

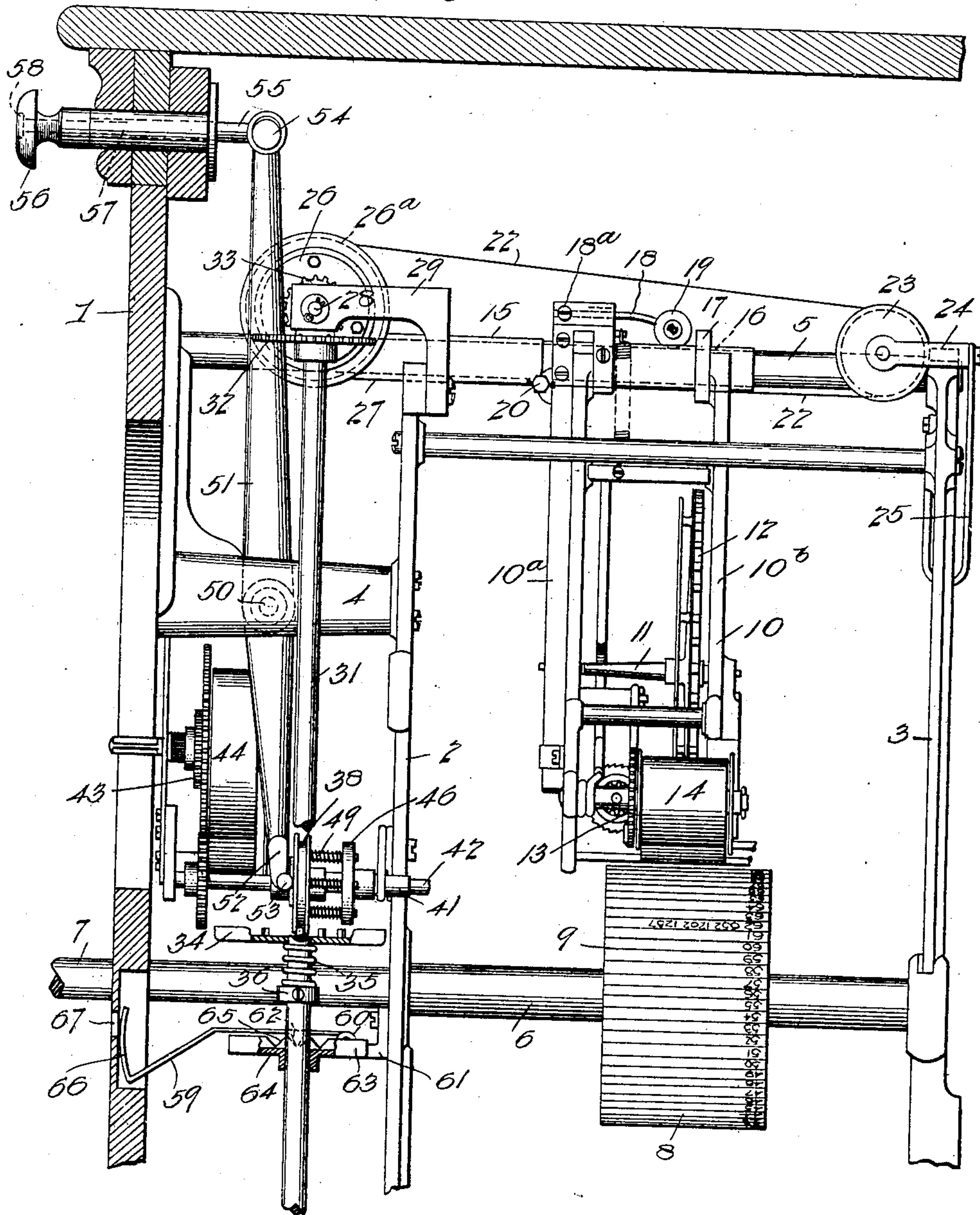
W. ROCKWELL.
WORKMAN'S TIME CONTROLLER.
APPLICATION FILED MAY 24, 1907.

898,508.

