

(No Model.)

6 Sheets—Sheet 1.

S. A. DEAN.  
WORKMAN'S TIME RECORDER.

No. 502,226.

Patented July 25, 1893.

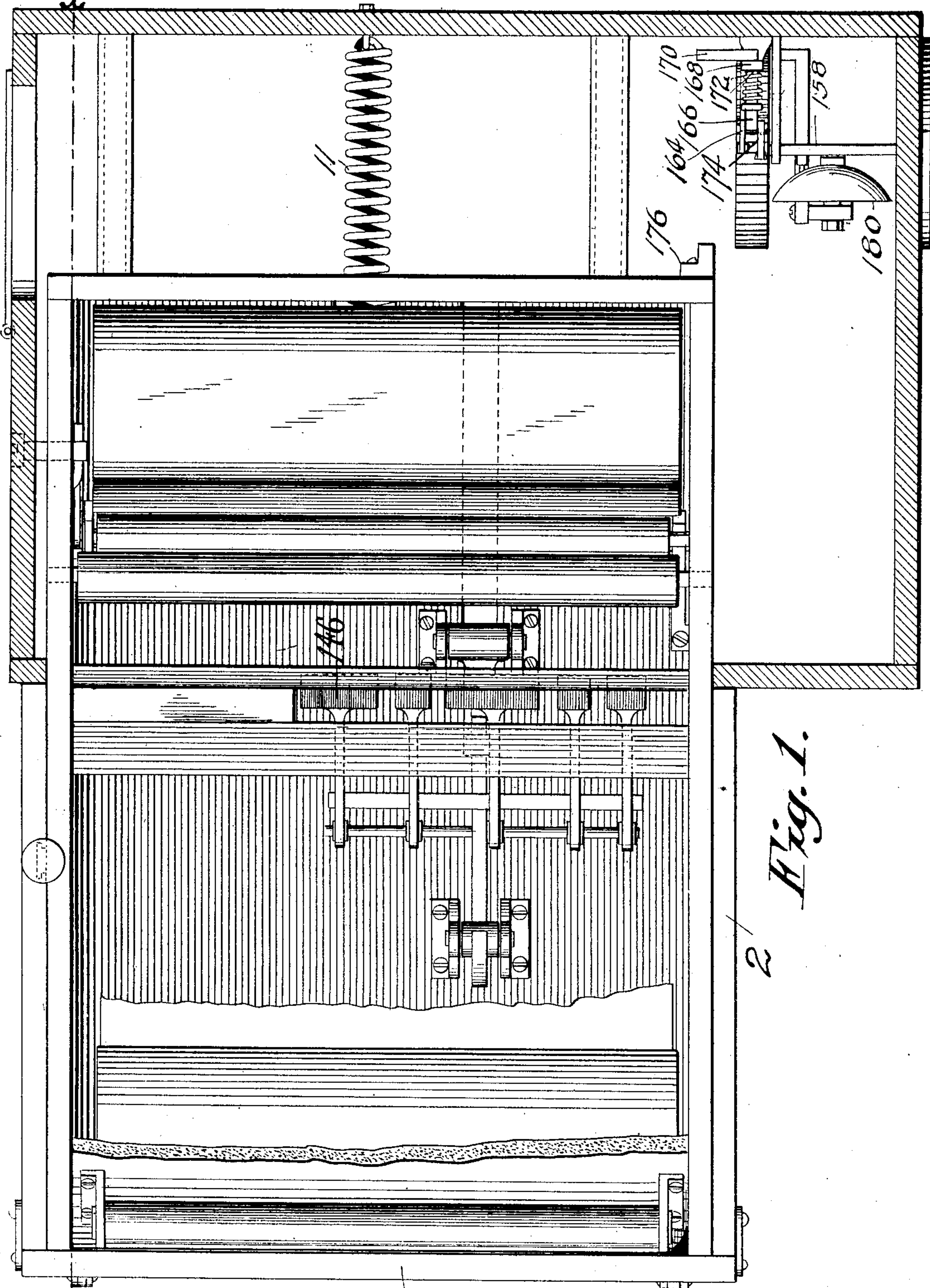


Fig. 1.

Witnesses,  
x *R. H. [unclear]*  
*C. E. Van Doren.*

Inventor,  
*Seward A. Dean.*  
By *Paul & Mermin*  
Attorneys.



(No Model.)

