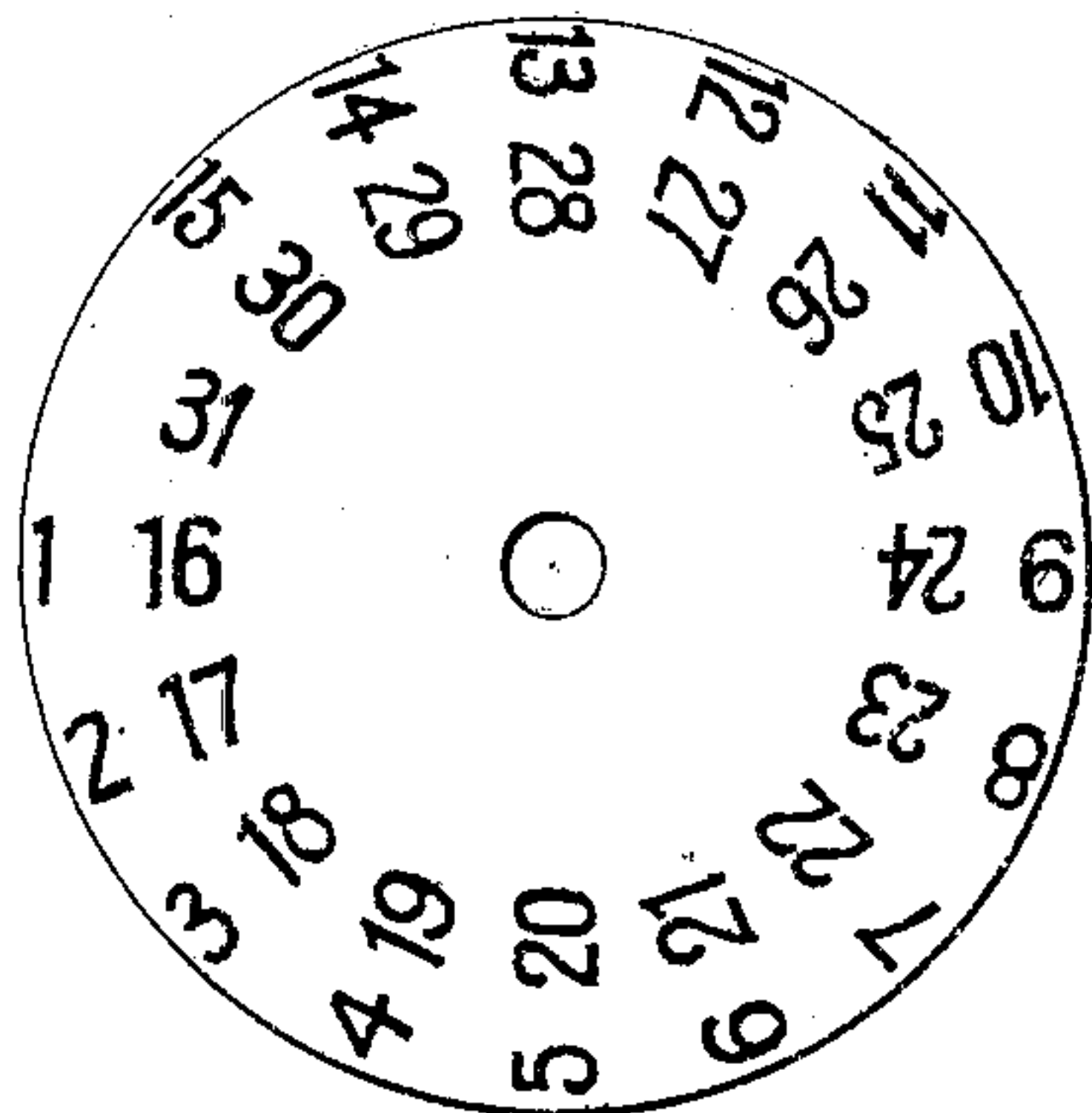


Fig. 21

No. _____						
NAME _____						
DAY	MORNING		AFTERNOON		EXTRA	
	IN	OUT	IN	OUT	IN	OUT
MON	M 6 55	M 12 02	M 12 59	M 6 01		
TUE	Tu 6 58	Tu 12 01	Tu 1 10	Tu 6 30	Tu 7 00	Tu 10 05
WED						
THU						
FRI						
SAT						
SUN						
MON						
TUE						
WED						
THU						

