No. 883,355. PATENTED MAR. 31, 1908.

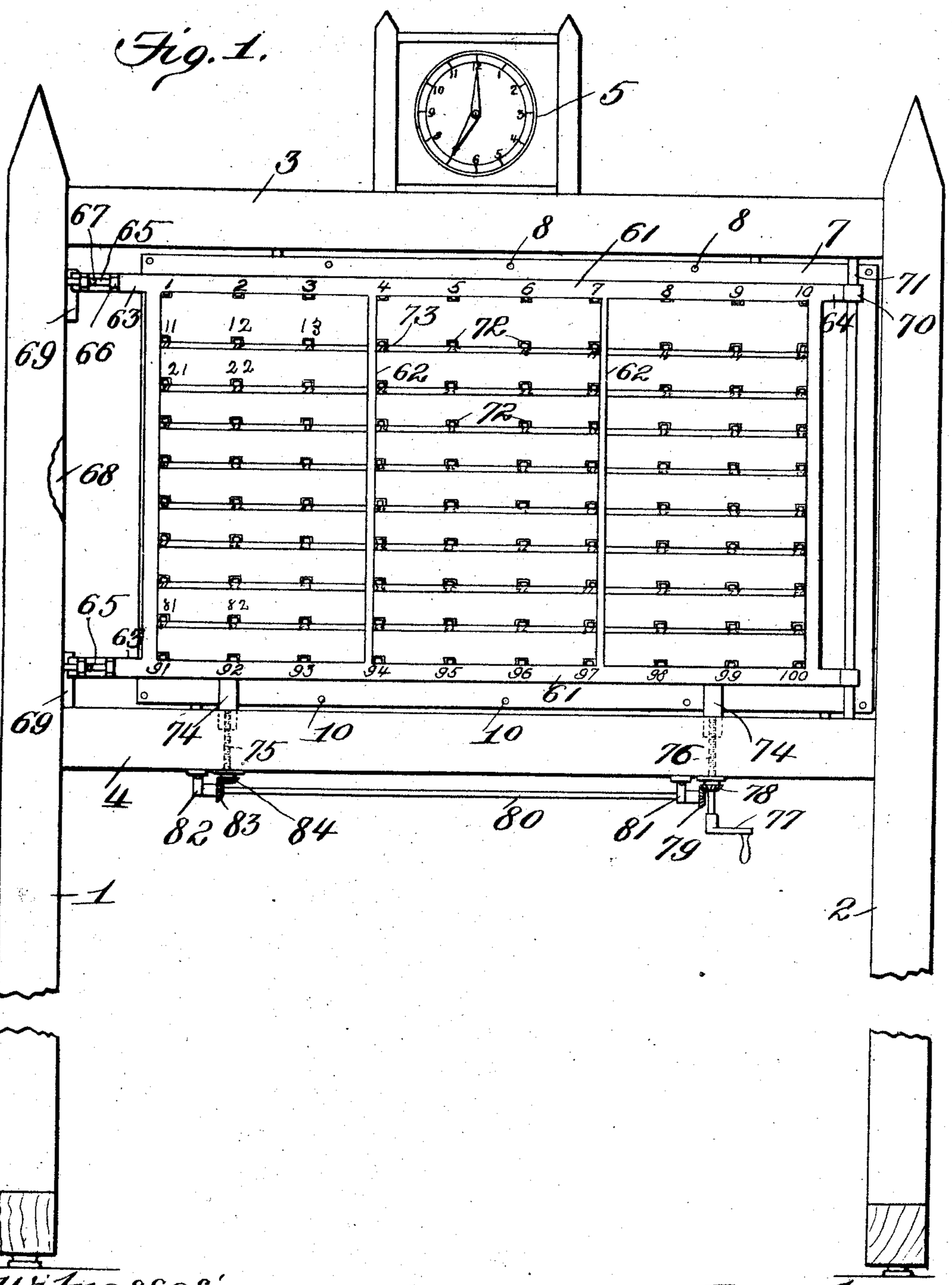
J. D. SMITH.

TIME RECORDER.

