

No. 883,902.

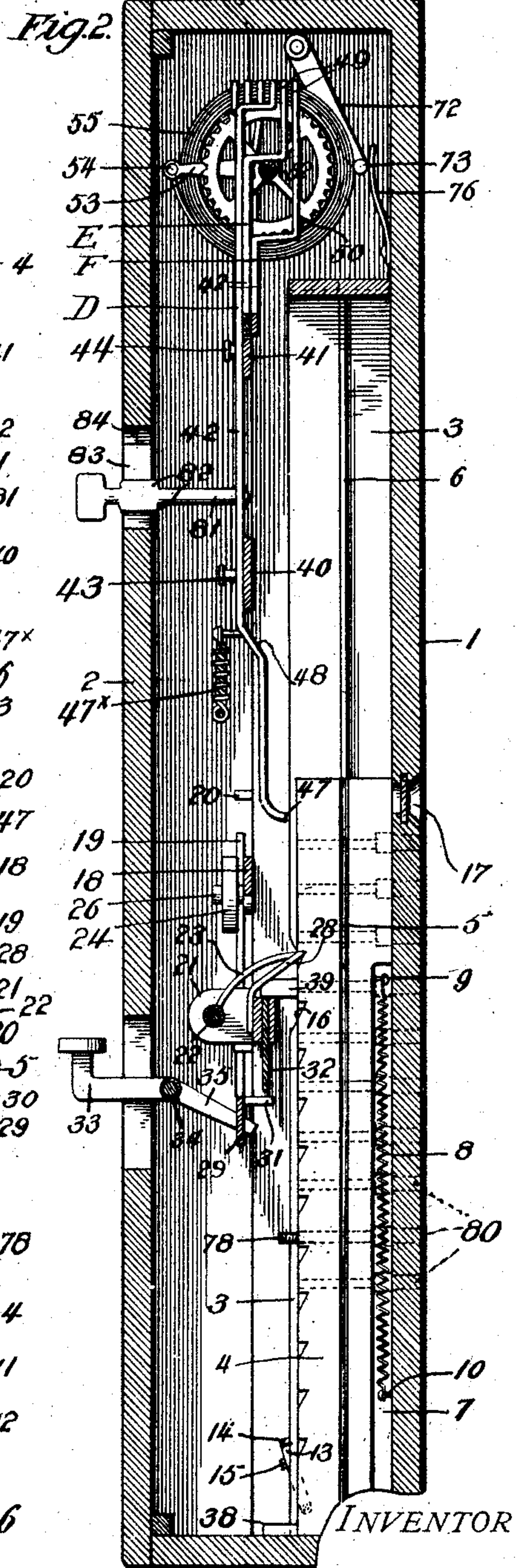
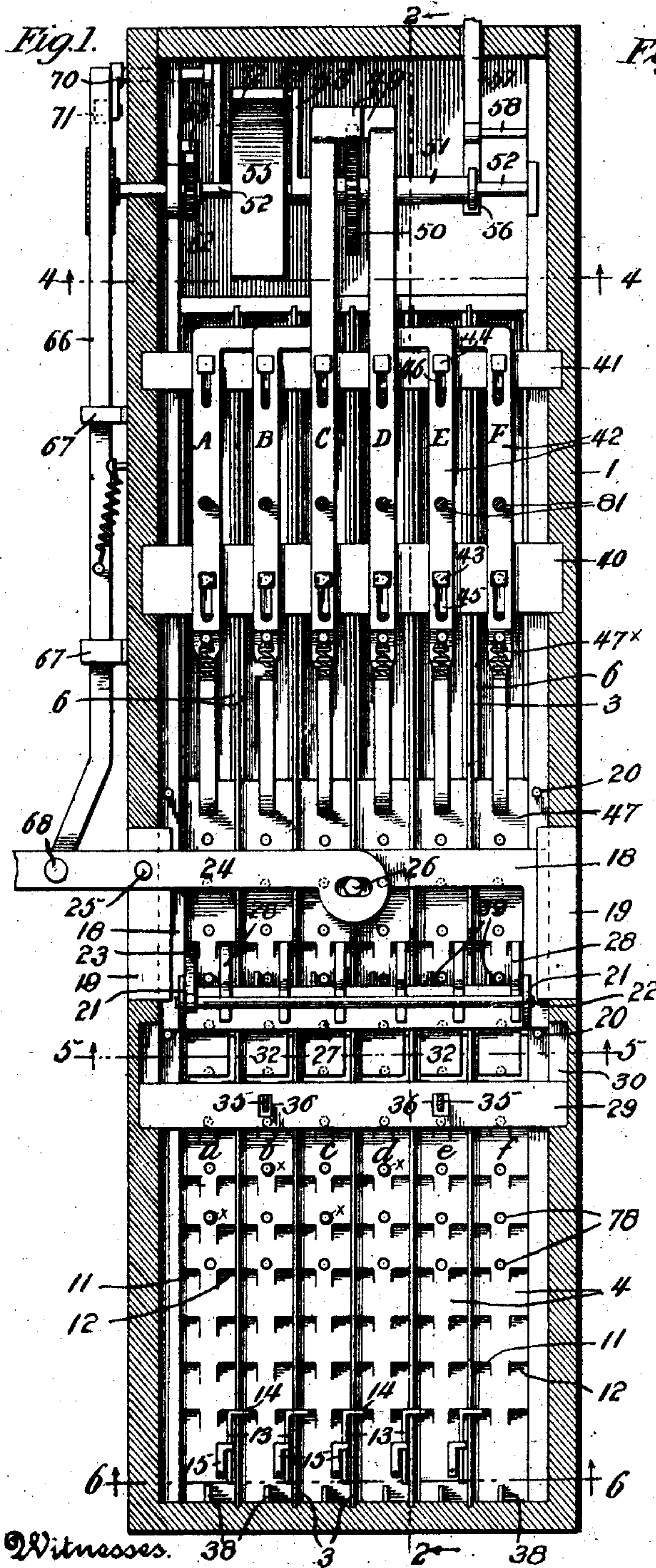
PATENTED APR. 7, 1908.

J. A. NOEL.

COMBINED INDICATOR AND ALARM.

APPLICATION FILED JUNE 18, 1907.

3 SHEETS—SHEET 1.



Witnesses.  
Mary Noel.  
W. E. Sopp.

