(No Model.) 2 Sheets—Sheet 1.

J. L. F. PINTO.

WORKMAN'S TIME INDICATOR.

No. 477,448. Patented June 21, 1892.

Fig. 4.

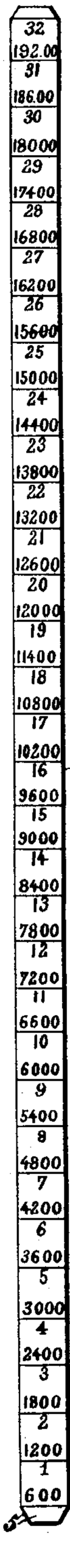


Fig. 1.

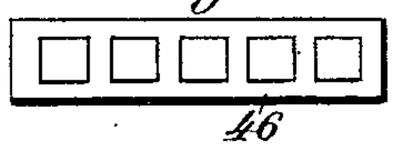


Fig. 2.

Fig. 3.

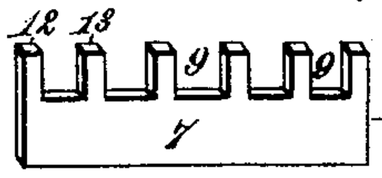


Fig. 5.

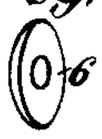


Fig. 6.

Fig. 7.

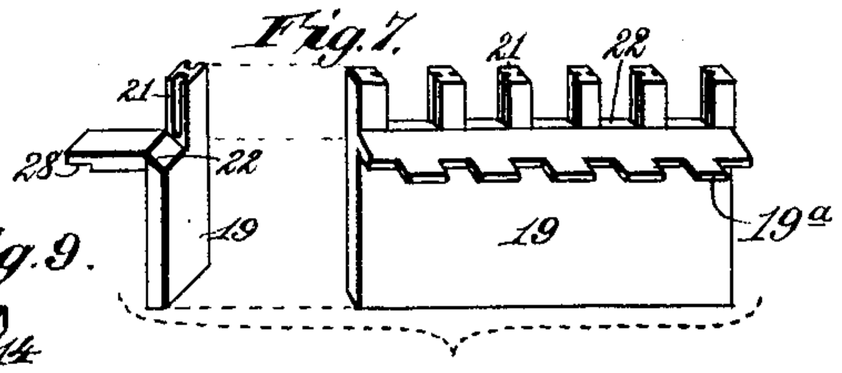


Fig. 8.

Fig. 9.

Fig. 10.

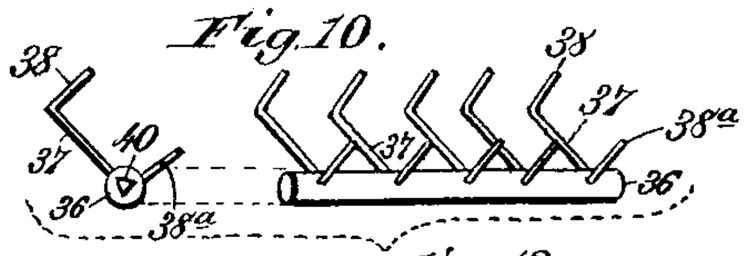


Fig. 11.

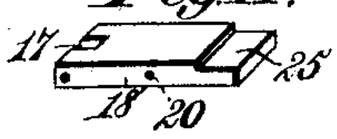


Fig. 12.

Fig. 13.

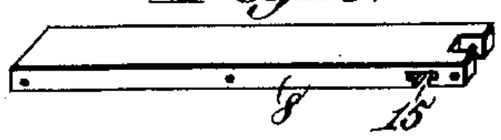


Fig. 14.