APPLICATION FILED JUNE 11, 1906. RENEWED AUG. 21, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

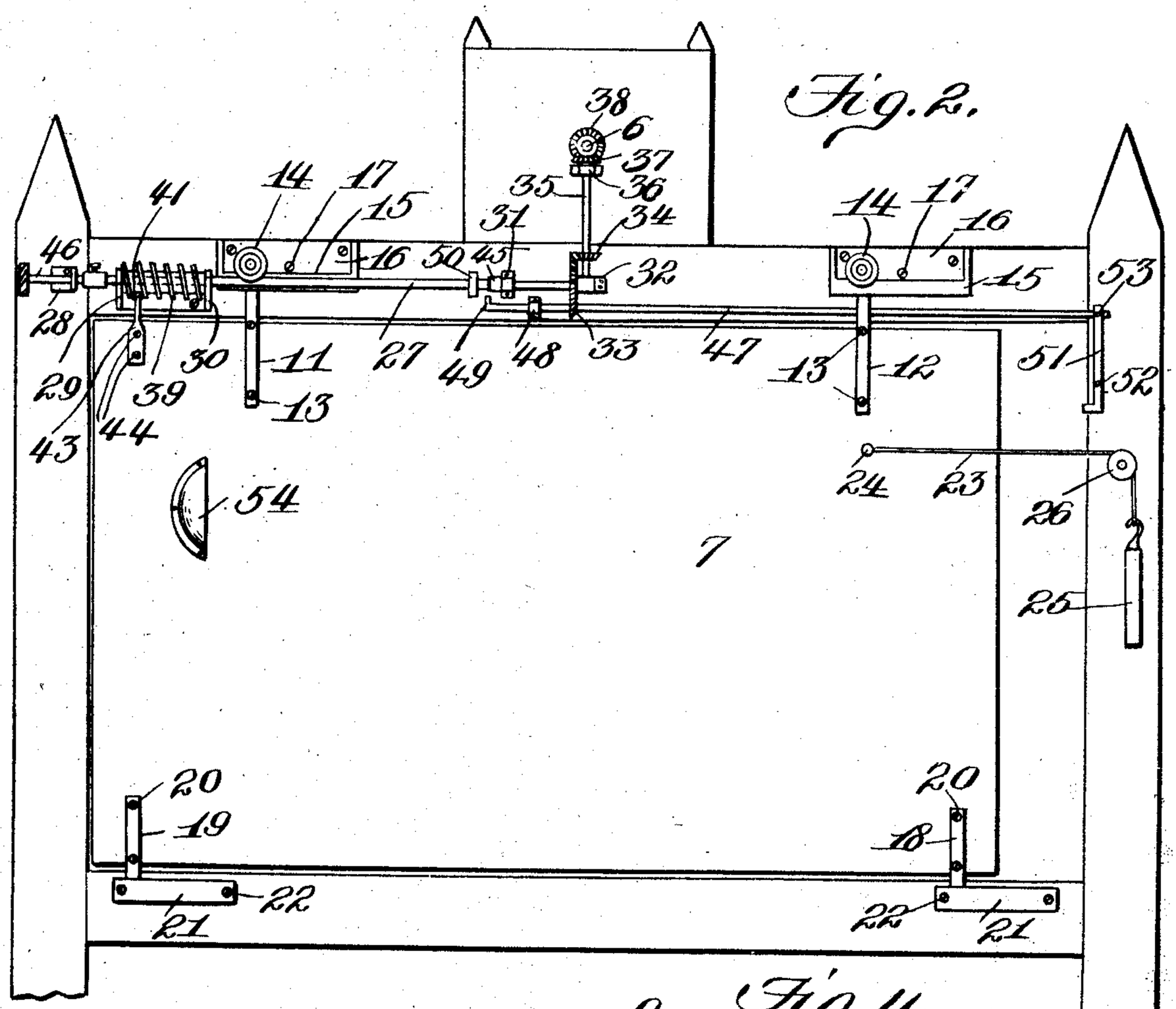


Fig. 3.

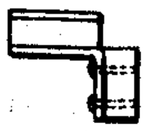


Fig. 5.

Fig. 6.