Patented Sept. 15, 1908.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

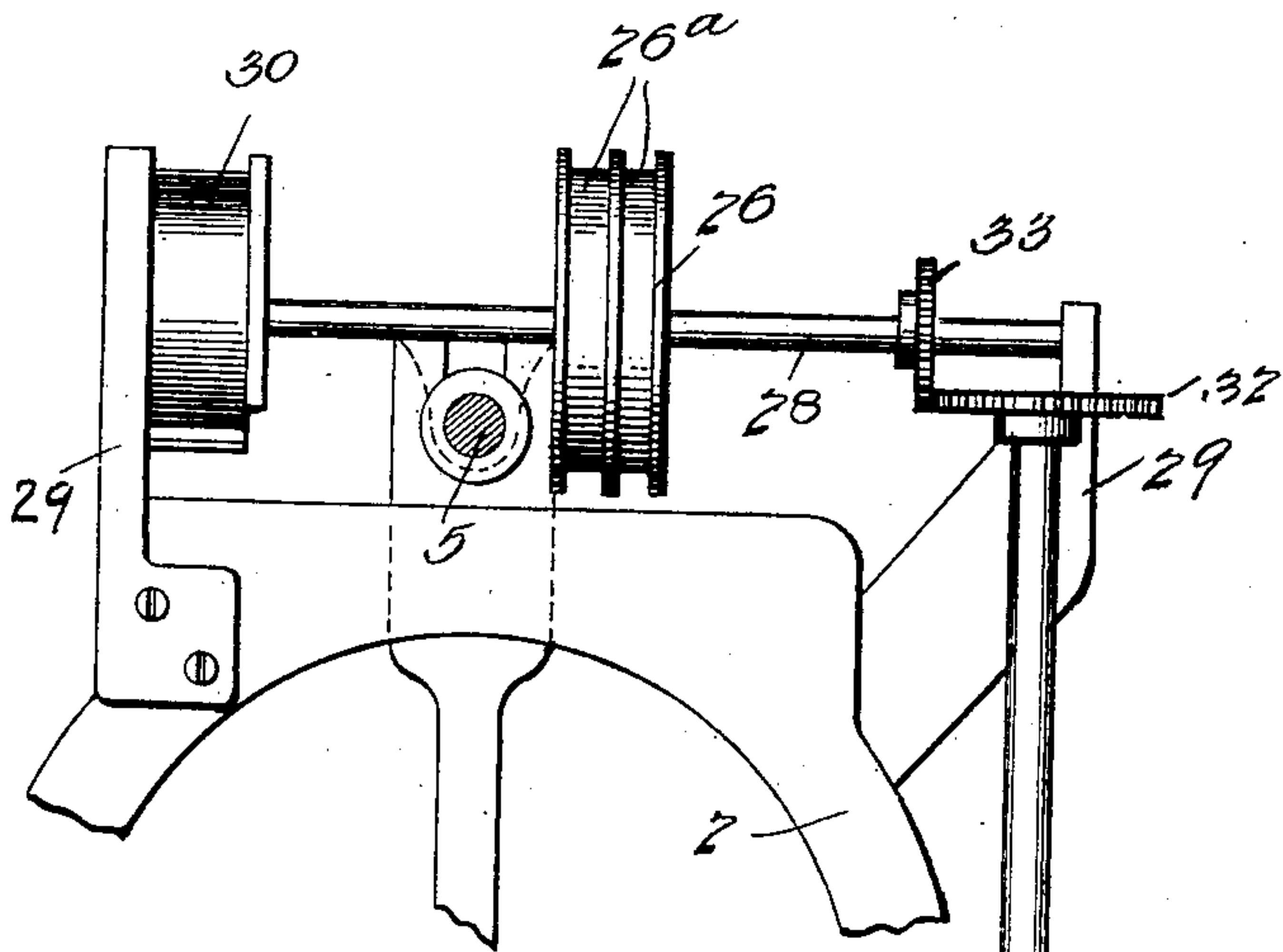


Fig. 2.