6 Sheets—Sheet 2.

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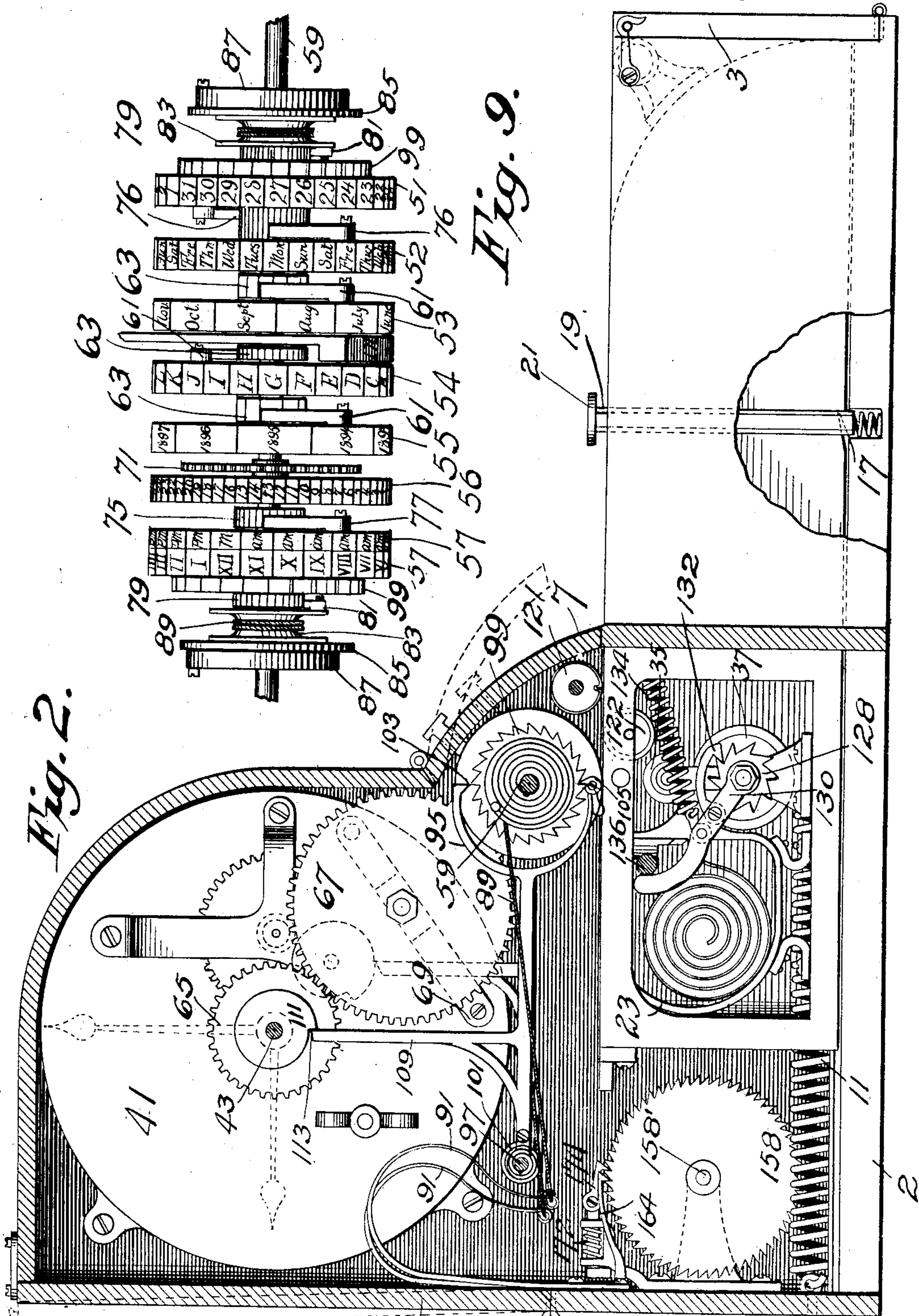


Fig. 2.

Fig. 9.

Witnesses,  
R. H. Lyon  
C. E. Van Dorn.

Inventor,  
Seward A. Dean.  
By Paul & Mennen Attys.



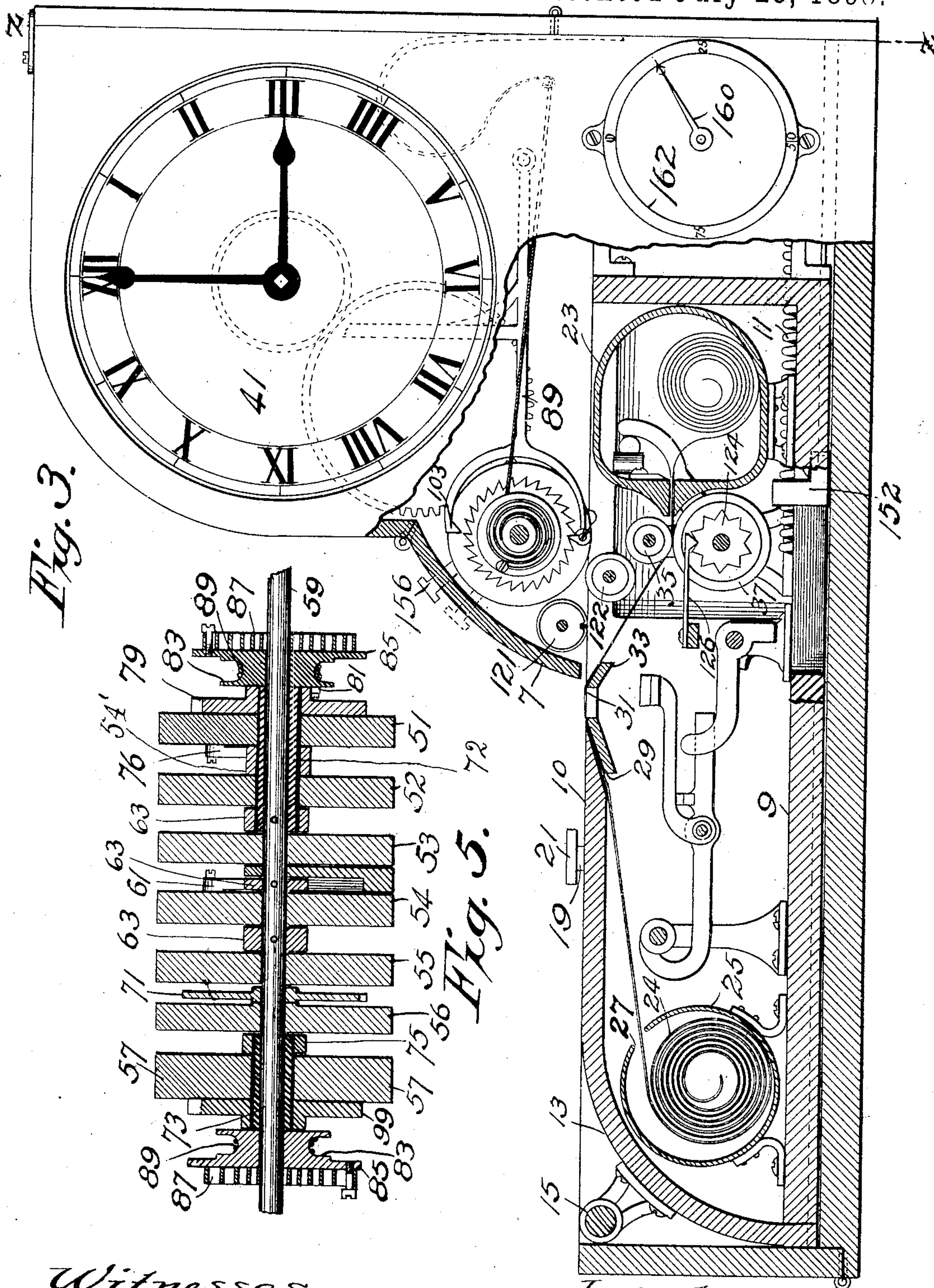
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Witnesses.