BY

John A. Noel,  
H. F. Kaye, Attorney



No. 883,902.

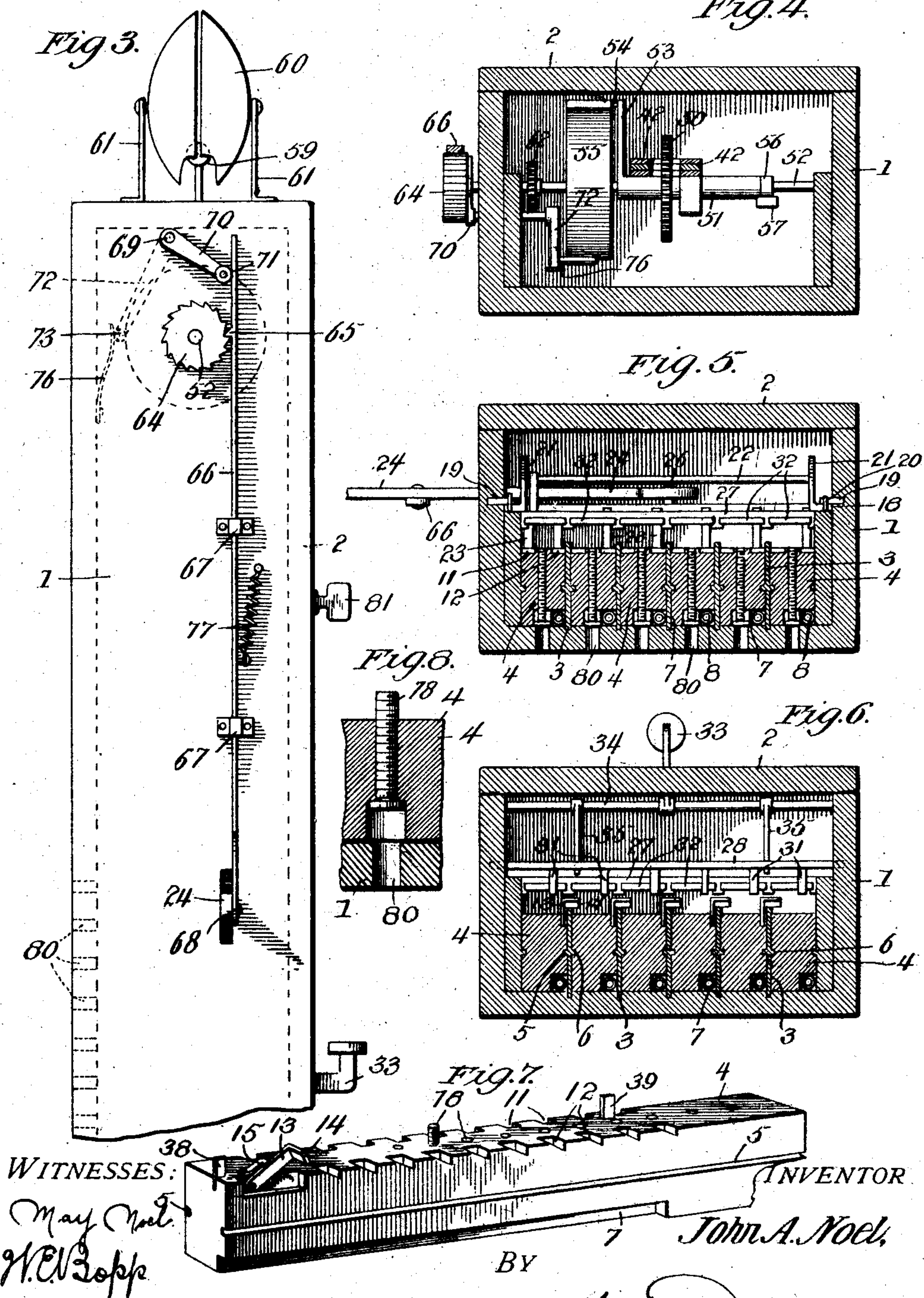
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3 SHEETS—SHEET 3.

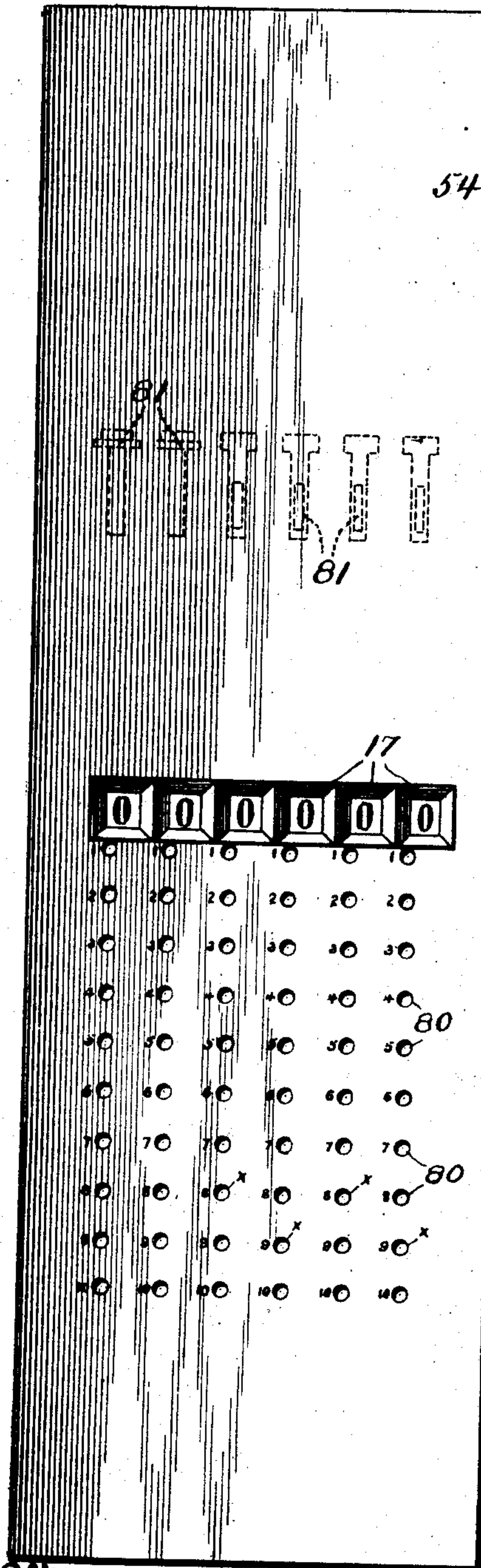


Fig. 9.