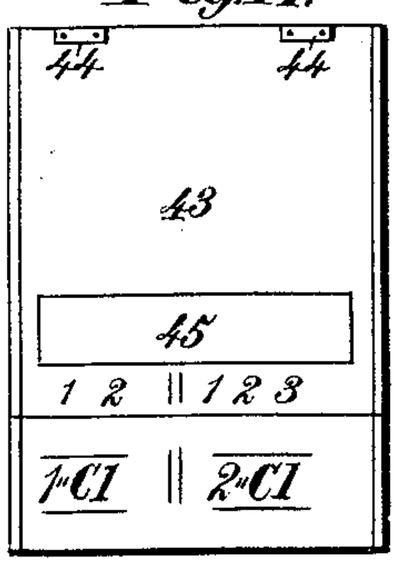
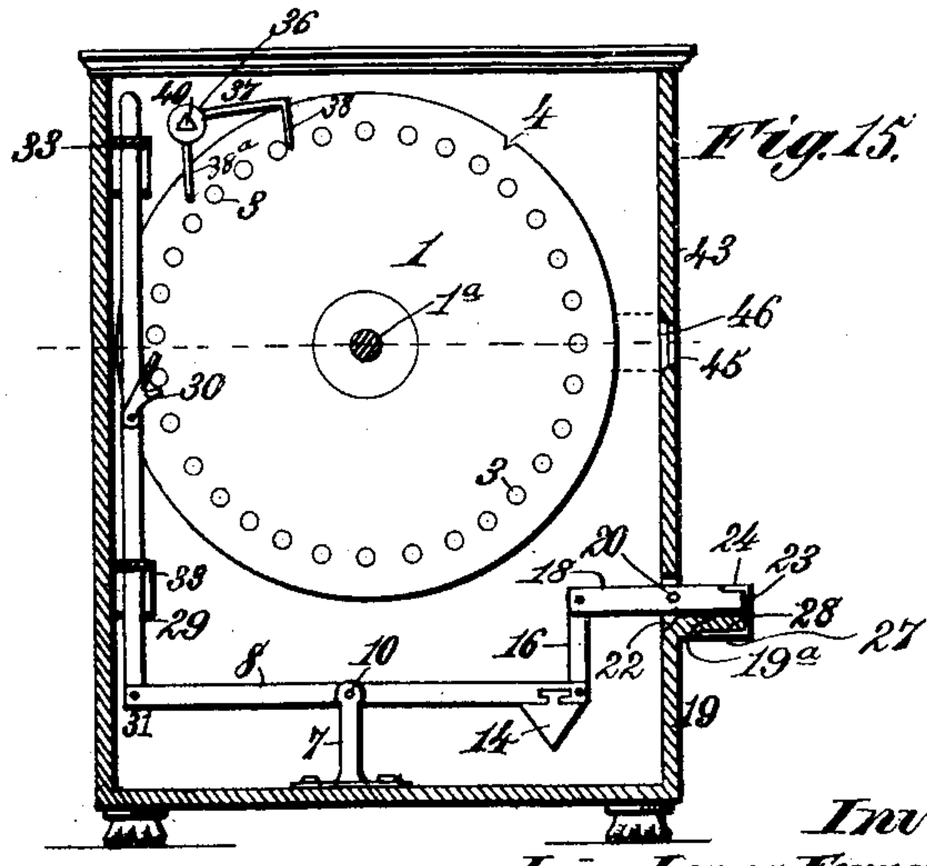


Fig. 15.



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(No Model.) 2 Sheets—Sheet 2.

J. L. F. PINTO.

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Fig. 16.