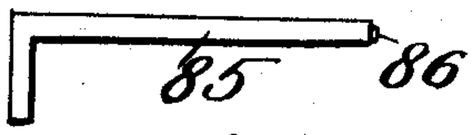
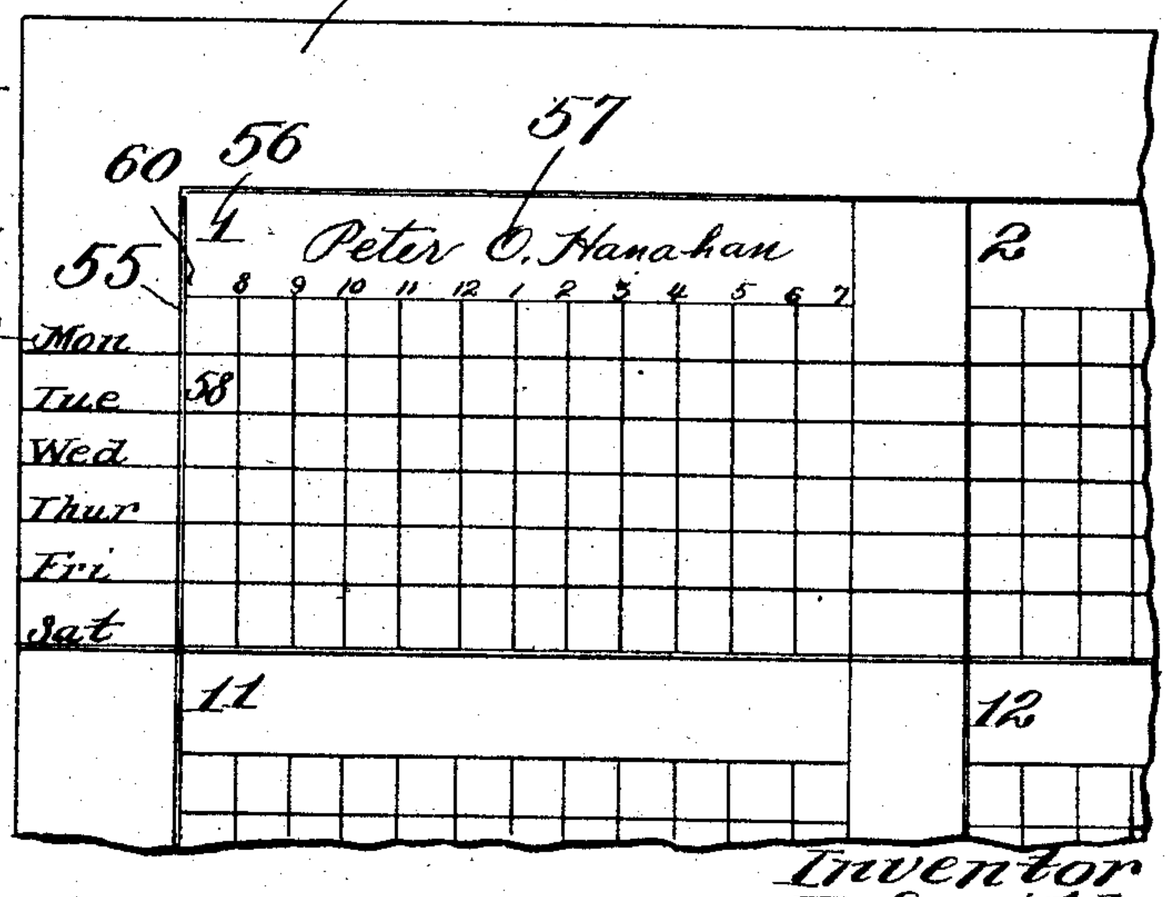


Fig. 7.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN D. SMITH, OF ST. LOUIS, MISSOURI.

TIME-RECORDER.

No. 883,355. Specification of Letters Patent. Patented March 31, 1908.

Application filed June 11, 1906, Serial No. 321,235. Renewed August 21, 1907. Serial No. 389,543.

To all whom it may concern:

Be it known that I, JOHN D. SMITH, a citizen of the United States, residing at St. Louis city, in the State of Missouri, have invented new and useful Improvements in Time-Recorders, of which the following is a specification.

This invention relates to time recorders, designed to be used by employees for the purpose of making a record, showing the time when each employee enters or leaves the place of employment; and the object thereof is to provide a time recorder in a manner as hereinafter referred to which shall be simple in its construction, accurate in its record, durable, efficient in its use, strong, readily set up, enabling the time record chart to be conveniently removed and replaced, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention; but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail, reference is had to the accompanying drawings, wherein like reference characters denote corresponding parts throughout the several views, in which:

Figure 1 is a front view of a time recorder in accordance with this invention with the front door removed; Fig. 2 is a rear view with the back door removed; Fig. 3 is a sectional detail of the guide frame; Fig. 4 is a view of a portion of the record chart, and Figs. 5, 6 and 7 are, respectively, top, side and bottom views of the stamping members.