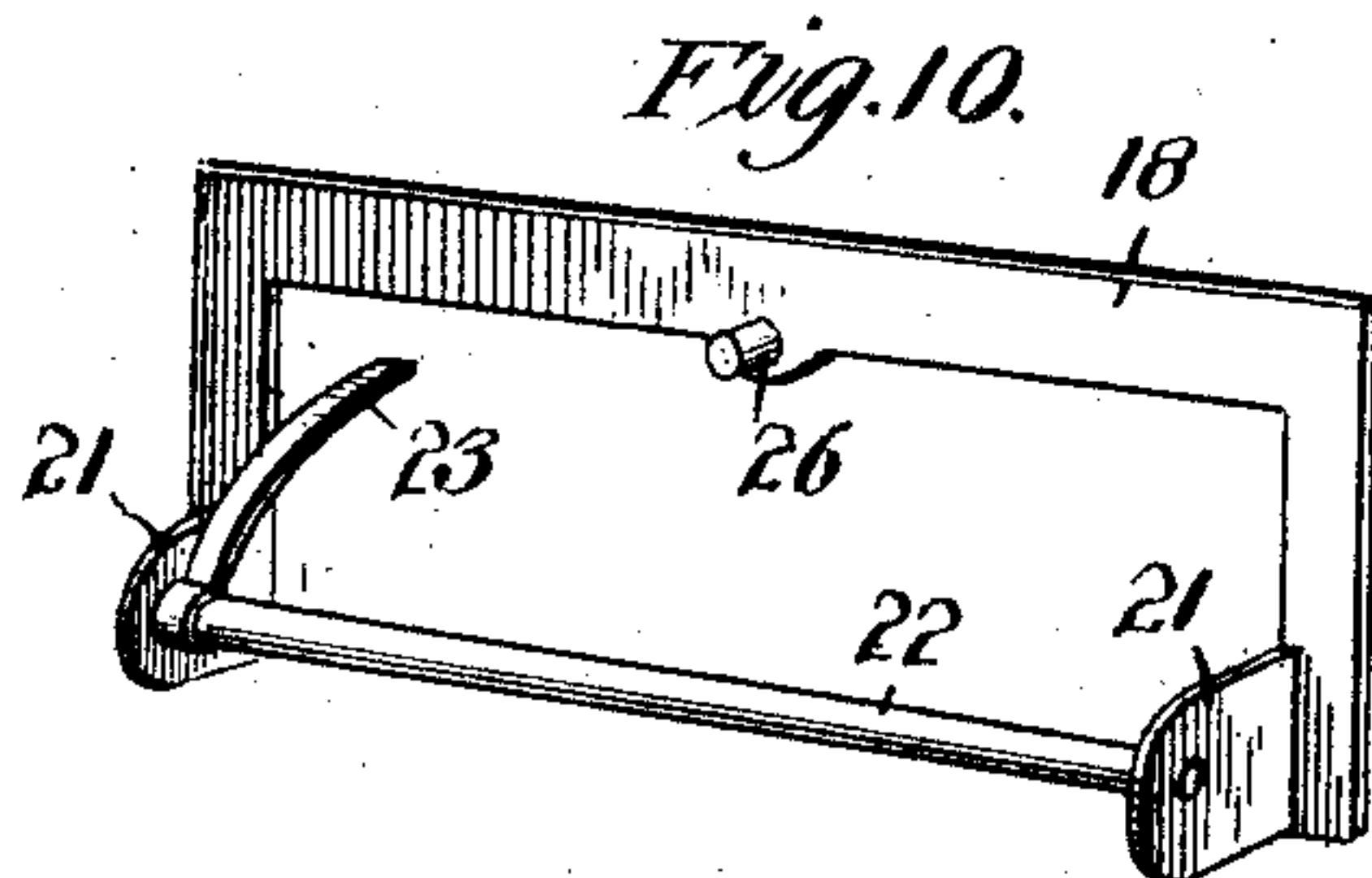


Fig. 10.

