T. C. PROUTY.

TIME CLOCK.

APPLICATION FILED DEC. 29, 1910. RENEWED AUG. 13, 1917.

1,259,282.

Patented Mar. 12, 1918

7 SHEETS—SHEET 1.

Fig. 1a.

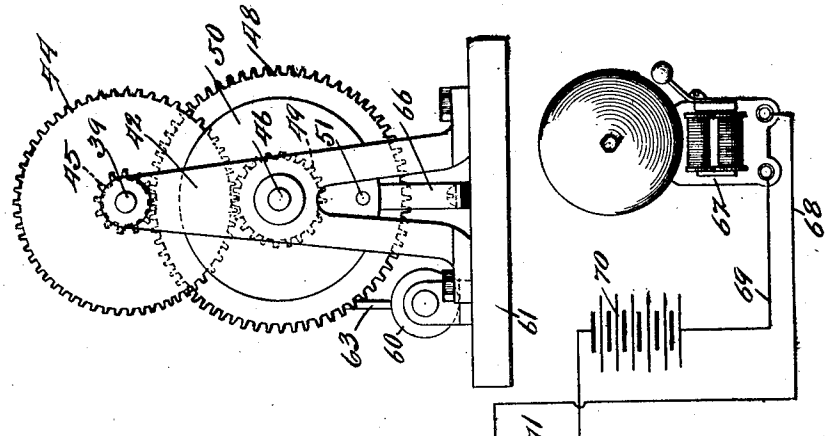
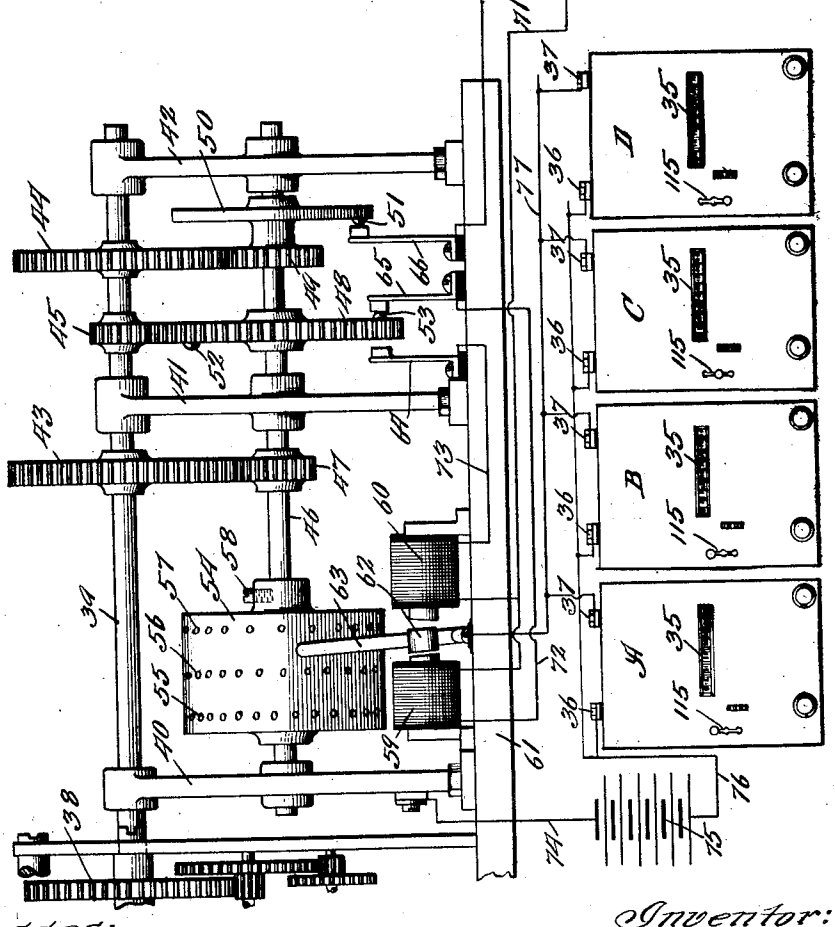


Fig. 1.



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7 SHEETS—SHEET 2.

Fig. 5.

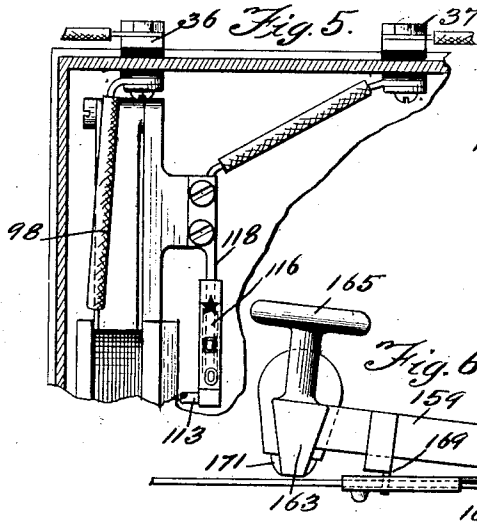


Fig. 4.