A time recorder in accordance with this invention embodies a supporting frame constituted by a pair of uprights 1, 2 and a pair of longitudinally-extending members 3, 4. The members 3, 4 are secured to and between the members 1, 2 and are suitably spaced apart. As shown, the member 3 is positioned near the top of the uprights 1, 2 and the member 4 the required distance below the member 3. The members 3 and 4 form what may be termed supports for certain elements of the recorder to be hereinafter referred to. A suitable clock mechanism indicated by the reference character 5 is mounted upon the member 3, and the main staff 6 of the clock mechanism is connected with a shiftable support for the record sheet, in a manner as hereinafter referred to.

The shiftable support for the record sheet consists of a rectangular piece of suitable material, preferably wood, and is indicated by the reference character 7. The shiftable support 7 is interposed between the members 3, 4, and the length thereof is less than the width of the supporting frame. The width of the support 7 is such that it terminates at its top and bottom at a point removed from the members 3, 4. The support 7 carries on its front face a covering of suitable material so as to form a cushion for the stamping member when an employee is using it to record his designation. The support 7 has extending forwardly from its front and near the top edge thereof, a plurality of pins 8 upon which is mounted the record chart 9, suitable perforations being provided in the chart to enable the mounting thereof upon the pins 8. Near the bottom edge of the support 7, pins 10 are provided which are arranged in parallelism with respect to the pins 8, and the pins 10 are adapted to pierce the chart 9. The chart 9 may be retained against the front face of the support 7 by any suitable means, by way of example: elastic bands may be attached at one end to the pins 8 and at the other end to the pins 10.

The shiftable support 7 is suspended between the members 3, 4 through the medium of a pair of hangers 11, 12 which are secured by the holdfast devices 13 to the rear face of the support 7 and carry on their upper ends grooved rollers 14 traveling upon the tracks 15 secured by the plates 16 and holdfast devices 17 to the rear of the member 3. The hanger 11 and its connections are arranged near one end of the shiftable support 7, and the hanger 12 and its connections are arranged near the opposite end of the support 7. Guide members 18 and 19 are secured to the support 7 near the bottom edge thereof by the holdfast devices 20. The said members 18 and 19 project beyond the bottom edge of the support 7 and engage in the keepers 21 secured to the rear face of the member 4 by the holdfast devices 22. The keepers 21 constitute guide channels for the guide members 18 and 19, and the said members 18 and 19 not only act as guides, but also act as a means to prevent the shifting rearwardly of

the support 7 with respect to the supporting frame.

The support 7 is shifted in one direction through the medium of a flexible member 23 connected at one end to the support 7, as at 24, and at its other end carrying a counterweight 25. The member 23 travels over a sheave 26 connected to the rear face of the upright 1. The shiftable action imparted to the support 7 through the medium of the flexible member 23 and counterweight 25 is regulated by the intervention of a retarding device between the clock mechanism and the support 7. Said retarding device acts as a means to prevent the shifting of the support 7 by the flexible member 23 and counterweight 25 unless such retarding device has movement imparted thereto or is left free to move by the clock mechanism.

The retarding device embodies a rotatable and longitudinally-shiftable shaft 27 which is journaled in the bearing brackets 28, 29, 30, 31 and 32. The shaft 27 at one end carries a bevel gear 33 which meshes with a bevel gear 34 of half the diameter. The gear 34 is carried on the lower end of a vertically-extending shaft 35 which is journaled in the bracket 32 and extends through the keeper 36 secured to the rear of the clock mechanism. The upper end of the shaft 35 carries a bevel gear 37 which meshes with a bevel gear 38 carried on the rear end of the main staff 6 of the clock mechanism. This staff has the minute hand of the clock mechanism connected thereto. The gear 38 makes one complete revolution every hour. The gears 34, 37 and 38 are of the same diameter, but the gear 33 is twice the diameter of the gear 34; consequently a complete revolution of the gear 33 is had every two hours. Between the brackets 29 and 30 the shaft 27 has suitably keyed thereon a worm screw 39, the shaft 27 being free to shift longitudinally through said screw 39, but the said screw is so keyed to the shaft 27 that when the shaft rotates, the screw 39 will be carried therewith. Secured to the rear of the support 7 by the holdfast devices 44, is a member 43, this member 43 acting as an operative connection between the worm 39 and the support 7 so that when the worm 39 is rotated, the engagement thereof with the member 43 will cause the shifting of the support 7. The free end of the member 43 carries a roller 41, and the width of the free end of the member 43 is such that it will snugly but movably fit the channel formed by the threads of the screw 39. The roller 41 on the end of the member 43 is to reduce friction at its engagement with the threads of the screw 39. From the foregoing construction, it is evident that the connecting member 43 acts as a retarder to arrest the shifting action of the member 23 and the counterweight 25, but when motion is imparted to the shaft 27, the screw 39 will be rotated, which will permit of the arm 40 and roller 41 traveling in the channel formed by the threads of the screw, and consequently the action of the weight 25 and flexible member 23 will cause the shifting of the support 7 from right to left of the supporting frame. The shifting action of the support 7 is not had through the medium of the worm 39 when rotated through the action of the clock mechanism, but it is caused through the pulling action of the weight 25, as will be evident. The shaft 27 carries a fixed collar 45 for limiting the movement in one direction of said shaft 27 when shifted by the handle-piece 46 outwardly.