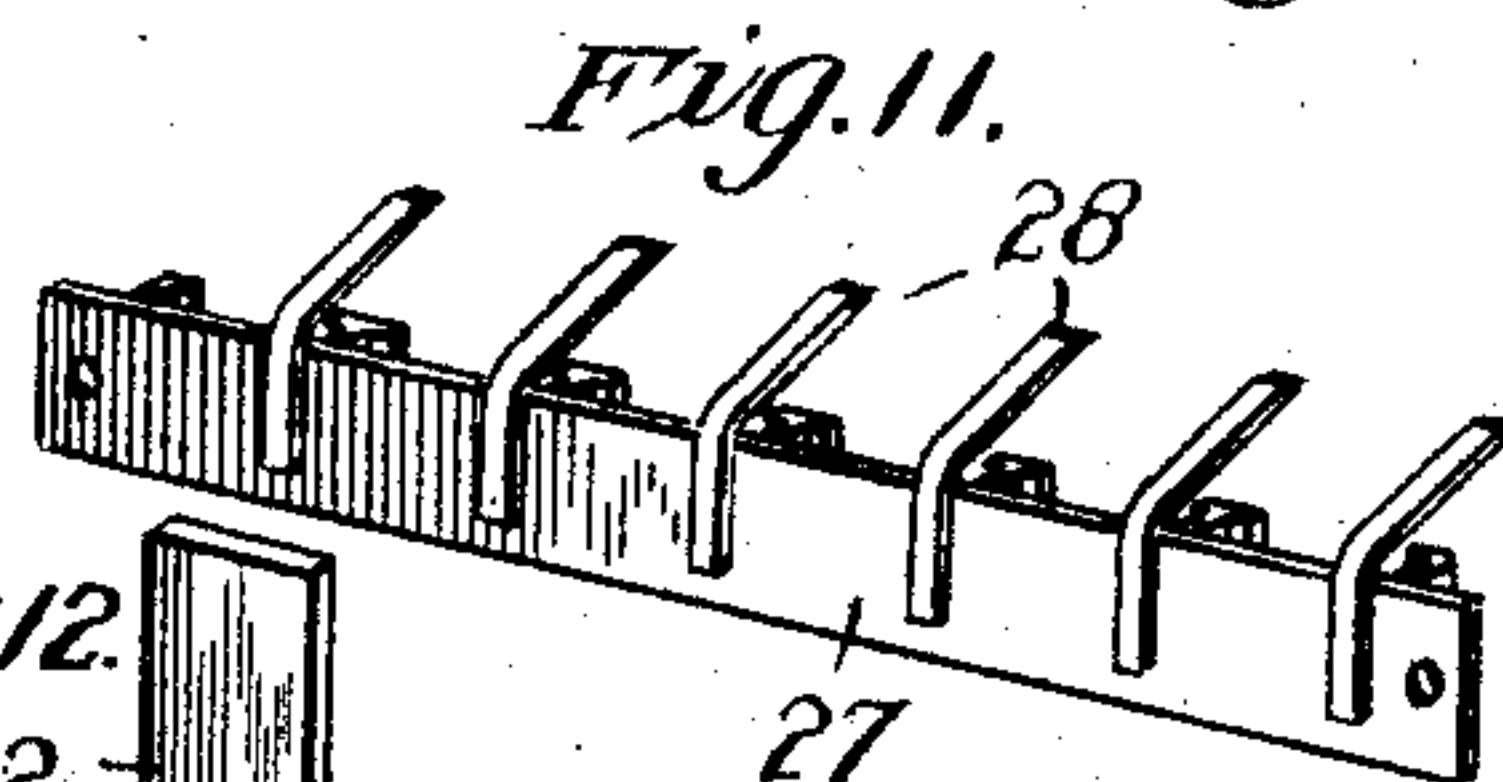


Fig. 11.

Fig. 12.

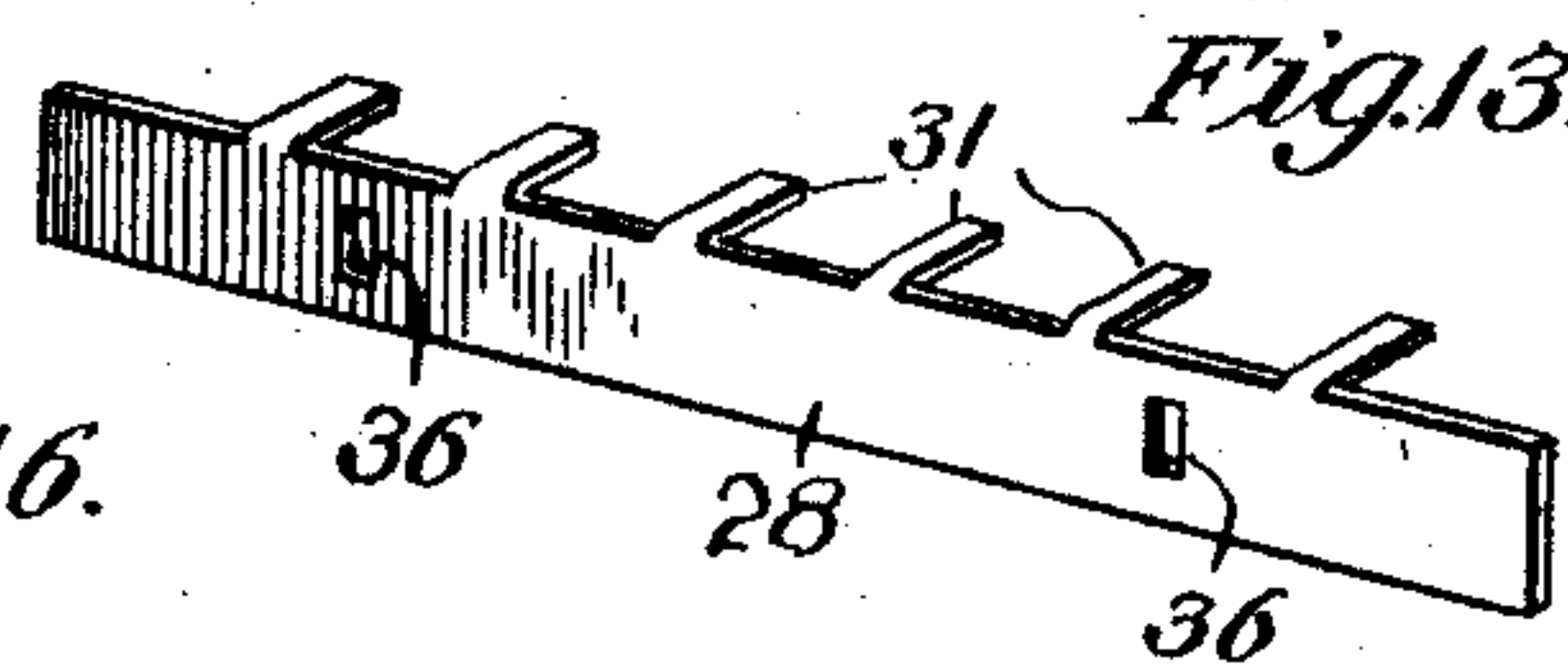


Fig. 13.

Fig. 16.