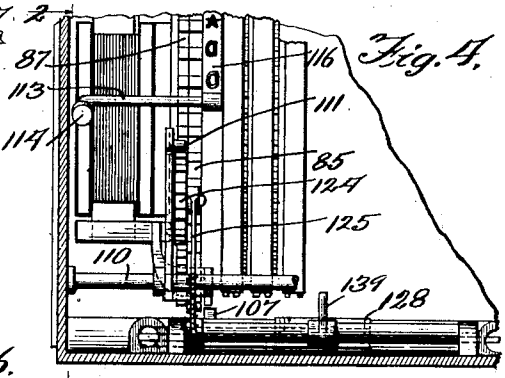
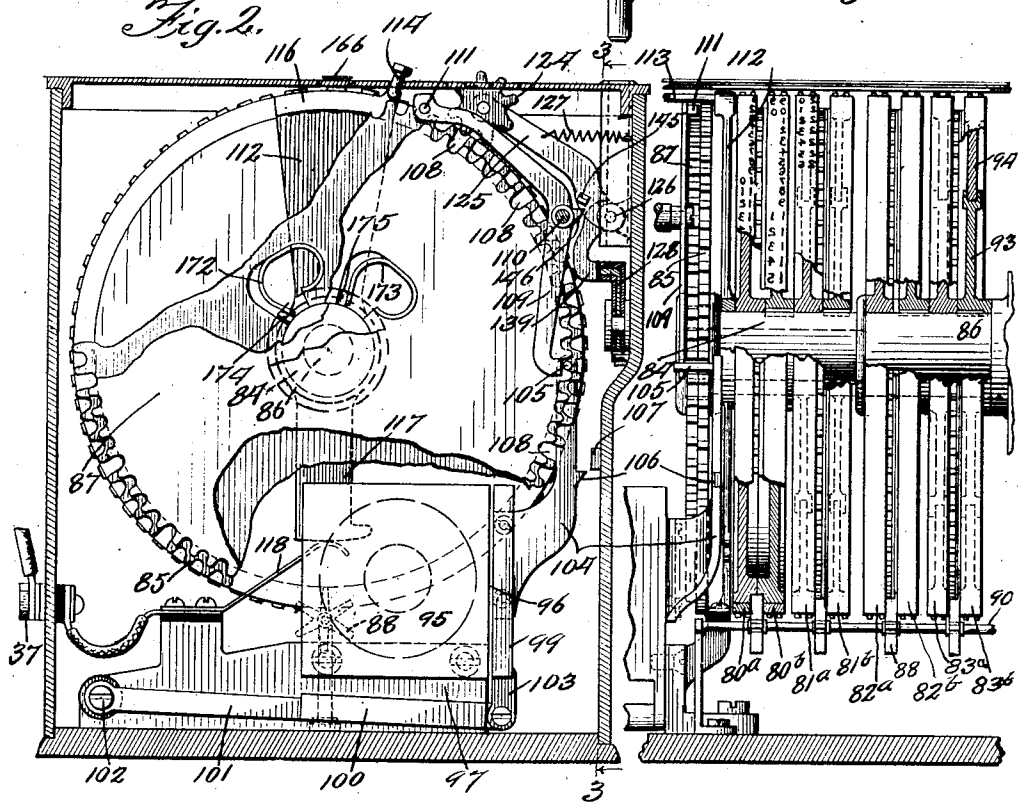


Fig. 6.

Fig. 3.

Fig. 2.



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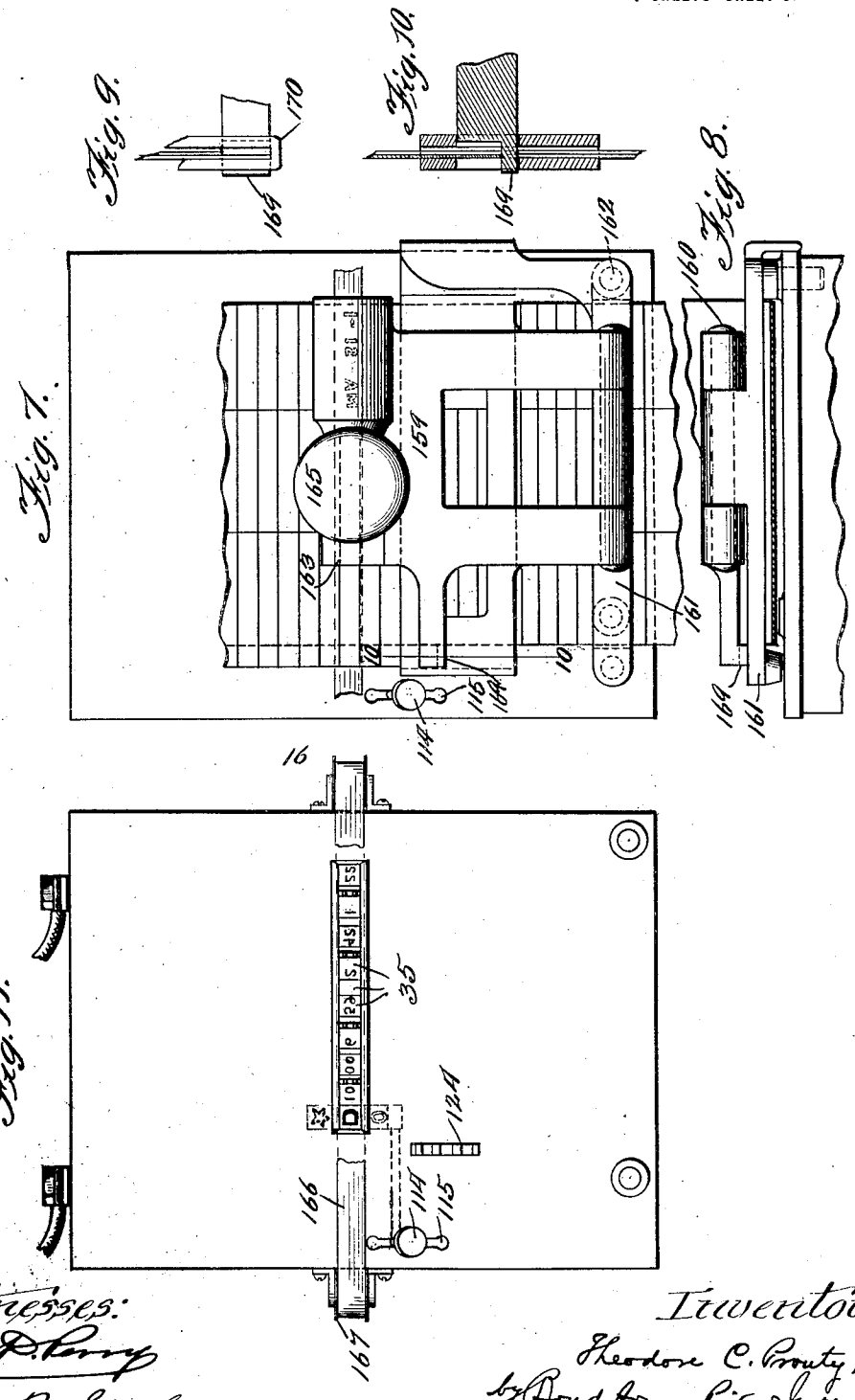
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7 SHEETS—SHEET 3.