The shaft 27 has its operation automatically discontinued when the support 7 is at the limit of its movement in one direction through the medium of a shifting device positioned in the path of said support 7. Said shifting device consists of an elongated rod 47 supported in the guide-keeper 48, having one end provided with a protuberance 49 which is adapted to engage a fixed collar 50 carried by the shaft 27. The said rod 47 is adapted when actuated in a manner as hereinafter set forth, to be shifted in a longitudinal direction so as to cause the protuberance 49 to engage the collar 50 and shift the shaft 27 so that the bevel gear 33 will be moved out of mesh with the gear 34, and when such action is had, it will be evident that the rotative movement of the shaft 27 will be discontinued. The shifting of the rod 47 in a manner as stated is had through the medium of a pivoted L-shaped arm 51 having its lower end in the path of the support 7 so that when the support 7 arrives at the end of its movement in one direction, the side edge thereof will engage the lower end of the arm 51, shift the latter on its pivot 52 and cause the movement hereinbefore referred to in connection with the rod 47 to be had. This will be evident owing to the fact that the upper end of the arm 51 is pivoted to the end of the rod 47, as at 53. When the support 7 arrives at the limit of its movement in one direction, it is shifted manually in the opposite direction through the medium of the operator grasping the handle member 54. The record chart referred to by the reference character 9, is divided in a series of employee's weekly time record portions, there being a portion for each employee, as indicated by the reference character 55. Each of the weekly time record portions is provided with the number or designation of the employee, as at 56, the name of the employee 57, and a series of horizontally-extending rows of parallel spaces 58. There is a horizontally-extending row of spaces for each working day of the week, and suitable means is provided, as at 59, for designating for what day a horizontally-extending row of spaces is used. The spaces of each row are used for a certain hour

of the day and a suitable designation, as at 60, is provided to designate for what hour of the day the space is used. The spaces of each row of spaces are adapted to receive the number or designation in a manner as hereinafter referred to.

Arranged at the front of the record chart and between the members 3, 4 is a vertically-movable guide frame consisting of a plurality of horizontally-extending bars 61 and a plurality of vertically-extending bars 62. These bars are suitably connected together and the bars 61 are spaced a suitable distance apart. The top and bottom bars 61 of the frame project a distance from each of the vertical bars of the frame. The projecting portions of the bars 61 are indicated by the reference characters 63 and 64. The projecting portions 63 of the bars 61 each carries a combined bolt and guide 65 which is supported by the keepers 66, is provided with a thumb or finger piece 67 to permit of shifting the combined bolt and guide 65; and these latter are of a length to extend into a vertically-extending groove or channel 68 formed in the inner edge of the upright 1. Abutments 69 are provided to arrest the inward movement of that end of the frame to which the combined bolts and guides 65 are connected. The projecting ends 64 of the members 61 are provided with eyes 70 to permit of mounting one end of the guide frame upon the vertically-extending bar 71 which is secured to the members 3, 4. The eyes 70 also constitute a hinge connection for one end of the frame, and when the combined bolts and guides 65 are released or are shifted out of the groove or channel 68, the guide frame can be swung outwardly to permit of access being had to the record chart so that the same can be readily removed and a new one mounted in position, if desired. The guide frame has each of its horizontally-extending bars 61 provided on one of the edges thereof, with a plurality of guide sockets 72 for the stamping members, to be hereinafter referred to. There is a guide socket 72 for each employee, and the longitudinally-extending bars 61 of the frame have indications, as at 73, arranged in suitable relation with the guide socket 72. These indications are to indicate the employee's designation. As shown, each employee has a number, and the indications upon the bars 61 are numbers. By way of example, one hundred indications are shown and the guide sockets are consecutively numbered from one to one hundred.