Fig. 22

No. _____						
NAME _____						
DATE	IN	OUT	IN	OUT	EXTRA	
					IN	OUT
1	6 58	12 01	12 59	5 30	6 29	8 35
2	8 00	12 05	2 00	6 10	7 32	10 15
3						
4						
5						
6						
7						
8						
9						
10						
11						

Witnesses:

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by  
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# UNITED STATES PATENT OFFICE

ERIC PETERSON, EDWARD SNYDER, AND CLINTON E. LARRABEE, OF BINGHAMTON, NEW YORK, ASSIGNORS TO THE INTERNATIONAL TIME RECORDING COMPANY, OF BINGHAMTON, NEW YORK, A CORPORATION OF NEW JERSEY.

## TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 771,494, dated October 4, 1904.

Application filed October 31, 1903. Serial No. 179,280. (No model.)

*To all whom it may concern:*

Be it known that we, ERIC PETERSON, EDWARD SNYDER, and CLINTON E. LARRABEE, citizens of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Time-Recorders, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

The object of our invention is, in general, to provide a clock-controlled machine for recording time which shall be simple in construction and which therefore may be made durable and little liable to get out of order, also to prevent improper and fraudulent manipulation of the machine for the purpose of recording time other than indicated by the clock and on incorrect positions on the time-card.

To these and other ends the invention consists of the novel features and combinations hereinafter described, and more particularly set forth in the claims.

Referring now to the drawings, which show the preferred embodiment of the invention, Figure 1 is a front view of the complete apparatus, showing a portion of the mechanism in dotted lines. Fig. 2 is a front view of the recording mechanism with the case and hand-setting wheel in section. Fig. 3 is a top plan view of the same. Fig. 4 is a side view with the hand-setting shaft in section. Fig. 5 is an irregular vertical section at right angles to the plane of Fig. 1. Figs. 6, 7, 8, 9, and 10 are detail views of the mechanism for actuating and controlling the printing-wheels. Figs. 11, 12, 13, and 14 are details of the mechanism for shifting the card-carrier. Figs. 15 and 16 are detail views of the card-abutment. Fig. 17 is a detail of a modification of the mechanism for shifting the card-abutment. Figs. 18, 19, and 20 are various indicating-dials which may be used in the machine; and Figs. 21 and 22 show two varieties of time-cards with several records stamped thereon.

Projecting through a slot 1 in the casing 2

of the apparatus, Figs. 1, 2, 3, 4, and 5, is a card receiver or carrier 3. The card on which it is desired to imprint a record having been inserted in the carrier, the operator depresses the operating knob or handle 4, thereby depressing the arm 5 on the shaft 6. Pivotally connected with the arm is a trigger 7, engaging a finger 8 on the rock-shaft 9, which latter, viewed as in Fig. 5, is actuated in a contrary clockwise direction by a spring 10, Figs. 2 and 3. Pivotally carried by the rock-shaft is an upstanding hammer 11, having a resilient striking-face 12 opposite the opening in the card-carrier. As the trigger 7 is carried downward by the depression of the arm 5 the finger 8 is likewise depressed, rocking the shaft 9 against the tension of its spring 10 until the finger escapes from the trigger, whereupon the shaft is thrown backward, and the hammer 11, striking the card 13, drives the same against the type-wheels 14 15 16 and the interposed inked ribbon 17. The spring 10 is so adjusted that when the same is normally released the rock-shaft 9 will be in the position shown in Figs. 4 and 5, and the pivoted hammer, rebounding from the blow, is stopped by the cam-face 18 on its lower end and remains in the position shown in the same figures. Upon release of the operating-handle 4 the arm 5 is thrown up to its original position by the spring 19, and the trigger 7, passing over the finger 8, is again brought into engagement with the same by the spring 20, whereupon the parts are ready for another printing operation.