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1,259,282. **Patented Mar. 12, 1918.**

7 SHEETS—SHEET 4.

Fig. 12.

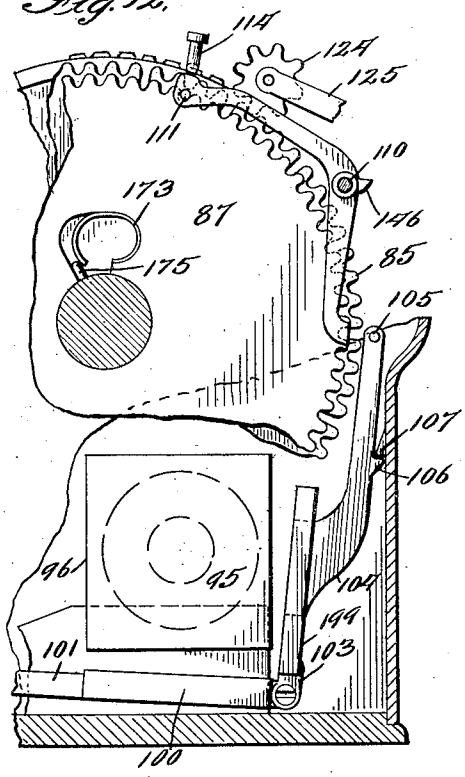
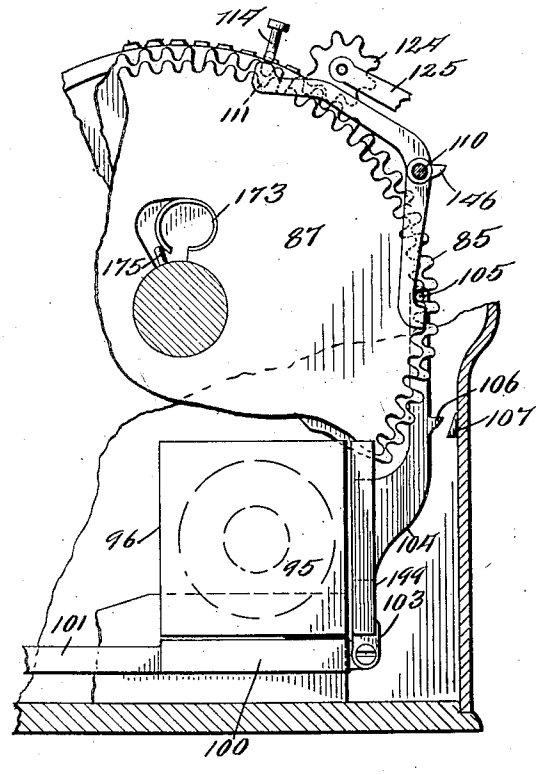


Fig. 13.



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1,259,282. Patented Mar. 12, 1918.

7 SHEETS—SHEET 5.

Fig. 15.

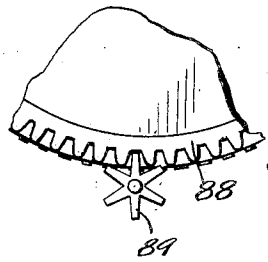


Fig. 14.

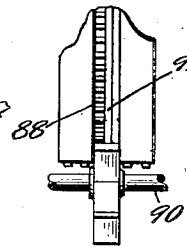


Fig. 16.

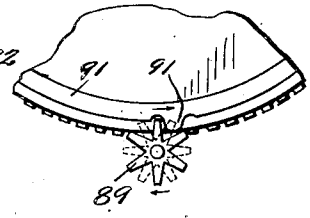


Fig. 17.

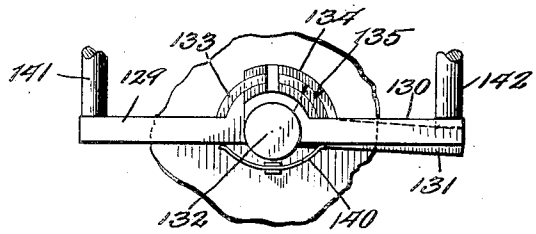


Fig. 18.

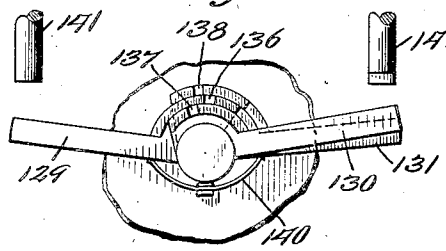
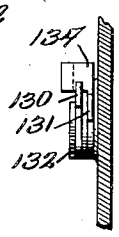


Fig. 19.



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7 SHEETS—SHEET 6.

Fig. 20.

Emp No	Class Work	Total time	Elapsed time	Total Value	Elapsed Value	Date		Credits	Charge to Job.
122	0	00 00	00 00	0000	0000	1-10	AM		
122	★	3 41	3 41	120	120	1-10	AM	1200@ 10¢	182 B
122	D	10 00	6 59	242	122	1-10	PM		241
122	D	16 00	6 00	362	120	1-11	AM		John Smith
122	★	19 00	3 00	422	60	1-11	PM	20 Pcs	1820
122	0	19 00	00 00	422	0000	1-12	AM		
122	0	19 00	00 00	422	0000	1-12	PM		

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Fig. 21.

Emp No	Class Work	Total time	Elapsed time	Total Value	Elapsed Value
122	0	00 00	00 00	0000	00 00
122	★	3 41	3 41	120	120
122	D	10 00	6 59	242	122
122	D	16 00	6 00	362	120
122	★	19 00	3 00	422	60
122	0	19 00	00 00	422	0000
122	0	19 00	00 00	422	0000

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Fig. 22.

Date		Credits	Charge to Job.
1-10	AM		
1-10	AM	1200@ 10¢	182 B
1-10	PM		241
1-11	AM		John Smith
1-11	PM	20 Pcs	1820
1-12	AM		
1-12	PM		

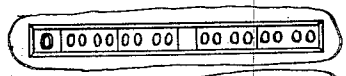


Fig. 23.