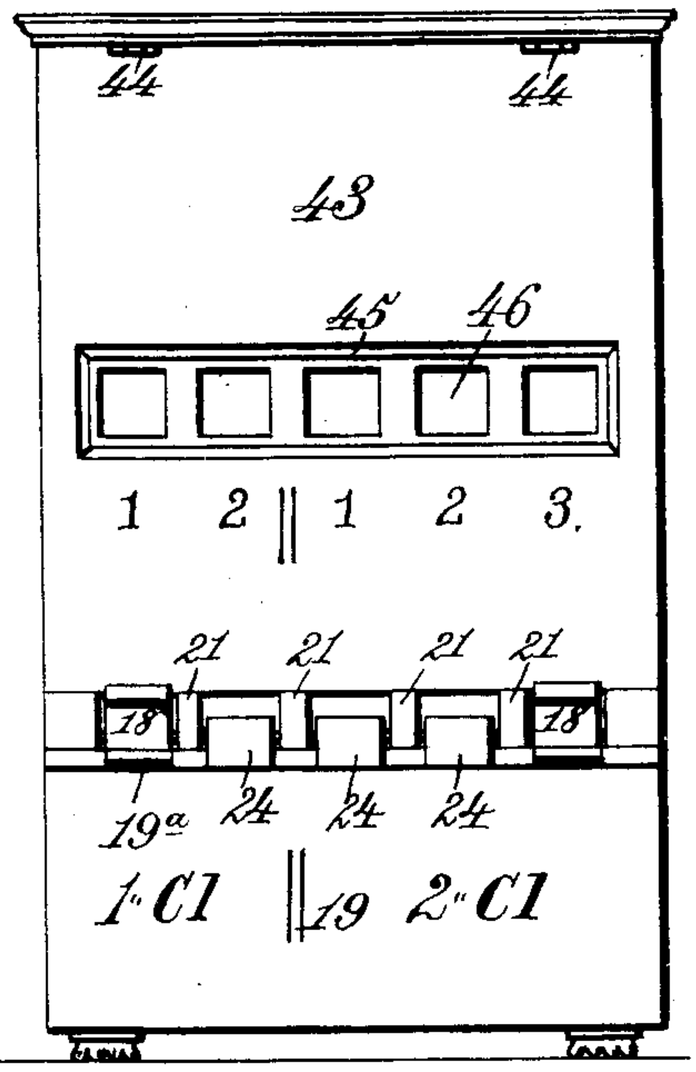


Fig. 17.

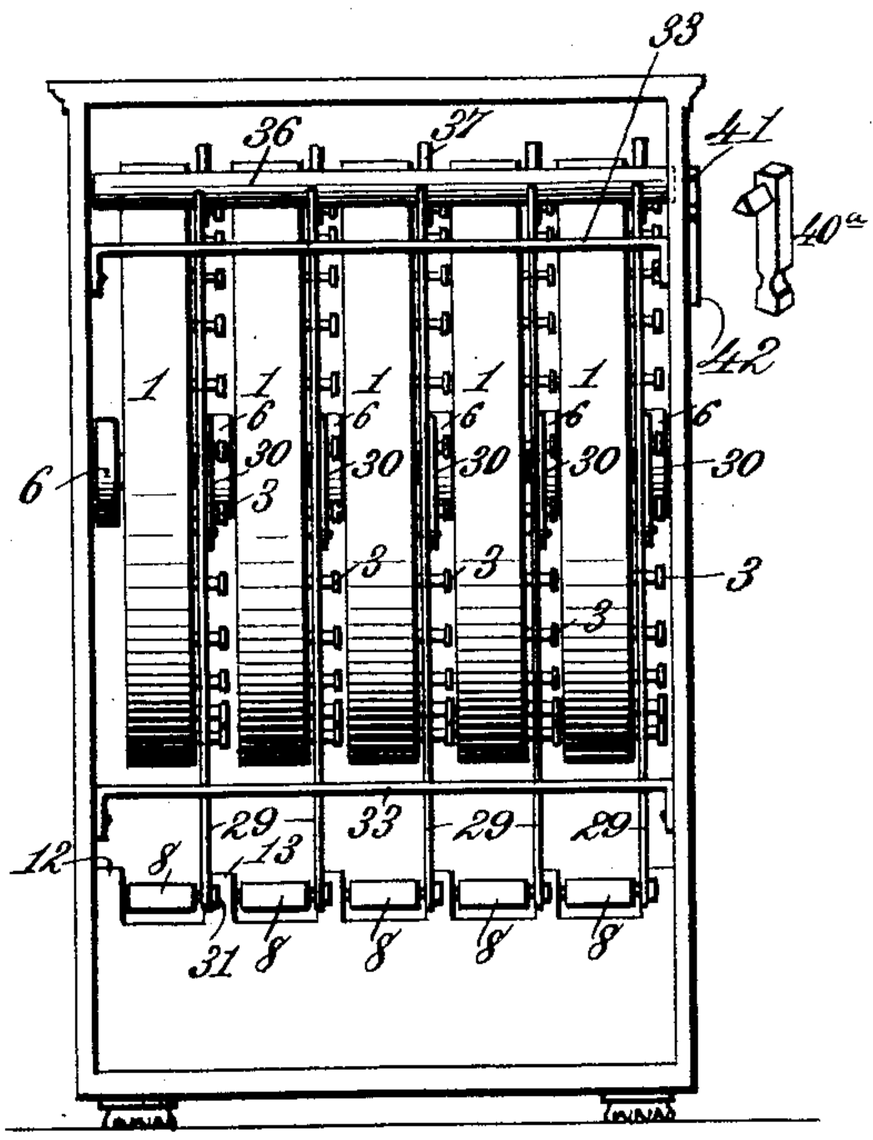


Fig. 18.