*C. E. Van Dorn*

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(No Model.)

6 Sheets—Sheet 4.

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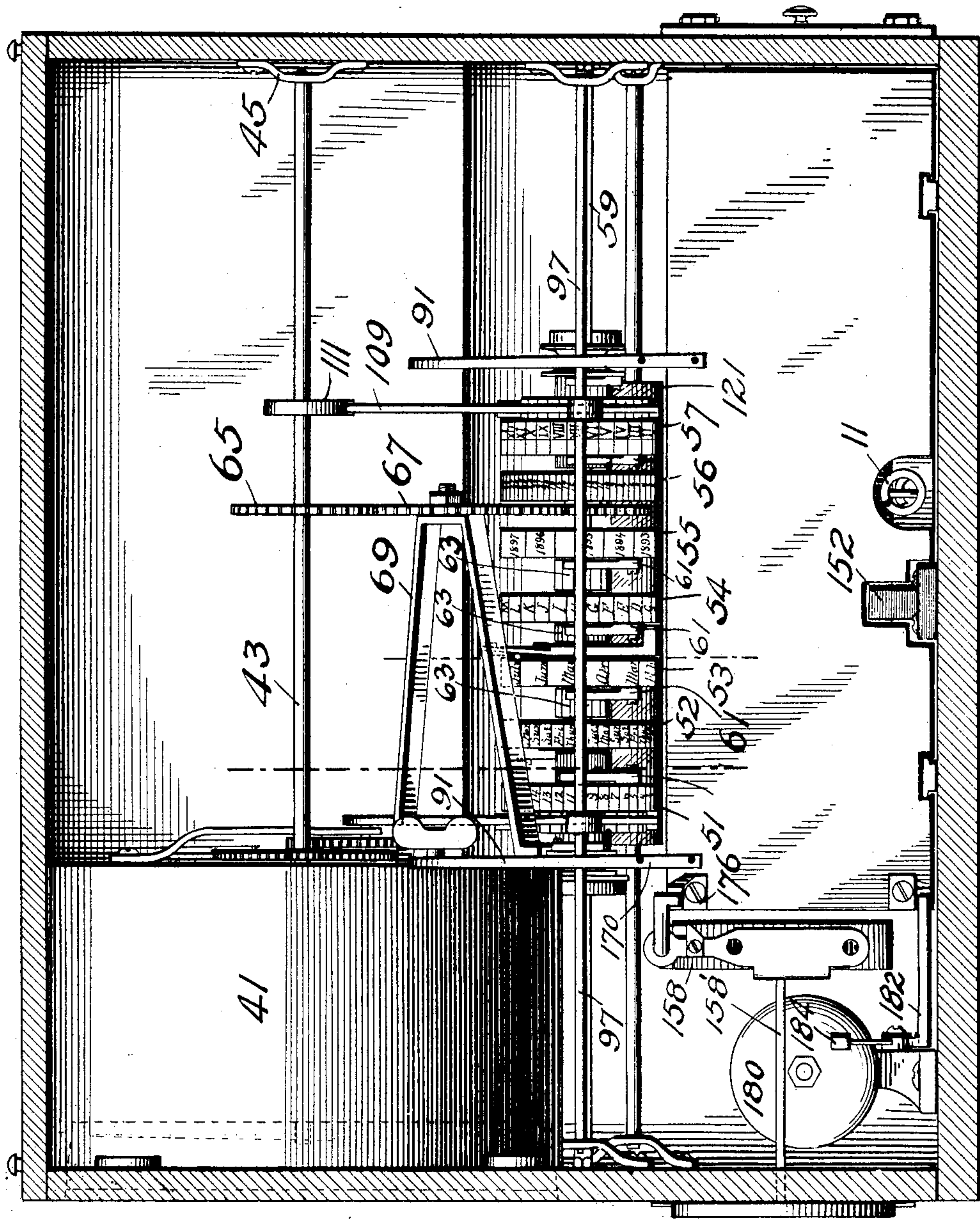


Fig. 4.