The printing-wheels 14 15 16 carry on their faces characters indicating hours, minutes, and the day of the week or month, and are mounted directly or indirectly for rotation on the shaft 21, Fig. 6. Rotating on the same shaft is a bevel-gear 22, meshing with a gear 23 on the shaft 24, driven by the clock mechanism in the upper part of the casing. Rigidly connected to and rotating with the gear 22 is a ratchet-wheel 25, carrying a pin 26, engaging a slot 27, Fig. 5, in an escape-wheel 28, rigidly mounted on the rotatable sleeve



29, which carries the minute-wheel 14. Between the ratchet and escape wheels is a spring 30, providing, in conjunction with the pin 26 and slot 27, a yielding connection between the ratchet 25 and the escape-wheel and the minute-wheel sleeve. This yielding engagement is provided to permit the printing-wheels to be rotated by an intermittent or step-by-step motion in order that one or the other of the types thereon will always be exactly in the proper printing position; otherwise with continuously-moving type-wheels parts of two adjacent types would at times be opposite the hammer, and therefore stamp the card with a confusing imprint. To accomplish this step-by-step motion, we provide an escapement-lever 31, having a tooth at each end to engage the ratchet-wheel 25. Alongside the pawl-teeth are pallets 32 33, engaging the teeth on the escape-wheel 28, Figs. 2 and 5. The operation of the escapement is as follows: The ratchet is rotated continuously by the gear 22, but the escape-wheel is held against movement by the pallet 33, Fig. 5, and the spring between the two is therefore compressed. As the ratchet rotates further, however, the lever 31 is rocked until the pallet 33 is carried out of engagement with the tooth on the escape-wheel. The latter being thus free to move is instantly rotated by the spring 30, but only a distance equal to one tooth, since the other pallet 32 is now in position to engage a tooth and check its motion. It will thus be seen that the change from one minute-type to the succeeding is made at proper intervals by an instantaneous movement. The pallet 32 and the adjacent pawl-tooth being similar to the pallet 33 and its adjacent pawl-tooth the intermittent release of the escape-wheel is effected by the two pallets alternately.

The hour-wheel is rotated intermittently by the following mechanism: Rigidly connected to and rotating with the escape-wheel 28 and sleeve 29 is a cam 34, Figs. 6 and 10, on which bears an arm 35, carried by the rock-shaft 36, which also carries an arm 37. Rigidly attached to the rotatable hour-wheel sleeve 38 is a wheel 39, Figs. 6 and 9, having square notches in its periphery, as shown, into which fits the tooth 40 of a locking-pawl 41 to prevent motion of the wheel in either direction except at predetermined intervals. On the outer end of the arm 37 is a pivoted dog 42, normally retracted by a spring 43, having a finger 44 engaging a tooth on the square-toothed ratchet 39. Assuming the parts to be in the position of Figs. 9 and 10, as the cam 34 rotates with the minute-wheel 14 it gradually raises the arm 35, thereby rocking the shaft 36 and the arm 37. As the latter rises the inclined edge of the dog 42 engages a pin 45 on the locking-pawl and finally lifts the tooth 40 out of its notch. At the same time the finger 44 rides over the teeth on the ratchet, and the pawl-pin 46 is also freed from engagement.

When the cam has rotated far enough, the spring 47 draws the arms 35 and 37 down to their original positions of Figs. 9 and 10, thereby advancing the ratchet 39 and its connected hour-wheel 15 a distance equal to one tooth or one-twenty-fourth of a complete revolution, so that, like the minute-wheel, the hour-wheel changes instantly and intermittently. Step-by-step motion is given to the day or date wheel 16 by a similar mechanism, as follows: Rigidly connected with the hour-sleeve 38 is a cam 48, Figs. 6, 7, and 8, upon which bears an arm 49, pivoted on the lever 50, which latter is loosely mounted on the shaft 36. Between the arm 49 and lever 50 is a spring 51, holding the two in fixed relation so far as the automatic working of the machine is concerned, but permitting manual manipulation of the lever by means of a thumb-piece 52 when desired, for the purpose hereinafter explained. When the hour-wheel sleeve 38, and consequently the cam 48, has made a complete revolution, the arm 49 and lever 50, which have been raised by the cam to the position shown in dotted lines in Fig. 7, and the dog 53, which has disengaged the locking-pawl 54 from the notch in the ratchet-wheel 55, drop to the full-line position of Fig. 7, thereby engaging a tooth by the dog 53 and advancing the ratchet and day-wheel instantly one step, corresponding to one day. If it is desired to set the device for any particular day—as, for example, after the machine has been out of operation for a day or more—the dog or pawl 53 may be actuated by hand by grasping the thumb-piece 52 and oscillating the lever 50 against the spring 51 until the ratchet 55 has been rotated sufficiently to bring the desired day or date to the printing position. Upon release of the handle 52 the spring 51 throws the lever 50 back to its normal position relative to the arm 49. The position of the cam 48, which determines the hour when the day-wheel is automatically shifted, has of course not been altered, and the machine resumes its automatic operation, simply showing a corrected day or date.