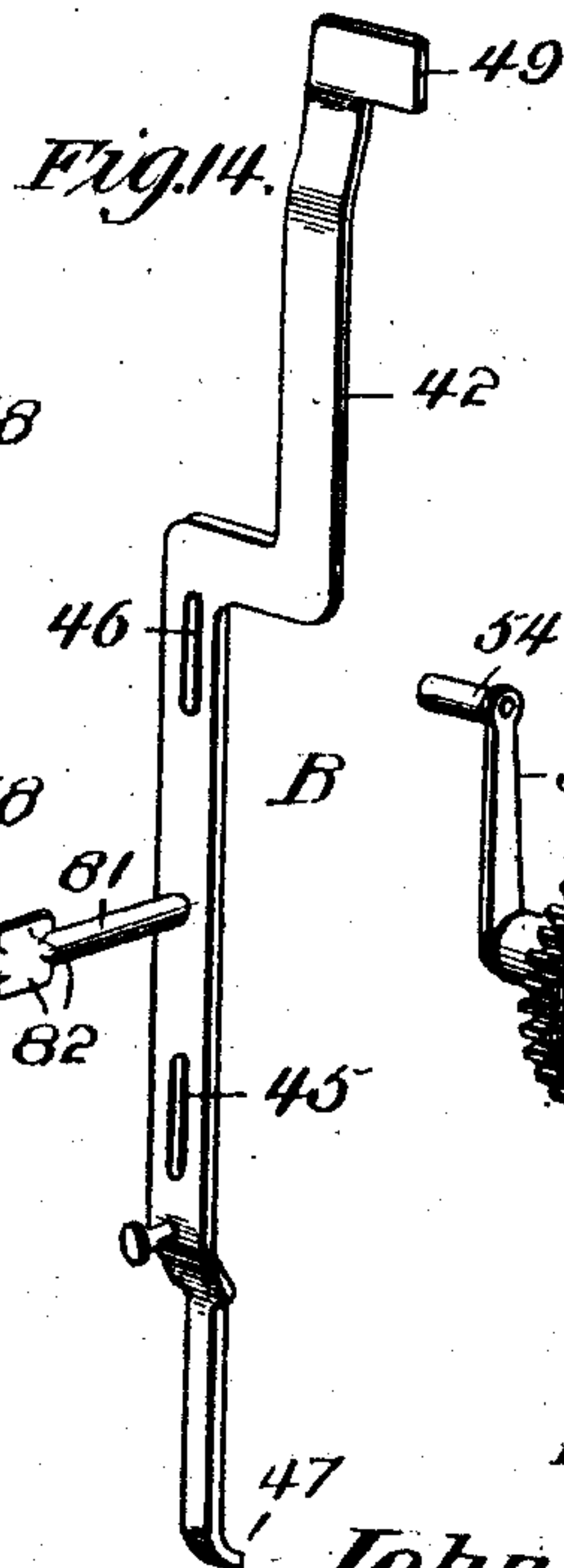


Fig. 14.

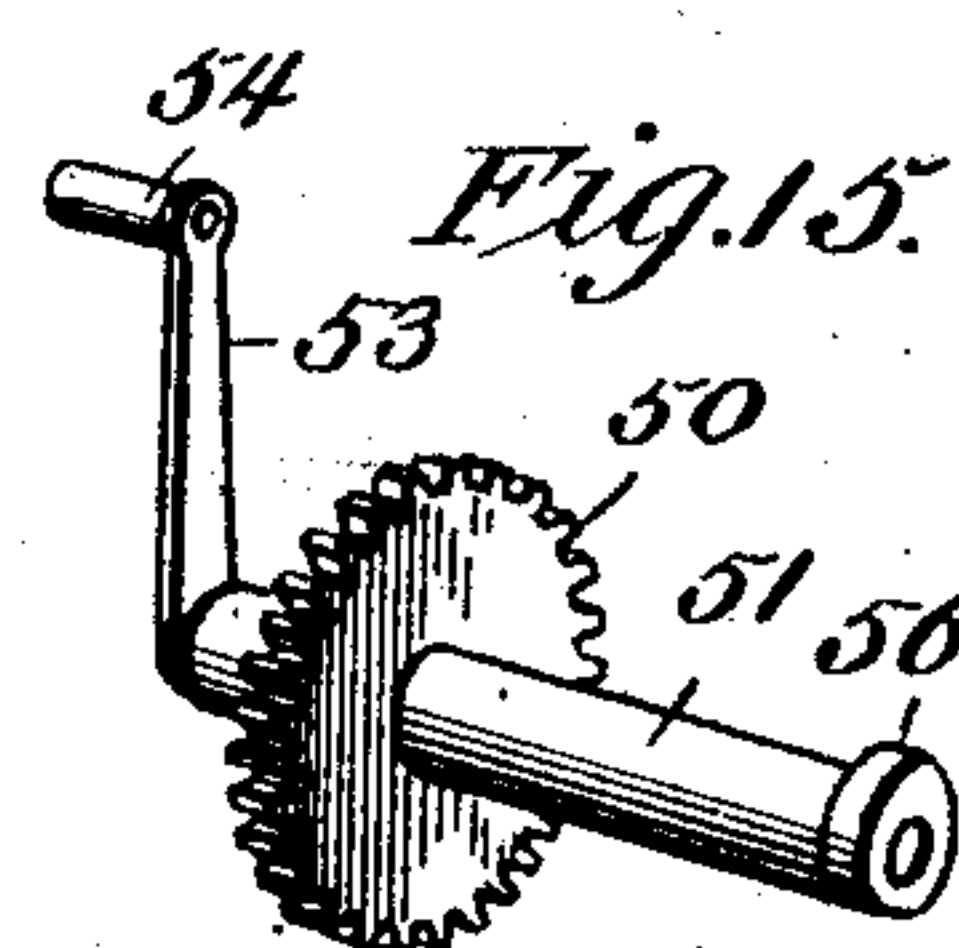


Fig. 15.

Witnesses.

John A. Noel.  
W. E. Bopp

BY

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Attorney



# UNITED STATES PATENT OFFICE.

JOHN A. NOEL, OF WASHINGTON, DISTRICT OF COLUMBIA.

## COMBINED INDICATOR AND ALARM.

No. 883,902.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed June 18, 1907. Serial No. 379,616.

*To all whom it may concern:*

Be it known that I, JOHN A. NOEL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in a Combined Indicator and Alarm, of which the following is a specification.

My invention relates to a counting device and more particularly to an indicator for printing presses to notify the operator when a predetermined number of prints has been made by the press.

The object of my invention is to provide a simple, durable and inexpensive device that will notify the person in attendance on a printing press, by an alarm, that the desired number of prints have been made, also a device that can be readily adjusted to give the alarm at any predetermined number.

A further object of my invention is to provide a device that may be quickly adjusted to zero or at the starting number and also a device in which the winding of the spring for the alarm is not a separate operation, but is done automatically while the counting mechanism is being operated.