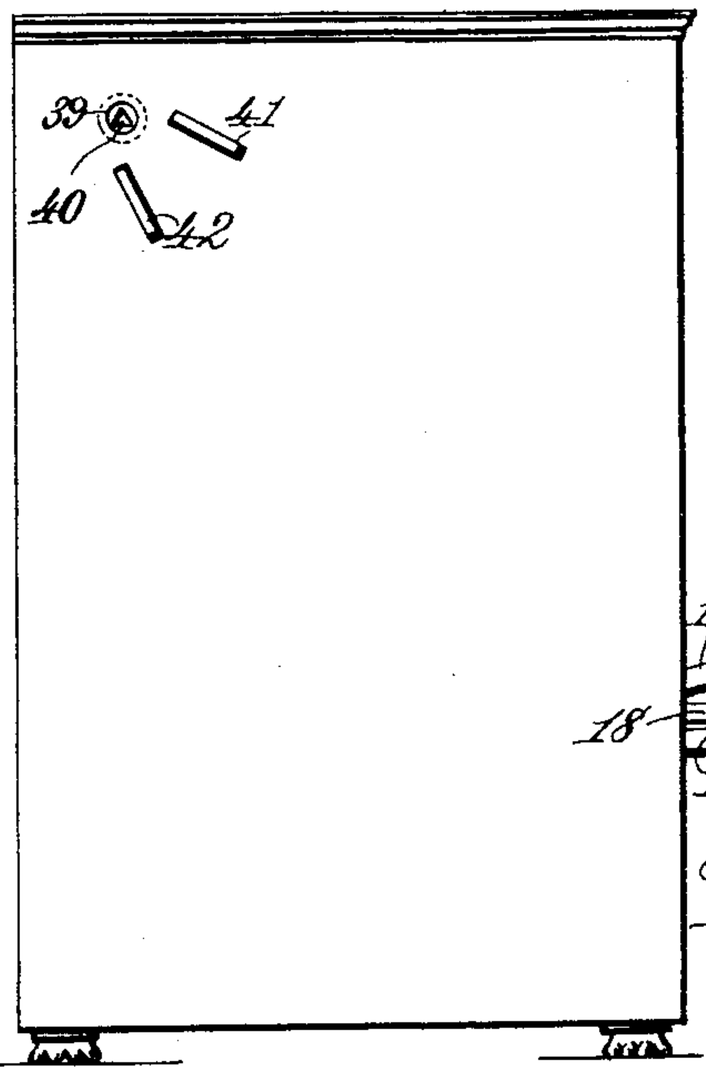
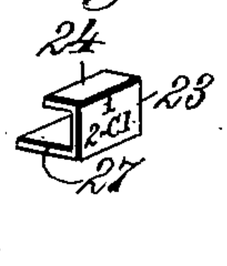


Fig. 19.



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UNITED STATES PATENT OFFICE.

JOÃO LOPES FERREIRA PINTO, OF RIO DE JANEIRO, BRAZIL.

WORKMAN'S TIME-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 477,448, dated June 21, 1892.

Application filed October 2, 1890. Serial No. 366,845. (No model.) Patented in Brazil July 1, 1890, No. 886.

To all whom it may concern:

Be it known that I, JOÃO LOPES FERREIRA PINTO, a citizen of Brazil, and a resident of Rio de Janeiro, Brazil, have invented certain new and useful Improvements in Automatic Indicating Apparatus, (for which I have obtained a patent in Brazil, dated July 1, 1890, No. 886,) of which the following is a specification.

My invention relates to mechanism for indicating the number of days each workman in a factory or other establishment has been present during the week, fortnight, or month, as the case may be, and also for denoting the total amount of salary or wages due said workman for each day or the aggregate pay for a given number of days of labor.

It is the purpose of my invention to provide an apparatus of this character which shall be automatic in action, which may be adapted to the use of any number of workmen, and be operated by the week, fortnight, or month, as the case may be, its operation depending upon the actual presence and personal act of the employé and being controlled in such manner as to effectually prevent fraud by over indications.

To these ends my invention consists in the novel parts and new combinations of parts hereinafter fully described, and then pointed out definitely in the claims which follow this specification.