The guide frame is vertically moved by a pair of elevating members 74, which, as shown, consist of hollow-tubular studs interiorly screw-threaded, mounted in the member 4, projecting therefrom and having the bottom of the guide frame resting thereon. The members 74 are shiftable in a vertical direction through the medium of screw-shafts 75, 76, engaging the screw-threads of the members 74. The shafts 75, 76 extend up through the member 4, and the shaft 76 terminates in a handle-portion 77. At a point removed from the handle of the shaft 76 a bevel gear 78 is fixed, which meshes with a bevel gear 79 carried on the end of a counter shaft 80. The latter is mounted in bearings 81, 82 and carries a bevel gear 83 which meshes with a bevel gear 84 fixed to the lower end of the screw-shaft 75. It will be evident from the foregoing construction that when the shaft 76 is rotated, motion will also be imparted to the shaft 75 so as to vertically move the members 74, thereby elevating or lowering the frame as occasion requires.

The stamping members consist of a flat L-shaped bar 85 having one end provided with type, as at 86, the type indicating the number or designation of the employee; and the other end of the member 85 is provided with a suitable designation, as at 87, so as to indicate the number or designation of the employee. Although the stamping members are shown as flat, yet they can be of any suitable construction, that is to say, the shape corresponding to the shape of the guide sockets.

The extent of movement of the guide frame must correspond to the width of the employee's weekly time record portion so that when the guide frame is shifted, sufficient movement can be given thereto to enable the horizontally-extending bars 61 to be positioned during the movement of the frame over all of the horizontally-extending rows of spaces of each employee's weekly time record portion, that is to say, it will be assumed that the guide frame is at its highest point and positioned for recording time for the first day of the week. The frame will remain in such position throughout the day, while the support 7 moves from right to left so that the horizontally-extending row of spaces for the first day of the week will pass all the guide sockets of the guide frame. For the second day of the week, the guide frame will be shifted a suitable distance so that the guide sockets will be in a position to enable the recording upon the second horizontally-extending line of spaces for the second day of the week. This same action is carried on throughout until the guide frame arrives at its lowermost position, which is at the end of the week; the frame is then swung open, the chart removed, another chart mounted in position for the one removed, and the guide frame shifted to its highest position. The shifting of the guide frame upwardly or downwardly is had through the medium of the shafts 75, 76 and member 74 in a manner as hereinbefore stated.

The length of the worm-screw 39 corre-

sponds to the distance traveled by the support 7 so that when the support 7 reaches the end of its course, the member 43 will have passed along the full length of the screw and will be out of gear therewith at the right-hand end so that even if the shaft 27 was not thrown out of gear, through the action of the rod 47, no further movement or action would be had upon the support 7.

When the support 7 has traveled its full course, which is, say, three inches for twelve hours work, it will so remain until it is pulled back by hand to the position indicated in the drawings. In this position all the guide sockets of the guide frame will be at the left-hand extremity of all the opposite employees' weekly time record portions. Now, while the support is in this position, the stamping members having ink applied to the type end, can be thrust through the guide sockets and slightly pressed against the chart; consequently, the employee's indication or designation will be applied to his weekly time record portion.

It will be assumed that the hours of work in a given factory are from seven a. m. to six p. m.; the support occupying the position shown in Fig. 1 and the clock indicating seven o'clock: all of the operators having come in by this time, and each one will have received his stamp member from the clerk and will have registered his presence by gently pressing his stamping member through the guide socket which corresponds in number with his stamping member. If all the employees are in at seven o'clock, every weekly time recording portion will have received the impression of its corresponding member on a vertical line which is the first on the week portion at its left-hand end. At seven o'clock, the shaft 27 is thrown into operative connection with the shaft 35, thereby connecting the support 7 with the clock, and from this moment on the movement of the support begins and continues for twelve hours at the rate of a quarter of an inch per hour, thereby carrying all the horizontally-extending spaces of the row of spaces for the day past the guide sockets of the guide frame, that is to say, the entire length of the lines on the weekly time recording portion intended to receive the impressions. Preferably the record chart is provided with a blank space at the end of each line for receiving the total number of hours of each day's work.