While I have described the device as applicable to a printing press, it is obvious that it may be applied to any machine in which it is desirable to ascertain the number of operations of any part thereof, the number being visible at all times, and the alarm being set to operate at any desired number.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings, in which:—

Figure 1 is a vertical section of the indicator showing the operating mechanism in elevation. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is a side elevation showing the spring winding mechanism. Fig. 4 is a horizontal section taken on line 4—4 of Fig. 1. Fig. 5 is a similar view on line 5—5 of Fig. 1. Fig. 6 is a similar view on line 6—6 of Fig. 1. Fig. 7 is a detail perspective of one of the computing slides showing the pawl adapted to communicate the step-by-step movement to the next adjoining computing slide. Fig. 8 is a detail section through one of the computing slides, showing one of the plugs for operating one of the alarm locking members. Fig. 9 is a

front elevation of the device. Fig. 10 is a detail perspective of the slide operating frame. Fig. 11 is a detail perspective of the stationary piece on which retaining pawls are mounted. Fig. 12 is a detail perspective of one of the tripping plates. Fig. 13 is a detail perspective of the slide plate for operating the trip plates. Fig. 14 is a detail perspective of one of the locking members. Fig. 15 is a detail perspective of the alarm operating sleeve. Fig. 16 is a detail face view of one of the computing slides.

Referring to the drawings by numerals, 1 indicates the casing and 2 is a removable cover. Mounted in the lower end of the casing are plates 3, forming ways for the computing slides 4, adapted to be intermittently elevated in a step-by-step movement, as will appear later; six of these computing slides are shown, but it will be understood that more or less can be used where it is desired to make a machine of greater or less capacity. The computing slides 4 have side grooves 5, operating on beads 6, on the plates 3, to insure perfect operation of the slides. A cut away portion 7 of the slide 4 contains a spring 8, secured at 9 to the slide and at 10 to the casing to insure the slide falling to the zero position when released.

Notches 11, which I will term elevating notches, and notches 12, termed retaining notches, are formed in one face of the computing slides 4. To facilitate in the description, I will, beginning at the left, Fig. 1, letter the computing slides *a, b, c, d, e* and *f*. Each slide, with the exception of slide *f* has pivoted thereto, a pawl 13, having a portion 14, designed to rest and slide on the edge of the adjoining partition or guide plate 3; springs 15 are designed to normally depress pawl 13.

A cut away portion 16, as shown in Fig. 2, is formed in the plates 3 in line with the upper two notches 11 in the face of the computing slides while at zero. It is obvious with this construction, that by elevating slide *a* nine notches, the pawl 13 of slide *a* will drop into the notch 11 of slide *b*, and upon the tenth movement of slide *a*, slide *b* will be elevated one notch and so on through the whole series of computing slides.

Numerals from zero to nine are placed on the face of each slide 4, opposite to the notches 11 and 12 and show through an opening 17 in the casing, so that the indicator may be read at any time, and by this an



attendant may know approximately how long it will be before the press to which the device is attached, will need attention.

The mechanism for operating the computing slides 4 consists of a frame 18 held in place by plates 19 and operating between stop pins 20 mounted in the path of the frame. Ears 21 of the frame 18 carry a rod 22, on which is mounted an elevating spring pawl 23, resting in a notch 11 of the slide *a*.

An operating lever 24, pivoted at 25 to the casing and secured to the frame 18 by pin 26 is designed to raise and lower the frame 18, movement being imparted to the outer end of lever 24 from any convenient part of a printing press, or other mechanism. Stationarily mounted across the face of the slides 4, just beneath the slide 18, is a plate 27 on which is mounted the retaining spring pawls 28, designed to engage with the notches 12 in retaining the slides 4 in the positions they are raised to by the pawl 23 and pawls 13, as the device is operated.

The mechanism for releasing the slides and permitting them to return to zero, is shown at 29 and comprises a plate extending across the device and arranged to have a sliding movement in the ways 30, arranged in the casing and having projections 31 arranged to engage with tripping plates 32, slidably mounted beneath the pawl carrying plate 27. An operating key 33 mounted on a rod 34, having a bearing in the casing and having arms 35 entering perforations 36 in plate 29, provides means for elevating plate 29, which brings projections 31 into contact with tripping plates 32, which in turn disengage pawl 23 and pawls 28 from notches 11 and 12 and allows the slides 4 to fall to the position shown. Thus it will be seen, by depressing key 33, all of the computing slides will be released simultaneously.

Computing slide *a* is elevated ten times, while slide *b* is elevated once and slide *b* is elevated ten times while slide *c* is elevated once, and to cause the slides to automatically drop back to zero upon their reaching their upper limit, I provide trip operating lugs 38 at the bottom and lugs 39 at the top of each computing slide. The lug 38 of each slide comes in contact with its tripping plate 32, at its upper limit, elevating the trip plate which has enough frictional contact with plate 27 to hold it in its elevated position and at the same time the dog 28 out of the notches 12 until the slide 3 drops and brings lug 39 into contact with the upper edge of the trip plate and lowers it to its normal position, thereby allowing dog 28 to again engage the first notch 12.

The mechanism for sounding the alarm at any predetermined number, will now be described, and consists in two supporting plates 40 and 41 mounted across the casing on which are slidably mounted six locking

members 42, marked from left to right, A, B, C, D, E, and F. The locking members 42 are slidably mounted on pins 43 and 44 extending through slots 45 and 46 in the members 42 and secured in the plates 40 and 41. Springs 47<sup>x</sup> secured at their upper ends to the locking members and at their lower ends to the casing, normally hold the locking members in their lower positions.

As shown in Figs. 1 and 2, the locking members 42 have their lower ends bent inwardly at 47 and a short distance beneath plate 40 are provided with an inclined portion 48 and at their upper ends they are provided with lateral extending portions 49 arranged to rest in separate teeth of a toothed wheel 50, rigidly secured to a sleeve 51, said sleeve being mounted loosely on the shaft 52, and being provided at one end with an arm 53 secured by pin 54 to the outer end of a spring 55, said spring at its inner end being secured to the shaft 52. At the opposite end of sleeve 51 is a cam wheel 56 designed to vibrate an arm 57, pivoted on pin 58 to the casing and carrying a bell clapper 59 to sound a bell 60 mounted on the brackets 61 on top of the casing. Rigidly secured to the shaft 52 inside of the casing is a ratchet wheel 62 engaged by a dog 63 to prevent movement in but one direction. Rigidly secured to the shaft 52 outside of the casing is another ratchet wheel 64, engaged by a tooth 65 on a vertical rod 66, mounted on the casing in brackets 67 and secured to the operating arm 24 at 68. The rod 66 extends above the ratchet wheel 64. A shaft 69 mounted in the casing has secured thereto, outside of the casing, an arm 70 carrying an anti-friction roll 71 located to engage the rod 66, an arm 72 secured to the inner end of shaft 69 carries a pin 73 at its lower end which rests against the outer coil of the spring 55. A leaf spring 76 holds the pin 75 against the spring 55. A retracting spring 77 is secured to the rod 66 and casing to elevate rod 66 and operating arm 24 after depression by the printing press. It is obvious by this spring winding mechanism just described, that while the arm 24 is being operated during the counting process of the device, the spring 55 is being wound by the shaft 52 being revolved by rod 66, but as soon as the size of the coil of spring 55 is reduced sufficiently, the rod 66 with tooth 65 is pressed back out of engagement with the ratchet 64 and the winding stops. The means for tripping the locking members 42 consists in screw plugs 78 mounted in screw threaded apertures 79, extending through the computing slides 4, said plugs 78 being of a less length than the thickness of the slides and resting within said slides when in their retracted positions. Ten of these plugs are in each of the slides and when the slides are in their lowermost or zero position, num-