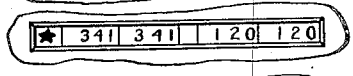


Fig. 24.

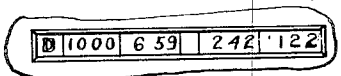


Fig. 25.

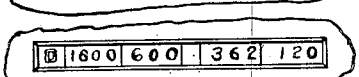


Fig. 26.

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TIME CLOCK.

APPLICATION FILED DEC. 29, 1910. RENEWED AUG. 13, 1917.

1,259,282. Patented Mar. 12, 1918.

7 SHEETS—SHEET 7.

Fig. 28.

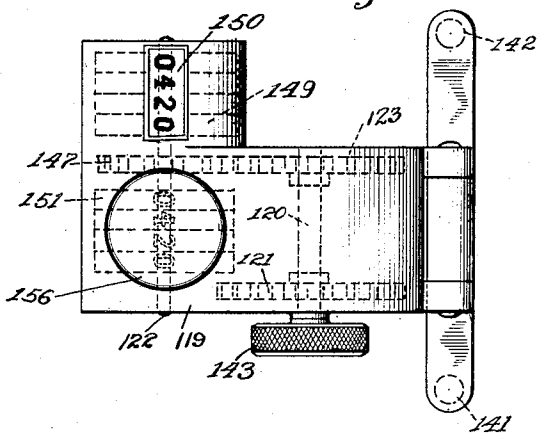
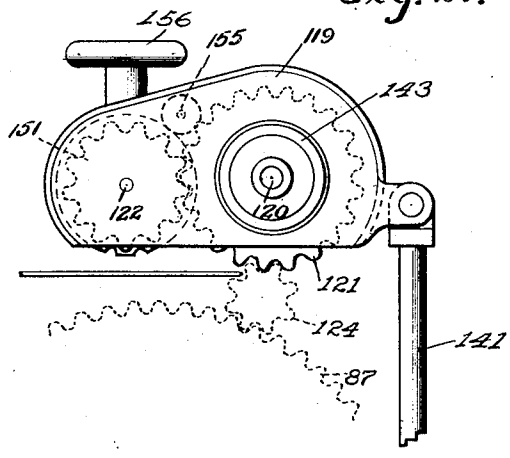


Fig. 29.

Emp № 125
Job № 182 B.
2100 Pcs.
P20# 420
0420

Fig. 27.



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UNITED STATES PATENT OFFICE.

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TIME-CLOCK.

1,259,282. Specification of Letters Patent. **Patented Mar. 12, 1918.**

Application filed December 29, 1910, Serial No. 599,909. Renewed August 13, 1917. Serial No. 186,050.

To all whom it may concern:

Be it known that I, THEODORE C. PROUTY, a citizen of the United States, residing at Aurora, in the county of Kane, State of Illinois, have invented certain new and useful Improvements in Time-Clocks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to workmen's wage computors or time clocks used by employers of labor to show their employees' time, and has for its object to provide a new and improved apparatus which will successfully meet the requirements of such service. In factories where all the employees are paid on a basis of elapsed time the problem of keeping track of the time of the several employees is comparatively simple, but where a greater or less number of employees are employed on piece work, it is much more difficult to provide for all the numerous complications which arise in connection with making an accurate record of the amounts earned by them. In establishments where the earnings of some employees are figured on the basis of elapsed time and of others on a piece work basis, or where employees are shifted from one class of work to another, the difficulty of providing an accurate system for keeping track of the employees' time is still further increased, and, so far as I am aware, prior to my invention, no one has heretofore provided a successful apparatus by which this work may be done. My invention, generically considered, consists in providing suitable mechanism by which the time of any employee may be registered mechanically, either when he is employed on day work,—*i. e.*, when he is paid on a basis of elapsed job time,—by which I mean the amount of actual time spent on a particular job; when he is employed on piece work, or when he is absent; and further by which the total amount earned by the employee as well as the distribution of such amount between day work and piece work may be registered so that the nature of the employment of the workman may at any time be readily ascertained.

Also in providing means by which a printed record may be made at any time during the day showing the employees' account, giving the total amount due at any time between pay days, and showing his presence or absence, and the character of work on which he has been employed.

Also in providing other features of the invention embodied in the mechanism illustrated in the accompanying drawings to accomplish the following objects:—

To show elapsed time and compute wages due at any rate per day and permit changing said rate at any time, but only by one having authority to make such change.

To permit an employee to work on either day or piece work, the clock providing for the employee a record showing the amount of time each day, recording day work and piece work separately, thus making it impossible to receive credit for piece work and draw wage by the day for the same period of time.

To provide means for disclosing to the foreman in charge whether an employee is present, absent, working on day work or on piece work, and exposing to his view a correct record of the number of hours worked by said employee either on piece work or on day work separately, showing elapsed time and the value of the same.

To provide means whereby the foreman may record the job on which the employee has worked during any period of time in connection with his record for such period mechanically computed so that both the time and the money value of the time may be distributed by job numbers without mental computation, thus providing a system of checking results, as the total distribution of the payroll of all the various jobs on which the different workmen having been employed will be equal in dollars and cents to the value of the total payroll, and the time so distributed will be equal to the total time of all the employees.

To provide means whereby if the employee be working on day work exclusively his entire time and the value of such time may be determined instantly so that he may be paid in full without metal computation, and at the same time the amount of the payroll passing to his account may be distributed to all of the various jobs on which he has worked.

To provide means for showing to a foreman the total amount of an employee's

time while working on a given job at piece rate, and means for mechanically figuring the value of piece work performed during this period of time and carrying it to the credit of that employee and at the same time distributing it to the job, making it possible to pay any employee at any time the total wages due him for both piece work and day work.

To provide means for recording direct and visible proof of piece rate entries, the record showing the employee's number, the job number worked on, the rate of piece work per thousand, and the number of thousand pieces or pounds produced by the operator in addition to giving the money value of such work, thereby producing a record that may be checked in case of dispute concerning the total amount due an employee.