To enable others skilled in the art to make, construct, and use my said invention, I will proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the sight-plate of the apparatus. Fig. 2 is a perspective view of the workman's register-plate. Fig. 3 is a perspective view of the inner supporting-bracket, having a series of bearings for levers. Fig. 4 is a face view, upon an enlarged scale, of one of the ribbons or tapes having a graphical division into substantially equal parts. Fig. 5 is a perspective of one of the washers introduced between adjacent wheels to render their rotation independent one of the other. Fig. 6 is a perspective view of the key of the rock-shaft carrying the devices which limit and arrest the movement of the wheels. Fig. 7 is a perspective view of part of the front wall of the casing, having an outside support provided with a series of bearings for levers. Fig. 8 is a side elevation of one of the movement-transmitters and its movable pawl. Fig. 9 is a detail perspective view of the counter-weight connected to the inside lever. Fig. 10 is a view, partly in perspective and partly in end elevation, of the rock-shaft and the limiting and arresting devices carried thereby. Fig. 11 is a perspective view of one of the levers by which movement is transmitted by the workman to the apparatus. Fig. 12 is a perspective view of one of the guides for the movement-transmitters. Fig. 13 is a perspective view of one of the intermediate levers. Fig. 14 is a face view of the door of the apparatus. Fig. 15 is a vertical section of the apparatus from front to rear. Fig. 16 is a front elevation of the apparatus. Fig. 17 is a rear elevation of the same, the rear wall being removed and the tapes being taken from the wheels, and one of the same shown in face elevation extended in Fig. 4. Fig. 18 is a view of the side wall of the casing, showing the key-opening and the limiting-stops for the key. Fig. 19 is a detail perspective view of the workman's register-plate, having identifying-marks thereon.

In the said drawings, Figs. 1 to 14, inclusive, represent the parts composing an indicating apparatus adapted for five workmen and capable of showing the daily work of each for thirty-one days of work, or a full month, together with the respective salaries paid and the aggregate amounts due each day as the month passes. The dimensions of the apparatus may be even less, if it is required, to give indications for a fortnight or for a week.

The mechanical operation is always the same, without regard to the difference in size of the parts, the alteration in the dimension relating only to the diameter of the wheel 1, (shown in Fig. 15,) since this diameter controls the extent of the circumference, which should always be equal to the length of the ribbon shown in Fig. 4.

In the accompanying drawings, the reference-numeral 1 indicates each one of a series of wheels of suitable size, each of which is provided upon one side near its edge with a series of thirty-two teeth in the form of pins 3, having flat heads, the wheel being provided

with a notch 4, in which the extremities 5 of the ribbon are neatly fastened. This ribbon 2 is divided into thirty-two equal parts, and in the rectangular divisions thus formed are imprinted consecutively the numerals "1" to "31" to denote the days of a month. The thirty-second space of the ribbon is merely a blank or zero space, which forms a point of departure in reckoning. In the first space containing the numeral "1" is printed a figure or figures denoting the daily salary paid to the employé, whose time is indicated by the figures arranged in consecutive order on said ribbon, and in the succeeding spaces are printed figures indicating the aggregate of salary falling due from day to day. For example, if it be supposed that the daily pay of an employé is six dollars per diem, then the numerals "6.00" will appear in the space containing the numeral "1," denoting the first day of the month. In the next succeeding space will appear the numeral "2," indicating the second day of the month or the second of work, together with the figures "12.00," to denote the amount due for two days' work, and so on. The two series of numerals may be distinguished from each other by printing the two series in different colors, the day's work being marked in a color different from that which represents the amount of salary, the latter being preferably black. The wheel 1 or a series of similar wheels, with ribbons attached to their peripheries and marked in the manner described, the salaries being equal to or different from each other, turn upon a common axis or rigid shaft 1^a, fixed at its two ends in the frame of the apparatus. The wheels are separated from each other by washers 6, rendering their rotation entirely independent of one another, this movement being communicated in the manner following:

The inner supporting-bracket 7 (shown in Fig. 3) is attached to the floor of the apparatus, as shown in Fig. 15, and the intermediate levers 8 (shown in Fig. 15) rest upon it in notches 9, being fulcrumed upon pins 10, which have bearing upon the parts 12 and 13, which rise from the bracket 7, as shown in Fig. 3. To each of the levers 8 is attached a counterpoise 14, (shown in Fig. 9,) the head of which lies in a notch 15, formed in the lower face of each lever 8 at or near its front end, as shown in Figs. 13 and 15. The front ends of said levers are connected by links 16 to the ends of a series of exterior levers 18, each of which is provided for such purpose with the notch 17, as shown in Fig. 11. These outside levers 18 rest upon an external support 19. (Shown in Figs. 7, 15, and 16.) The external support is provided with the horizontal outwardly-projecting stops 19^a, referred to below. The levers 18 are provided with fulcrum-pins 20, which rest in slots in the inner faces of the parts 21, formed in the supports 19, which form the bearings or points of support. Said support 19 is chamfered at the points 22 to permit the exterior levers to be easily inclined. (See Fig. 7.)