Figs. 21 and 22 show two types of cards used for records, one employing the days of the week—Monday, Tuesday, &c.—as distinguishing data, the other using the day of the month, as the 1st, 2d, &c., according as the day-wheel types are for the one or the other. The position of the imprint with reference to the horizontal lines is of course dependent upon the position of the card with reference to the impression-point of the machine, and the position of the card is determined by the abutment 56, Figs. 1, 2, and 5, upon which the card rests during the printing operation. Mechanism now to be described is therefore provided which raises the abutment each day the proper distance to present a new line on the card at the impression-point. The abutment or lever 56 is arranged on



the shaft 57, Fig. 5, and its weight is almost but not quite overcome by the spring 58, so that but slight additional power is required to raise the abutment. Projecting from the abutment-lever 56 is a pin 59, which rests on a cam 60, connected with a ratchet 61, engaged by a pawl 62 on a weighted vertical plunger 62<sup>a</sup>, which is raised by a cam 63, on which rests the arm 64 of the plunger. Connected to the cam is a toothed wheel 65, arranged adjacent the bevel driving-gear 22, before mentioned. On the latter is a plate 66, having a pair of diametrically opposite outstanding fingers, which engage the teeth of the wheel 65 as the plate 66 rotates with the gear 22, thus rotating the wheel 65 and cam 63 a certain distance twice during each revolution of the gear 22. The pawl 62 engages a tooth of the ratchet 61 as the rod 62<sup>a</sup> is raised by the devices just described, and upon the arm 64 dropping off the cam 63 the plunger falls and carries the ratchet 61 and cam 60 forward, thereby raising the pin 59 and abutment-lever 56 a definite distance. This distance is of course determined primarily by the dimensions of the cams 63 and 60. Since the ratchet 61 has fourteen teeth, it must be actuated twice each day in order to give the cam 60 a complete rotation once a week. Accordingly the cam 63 must be revolved twice each day, which is accomplished by giving the ratchet 65 twenty-four teeth and the plate 66 two pawl-fingers, so that the ratchet will be advanced one tooth twice in each rotation of the gear 22 or twice in every hour. If a plate having but one finger, as shown in Fig. 17, be used, the ratchet 65 will be actuated only once an hour, and consequently the cam 63 will be rotated only once each hour, thus advancing the ratchet 61 only one tooth per day and effecting a complete rotation of the cam 60 once in two weeks.

In machines in which the card rests directly on the edge of the abutment-lever it is sometimes possible to make the machine give an incorrect record. For example, suppose the abutment is so raised that when the card of Fig. 22 is dropped in the carrier the line 2 will be at the impression-point. If the employee were not at work on the first day, and consequently have no record on the first line, he may by jamming the card into the carrier a sufficient number of times cause the bottom of the card to be so indented by the edge of the abutment-lever as to permit the card to fall to a position where the first line is at the impression-point, whereupon the employee may operate the printing-handle 4, and so obtain a fraudulent record. In order to prevent such improper manipulation, we provide a broad plate 67, (shown in detail in Figs. 15 and 16,) suitably supported on the abutment, upon which plate the card rests when dropped into the carrier. By reason of this plate the descent of the card will always be limited by

the abutment no matter how much the employee may attempt to jam the card.