Witnesses,  
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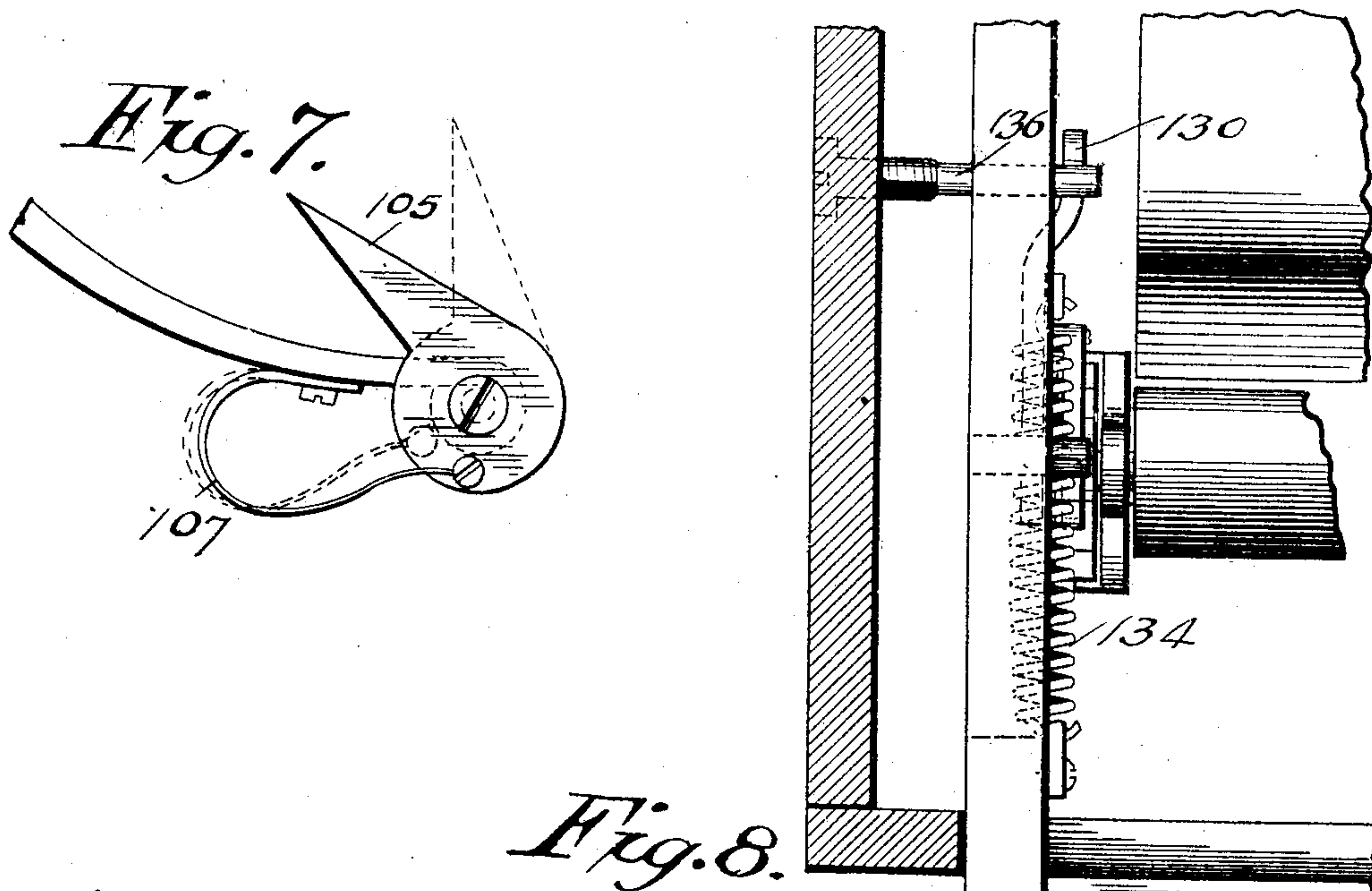
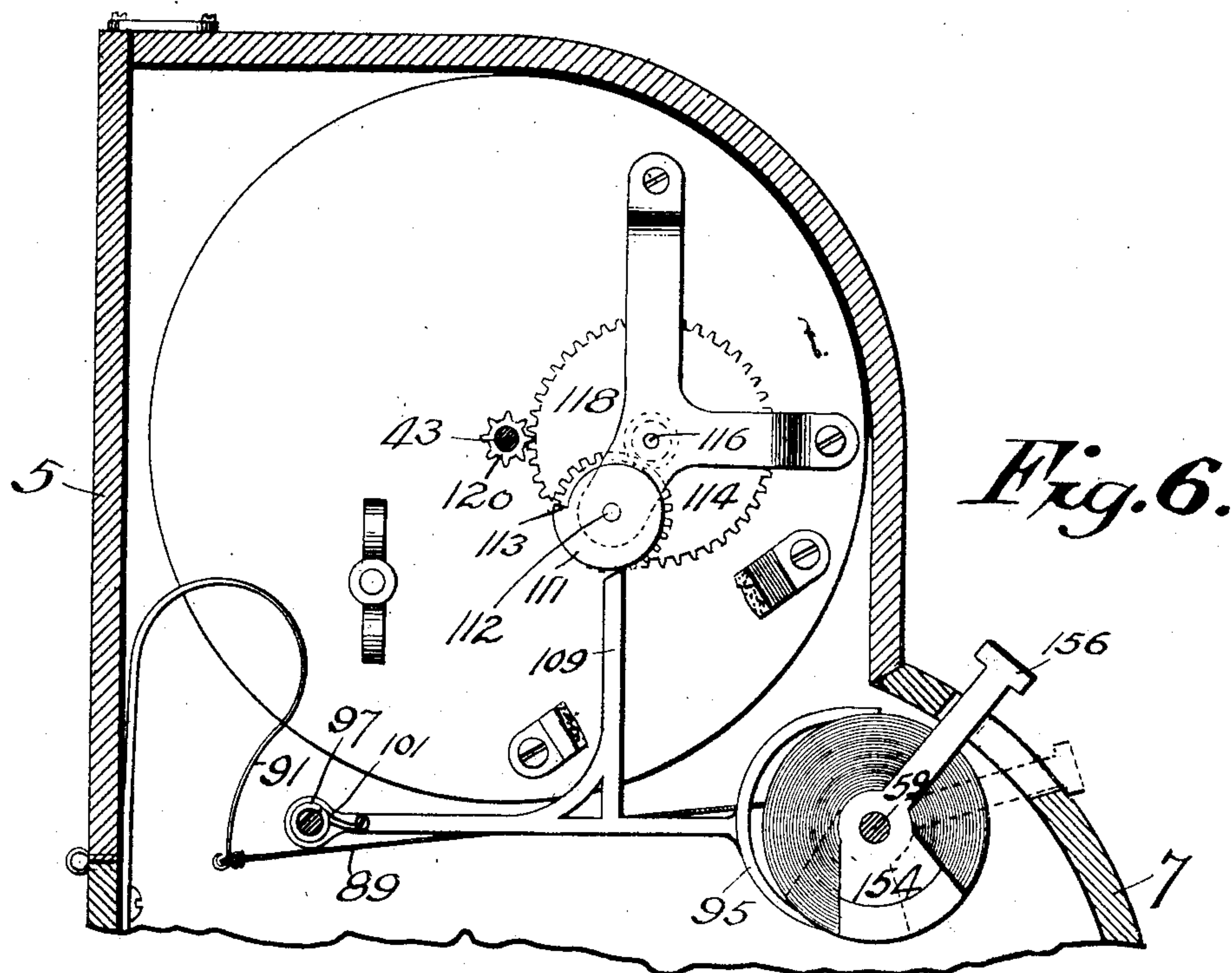
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6 Sheets—Sheet 5.