The reference-numeral 23 denotes what may be termed the "workman's register-plate." (Shown in Figs. 2 and 19.) This plate, which consists of a flat strip of metal having one edge bent at right angles thereto to form a narrow flange 24 and the other end bent in similar manner to form a more extended flange 27, is inserted with its flanged end 24 in the notch or rabbet 25 (see Fig. 11) in the upper face of the end of the exterior lever 18, as shown in Figs. 15 and 18, and its flange 27 is fitted in a seat 28 in a series of stops 19^a, which project horizontally outward from the external support 19 and lie directly beneath the outside levers 18 in such a manner that when the register-plate 23 is once in its place the two levers 8 and 18 are maintained each in its own place in a horizontal position. When the workmen return daily to their work, each will remove the register-plate 23 which belongs to him and which is indicated by the register-number marked upon it, whereupon the released lever 18, actuated by gravity by reason of the counter-weights 14, will assume an inclined position, its outer end being raised, one of said levers being so shown in Fig. 18. It is this latter movement which gives rotation to the wheel 1 through a transmitter 29, Figs. 8 and 15, having a movable pawl 30, pivotally connected to the said transmitter. The pawl 30 is provided with a notch or angular seat, and the pawl is so located that this notch is adapted to engage one of the lateral teeth 3 of the wheel 1, and as the transmitter 29 and pawl 30 rise cause said wheel to advance a single step or so far as is necessary to bring into view the next succeeding space upon the ribbon 2. When leaving the factory, each workman replaces his registry-plate 23 in its place in the apparatus, thereby causing the transmitter shown in Figs. 8 and 15 to descend without moving the wheel, the pawl 30 thereon falling in such a manner that it engages the tooth or pin 3 immediately beneath that one upon the wheel with which it previously had operative engagement in readiness for a repetition of the movement upon the next removal of the registry-plate. The transmitter carrying the pawl is maintained in position and allowed to move by two guides 33, (shown in Figs. 12 and 15,) attached to the frame in such a manner that the said transmitter may move in the rectangular opening in the two guides 33.

In order that the wheel may move only a single step each day and to avoid fraud, I have placed upon the upper and rearward part of the apparatus, nearly in the plane of the transmitters, a rock-shaft 36, (shown in detail in Fig. 10,) said rock-shaft being furnished with limiting or arresting-arms 37, corresponding in number with the wheels 1 and arranged to lie beside the latter and over the pins 3. Upon the ends of these arms are formed short pins 38, standing at or about a

right angle with said arms and extending downward toward the pins 3. On the lower side of the rock-shaft are formed or mounted short points 38ª, which hang almost perpendicularly, as shown in Figs. 10 and 15.

In the drawings the positions of the arms 37, pins 38, and arms 38ª are shown in the position they occupy when the workman has removed the registering-plate and the wheel has been moved to give him credit for work for a day or other period. When the arms are in this position, the wheel cannot be turned further by the workman until the employer, manager, or other person having possession of the key hereinafter referred to has adjusted the arms. In the side wall of the apparatus (see Fig. 18) an orifice 39 is formed substantially in line with the axis of the rock-shaft 36 and registering with an opening 40 in the end of said shaft. Into this opening the triangular portion of a key 40ª may be inserted and caused to describe a limited arc of movement between the stops 41 and 42, Figs. 17 and 18. When this key is turned in the proper direction, the short pins 38 of the arms 37 are raised out of the path of the pins 3 and at the same time the arms 38ª are swung in the arc of a circle and push the pins 3 with which they are in contact a very short distance, equal to the diameter of the pins 3. The key is then turned in the opposite direction, swinging the arms 38ª out of the path of the pins 3 and throwing the short pins 38 of the arms 37 down into the path of said pins 3, when it will be found that the said pins 38 will be upon the side of the pins 3 opposite that which they occupy in the drawings. The wheels 1 are then capable of being moved to indicate another period of labor upon the removal of their respective workman's register-plates. It is designed that only the employer or his manager shall have possession of the key 40ª, thus affording a prevention against fraud.