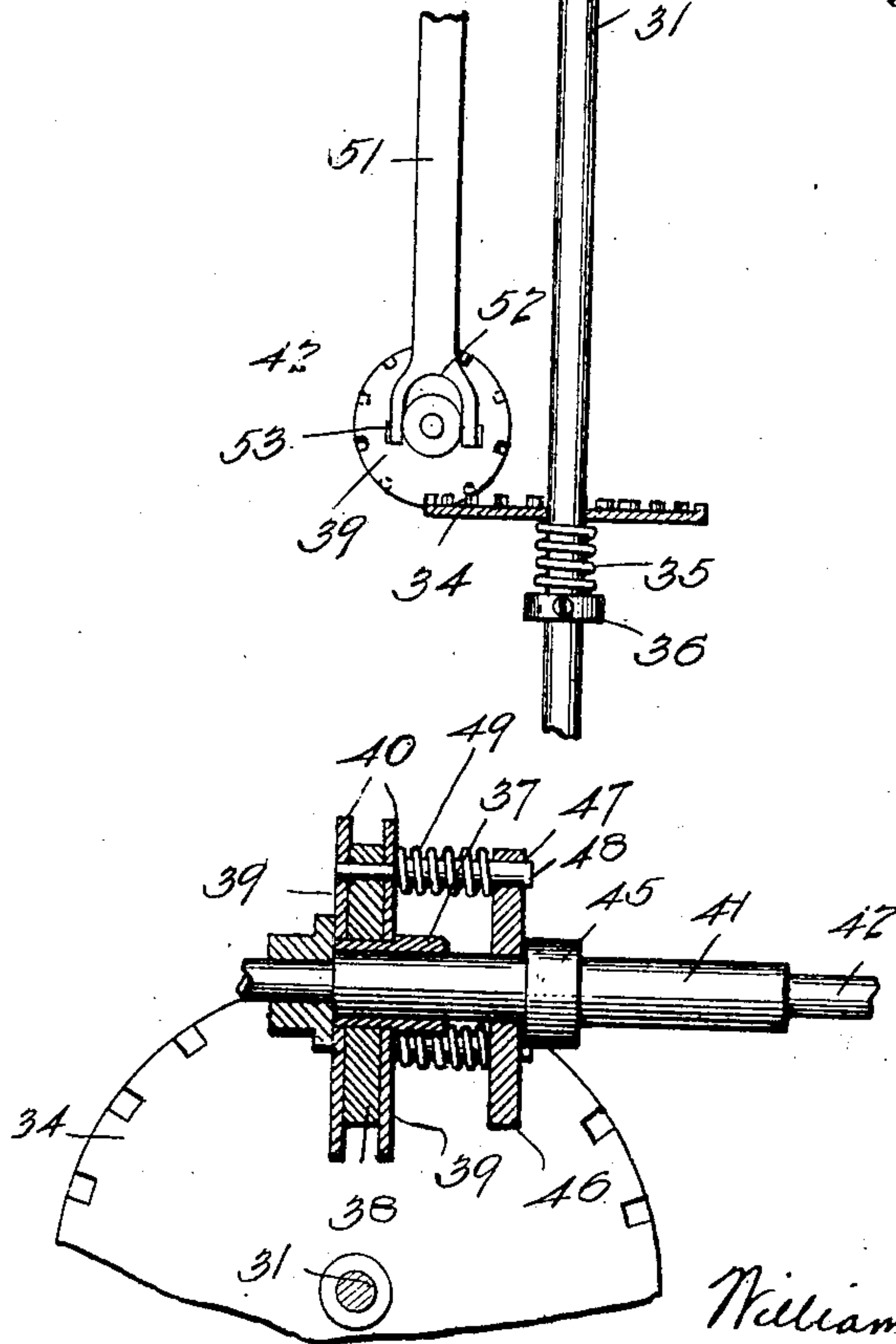


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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WORKMAN'S TIME-CONTROLLER.

No. 898,508.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed May 24, 1907. Serial No. 375,380.

To all whom it may concern:

Be it known that I, WILLIAM ROCKWELL, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Workmen's Time-Recorders, of which the following is a specification, reference being had to the drawings forming part of the same.

My invention relates to new and useful improvements in workmen's time recorders of the particular type which print upon a suitable receiving surface the times of entry and departure of the workmen from the factory, and which are usually designated "dial" recorders, the printing mechanism being automatically time controlled and the receiving surface manually adjusted by the workmen by a hand lever coöperating with a dial which indicates the correct position to which said surface should be adjusted by the workman, with relation to the printing mechanism. These dial time recorders, as now generally constructed, embody an impression receiving drum adapted to carry a sheet having portions divided into columns, appropriated individually to the several workmen, said columns being arranged to receive marks indicating the entry and departure of the workmen, said drum being manually operable by each workman to bring his column into position to be acted upon by the printing mechanism.