To provide mechanical means for computing an employee's piece work and in additon to giving him credit for the total value thereof to make a record for the purpose of distributing this labor which will show the total time employed on the job and the value of that time, thus making a comparative record showing the value of the time on the employee's day work basis and his actual earnings on a piece work basis, which is necessary in comparing piece work for distribution.

In the accompanying drawings, which illustrate one of many forms of apparatus in which my invention may be embodied,

Figure 1 is a view, partly diagrammatic, illustrating in a general way the various parts of the apparatus;

Fig. 1ª is an end view of the controller;

Fig. 2 is a sectional view on line 2—2 of Fig. 4, illustrating the registering wheels and mechanism for operating the same;

Fig. 3 is substantially a vertical section on line 3—3 of Fig. 2, some parts being broken away; Fig. 4 is a partial plan view of the registering mechanism;

Fig. 5 is an enlarged detail, being a partial plan view showing part of the actuating mechanism by which the registering wheels are operated;

Fig. 6 is a detail, being a side view of the printing device employed for taking off the record of the registering devices;

Fig. 7 is a plan view of the parts shown in Fig. 6;

Fig. 8 is an end view of the parts shown in Fig. 7;

Fig. 9 is a partial edge view of the printing device shown in Figs. 6 and 7;

Fig. 10 is an enlarged detail, being a partial vertical section on line 10—10 of Fig. 7;

Fig. 11 is a plan view of one of the registering devices with the carbon ribbon being broken away;

Figs. 12 and 13 are details showing different positions of the actuating mechanism for operating the registering wheels and other parts of the apparatus;

Fig. 14 is a view of the lower margins of a pair of registering wheels showing the device for carrying from the units wheels to the hundreds wheel;

Fig. 15 is a side view of the parts shown in Fig. 14, illustrating the engagement of the carrying pinion with the hundreds wheel;

Fig. 16 is a similar view showing the engagement of the units wheel with the carrying pinion;

Fig. 17 is an inner face view of the locking mechanism used in connection with the piece work registering devices;

Fig. 18 is a similar view showing a different position of the locking mechanism;

Fig. 19 is an edge view of the parts shown in Fig. 18, the case being in section;

Fig. 20 is a view of the unfolded record card on which the several records are printed or written;

Fig. 21 is a view of the folded card showing what is the lower face thereof when the card is applied to the apparatus.

Fig. 22 is a similar view showing the opposite side of the folded card;

Figs. 23, 24, 25 and 26 are views illustrating the appearance of the registering wheels through the sight opening at different times;

Fig. 27 is a side elevation of a device employed in connection with the indicating mechanism to advance the same for th purpose of adding to the indication piece rate credits so that the earnings of the employee on piece work will be added to his registered earnings on time work, thus making the proper showing at the sight opening of total wages earned;

Fig. 28 is a plan view of the device shown in Fig. 27; and

Fig. 29 is an illustration of an employee's piece work ticket.

The apparatus illustrated in the accompanying drawings comprises a series of personal registers, one for each employee, which are driven by suitable electrically-operated mechanism from a clock, the actuation of the several registers being controlled by suitable controlling mechanism. The personal register assigned to any employee is fitted with indicators arranged to operate so as to properly show the wages due such employee at his rate per day,—for example, an employee receiving twenty-five cents per hour is assigned a register set to operate at that rate, while another employee receiving thirty cents per hour would be assigned a register operating at a higher rate. But all the registers may be connected together in circuit so that they are all operated automatically from a single clock and may be

controlled by the same commutator. The commutator is so constructed as to be capable of adjustment to enable the several registers to be operated at different rates of speed, as, for example, to register time and a half or double time, as occasion may require, but such adjustment is, of course, subject to the control of the foreman or other attendant. In addition to the parts above mentioned, said apparatus comprises a printing device which may be applied to any of the several registers for the purpose of taking off of such register a reading of the indication appearing at the sight opening of such register and at the same time notching the card on which such reading is taken so that when again applied to the register it will properly aline with the sight opening. Such printing device also is provided with means for printing the hour and day when any registration is taken. Such apparatus further includes a device which may be applied to different registers for the purpose of advancing the indication of the earnings of the employee during any given interval of time in order to show piece work earnings as hereinafter described and at the same time indicating to the employee in a visible way the extent of such advancement both by dial indication and printed record thereof. The apparatus illustrated also includes an alarm, which may be a bell, or may be a whistle, and means for automatically sounding such alarm at the proper times, such as when work is commenced and when it is stopped at the usual starting and quitting times during the day. I shall now describe in detail the embodiment of my invention illustrated in the drawings.