There is in front of the apparatus a door 43 opening upon hinges 44 and having a large rectangular opening 45, in which is placed the sight-plate 46, shown in Figs. 1 and 16. This door may be opened for substituting new ribbons when there is a change in salaries, and with the external support 19 it completes the outer face or front wall of the apparatus and upon its upper part it may bear the name of the factory. In order that the workmen may know the tape upon which their wages is indicated any suitable system may be adopted—as, for example, the workmen may be divided into classes, and each workman have applied to him a particular number in that class. In using such classification it would be convenient to apportion a certain number of wheels and levers to each class, the wheels and levers for each class being suitably indicated, as in the drawings where the casing is marked off for two classes, as "1st Cl." for class one and "2d Cl." for class two, and each lever in each class would have a suitable designation, as "1," "2," "3," &c. The workmen in each class would, as stated, be given a number in his class, as "No. 1," "No. 2," &c. It will readily be seen that in this manner mistake upon the part of the workmen would rarely occur. Workman No. 1 in class 2 would know that the lever to which the register-plate bearing the mark illustrated by Fig. 19 is attached operates the wheel which accounts his wages, and he would take it from and return it to lever No. 1 in class 2. It is obvious that other systems could be adopted.

In case it is desired to indicate fractions of days with a corresponding salary it will be necessary to increase the number of teeth in the wheel with pins and to graduate the ribbon in a manner proportioned thereto.

When it is required to indicate the fractions of a day less than half a day, it will be found convenient to apply to the cylinder a small clock-movement to render the operation automatic.

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

1. An automatic indicator for industrial establishments adapted to show with precision the number of days of work and the salary corresponding thereto, the same consisting of a wheel having laterally-projecting pins and provided upon its periphery with a ribbon divided into spaces containing figures indicating the days of successive work and the increase or aggregate of salary due each successive day of work, a transmitter carrying a pawl engaging said pins, an intermediate lever connected with the transmitter and having a counterpoise or weight, an exterior lever connected to the weighted end of the interior lever, and a double-flanged register-plate connecting the outer end of the exterior lever with a rigid stop beneath the same, substantially as described.

2. In an automatic indicator, such as that hereinbefore described, the combination, with a wheel indicating the days of work in succession and the aggregate of salary due each successive day of work, of means for giving intermittent movement to said wheel, an exterior lever to impart such movement, a workman's registry-plate adapted to be removed at the beginning of work and replaced at discontinuance thereof, said plate consisting of two parallel flanges, connected by a face-plate, said plate being adapted to maintain the exterior lever and the operating devices in readiness for operative movement, and when removed to release the exterior or operating lever of the device, substantially as described.

3. In an automatic indicator, the combination, with a series of intermediate levers having weights at their ends, of a series of pawl-carrying transmitters, a corresponding series of wheels, upon the flat faces of which on one

side are arranged pins, with which the pawls of the transmitters are adapted to engage, each wheel being provided on its edge with a ribbon having spaces containing numerals, substantially as described, external levers fulcrumed upon an exterior support having a series of outwardly-projecting stops lying beneath the ends of the exterior levers, which are linked to the weighted ends of the levers, and a corresponding series of registry-plates, each having two parallel unequal flanges, one engaging the end of the external lever and the other the stop beneath it, said flanges being connected by a face-plate, substantially as described.

4. In an automatic indicator of the kind described, the combination, with a wheel having a spaced and printed ribbon upon its edge and provided with a circular series of lateral pins, of means, substantially as described, for intermittingly advancing said wheel, a rock-shaft having an opening in its end to admit the angular end of the key, said shaft being provided with radial arms having depending stops upon their ends adapted to engage the pins on the wheel, and with shorter arms hanging from the lower side of said rock-shaft, a pawl-carrying transmitter, a weighted lever pivoted thereto, a second lever connected to one end of the first and having its power end outside a casing inclosing the parts above a rigid stop, and a register-plate provided with flanges at its ends to engage said stop and lever, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOÃO LOPES FERREIRA PINTO.

Witnesses:
JULES GIRAUD,
A. BAILLY.