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Witnesses

*C. E. Van Dorn*

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(No Model.)

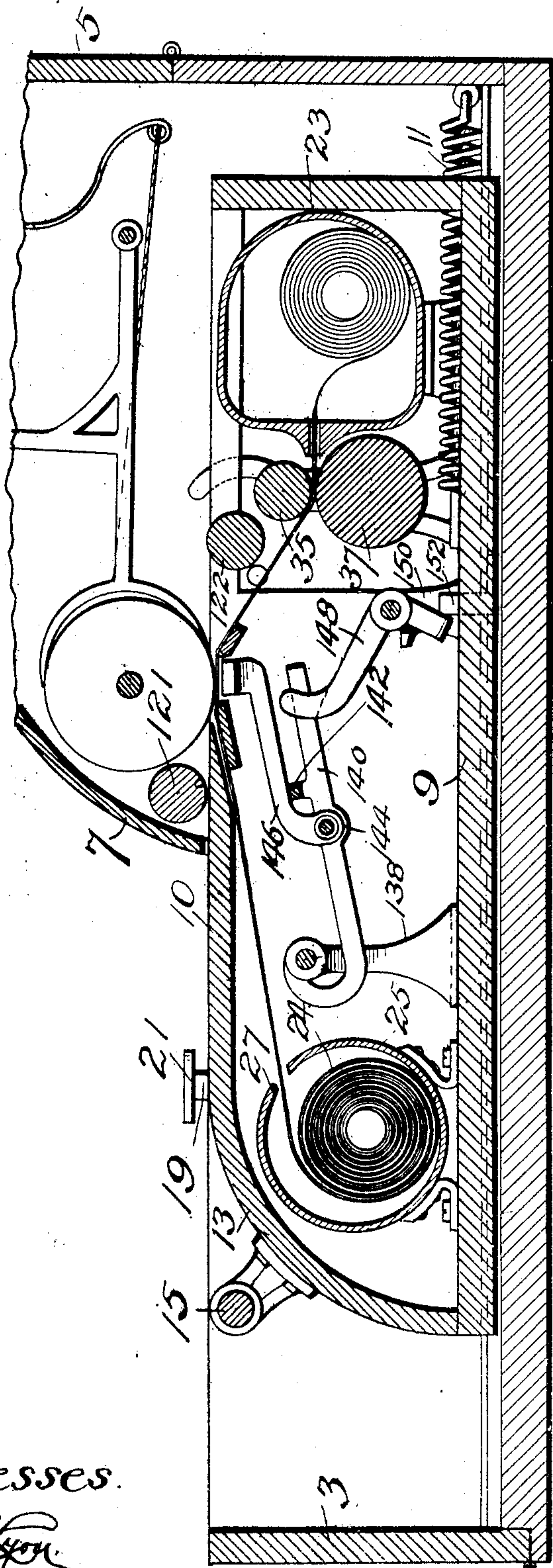
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Fig. 10.



Witnesses.

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C. E. Van Dorn

Inventor.

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# UNITED STATES PATENT OFFICE.

SEWARD A. DEAN, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF  
TO HARRY L. WOODBURN, OF SAME PLACE.

## WORKMAN'S TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 502,226, dated July 25, 1893.

Application filed June 28, 1892. Serial No. 438,262. (No model.)

*To all whom it may concern:*

Be it known that I, SEWARD A. DEAN, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Autographic Time-Registers, of which the following is a specification.

The object of this invention is to provide an automatic machine for recording the time of the arrival and departure of employes and making a permanent record thereof, and the invention consists generally in a machine provided with suitable clock mechanism and carrying a strip or roll of paper that is exposed so as to permit the workman or employé to write his or her name thereon. After the name is thus written the strip is moved so as to carry forward the portion of the strip having the name thereon and make a permanent record opposite said name of the time at which said record is made. The machine is also arranged to record the number of names thus recording.

The invention consists further in the constructions and combinations hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming a part of this specification:—Figure 1 is a sectional plan view of my machine the type wheels and clock mechanism being removed. Fig. 2 is a section on line  $x-x$  of Fig. 1. Fig. 3 is a side elevation partly broken away so as to show the inner mechanism of the machine. Fig. 4 is a transverse section on line  $z-z$  of Fig. 3, the back only of the machine being removed. Fig. 5 is a sectional view of the recording wheels. Fig. 6 is a detail section showing the part of the connection between the clock mechanism and the type wheels and showing means for changing the type wheel that indicates whether the employé is entering or leaving the establishment. Figs. 7 and 8 are details. Fig. 9 is an elevation of the type wheels. Fig. 10 is a section showing the inner casing moved inward by the spring.