A B C D indicate a series of individual registers, each of which is inclosed in a suitable case and is provided with a sight opening 35 through which the reading of the register may be taken at any time as hereinafter described. These registers are arranged to be operated electrically and are connected up in series, each being provided with two binding posts 36 37, as shown in Fig. 1. 38 indicates the clock, or other time train, which operates the several registers through suitable connections. In Fig. 1 I have shown a simple form of apparatus by which this may be accomplished. As therein shown, 39 indicates a drive-shaft mounted in suitable brackets 40 41 42 and carrying gears 43 44 and a pinion 45. 46 indicates a counter-shaft also mounted in the brackets 40 41 42 and having a pinion 47 which is fixedly mounted on the shaft 46 and meshes with the gear 43. Said shaft 46 also carries a gear 48, which is loosely mounted thereon and meshes with the pinion 45, and a pinion 49 which is also loosely mounted on said shaft and meshes with the gear 44. The pinion 49 has connected to it a disk 50 which is provided on one side near the periphery with a contact point 51. The gear 48 is provided on opposite sides near its periphery with contact points 52 53, respectively. 54 indicates a cylindrical commutator in the form of a drum having a surface of non-conducting material and having a number of series of contact points annularly arranged on its surface, as shown at 55, 56 and 57, respectively. The contact points of series 55 are closer together than those of series 56, and in like manner the contact points of series 56 are closer together than those of the series 57. The commutator 54 is mounted upon the shaft 46 so that it may be slid thereon when desired but is ordinarily secured thereto by a set-screw 58, as shown in Fig. 1. The relation of the gears 43 and 47 to each other is such that the shaft 46 is rotated once an hour, and the series of contact points 57 in practice comprises one hundred of such contact points, although in the illustration a less number is shown to avoid confusion. The series of contact points 56 in practice would comprise one hundred and fifty contact points, and the series 55 two hundred, the latter two series being intended to register time and a half or double-time when desired, as hereinafter described. 59 60 indicate two oppositely-disposed electro-magnets mounted on the base 61 which supports the brackets 40 41 42, the poles of said magnets lying opposite each other and a short distance apart, as shown in Fig. 1. 62 indicates the armature of said magnets which is mounted between the opposite poles thereof on a rocking lever 63 which also serves as a brush to bear against the contact points of the commutator 54. The arrangement is such that when the magnet 60 is energized the armature 62 is drawn to the right of the position shown in Fig. 1, bringing the lever 63 into a position over the contact points 57. When the magnet 59 is energized, the armature 62 is drawn in the opposite direction and the lever 63 is thereby moved so that it bears against the commutator 54 between the two series of contact points 56 57. 64 indicates a contact device, which is mounted upon and insulated from the base-plate 61 and is adapted to engage the contact point 52 carried by the gear 48 when said contact point is brought into proper position by the rotation of said gear. 65 indicates a similar contact device mounted at the opposite side of the gear 48 in position to make contact with the contact point 53. 66 indicates a third contact device which is arranged in position to engage the contact point 51 carried by the disk 50. 67 indicates an electric bell, one of the binding posts of which is connected by a wire 68 with the contact device 66,—the other binding post of said bell being connected by a wire 69 with the bat-

tery 70, the battery being connected by a wire 71 with one end of each of the helices of the electromagnets 59 60. 72 indicates a wire connecting the other end of the helix of the magnet 59 with the contact device 65. 73 indicates a wire connecting the other end of the helix of the magnet 60 with the contact device 64. 74 indicates a wire connecting the bracket 40 with a battery 75. 76 indicates a wire connecting the other pole of the battery with the binding posts 36 of the several registers, and 77 indicates a wire connecting the binding posts 37 of the several registers with the pivot of lever 63.

In the position illustrated the contact devices 65 and 66 are in contact respectively with contact points 53 51, thus making electrical connection with each other through the frame of the apparatus, consequently the circuit will be closed through magnet 59 and through the electric bell 67 which will accordingly sound the alarm. At the same time the lever 63 will be thrown over to the neutral position shown in Fig. 1, where it is out of position to engage the contact devices on the commutator. The circuit will then be broken through the several registers. When, in the course of time, the rotation of the gear 48 brings contact point 52 into engagement with contact device 64, which is so timed as to be coincident with the engagement of the contact point 51 with contact device 66, the circuit will then be closed through magnet 60 and also through the electric bell 67. The bell will, therefore, ring and at the same time the lever 63 will be thrown over to the right so that its outer end bears against the contact point 57. Consequently, as the commutator rotates whenever said lever bears against one of the contact points 57 the circuit will be closed through the several registers and through battery 75,—such circuit being as follows: from the contact point of the commutator and the frame of the apparatus to wire 74, through battery 75 and wire 76 to all the binding posts 36, thence through the several registers and back through wire 77 to the lever 63. The commutator is timed to rotate once an hour, so that it will be seen that when the lever 63 is in operative position over the series of contact points 57 each of the registers will be actuated one hundred times per hour; also that whenever the contact devices 65 66 simultaneously engage the contact points 53 51, respectively, the magnet 59 will be energized, moving the lever 63 out of position and ringing the bell 67, and that whenever contact devices 64 66 simultaneously engage contact points 52 51, respectively, the magnet 60 will be energized and the lever 63 moved into operative position and the bell again sounded. The specific times at which these several operations occur may be arranged as desired by using gears of the proper proportions and properly setting the apparatus in connection with the clock. For example, if it is desired to begin the operation of the several registers at eight o'clock in the morning, the several parts are adjusted so that the appropriate connections are made at that hour to move the lever 63 into operative position, and the same is true in regard to shutting down at noon, commencing again at one o'clock, and shutting down at six. If it is desired to operate the registers to show a rate of time and a half, the commutator 54 may be moved along upon the shaft 56 so as to move the series of contact points 56 into position under the lever 63 when said lever is in operative position, and if double time is to be paid the commutator is moved along to bring the series of contact points 55 into such position.

In the embodiment of my invention illustrated, the several registers are alike in construction, and each comprises four pairs of indicating wheels or disks, the two disks of each pair being for the purpose of registering units and hundreds. The units disk of each pair is arranged to be rotated normally once per hour and is provided on its periphery with type numbers running from 00 to 99. The hundreds disks of each pair are similarly numbered on their peripheries and are arranged to be moved one space for each complete revolution of their respective units disk. In addition to such numbered disks the registers are provided with means for showing at the sight opening a character or letter indicating the nature of the work on which the employee is employed at any given time or his absence if he is not working. The showing made at the sight opening under the different conditions is illustrated in Figs. 23 to 26, in which the first column to the left of each of the illustrations shows the absence of the employee or the nature of his work,—as, for example, in Fig. 23 at the left it shows that the employee is absent, in Fig. 24 the star shows that he is working on piece work, and in Figs. 25 and 26 the D shows that he is working on day work. It should be explained that actually the several figures appear on the disks reversed instead of in the form shown in said figures owing to the fact that the type on the peripheries of the several disks are intended to be printed from, but they are shown in readable form on said figures for convenience of illustration. The first pair of disks to the right of the device for indicating the class of work is intended to register the total time of his employment between pay days. The next pair to the right shows the elapsed time for any one job, whether day work or piece work, and such disks are arranged to be reset

independently of the total time disks at the beginning of each day or at the beginning of each job.

The next pair of disks shows the total value of the employee's earnings on both day work and piece work, and the last pair of disks shows the elapsed value of the employee's time for each job, whether day work or piece work, and this pair also is arranged to be reset independently of the total registers at the beginning of each day or at the beginning of each job.