The printing mechanism is automatically operated by time controlling mechanism to be progressively moved to assume a proper position for printing and then manually operated by the workman to make the impression.

While machines of the general type briefly described are eminently efficient in accomplishing their stated purpose, they are, however, at times open to an objection owing to the fact that the automatic positioning of the printing mechanism causes an employee entering late after the printing mechanism has moved forward, of necessity, to make his record in the next "Out" column instead of the proper "In" column, and then when he comes to register "Out," he is compelled to register over the late "In" record which he had incorrectly made in the "Out" column.

It is obvious that the above objection tends to confuse the records and for this reason I have devised means which permits the

employee, under the circumstances stated, to give to the printing mechanism a retrograde movement whereby said mechanism is moved back to a position from which it may be operated to make an impression in a space or column which has been passed over in the normal forward movement of the said mechanism so that the impression instead of being incorrectly made in an "Out" column will be made in the proper "In" column as it should properly be.

With the above object in view, the invention consists broadly in providing means under manual control, for causing such a relative movement of the printing mechanism and impression surface as will cause an impression to be made in a space which has been passed over by said mechanism owing to its automatic progressive movement.

I have fully and clearly illustrated my invention in the accompanying drawings to be taken as a part of this specification and wherein:—

Figure 1 is a view in side elevation of the printing mechanism and associated parts of a dial time recorder having my improvements applied thereto. Fig. 2 is a view in front elevation of a part of the mechanism embodied in my invention partly in section. Fig. 3 is a view partly in section and partly in top plan of an escapement which imparts the desired progressive step-by-step movement to the printing mechanism.

Referring to the drawings:—1 designates a part of a casing within which the mechanisms and elements for recording the desired data are arranged for operation, said casing being of any suitable construction which will serve the purposes for which it is intended. Rigidly mounted within the casing 1 is a frame comprising vertical standards 2, 3 supported in part from said front wall by means of a bracket 4 to which the standard 2 is rigidly secured, and by means of a horizontal tie rod 5 seated in the said bracket 4 and connected to the standards 2 and 3. It might be stated that in the complete machine, the standards also rest upon the bottom portion of the casing, but as such a showing unnecessarily adds to the drawings, I have not shown such arrangement, the showing made being amply sufficient to illustrate the present invention.

Extending through the standards 2 and 3 and journaled therein, is a horizontally dis-

posed shaft 6 extending at one end exterior of the casing as at 7, from which point it may be rotated manually by any suitable means, not shown. Upon this shaft 6, is mounted
 5 to rotate therewith, an impression drum 8, which carries a record receiving sheet 9, divided into columns or spaces one of which is appropriated to each individual workman. This drum in the illustrated embodiment rotates in a fixed path and as the spaces or columns are arranged transversely thereof, the rotation of the shaft 6 will serve to bring any one of said columns uppermost into position to be impressed by the printing mechanism
 10 to be presently described.

While the impression surface is illustrated in the drawings and above described as being a rotary drum, I do not desire to be limited to such construction, as other forms of impression elements may be employed without in any way departing from the spirit and intent of this invention.

The printing mechanism employed will now be described generally, the same being
 25 of a well known form and itself forming no part of my invention, the form shown being adopted for illustrative purposes without any intent of limiting myself thereto. The printing mechanism shown consists of a
 30 frame 10 comprising side plates 10^a 10^b within which is journaled a horizontal time controlled shaft 11 carrying thereon a time printing wheel 12, in this instance having printing surfaces intended to make records
 35 in minutes. The shaft 11, and minute wheel are driven through any suitable connection, not shown, from a clock-mechanism in a manner which is well known and obvious to those skilled in the art without illustration.
 40 The frame 10 may also carry an ink-ribbon mechanism 13, of any suitable construction adapted to feed a ribbon 14 between the printing mechanism and the impression surface. As the construction of this ribbon
 45 mechanism is immaterial to my invention and forms no part of the same, I do not specifically describe the same.

Any suitable means may be employed for moving the printing wheels into engagement
 50 with the impression surface and in view of the fact that the same forms no part of my present invention, I do not illustrate any specific means for accomplishing the purpose stated.