In the drawings, 2 represents a suitable casing that incloses the mechanism. It is preferably provided at its ends with the hinged doors 3 and 5 through which access to the interior of the machine may be had and

also with a hinged door 7 through which access to the type wheels may be had. Arranged in this casing is the sliding case 9 which is arranged to have a longitudinal movement in the main case 2 and is provided with a spring 11 connected to the main case 2 and adapted to draw the said case 9 as far as possible into the case 2. When the case 9 is drawn inward by the spring 11 its inner end is brought close to the inner wall of the back end of the case 2, and a short space is left between the exposed end of the case 9 and the door 3. This end of the case 9 is preferably of curved form, as shown at 13, and is provided with a handle 15. The case 2 is preferably provided with the spring catch 17 that is arranged to engage a notch or recess in the case 9 and hold the case forward against the tension of the spring 11. A rod 19 extends through the top of the case 2 and is provided with a suitable push button 21 and by depressing this rod the case 9 is released and may then be drawn inward by the spring 11.

In the case 9 are the two roll holders 23 and 25, each of which is adapted to hold a roll of paper. The roll 24 upon which the records are to be made is placed in the holder 25 and the end of the paper is carried out through the slot 27 in said holder and it is then carried through a slot in the upper surface of the case 9. The upper surface of said case forms a table 10 and at the end of said table a slot 29 is arranged through which the paper is passed until it is brought above the plate 31. This plate when the case 9 is pulled out is close to the lower end of the door 7. The paper then passes over the inclined plate 33 and between the feed rolls 35 and 37 and through a slot in the roll holder 23. When the case 9 is pulled out in the position shown in Fig. 3, it will be seen that a small portion of the strip of paper above the plate 31 is exposed and when the case 9 is released and the said case is drawn inward by the spring 11, the plate 31 passes beyond the curved door 7 and the paper is then entirely concealed.

When the machine is in use the workman or employé, or person whose name is to be recorded, takes hold of the handle 15 and draws the case 9 out to the position shown in



Fig. 3, and when in this position a portion of the paper above the plate 31 is exposed. The employé then writes his name upon the paper just over the plate 31. Afterward he touches the button 21 pressing down the catch 17 and releasing the case 9. This case is then drawn inward carrying the exposed portion of the paper beyond the cover 7. At the same time through mechanism hereinafter described, the paper is pressed against a series of type rolls as shown in Fig. 10, and the time at which said record is made is printed upon the paper. A record may also be made showing the department or branch of the business in which said employé is engaged and also making any other desired record. The machine is also arranged to count or register the number of operations thereby showing at a glance the number of employés that have operated it. For the purpose of making this record I employ a clock mechanism and a series of type wheels, a portion of said wheels being arranged to be operated from said clock and the other wheels being arranged to be turned by hand. I have here shown a clock 41 arranged with the casing 2 and provided with the usual dial and hands. I have not shown the interior mechanism of the clock as this forms no part of my invention and any ordinary or preferred clock mechanism may be used in this machine. A shaft 43 is connected to or forms an extension of the center staff of the clock and this shaft preferably extends in the rear of the clock mechanism through the casing and has its end mounted in a suitable bearing 45 thereon. It will be understood that this shaft has the same movement as the center staff of the clock and therefore makes a complete revolution once each hour. From this shaft through suitable gearing a certain number of the type wheels of the machine are operated. I preferably provide a series of type wheels 51, 52, 53, 54, 55, 56 and 57. These wheels are all mounted upon the shaft 59 and are arranged to turn freely thereon. The wheels 53, 54 and 55 are preferably arranged to indicate the month, the department whose employés are to be recorded and the year, preferably mounted loosely upon the shaft 59 and are each provided with a suitable spring pawl 61 that engages a fixed ratchet 63 upon the shaft. These ratchets are preferably provided with V-shaped notches and the pawl with the V-shaped end arranged to engage said notches thereby to hold the ratchet and type wheel in any position in which it may be placed, the ratchet and pawl in this instance being similar to the ratchet and pawl shown in connection with the feed roll 37 in Fig. 3. These wheels do not need to be moved very often and when it is desired to change them this may be done by opening the case and turning them by hand. The type wheels 51, 52, 56 and 57 are preferably operated directly from the clock shaft preferably through the mechanism hereinafter described. The wheel 56, which is provided with suitable

numerals to indicate the minutes is connected to the shaft 43 by means of the pinion 65, the gear 67 mounted upon a suitable support 69, and the pinion 71 connected to the hub of said wheel. This connection is so arranged as to cause the wheel to turn a distance equal to one space each minute and thereby to present the type properly for the printing upon the paper strip of the minute at which a record is made. The wheel 57 is arranged to move once an hour and is provided with the series of numbers to indicate the hours. This wheel is arranged upon a sleeve 73, said sleeve being preferably provided at its inner end with a ratchet 75. A spring pawl 77 is secured upon the wheel and engages said ratchet so that as the sleeve is turned in either direction the wheel is moved with it. The pawl 77 allows the wheel to turn either way and is only used by hand in setting the clock. The opposite end of the sleeve is provided with a ratchet 79. A pawl 81 engages said ratchet and said pawl is secured upon a pulley 83 also mounted upon said shaft 59 and secured to a face plate 85. A coiled spring 87 has one end secured to said face plate and its opposite end secured to the shaft 59. A cord 89 is wound upon the pulley 83 and has its opposite end secured to a spring 91. The spring 91 is preferably secured at one end to the inner wall of the case 2 and to its opposite or free end the cord 89 is connected. When the free end of the spring 91 is moved away from the wall of the case 2 said spring is put under tension and the resiliency then causes its free end to move toward the case 2 and thereby to draw the cord 89 off from the pulley 83 and to turn the pulley 83 and thereby wind up the spring 87. This movement of the pulley 83 also tends to turn the type wheel 57.