In order to indicate the day of the week or month which will appear in the imprint, a dial 68, Figs. 1 and 5, is provided connected to a pinion 69, Fig. 5, meshing with a rack-bar 70. On the lower part of the rack-bar is an arm 71, having a pin 72 engaging a slot 73 in an arm 73', Fig. 3, of the abutment-lever 56. Obviously as the latter is elevated to vary the position of the card the rack-bar 70 will be raised, thus rotating the pinion 69 and indicator-disk 68. In the machine, as shown in Fig. 5, the abutment is raised to its highest position once a week. Consequently the disk should show a similar change. If the number of teeth on the pinion 69 is such that the latter will make half a revolution for each complete elevation of the abutment, then a disk like that shown in Fig. 18 should be used, showing a week's change for one half-turn. If the pinion makes a complete rotation for each elevation of the abutment, the seven day-signs or abbreviations are distributed over the whole periphery. If the forenoon and afternoon records are to be put in the same vertical column of the card, one below the other, the abutment would move two steps upward per day instead of one, and the dial, instead of showing the same day would of course show the following day-sign in the afternoon position of the abutment. To obviate this difficulty without substituting a different dial-gear, the disk shown in Fig. 19 may be used. In this case, as will be seen, the days are duplicated, so that the afternoon step of the abutment will still show the same day and actual change of day-sign will occur only once a day as before. Fig. 20 shows a dial for use when the day of the month is to be indicated instead of the day of the week and Fig. 22 the corresponding card.

To provide for a complete record, the cards are divided into six vertical printing columns corresponding to the times of arrival and departure in the morning, the same in the afternoon, and the same for extra or overtime. It is therefore necessary to shift the card horizontally past the impression-point in order to bring the respective spaces successively to the printing position. For this purpose the card-carrier 3 is mounted to slide transversely on rails 74 75, Figs. 1, 2, 4, and 5, and is moved from side to side by an arm 76, Fig. 3, and a link 77 engaging the carrier at 78, Fig. 2. This arm is pivoted at the back of the machine in a spring-barrel 79, and has a pin 80 engaged by a cam-groove 81 in the drum 82, Figs. 1, 2, 3, 4, 11, and 12, whereby the rotation of the latter will oscillate the pivoted arm and so reciprocate the carrier 3. The drum is rigidly attached to a rotatable sleeve 82<sup>a</sup> on the shaft 83 and has a fixed pin 84 engaging a device 85, (to be described hereinafter,) which normally ro-



tates with the shaft 83 through the agency of the gear 86, meshing with the gear 87, which is driven by a spring in the barrel 88. Since the card-carrier must be shifted by a succession of steps at proper intervals, the rotation of the gear 87 is made intermittent by the engagement of lugs 89 90 91, Fig. 4, connected to the intermeshing gear 92, with a pivoted stop 93 held normally in the path of the lugs by a spring 94, so that by oscillating the stop the engaging lug will escape and permit the gear 92 to rotate one-third of a revolution. For the purpose of oscillating the stop a ratchet 95 is provided, having a plurality of laterally-projecting pins, as 96, against which the arm 97 of the stop 93 rests, so that rotation of the ratchet 95 will periodically raise the arm 97 and permit a lug to escape the stop 93. This rotation of the ratchet is effected by a pawl 98, carried by a pivoted arm 99 on a rock-shaft 100, which latter is rocked by the arm 101, extending into the path of the pin 102 on the continuously-clock-driven gear 23. Of course the extent of motion ultimately communicated to the lever 76 and the card-carrier 3 depends entirely on the relative proportions of the actuating parts, and as these are mere matters of detail they need not be minutely set forth here.

Attached to the card-carrier is a pointer or index 103, indicating on a plate 104 behind a window 105 the position of the card-carrier with reference to the vertical columns.

In the machine which is herein described provision is made for the automatic shifting of the carrier to the regular morning and afternoon columns only, and additional means are therefore provided for moving the carrier farther to the position for recording extra time, which means we will now describe. As soon as the cam 82 has made a half-rotation, so that at the end of the working day one of the axial portions of the groove is opposite the pin 80, the arm 76 flies back under the influence of the spring in the barrel 79 to the position of "morning in." In order, therefore, to carry the card-chute to the position of "extra in," it is necessary first to return the chute or carrier to the position of "afternoon out" and then move it still farther to the "extra" position, the complete movement being effected by turning the hand-wheel 106, Figs. 3, 11, which projects from the casing and is loosely mounted on the sleeve 82<sup>a</sup>. In the hub 107 is a spiral slot 108, in which works a stud 109 on the sleeve 82<sup>a</sup>. A spring 110, connected to both parts, as shown in Fig. 3, keeps the hand-wheel normally against the collar 111 on the shaft 83. Now it is obvious that turning the wheel 106 will either rotate the sleeve 82<sup>a</sup> or reciprocate it on the shaft 83. Provision for both of these motions is made by the device 85, before mentioned. In this latter device the collar 112 (shown in detail in Fig. 14) is keyed to the shaft 83 and