55 Fixed upon the tie bar 5 is a sleeve 15, the upper portion of which is formed with a longitudinal groove or slot 16. The upper ends of the side plates 10^a 10^b of the frame 10 are provided with collars 17, which surround the
 60 sleeve 15 and provide for the sliding movement of the carriage on said sleeve longitudinally of the latter. The carriage is guided in its sliding movement, and held against lateral swing by an arm 18 connected
 65 to a bracket 18^a on one of the collars 17 and

carrying at its free end a roller 19 which travels within the groove or slot 16 in said sleeve 15.

The means for sliding the carriage will now be described:—To a pin 20, projecting from
 70 the frame member 18, are connected two ends of what constitute substantially an endless band, of which one member 22 passes under and over an idler pulley 23 supported on a bracket 24 which is preferably resiliently mounted upon a spring 25 secured to
 75 the upper portion of the plate 3^b. From this idler the band passes over an actuating pulley 26, formed as shown with two grooves 26^a in one of which the end of section 22 of
 80 the band is fastened. In the other groove is fastened one end of the other section 27 of the band which passes beneath the actuating pulley 26 and is connected at its other end to
 85 pin 20. The actuating pulley referred to is mounted on a shaft 28 journaled in brackets 29 on the front frame plate 2, said shaft being driven by a coiled motor spring 30 connected thereto and mounted in a suitable housing
 90 supported by the frame work.

The spring motor 30 just referred to tends constantly to rotate the actuating pulley 26 in the direction indicated by the arrow in Fig. 1 and means is provided for permitting
 95 said spring to exert its force to so move said pulley at such stated intervals as may be desired to conform to the impressions to be made. The means referred to is as follows:—
 31 is a vertical shaft located at the front portion of the machine and carrying at its upper
 100 end a spur gear 32 which meshes with a similar gear 33 mounted rigidly on the shaft 28. This shaft 31 has mounted thereon a crown wheel 34 said wheel being mounted thereon to turn therewith, and is also capable of longitudinal movement relative thereto being
 105 urged upwardly by a coil spring 35 on said shaft and abutting a collar 36 thereon, and the said wheel.

Coöperating with the teeth of the crown
 110 wheel 34 is a holding wheel which normally is engaged by said teeth to prevent rotation of the shaft 31 except at certain intervals said holding wheel being time controlled and constructed to permit rotation of said shaft at
 115 such times as it is desired to release the actuating pulley 26 to shift the carriage. This holding wheel comprises a hub 37 carrying a body portion 38 on opposite sides of which are secured annular plates 39 the peripheries
 120 of which extend beyond the edge of said body portion to provide circumferential flanges 40, 40 which are notched as indicated in full and dotted lines in Fig. 2; the position of the notches depending upon the particular adjustment which it is desired to give the
 125 mechanism.

The hub 37 is slidably mounted upon a sleeve 41 arranged on a horizontally disposed
 130 shaft 42, said shaft being continuously driven

through gearing indicated generally at 43, driven from a clock motor 44 supported by the frame work. The hub 37 is keyed or otherwise secured to said sleeve 41 to turn therewith and said sleeve is mounted to turn with the shaft 42, it being apparent that rotation imparted to the shaft from the clock motor will cause the holding wheel to be rotated. The spring 35, heretofore referred to, exerts its force to maintain the crown wheel in such position that one of its teeth is caught either by the first flange of the holding wheel or by the second flange, to prevent revolution of the crown wheel and shaft 31, except at predetermined intervals in the revolution of the holding-wheel which is determined by the positions of the notches in its flanges. These notches in the respective flanges are so staggered that a tooth of the crown wheel passing through a notch in the first flange will be held while a notch of the second flange is brought opposite the same tooth, whereupon that tooth will clear the flanged holding wheel and a second tooth of the crown wheel will engage said first flange. As the crown wheel is allowed to revolve it releases the spring pressed shaft 28 which is constantly under tension, and which is geared to the shaft of the crown wheel, as stated. Thus, as the flanged holding wheel revolves, the driving spring 30 presses a tooth of the crown wheel against one or the other of the flanges of the holding wheel so that as the latter revolves, one after the other of the teeth of the crown wheel escapes and the carriage for the printing mechanism is shifted to progressively change the printing point.

As above stated, the holding wheel is mounted to slide on the shaft 42, and is arranged to be shifted so as to cause a retrograde or reverse movement of the crown wheel 34 and shaft 31 and consequently of the carriage carrying the printing mechanism. The sleeve 41, referred to, is formed or provided with a collar 45 against which abuts a disk 46, also mounted on the sleeve, and formed with guide openings 47, which receive guiding pins 48 rigidly connected to the holding wheel, and having mounted thereon expansive springs 49 which exert their force to return the holding wheel to its normal position should it be shifted longitudinally of the shaft 42.