The ink for the stamping members is supplied by a pad arranged in suitable relation with the recorder, or in lieu of employing an ink pad, an inked ribbon can be attached to the guide frame and interposed between the frame and the chart and arranged in suitable relation with respect to the guide sockets. In lieu of using the counterweight 25 and flexible connection 23, any suitable equivalent can be employed. Suitable covers for the front and rear of the supporting frame are employed. These covers may be of any suitable construction so that convenient access can be had to the parts, when occasion requires.

Owing to the manner in which the record spaces of the record charts are designated with respect to the stamping members, that is to say, each stamping member has its designation corresponding to a designation of a record space, a record space and its respective stamping member will be entirely distinct from any other record space with its respective stamping member. This arrangement prevents an employee tampering with another employee's record space. For example, suppose there is an employee by the name of Peter O. Hanahan and the record space designated by 60 is assigned to the said employee; when the latter arrives at the place of business in the morning, he receives from the custodian of the stamping members, the stamping member designated 60, said designation corresponding with the designation of the record space. With this stamping member, the employee can make a valid impression or record in only one space, that is, on the space in the chart which has been assigned to him, and which is designated as 60. If the employee made an impression anywhere else, it would neither count for him nor for the employee in whose record space the incorrect record was made. Therefore, it will be evident that not only can Peter O. Hanahan not stamp on any record space but his own, but no one else can record in his space, for the reason that Peter O. Hanahan is the only one that has a stamping member designated to correspond with the number of his record space. Such manner of designating the stamping members with respect to the record spaces, absolutely precludes the possibility of tampering with the record of one individual by another; and therefore, it is not necessary to watch the employees while they are registering.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A time recorder embodying a horizontally shiftable carrier having a chart provided with record spaces, a vertically-movable guide frame arranged forwardly of said carrier and provided with guide sockets positioned in suitable relation with respect to the spaces of the record chart, and stamping members adapted to be passed through the sockets and to engage the chart to make a record in the spaces.

2. A time recorder comprising a horizontally-shiftable chart carrier, means for shifting the carrier, means for retarding the shifting movement of the carrier, a vertically-movable guide frame arranged forwardly of

the carrier and provided with guide sockets, means for imparting a vertical movement to said frame, and stamping members adapted to be inserted through the guide sockets and to engage the chart upon the carrier for impressing a record on the chart.

3. A time recorder comprising a horizontally-shifting carrier for a chart, means for shifting the carrier, means for retarding the shifting movement of the carrier, a vertically-movable guide frame arranged forwardly of the carrier and provided with guide sockets, means for imparting a vertical movement to said frame, stamping members adapted to be inserted through the guide sockets and to engage the chart upon the carrier for impressing a record on the chart, and means for throwing said retarding device out of operation when the carrier has arrived at the limit of its movement in one direction.

4. A time recorder embodying a horizontally shiftable carrier having a chart provided with record spaces, a hinged and vertically-movable guide frame arranged forwardly of said carrier and provided with guide sockets, said sockets positioned in suitable relation with respect to the record spaces of the record chart, and stamping members adapted to be passed through the sockets and to engage the chart to make a record in the spaces.

5. A time recorder embodying a horizontally-movable carrier for a record chart, means for moving said carrier horizontally, a device for retarding the movement of said carrier, a clock mechanism for operating said device, a vertically-movable guide frame arranged forwardly of said carrier and provided with guide sockets, and stamping members adapted to be inserted through said sockets and engage the chart upon the carrier for making a record on the chart.

6. A time recorder embodying a horizontally-movable carrier for a record chart, means for moving said carrier horizontally, a device for retarding the movement of said carrier, a clock mechanism for operating said device, a vertically-movable guide frame arranged forwardly of said carrier and provided with guide sockets, stamp members adapted to be inserted through said sockets and engage the chart on the carrier for making a record on the chart, and means engaging one end of the frame for vertically moving it.

7. A time recorder embodying a horizontally-movable carrier for a record chart, means for moving said carrier horizontally, a device for retarding the movement of said carrier, a clock mechanism for operating said device, a vertically-movable guide frame arranged forwardly of said carrier and provided with guide sockets, stamping members adapted to be inserted through said sockets and to engage the chart on the carrier for making a record on the chart, and means for disconnecting said device from said clock mechanism when said carrier has arrived at the limit of its movement in one direction.