I provide an escapement device controlled by the clock mechanism which holds the type wheel 57 against the tension of the spring 91 and permits said wheel to be turned only once an hour. For this purpose I arrange the escapement lever 95 pivoted at 97 arranged to engage the ratchet wheel 99 that is secured to the sleeve 73. A spring 101 is connected to the lever 95 and tends to raise or lift said lever and thereby cause its fixed tooth 103 to be clear of the tooth of the ratchet wheel. The opposite fork or arm of the ratchet lever is provided with the pivoted tooth 105 to which is connected a spring 107, said spring tending to hold the tooth in the position shown by full lines in Fig. 7. The lever 95 is provided with the arm 109 that engages the cam 111 on the shaft 43. Said cam is provided with the step 113 and the end of the arm 109 rests against the surface of said cam. Said cam makes a complete revolution in an hour. Beginning with arm 109 in bottom of step 113 as the cam revolves the arm 109 is pressed downward against the spring 101 and when the cam has made three fourths of its revolution the tooth 105 is released from the ratchet wheel 99 and moved from the position shown



in Fig. 7 by dotted lines, to the full line position in the same figure, or about midway from the point of one tooth and another. As the step 113 is reached the arm 109 is pressed upward by the spring 101, the upper solid tooth of the escapement clears the ratchet, and the under spring tooth 105 is thrown upward and resumes the dotted line position in Fig. 7, and the pulley 83, cord 89 and spring 91 allow the ratchet wheel 99 to move one notch. This operation will continue so long as the spring 91 has sufficient tension to turn said type wheel. It is necessary, therefore, to occasionally put the spring 91 under tension. This is done by taking hold of the lower end of the free portion of the spring and moving it toward the type wheel. The coiled spring 87 will then revolve the pulley 83 and wind up the cord 89.

The type wheels 51 and 52 are operated by mechanism exactly similar to that herein described, for operating the type wheel 57. Both of said wheels are mounted upon a sleeve 72 corresponding to the sleeve 73 upon which the wheel 57 is mounted. The outer surface of this sleeve between said wheels is provided with the ratchet 54' and this is engaged by the pawls 76 upon said wheels. A pulley 83 mounted upon the shaft 59 is connected to said sleeve by means of the pawl 81 and saw tooth ratchet 79. A face plate 85 is connected to the pulley 83 and a spring 87 to said face plate. A second spring 91 is connected to the cord 89 upon said pulley and the ratchet 99 upon the wheel 51 is operated in the manner already described through the escapement 95, spring 101, arm 109 and cam 111 having the step 113. The cam 111 is, however, not mounted upon the shaft 43 but is mounted upon a separate shaft 112 provided with a pinion 114 driven from a shaft 116 through a suitable pinion and a gear 118 that is driven by a pinion 120 on the shaft 43, the arrangement being such that the wheel 51 is turned a distance equal to one of its numbered spaces once in twenty-four hours, and the wheel 52 having the same movement is consequently turned at the same time as the wheel 51. It will thus be seen that while the type wheels for indicating the year and month and also the wheel for indicating the department are operated by hand, it being necessary to turn said wheels only occasionally, the type wheels for indicating the day of the month, the day of the week, the hour and the minute are operated directly from the clock mechanism. It will be understood, however, that any number of type wheels may be used and that a greater or less number as preferred, may be operated from the clock mechanism. As before stated, when the case 9 is released by pressing upon the button 21 said case is moved inward by the spring 11. I provide mechanism by which when this is done the portion of the paper that was exposed over the plate 31 is moved inward to a position opposite the type wheels and is then pressed against said

wheels so as to make an impression thereon at a point directly opposite the name that has been written upon said paper. For this purpose I provide preferably a blotting roll 121 that is arranged to roll over the paper and blot the name that has just been written. I also provide the inking roll 122 that is mounted in the case 9 and moves over the type wheels so as to ink the type that are about to make the impression upon the paper.

The feed roll 37 is provided with the ratchet wheel 124 that is engaged by the spring dog 126. Said dog engaging said ratchet holds the wheel in any position while at the same time permitting it to be turned in either direction if necessary. The opposite end of said roll is provided with the ratchet 128 and a lever 130 is supported upon the shaft of said roll and is provided with the hooked dog 132 adapted to engage said ratchet 128, and a spring 134 is connected to the lever 130 and returns it to its normal position after each movement.

The case 2 is provided with the fixed stud 136 and this stud is engaged by the lever 130 when the case 9 is drawn out against the tension of the spring 11 for the purpose of turning the feed roll 37 and winding up the paper and bringing a fresh portion thereof in position to be written upon. When the case 9 moves inward after a name has been written upon the paper the name is blotted by the roll 121 as before stated, and this portion of the paper is then moved under the type wheels into substantially the position shown in Fig. 10.

Mounted upon a standard 138 in the case 9 is a pivoted lever 140. This lever is provided with the cross bar 142 and with the cross shaft 144. Mounted upon the shaft 144 so as to turn freely thereon is the series of hammers 146, said hammers resting upon the cross bar 142. A lever 148 is also pivoted in standards 150 in said case 9 and the bottom of the case is provided with a suitable slot through which projects a fixed stud 152. When the case 9 is released and is turned inward by the spring 11, the short end of the lever strikes the fixed stud 152 and the other end of the lever is thereby thrown forcibly upward and strikes the lever 140 thereby turning upward all of the hammers 146 and causing them to strike upon the under side of the paper directly beneath the type wheels and thereby to force said paper against the type wheels and cause a series of impressions to be made thereon. The hammers then drop down slightly, enough to free the type wheels, and when the case 9 is next drawn out said hammers and the levers 140 and 148 resume the position shown in Fig. 3.