bered apertures 80 in the casing register with each one of the plugs through which a key, not shown, may be inserted to adjust any of the plugs to their operating or protruding positions, as shown in detail, Figs. 7 and 8.

Each locking member 42 is provided with a post 81 extending through the casing and provided with projections 82 operating in slots 83 provided with enlarged portions 84 at the top. Said posts 81 may be raised, thus disengaging the locking member to which it is secured from toothed wheel 50. The post is then given a one-quarter turn which causes projections 82 to rest in the enlarged portion 84 of the slot 83, thus holding said locking member out of engagement with wheel 50. The disengaging post 81 is used to hold those locking members out of engagement with wheel 50 that are not needed should the total sum desired contain less than six units. The inclined portion 48 in the locking member 42, above referred to, is adapted to allow plugs 78 to pass under the turned in end 47 of member 42, should said plug 78 be on any of the slides representing other than the first unit of the number at which the device is set to operate the alarm. The first part of the upward movement of the locking member 42 releases the wheel 50 and a further movement raises the lower end of locking member 42 and permits plug 78 to pass beneath the end 47, the second part of said movement occurring upon the following movement of the slide, or when it is elevated another notch. In other words the first movement of the locking member releases the wheel as far as that particular member is concerned, and it stands unlocked until that same slide is elevated again, or all the preceding locking members are left in the same position, at which time the alarm will sound.

The operation is as follows. I wish the indicator to sound the alarm at, say 8989. In the first place I disengage locking members 42 which are marked E and F, there being only four units in the number, by lifting and locking same by posts 81, then by inserting the key through the openings 80 in the casing and projecting the third from the bottom plug in slide marked *d*, Fig. 1, next to the bottom plug of slide *c*, the third from the bottom plug of slide *b* and next to the bottom plug of slide *a*, the machine will be set and the press may be started. Each time the press prints, the lever 24 will be operated which will elevate frame 18, carrying dog 23, which elevates slide 4 marked *a* one notch, the retaining dog 28 resting in notch 12 of slide *a* retaining said slide in its elevated position. This continues until lug 38 of slide *a* comes in contact with trip plate 32, thereby elevating said elevating and retaining dogs 23 and 28, thus permitting slide *a* to fall, at which time lug 39 forces trip plate back to its normal position. Upon the ninth upward

step movement of slide *a* pawl 13 thereon falls into next to the top notch 11 of slide *b* and the final upward movement of slide *a* elevates slide *b* one notch and it is held by its dog 28. The slide *b* is retained in position by its own dog 28 which holds it even though the dog of the first slide has been released. Plug 78 of slide *a* elevates locking lever A and disengages it from wheel 50, the other three locking levers B, C D remaining in engagement which prevents the sounding of the alarm.

The above operation is repeated through the series of slides until projecting plug 78 of slide *d* lifts locking member D, the first part of its upward movement, thereby releasing wheel 50 by said member D. This leaves only three or members C, B and A holding wheel 50, when projecting plug 78 of slide *c*, the next time up, elevates its member C, only B and A hold wheel 50, when extended plug 78 of slide *b*, elevates its member B, A is left to hold wheel 50, when projecting plug 78 of slide *a*, elevates its releasing member A, wheel 50 is at this time released by all of the locking members, and the alarm is sounded.

The sounding of the alarm is effected by the vibration of arm 57 by cam 56 mounted on sleeve 51, which in turn gets its movement from its connection by arm 53 to the outer end of spring 55, the releasing of the spring and its unwinding causes it to spread, thus allowing tooth 65 to engage with ratchet 64 and be in position to again wind up the spring when the press is again started.

What I claim and desire to secure by Letters Patent is:—

1. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of computing slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, means coöperating with said slides for adjustably determining the travel thereof, mechanism for operating one of said computing slides and mechanism whereby certain of said slides will advance their next adjacent slide at a predetermined point in their movement, substantially as described.

2. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of computing slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, means coöperating with said slides for adjustably determining the travel thereof, mechanism for operating one of said computing slides, mechanism whereby certain of said slides will advance their next adjacent slide at a predetermined point in their movement and means controlled by



the movement of said slides for actuating an alarm, substantially as described.

3. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of computing slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, means cooperating with said slides for adjustably determining the travel thereof, mechanism for operating one of said computing slides, mechanism whereby certain of said slides will advance their adjacent slide at a predetermined point in their movement, means for normally preventing the rearward movement of said slides, and means for automatically releasing said slides to return to original position upon reaching the limit of their movement, substantially as described.

4. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of computing slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, means cooperating with said slides for adjustably determining the travel thereof, mechanism for operating one of said computing slides, mechanism whereby certain of said slides will advance their next adjacent slides at a predetermined point in their movement, means for preventing movement of said slides in but one direction and means for automatically releasing and returning said slides to starting position when the same have reached the limit of their movement, substantially as described.

5. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of computing slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, means cooperating with said slides for adjustably determining the travel thereof, mechanism for operating one of said computing slides, mechanism whereby certain of said slides will advance their next adjacent slides at a predetermined point in their movement, means for preventing the movement of said slides in but one direction, means for automatically releasing said slides at the limit of their movement to permit them to return to normal position, and means for simultaneously releasing all of said slides to return to normal position at any point in their movement, substantially as described.