Fulcrumed on the bracket 4, above referred to, at a point intermediate its ends as at 50, is an operating lever 51 the lower end of which is formed with a yoke 52, the arms of which are pivotally connected, as at 53, to the hub 37 of the holding wheel. The upper end of the operating lever extends adjacent the upper end of the casing and has pivotally connected thereto, as at 54, one end of a pull rod or link 55, the opposite end of which projects exterior to the casing and carries a pull knob 56 by means of which said operating

lever is swung to throw the holding wheel rearward and rotate the crown wheel and shaft 31 to cause a retrograde movement of the printing mechanism. The lever being released, it will be apparent that the springs 49 return the holding wheel and lever to their normal position, act to return the crown wheel 34, shaft 31, and printing mechanism to their normal positions, the spring 30 assisting in returning the parts as stated.

The pull rod or link 55 may be guided and have a bearing through the casing wall in a bushing 57, against the outer end of which the knob 56 abuts to limit the inward movement of the operating lever. The knob 56 may be secured to the pull rod in any suitable manner but preferably by a screw 58 let through said knob and threaded into the said pull rod.

The operation of the invention, it is thought, will be understood from the above description but may be briefly restated as follows:—The parts being as set forth, the spring 30 continuously exerts its force to rotate the shaft 28 and actuating pulley in the direction of the arrow, and said pulley through its connection with the carriage 10, tends to progressively move the latter forwardly to place the type wheel in a succession of positions for making impressions upon the record sheet. The clock motor 44 drives the holding wheel continuously, the flanges on said wheel serving to hold the crown wheel and shaft 31 against rotation which restrains the shaft 28 and actuating pulley from shifting the carriage. This holding or restraining action exists during the rotation of the holding wheel until one of the notches registers with a tooth of the crown wheel and the latter is released and the parts permitted to move the carriage 10. At such time, as it may be desired to cause a retrograde movement of the printing mechanism the knob 56 is pulled outwardly which serves to throw the lower end of the operating lever 51 inwardly and thereby thrust the holding wheel longitudinally of the shaft 42. This movement of the holding wheel, through its connection with the crown wheel, imparts a reverse rotation thereto and to the shaft 31, such rotation turning the shaft 28 against the normal tendency of the spring 30 and moving the frame 10 to shift the printing mechanism to take a position to print at a point passed over in the normal operation of the machine.

An indicator may be employed to indicate to the workman the position of the printing mechanism. This indicator comprises an arm 59 pivoted as at 60, to a bracket 61 on the plate 2^a said arm having a projection 62, which engages the rim 63 of a disk 64 mounted on and turning with the shaft 31. The rim 63 is formed with a plurality of notches 65 and intervening elevations which engage

the projection 62 to raise and lower the arm, the latter carrying at its out end a vertical plate 66, marked "In", "Out" which when the arm moves appear alternately before an aperture 67 in the casing wall, to indicate to the workman whether the printing mechanism is in position to print in the "In" or "Out" positions. The notches and elevations are so located on the disk that when the arm falls in one of the notches the word "In" appears before the aperture 67 and when the arm is raised by the elevations "Out" is displayed.

I claim:

1. In a time recorder, in combination, an impression surface, printing mechanism, means for causing a relative movement between said surface and mechanism to cause the latter to make records on said surface progressively and successively at different points in determined sequence, and means independent of said first-named means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

2. In a time recorder, in combination, an impression surface, printing mechanism, means for causing a relative movement between said surface and mechanism to cause the latter to make records on said surface progressively and successively at different points in determined sequence, and manually operable means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

3. In a time recorder, in combination, an impression surface, printing mechanism, automatic means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different points in determined sequence, and means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

4. In a time recorder, in combination, an impression surface, printing mechanism, automatic means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different points in determined sequence, and manually operable means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

5. In a time recorder, in combination, an impression surface, printing mechanism,

time controlled means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different points in determined sequence, and means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

6. In a time recorder, in combination, an impression surface, printing mechanism, time controlled means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different points in determined sequence, and manually operable means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement.