8. A time recorder comprising a shiftable support for a record chart, means connected to said support for shifting it horizontally, means engaging with the support for retarding the shifting movement thereof, a guide frame arranged forwardly of said support and provided with guide sockets, means for moving said frame vertically, and stamping members adapted to be inserted through the sockets of the frame and engage the chart upon the support for making a record.

9. A time recorder comprising a shiftable support for a record chart, means connected to said support for shifting it horizontally, means engaging with the support for retarding the shifting movement thereof, a guide frame arranged forwardly of said support and provided with guide sockets, means for moving the frame vertically, stamping members adapted to be inserted through the sockets of the frame and engage said chart upon the support for making a record, and clock mechanism for operating said retarding means.

10. A time recorder comprising a shiftable support for a record chart, means connected to said support for shifting it horizontally, means engaging with the support for retarding the shifting movement thereof, a guide frame arranged forwardly of said support and provided with guide sockets, means for moving said frame vertically, stamping members adapted to be inserted through the sockets of the frame and engage the chart on the support for making a record, clock mechanism for operating said retarding means, and means for automatically disconnecting said retarding means from the clock mechanism when said support has arrived at the limit of its travel in one direction.

11. A time recorder embodying a vertically-extending and horizontally-shiftable support for a record chart, a suspension means for said support, means for moving said support horizontally, a guide frame arranged forwardly of said support and provided with guide sockets, means for shifting said frame vertically, and means adapted to be inserted through said sockets and engage the chart on the support for making an impression.

12. A time recorder embodying a vertically-extending and horizontally-shiftable support for a record chart, a suspension means for said support, means for moving said support horizontally, a guide frame arranged forwardly of said support and provided with guide sockets, means for shifting said frame vertically, means adapted to be inserted through said sockets and engage the chart on the support for making an im-

pression, and a retarding device for arresting the horizontal movement of said support.

13. A time recorder embodying a vertically-extending and horizontally-shiftable support for a record chart, a suspension means for said support, means for moving said support horizontally, a guide frame arranged forwardly of said support and provided with guide sockets, means for shifting said frame vertically, means adapted to be inserted through said sockets and engage the chart on the support for making an impression, a retarding device for arresting the horizontal movement of said support, and a clock mechanism for operating said retarding device.

14. A time recorder embodying a vertically-extending and horizontally-shiftable support for a record chart, a suspension means for said support, means for moving said support horizontally, a guide frame arranged forwardly of said support and provided with guide sockets, means for shifting said frame vertically, means adapted to be inserted through said sockets and engage the chart on the support for making an impression, a retarding device for arresting the horizontal movement of said support, a clock mechanism for operating said retarding device, and means for automatically disconnecting the retarding device from said clock mechanism when said support has arrived at the limit of its movement in one direction.

15. A time recorder embodying a record chart, shiftable horizontally and provided with designated record spaces, a vertically-movable guide frame arranged forwardly of said chart and provided with designated guide sockets positioned in suitable relation with respect to the designated spaces of the record chart, and a stamping member for each of said record spaces, each of said stamping members designated to correspond with the designation for its respective record space, and said stamping members adapted to be passed through the sockets and to engage the chart to make a record in the spaces.

16. A time recorder comprising a counterbalanced support having a record chart, a clock mechanism, a longitudinally extending shaft provided with a worm gear, an operative connection between the said shaft and said clock mechanism, means carried by the support and adapted to engage in said worm for shifting said support horizontally when the shaft is operated, means operated by the support for automatically throwing out the operative connection between the shaft and the clock mechanism, a hinged guide frame arranged forwardly of said support and provided with guide sockets, means for moving said frame vertically, and stamping members adapted to be inserted through the sockets of the frame and engage the chart upon the support for making a record.

17. A time recorder comprising a support having a record chart, a clock mechanism, a longitudinally extending shaft provided with a worm gear, an operative connection between the said shaft and said clock mechanism, means carried by the support and adapted to engage in said worm for shifting said support horizontally when the shaft is operated, means operated by the support for automatically throwing out the operative connection between the shaft and the clock mechanism, a guide frame arranged forwardly of said support and provided with guide sockets, means for moving said frame vertically, and stamping members adapted to be inserted through the sockets of the frame and engage the chart upon the support for making a record.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN D. SMITH.

Witnesses:
P. HOPAMMER,
EDGAR JENNINGS.