As shown in Fig. 3, 80^a 80^b indicate, respectively, the hundreds and units indicating disks of the total time register. 81^a 81^b indicate the corresponding hundreds and units disks of the elapsed time indicators. 82^a 82^b indicate the corresponding disks of the total value indicators, and 83^a and 83^b indicate the corresponding disks of the elapsed value indicators. The disks 80^a 80^b and 81^a and 81^b are mounted upon a tubular shaft 84 supported in a horizontal position in an inclosing case, the disks 80^b and 81^b being keyed to said shaft, as shown in Fig. 3. 85 indicates a gear-wheel, which is mounted upon and keyed to the outer end of said shaft 84 so that by rotating said gear the shaft 84 is rotated. The disks 82^a 82^b 83^a and 83^b are mounted upon a shaft 86, one end of which is of reduced diameter and extends through the tubular shaft 84, being concentric therewith. The shaft 86 also extends through the gear 85 and carries on its outer end a gear 87 which is arranged beside the gear 85, as shown in Fig. 3, and is keyed to said shaft. The disks 82^b and 83^b are keyed to the shaft 86 so that by rotating the gear 87 said disks are rotated. The disks 80^a and 81^a are loosely mounted upon the shaft 84, and the disks 82^a and 83^a are loose on the shaft 86 so that they are not rotated except through their respective units disks; and for the purpose of rotating each of the hundreds disks from their respective units disks I provide carrying mechanism which is best shown in Figs. 3, 14, 15 and 16. As therein shown, each of the several hundreds disks is provided at one side near its outer surface with an annular rack 88 into which meshes a star-wheel 89 loosely mounted on a shaft 90 arranged parallel with the shafts 84 86 and preferably placed below the several disks, as shown in Fig. 3. The star-wheel 89 also is adapted to be engaged by a tooth 91 carried by an annular flange 92 with which each of the units disks is provided, said annular flanges being arranged on the sides of said units disks adjacent to the racks 88, as best shown in Fig. 4. Normally two adjacent teeth of the star-wheel 89 bear against the periphery of the flange 92, as indicated in dotted lines in Fig. 16, but when the tooth 91 is carried around into proper position by the rotation of its disk it engages one of the teeth of the star-wheel and rotates it sufficiently to move the hundreds wheel a space of one tooth. As the units disk has one hundred teeth and normally rotates once an hour it will be seen that the hundreds wheel will move the space of one notch in one hour. During the rest of the rotation of the units wheel the hundreds wheel will be locked by reason of the bearing of the teeth of the star-wheel against the periphery of the flange 92. In order to provide for resetting the elapsed time and elapsed value indicators, the disks 81^a 81^b and 83^a 83^b are constructed as shown at the right in Fig. 3, said disks being composed of a central hub portion 93 and an outer portion 94 fitted upon said hub portion so as to be rotatable independently thereof. The part 94 frictionally engages the part 93 so that ordinarily it is turned with the hub portion, but it may be rotated independently thereof for resetting purposes. This is done by hand whenever it is desired to reset the indicators.

As best shown in Fig. 2, the gear wheel 87 is of slightly less diameter than the gear 88, although they are both provided with the same number of teeth and said teeth are arranged to register as shown in Fig. 2. 95 indicates an electro-magnet having poles provided with two operating faces at right angles to each other, as shown at 96 and 97 in Fig. 2. Said magnet is mounted on the bottom of the case in any suitable way, and one end of the helix thereof is connected by a wire 98 with the binding post 36. The other end of the helix is grounded in the framework of the register in any suitable way. 99 100 indicate armatures for the poles 96 97 of the magnet, the armature 100 being mounted on a swinging lever 101 pivoted at 102 on the bottom of the case so that said armature may swing upward when the magnet is energized and may drop back when the circuit is broken through the magnet. The armature 99 is mounted on a swinging lever 103 which is pivoted at its lower end to the free end of the lever 101, said armature standing in a substantially vertical position and being capable of swinging laterally toward or from the pole 96 of the magnet. The lever 103 is provided with an upwardly-projecting arm 104 having at its upper end a pin 105 which is adapted to engage the teeth of the gears 85 87, as shown in Figs. 2, 12 and 13. The arm 104 projects upward and between the periphery of the gears 85 87 and the side of the case and is provided on its outer surface with a tooth 106 which, when the arm 104 is in inoperative position, lies under a lug 107 carried by the case, as best shown in Fig. 12. When the magnet 95 is not energized the arm 104

swings outward by gravity into the position shown in Fig. 12, and when in such position is held against upward movement by the engagement of the tooth 106 with the lug 107 in the manner shown in Fig. 12. When, however, the magnet 95 is energized, the armature 99 is first moved to the left, as shown in Fig. 2, thereby moving the tooth 106 out from under the lug 107 and at the same time moving the pin 105 into engagement with the teeth of one or both of the gears 85 87, as the case may be. As soon as the tooth 106 moves out from under the lug 107 the lever 101 may swing upward under the influence of the magnet upon the armature 100, thereby rotating one or both gears. The parts are so adjusted that this movement of the lever 101 will operate to move one or both gears a space of one tooth. As has been described, the commutator acts to close the circuit through the several registers a hundred times each hour, consequently the magnet 95 will be energized a corresponding number of times in each hour and the larger gear wheel 85 will be invariably rotated a space of one tooth upon each actuation of the magnet. The smaller gear wheel 87 does not, however, move each time the larger wheel is actuated for the reason that except at predetermined intervals the pin 105 does not engage said smaller wheel, being held out of engagement therewith by the larger wheel. This is effected by making the diameter of the larger wheel, measured between the spaces between consecutive teeth, equal to the diameter of the smaller wheel, measured between the points of the teeth, except at stated intervals where the spaces between the teeth of the larger wheel are deep enough to permit the pin to drop down into engagement with the teeth of the smaller wheel 87. This is clearly shown in Figs. 2, 12 and 13, from which it will be seen that the larger gear 85 is provided with deep recesses 108 at intervals separated by three shallower recesses—that is to say, every fourth space between the teeth of the larger gear 85 is deeper than the intermediate spaces and deep enough to permit the pin 105 to drop into engagement with the teeth of gear 87. Consequently the larger gear 85 moves four times as fast as the smaller gear 87. This relative movement may, of course, be varied by substituting for the gear 85 a gear having the deep recesses closer together or farther apart, as may be desired. In the arrangement illustrated it is designed to show the operation of the apparatus in a case where an employee is paid at the rate of twenty-five cents per hour, and, as will hereinafter appear, the relative movement of the two gears 85 87 is calculated to register at such rate.