7. In a time recorder, in combination, an impression surface, printing mechanism, means for moving said mechanism relative to said surface to enable said mechanism to make records on said surface progressively and successively at different points in determined sequence, and means to cause a retrograde movement of said printing mechanism to cause an impression to be made at a point passed over in its forward movement.

8. In a time recorder, in combination, an impression surface, printing mechanism, means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively at different points, means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement, and means independent of said second means to return the parts to the relation determined by said first named means.

9. In a time recorder, in combination, an impression surface, printing mechanism, means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different points in determined sequence, means independent of said first named means to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement, and means to automatically return the parts to the relation determined by said first named means.

10. In a time recorder, in combination, an impression surface, printing mechanism, means for causing a relative movement between said surface and mechanism to enable the latter to make records on said surface progressively and successively at different

points in determined sequence, means manually movable in one direction to cause a relative retrograde movement between said surface and mechanism to enable the latter to make an impression at a point passed over in said first mentioned movement, and means acting when said manually operable means is released to automatically return the parts to the position determined by said first mentioned means.

11. In a time recorder, in combination, an impression surface, printing mechanism, means for moving said mechanism relative to said surface to enable said mechanism to make records on said surface progressively and successively at different points in determined sequence, means to cause a retrograde movement of said printing mechanism to cause an impression to be made at a point passed over in its forward movement, and means to automatically return the printing mechanism to the position determined by said first mentioned means.

12. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means for holding said mechanism against movement, and means acting through said holding means to cause a retrograde movement of the printing mechanism.

13. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means for holding said mechanism against movement, clock-controlled means to release said holding means, at determined intervals, and means acting through said holding means to cause a retrograde movement of the printing mechanism.

14. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means for holding said mechanism against movement, and manually operable means acting through said holding means to cause a retrograde movement of the printing mechanism.

15. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means for holding said mechanism against movement, clock-controlled means to release said holding means, at determined intervals, and manually operable means acting through said holding means to cause a retrograde movement of the printing mechanism.

16. In a time recorder, an impression surface, printing mechanism, means for moving

said mechanism relative to said impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement, including a rotatable element, and means for moving said element to cause a retrograde movement of the printing mechanism.

17. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to said impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement including a rotatable element geared to the moving means, and means for moving said element to cause a retrograde movement of the printing mechanism.

18. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to said impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement including a rotatable element geared to the moving means, and manually operable means for moving said element to cause a retrograde movement of the printing mechanism.

19. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement, means to release the same at determined intervals, and means for causing a retrograde movement of said mechanism at periods between its forward movements.

20. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement including a rotatable element geared to said moving means, a clock-controlled escapement to periodically release the holding means, and means for causing a retrograde movement of said printing mechanism.

21. In a time recorder, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means to hold said mechanism against movement including a rotatable element geared to said moving means, a clock-controlled escapement to periodically release the holding means, and means acting through said moving and holding means for causing a retrograde movement of said printing mechanism.

22. In a time recorder, in combination, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different

points, means to hold said mechanism against movement, including a rotary element geared to the moving means, a clock-actuated escapement to periodically release
5 the holding means, and manually operable means for rotating said holding means to act through the moving means to cause a retrograde movement of the printing mechanism.

23. In a time recorder, in combination, an
10 impression surface, printing mechanism means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means to hold said mechanism
15 against movement comprising a rotary shaft geared to said moving means, means to hold said shaft against rotation, means to release said shaft, and means for rotating said shaft to cause a retrograde movement of the print-
20 ing mechanism.

24. In a time recorder, in combination, an impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impres-
25 sions to be made progressively at different points, means to hold said mechanism against movement comprising a rotary shaft

geared to the moving means, a clock-controlled escapement to release the shaft to permit the moving means to periodically
30 move the printing mechanism, and means to rotate the shaft to cause a reverse movement of the moving means and a retrograde movement of the printing mechanism.

25. In a time recorder, in combination, an
35 impression surface, printing mechanism, means for moving said mechanism relative to the impression surface to cause impressions to be made progressively at different points, means to hold said mechanism
40 against movement comprising a rotary shaft geared to the moving means, a clock-controlled escapement to release the shaft to permit the moving means to periodically
45 move the printing mechanism, and manually operable means to rotate the shaft to cause a reverse movement of the moving means, and a retrograde movement of the printing mechanism.

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Witnesses:

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