has a lug 113 projecting from it. On each side of the collar is a disk 114 and 115, respectively connected to springs 116 117, oppositely coiled, the latter of which is shown in Fig. 13. One end of each spring is fastened to the shaft 83 and the other to its disk. The disks have arc-shaped cut-away portions, as shown in Fig. 13, on opposite sides, so as to form between the two a notch in which rests the pin 84 of the cam-drum 82. The disks also have inwardly-turned fingers 118 119, which are kept firmly against the lug 113 by the action of the coiled springs; but each disk may be rotated backward against the spring, as will be readily seen, if the cam-drum carrying the pin 84 be revolved. Hence turning the hand-wheel 106 in the direction of the arrow will turn the sleeve 82<sup>a</sup> and cam 82 in the same direction (indicated by the arrow on the plan view, Fig. 12) against the spring 117, thus forcing the pin 80 through the cam-groove 81 and throwing the arm 76 over, with the card-carrier, toward the last position of "afternoon out," which position is reached when the pin 80 reaches the straight portion 120 of the cam-groove 81. If turned too far, the pin 80 will come opposite the axial part of the groove and immediately fly back to the starting position. Ordinarily this cannot happen, since the pin 84 would strike the lug 113 on the relatively stationary collar 112 just before the axial part of the grooves comes into alinement with pin 80; but when the carrier is to be shifted to "extra" from a position intermediate "morning in" and "afternoon out" then the receiver will reach "afternoon out" before the cam has been rotated about the shaft 83 far enough for the pin 84 to strike the lug 113. The pin 84 is therefore engaged by a dog 121 on a rock-shaft 122. When the shaft 83 is rotated by the gear 86 in the automatic operation of the device, a stud 123 on the gear 86 engages an arm 124 on the rock-shaft and raises the dog 121 to permit the pin 84 to pass thereunder and the cam 82 to move on till the axial portion of the groove is in alinement with the pin 80. A stud 123<sup>a</sup> is also provided on the gear 86 diametrically opposite to the stud 123 to raise the dog 121 to permit the pin 125, to which is secured the spring 117, to pass thereunder during the automatic operation of the machine. The cam being prevented from rotating by the dog 121, which engages the pin 84 just as "afternoon out" is reached, and the operator continuing to turn the hand-wheel, however, the sleeve now slides longitudinally on the shaft 83, (by the action of the spiral slot 108 and pin 109,) and the cam 82 with it, thus shifting the card-carrier on past the "afternoon-out" position to that of "extra in" or "extra out," as desired. Upon release of the hand-wheel after the record is printed the spring in the barrel 79, Figs. 3 and 4, returns the arm to the "afternoon-



out" position, and with it the cam 82. Further return of the arm is impossible without simultaneous rotation of the cam, and this simultaneous rotation is effected by the recoil of the spring 117. The parts are thus restored to their original positions.

As before stated, turning the hand-wheel 106 will both rotate the sleeve 82<sup>a</sup> (and with it the cam-drum 82) and reciprocate the same on the shaft 83. Strictly speaking, it is immaterial which movement occurs first, since the ultimate result is the same. If the longitudinal movement takes place first, the travel of the sleeve will of course be limited by the pin 109 reaching the end of the slot, and the sleeve must then rotate, thereby completing the total movement of the card-receiver. Whether the rotation or the reciprocation of the sleeve (and cam-drum) occurs first depends upon the relative resistance of the mechanism thereto. In the automatic operation of the machine the sleeve has only the rotary motion, and as the friction in the spring-actuated operation would naturally be made as small as possible it is likely that the reciprocation would offer the greater resistance, and hence would be the last to take place in the manual operation.

The mechanism herein described is the preferred embodiment of our invention, but is of course not the only embodiment of which the same is capable.

What we claim is—

1. In a time-recording apparatus, the combination of a card-receiver adapted to present a card to the impression-point, a movable abutment adapted to vary the position of the card relative to the impression-point, a cam arranged to shift the abutment, a ratchet connected to the cam, a reciprocating weighted plunger adjacent the ratchet, a pawl on the plunger engaging the ratchet, an arm on the plunger, a cam supporting said arm, a ratchet connected to the last-mentioned cam, and clock-controlled means for actuating the ratchet at predetermined intervals, as set forth.