I also prefer to provide a segment of a type wheel 154 mounted upon the shaft 59 and provided with a projecting handle 156 that extends through the slot in the wall of the case 2. The face of this segment may be provided with the words "In" and "Out" or other



words or characters that it may be desired to print upon the paper. When the segment is in the position shown by full lines in Fig. 6 the type will be in position to print one of these words upon the paper. When it is moved to the position indicated by dotted lines in Fig. 6 the other word will be printed upon the paper.

I also prefer to provide a register that indicates the number of times the mechanism has been operated and hence counts the number of persons that have registered. For this purpose I arrange a suitable counting mechanism in position to be operated by each inward movement of the case 9. As here shown I provide a ratchet wheel 158 mounted in the case 2 at a point near the inner end of the case 9. The shaft 158 of this wheel preferably carries a pointer 160 arranged outside of the casing moving over a suitable dial 162. A spring pawl 164 is connected to said ratchet wheel so as to prevent any backward movement thereof. A rod 166 is arranged to slide in bearing 168 and is provided at its inner end with the projection 170. A spring 172 engages said rod and tends to throw the same outward. A hooked dog 174 is connected to said rod and is in position to engage said ratchet wheel. The case 9 is provided with the projection 176 that engages the projection 170 upon the rod 166 when said case is moved inward by its spring 11 and moves said rod against the tension of its spring 172 thereby turning the ratchet wheel one notch. As soon as the case 9 is drawn out again the spring 172 returns the rod 166 to its former position, sliding the dog 174 over one notch of the ratchet wheel and bringing it in position for the next operation. It is thus evident that at each time the case is moved inward the said ratchet wheel will be operated and the pointer will be moved over the registering dial. I also prefer to provide a bell or gong 180 that is operated each time the case 9 is moved inward by the lever 182 that is engaged by the end of the case 9 and operates the hammer 184.

The details of mechanism it will be obvious may be modified in various ways without departing from my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a clock mechanism and recording wheels operated thereby, of a sliding case, a recording strip carried by said case and adapted when in one position to have a signature made thereon and means for bringing said case into position with the portion of the recording strip upon which said signature is made opposite said recording wheels, and means for moving said strip against said wheels for the purpose specified.

2. The combination with a clock mechanism, recording wheels operated by said clock mechanism, a sliding case arranged in said

inclosing case having a portion thereof exposed, a spring for moving said sliding case into said inclosing case so as to bring the exposed portion of said strip opposite said registering wheels, means in said sliding case for pressing said strip against said wheels, and means for feeding said strip.

3. The combination with a clock mechanism, a series of recording wheels operated thereby, an inclosing case, a sliding case arranged therein, a recording strip arranged in said sliding case and having a portion thereof exposed, a spring adapted to draw said sliding case into the inclosing case so as to bring the exposed portion of the strip opposite the recording wheels, a catch for holding the sliding case in position with a portion of the strip exposed, means for releasing said case and means for pressing said strip against said recording wheels as the sliding case is drawn inward by said spring.

4. The combination with a clock mechanism, a series of recording wheels operated by said mechanism, a suitable inclosing case, a sliding case, a recording strip arranged in said case and having a portion thereof exposed, a spring for moving said sliding case into the inclosing case and thereby carrying the exposed portion of the recording strip opposite said registering wheels, feed rolls for moving said recording strip and a series of hammers arranged to engage said recording strip and press it against said recording wheels as said sliding case is moved inward, substantially as described.

5. The combination with the clock mechanism, the recording wheels operated thereby, the inclosing case 2, the sliding case 9 arranged therein and adapted to be moved inward in said case by the spring 11, said case being provided with the slotted table 10, a notch for holding said case in its retracted position, roll holders arranged in said sliding case, the recording strip arranged in said roll holders and passing through the slotted portion of said table whereby a portion of said surface is exposed when the case is drawn out, feed rolls for said recording strip, and the series of hammers arranged to press said strip against said registering wheels as said case is drawn inward.

6. The combination with the recording wheels and the sliding case provided with the roll holders, of the recording strip, the feed rolls 35 and 37, said roll 37 provided with the notched wheel 124, and the spring dog 126 and also with the ratchet 128, the lever 130, a spring 134 and the stationary stud 136 with which said lever is adapted to engage.

7. The combination with the recording wheels and the case 2 provided with the fixed stud 152, of the sliding case 9 carrying the recording strip, the pivoted lever 140, a series of hammers 146 pivoted thereon, the lever 148 adapted to engage the lever 140 and thereby move said hammers and the spring en-



gaging said sliding case for the purpose specified.

8. The combination with the recording wheels and the inclosing case, of the sliding case 9 provided with a table 10 having the slot 29 and with the plate 31, the portion of said table carrying said plate 31 being adapted to move in and out of said inclosing case, means for moving the case 9, the recording strip arranged in the case 9 and passing over said plate 31, means for feeding said strip, and means for pressing said strip against said recording wheels.

9. The combination with the clock mechanism and the inclosing case 2, and the series of registering wheels operated from said clock mechanism, of a sliding case 9 arranged in said case 2, the recording strip carried by said sliding case, means for moving said strip against said recording wheels, and the recording mechanism arranged in said case 2 and

adapted to be operated by the sliding case 9 each time said case is moved to make a registration upon said strip.

10. The combination with the clock mechanism, of the type wheel, a sleeve upon which said wheel is mounted, a spring pawl connecting said wheel to said sleeve, a pulley, a pawl connecting said pulley with said sleeve, a cord upon said pulley, a spring connected with said cord, a spring connected with said pulley for turning it in the opposite direction, a ratchet connected with said sleeve, and an escapement lever connected with said ratchet and controlled by a cam upon said clock mechanism.

In testimony whereof I have hereunto set my hand this 23d day of June, 1892.

SEWARD A. DEAN.

In presence of—

A. C. PAUL,  
BESSIE BOOTH.