6. In a device of the kind described, the combination with a casing having an aperture in a face thereof, of a plurality of com-

puting slides arranged in said casing, each of said computing slides having a series of designations on a face thereof adapted to successively register with the aperture in said casing, mechanism for operating one of said computing slides, mechanism whereby certain of said slides will advance the next adjacent slide at a predetermined point in their movement, means for preventing movement of said slide in but one direction, mechanism for automatically releasing said slides at the limit of their movement to return the same to starting position, an alarm mechanism, operative connections between said alarm mechanism and said slides whereby the alarm will be operated when a predetermined designation is apparent through said opening in said casing, substantially as described.

7. In a device of the kind described, the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on a face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides and means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide, whereby said latter slide will be advanced one notch, substantially as described.

8. In a device of the kind described, the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on the face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides, means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide whereby said latter slide will be advanced one notch and means for preventing the movement of said computing slides in but one direction and means for releasing said slides at the



limit of their movement to permit them to return to the starting position, substantially as described.

9. In a device of the kind described, the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on a face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides, means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide whereby said latter slide will be advanced one notch, each of said computing slides being also provided with a series of retaining notches corresponding with said former notches, a stationary member extending transversely of said slides, a series of yielding pawls mounted on said stationary member and adapted to engage with said retaining notches in said slides, to permit rearward movement of same and means for disengaging said pawls from said slides at the limit of their movement, substantially as described.

10. In a device of the kind described the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on a face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides, means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide whereby said latter slide will be advanced one notch, each of said computing slides being also provided with a series of retaining notches corresponding with said former notches, a stationary member extending transversely of said slides, a series of yielding pawls mounted on said stationary member and adapted to engage with said retaining notches in said slides, to permit rearward movement of same and

means for automatically disengaging said pawls from each of said slides at the limit of its movement and restoring to starting position, substantially as described.

11. In a device of the kind described the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on a face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides, means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide whereby said latter slide will be advanced one notch, each of said computing slides being also provided with a series of retaining notches corresponding with said former notches, a stationary member extending transversely of said slides, a series of yielding pawls mounted on said stationary member and adapted to engage with said retaining notches in said slides, to permit rearward movement of same, sliding parts adapted to engage each of said pawls to disengage said pawls from said computing slides and a projection at the end of each of said computing slides for engaging a sliding part whereby as said slides reach the limit of their movement they automatically release themselves to return to starting position, substantially as described.

12. In a device of the kind described, the combination with the casing having an aperture in a face thereof, of a plurality of computing slides mounted to move longitudinally in said casing each having a series of designations on a face thereof adapted to successively register with the aperture in said casing and provided with a series of notches corresponding with the series of designations thereon, means for setting said slides for predetermined travel, a sliding member mounted in said casing, a yielding pawl mounted on said sliding member and adapted to engage in the notches of one of said slides, means for operating said sliding member to advance the slide with which said pawl engages, said slide having a pawl thereon adapted to engage a notch in its next adjacent slide at a predetermined point in the movement of said former slide whereby said latter slide will be advanced one notch, each of said computing slides being also provided with a series of retaining notches correspond-



ing with said former notches, a stationary member extending transversely of said slides, a series of yielding pawls mounted on said stationary member and adapted to engage with said retaining notches in said slides, to permit rearward movement of same, sliding parts adapted to engage each of said pawls to disengage said pawls from said computing slides and a projection at the end of each of said computing slides for engaging a sliding part whereby as said slides reach the limit of their movement they automatically release themselves to return to starting position and means for simultaneously operating all of said sliding parts to disengage all of said pawls from said computing slides, substantially as described.

13. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism and operative connections between said alarm mechanisms and said slides whereby said alarm mechanism will be operated when the predetermined movement of predetermined slides is completed, substantially as described.

14. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, a spring actuated alarm mechanism, means connected with said slide operating mechanism for simultaneously winding the spring of said alarm mechanism and operative connections between said alarm mechanism and said slides whereby said alarm mechanism will be operated when the predetermined movement of predetermined slides is completed, substantially as described.

15. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the

limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism, a coil spring for operating said alarm mechanism, mechanism for preventing the unwinding of said spring, and means whereby the movement of said slide will release said spring, substantially as described.

16. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism independent operative connections between said alarm mechanism and certain of said computing slides, for releasing said alarm mechanism, said connections including means whereby the alarm mechanism will not be released until each of the slides operatively connected therewith had moved a predetermined distance, substantially as described.

17. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism independent operative connections between said alarm mechanism and certain of said computing slides, for releasing said alarm mechanism, said connections including means whereby the alarm mechanism will not be released until each of the slides operatively connected therewith has moved a predetermined distance, said operative connections also including means for varying the amount of movement of said slides before releasing said alarm mechanism, substantially as described.

18. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automat-



ically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism, separate operative connections between said alarm mechanism and each of said computing slides for releasing said alarm mechanism, and means for disconnecting said alarm mechanism from certain of said slides whereby said alarm mechanism is released when the slides operatively connected therewith have reached predetermined positions, substantially as described.

19. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism, means for operating said alarm mechanism, said alarm mechanism including a gear, a plurality of slidable locking members each having a portion engaging said gear wheel to prevent rotation thereof, a projection on each of said computing slides adapted to engage with a separate locking member for throwing the same out of engagement with said gear wheel, said locking members being constructed to permit of a continued movement of said slides and to prevent the operation of said alarm mechanism until every slide operatively connected therewith has reached a

predetermined position, substantially as described. 40

20. In a device of the kind described, the combination with a casing, of a plurality of computing slides mounted therein, each of said slides being capable of moving longitudinally in a step-by-step manner, means for imparting a step-by-step movement to one of said slides, operative connections between said slides whereby a slide as it reaches the limit of its movement will advance its next adjacent slide one step, means for automatically returning each slide to a starting position upon its reaching the limit of its movement, an alarm mechanism, means for operating said alarm mechanism, said alarm mechanism including a gear, a plurality of slidable locking members each having a portion engaging said gear wheel to prevent rotation thereof, a projection on each of said computing slides adapted to engage with a separate locking member for throwing the same out of engagement with said gear wheel, said locking members being constructed to permit of a continued movement of said slides and to prevent the operation of said alarm mechanism until every slide operatively connected therewith has reached a predetermined position, and means for varying the positions of said projections in said slides, substantially as described. 50 55 60 65

In testimony whereof I affix my signature in presence of two witnesses. 70

JOHN A. NOEL.

Witnesses:

A. L. HUNT,  
ERNEST M. HUNT.