2. In a time-recording apparatus, the combination with a card-receiver adapted to move laterally relative to the impression-point, of clock-controlled mechanism for moving the receiver, and clock-controlled devices for shifting the card vertically relative to the impression-point, as set forth.

3. In a time-recording apparatus, the combination with a card-receiver adapted to move laterally relative to the impression-point, of clock-controlled spring-actuated mechanism for moving said receiver, and clock-controlled devices for shifting the card vertically relative to the impression-point, as set forth.

4. In a time-recording apparatus, the combination with a card-receiver adapted to move laterally relative to the impression-point, of a pivoted arm connected to the receiver, a clock-controlled cam engaging said arm to

move the receiver laterally, and clock-controlled devices for shifting the card vertically relative to the impression-point, as set forth.

5. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a pivoted arm connected to the receiver, a cam arranged to oscillate said arm, and means for rotating the cam intermittently at predetermined intervals, as set forth.

6. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a cam arranged to move the receiver, spring-driven mechanism to actuate the cam, a stop arranged to hold said spring-driven mechanism stationary, and means for releasing the stop at predetermined intervals.

7. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a cam arranged to move the receiver, spring-driven mechanism to actuate the cam, a stop arranged to hold the spring-driven mechanism stationary, a ratchet-wheel engaging the stop to release the same, and means for rotating the ratchet-wheel intermittently, as set forth.

8. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, mechanism arranged to move the receiver, a spring-driven gear to actuate the mechanism, one or more lugs moving with said gear, a stop engaging one of the lugs to hold the gear stationary, a ratchet arranged to release the stop, a pawl engaging the ratchet, and clock-driven means to actuate the pawl at predetermined intervals, as set forth.

9. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a pivoted arm connected to the receiver, a rotatable drum having a cam-groove, a pin on the arm engaged by the groove, and means for rotating the drum, as set forth.

10. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, mechanism for automatically moving the receiver and manually-operated means for giving said receiver an additional movement, as set forth.

11. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a cam arranged to move said receiver automatically, and manually-operated means for reciprocating the cam to give the receiver an additional movement, as set forth.

12. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, spring-driven mechanism arranged to move the receiver step by step from a first position



to a predetermined limit, and manually-operated means for moving the receiver from the first or an intermediate position to and beyond the predetermined limit, as set forth.

5 13. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a spring-rotated cam arranged to move the receiver step by step from a first position to a  
10 predetermined limit, and manually-operated means for rotating the cam to move the receiver from the first or an intermediate position to the predetermined limit and for reciprocating the cam to move the receiver beyond  
15 the predetermined limit, as set forth.

14. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a cam arranged to move the receiver, a spring-  
20 driven gear, a yielding connection between the cam and the gear, and manually-operated means for actuating the cam independently of the gear, as set forth.

15. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a rotatable and longitudinally-movable cam arranged to move the receiver to a predetermined limit, a spring-driven gear, a yielding  
30 connection between the cam and the gear, and manually-operated means for rotating the cam independently of the gear to move the receiver to the predetermined limit and for reciprocating the cam to move the receiver beyond said  
35 limit, as set forth.

16. In a time-recording apparatus, the combination of a card-receiver adapted to move laterally relative to the impression-point, a rotatable, longitudinally-movable sleeve, a cam on the sleeve arranged to move the receiver to a predetermined limit, a spring-  
40 driven gear, a yielding connection between the cam and the gear, a rotatable hub on the sleeve carrying a hand-wheel and having a spiral slot, a pin on the sleeve engaged by the  
45 slot, and means for checking the manual rotation of the sleeve and cam when the carrier has moved to its predetermined limit, whereby the sleeve and cam are reciprocated to  
50 carry the receiver beyond the predetermined limit, as set forth.

17. In a time-recording apparatus, the combination of a shaft, a spring-driven gear to rotate the shaft, a cam loosely mounted on the shaft, a collar on the shaft between the cam  
55 and the gear, having a lug, spring-actuated disks on opposite sides of the collar having fingers normally held against opposite sides of the lug, a pin extending from the cam, engaged by the spring-disks, and means for rotating the cam on the shaft against the tension of one or the other spring-disk, as set  
60 forth.

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