It will be apparent that inasmuch as the gear 85 makes one complete rotation each hour the registering units disks connected with the shaft 84 on which said gear is mounted will also be given one complete rotation per hour and that if given more than a complete rotation will carry to their respective hundreds disks. It will also be apparent that the total value and elapsed value units registering disks 82^b and 83^b, which are connected with gear 87, will rotate at one-fourth the speed of the disks 80^b and 81^b. Assuming that the apparatus illustrated is designed to register time value at twenty-five cents per hour, it is evident that, as the large gear 85 rotates once in one hour and contains one hundred notches or teeth, as the smaller disk 87 rotates one-quarter as fast it would be given twenty-five impulses per hour and consequently each notch or tooth of the smaller gear would represent one cent of time value, thus the indication made by the total value and elapsed value disks would correspond in value with the total time and elapsed time indication shown by the other disks.

The total time disks are designed to operate continuously so as to show the total time that has elapsed since the last pay day, whether the employee be working on piece work or day work, and the same is true of the elapsed time disks, except that they are intended to be reset at the beginning of work on any job, either piece work or day work,—the object of making the elapsed time registration when the employee is engaged on piece work being for purposes of comparison and distribution of charges. With regard to the disks for registering total value and elapsed value, however, it is obvious that as the rate of payment for piece work almost invariably differs from that for day work it is necessary that means be provided for properly actuating such value disks to correspond with the greater or smaller earnings of the employee when engaged on piece work. It is also necessary that means be provided for disconnecting the value registering disks from the time train while the employee is working on piece work and for afterward actuating such value disks to show the value of the wage earned on piece work and that this be done without actuating the time disks. The mechanism for securing these results is as follows: 109 indicates a lever, somewhat of the shape of a bell-crank lever, which is fulcrumed between its ends on a suitable pivot 110 placed adjacent to the peripheries of the disks 85 87, as best shown in Fig. 2. The lower end of said lever projects down beside the disk 88 and terminates in position to engage the pin 105 and move it out of engagement with the disk 87 when said lever is rocked appropriately. The upper arm of the lever 109 projects over the disks 85 87 and terminates near the highest part thereof, being provided at its end with a pin 111 which

projects over and is adapted to engage the gear 87 but does not extend over the gear 85, as best shown in Fig. 4. When the upper arm of the lever 109 is pressed down to carry the pin 111 into engagement with the gear 87, the lower arm of said lever is swung outward so as to be in line with the outer edges of the gear 87 and consequently acts to prevent the pin 105 from entering any of said teeth; consequently the gear 87 is locked against rotation. It is not only locked against rotation by the pin 111, but the arm 104 is prevented from operatively engaging said gear as long as the lever 109 remains in such position. The energizing of the magnet 95 under such conditions will, therefore, operate the gear 85 alone and the value registering disks will therefore remain stationary while the time disks are actuated. In order to hold the lever 109 in the position described, I provide a swinging arm 112 which is pivoted upon the shaft 84, as shown in Fig. 3, and extends radially parallel with and adjacent to the gear 85 lying between said gear and the disk 80ª. Said arm carries a laterally extending rod 113 which is adapted to be moved over the upper end of the lever 109 and hold such end of said lever downward, as shown in Figs. 12 and 13. 114 indicates a finger-piece carried by the rod 113 which projects through a suitable slot 115 in the top of the case, as shown in Figs. 1, 7 and 11. The arm 112 also carries a segment 116, on the outer surface of which are characters which indicate the class of work on which the employee is engaged, said characters being in the form of type from which an imprint may be taken. As hereinbefore explained, the star indicates piece work and is so placed upon the segment 116 that when the star lies centrally under the sight opening in the case the rod 113 is in the position shown in Figs. 12 and 13, the finger piece 114 being at the extreme right-hand end of the slot 115 in the position shown in Figs. 2, 12 and 13. When the finger-piece 114 is in its central position in the slot 115 the letter D shows at the sight opening indicating that the employee is engaged on day work, and when it is at the extreme left-hand position the letter O shows at the sight opening indicating that the employee is not at work. When the employee is working on day work or piece work, it is obvious that the magnet 95 must be in electrical connection with the commutator, and when the employee is not at work obviously the register should be disconnected from the commutator. To secure this result, the arm 112 is provided with a downwardly-extending contact plate 117 which, when the segment 116 is in position to show that the employee is engaged on day work or piece work, bears against a contact spring 118 which is connected with the binding post 37 of the register. When, however, the segment 116 is moved to the absent position, said plate 117 moves out of engagement with the spring 118 and disconnects the register from the commutator so that it is then wholly inoperative.

In order to actuate the value disks to show the value of piece work done I provide setting up mechanism in the form of an attachment which is applied to the register by the foreman or other authorized attendant and operates to advance the value disks without affecting operation of the time disks. This device is shown in Figs. 27 and 28, and the connections through which it operates on the value disks are shown in Fig. 2. As shown in Fig. 27, the setting up device comprises a suitable case 119 in which is mounted a shaft 120 carrying two gears 121, and 123. The gear 121 projects below the case 119 and is adapted to mesh with a pinion 124 which is carried at the upper end of a swinging lever 125 fulcrumed at 126 in the register case as shown in Fig. 2. Said pinion 124 overlies the smaller gear 87 and is adapted to move into mesh therewith when the upper end of the lever 125 is depressed. Said lever, however, is normally held upward out of operative position by a spring 127 shown in Fig. 2 and, furthermore, is locked in such position by a sort of permutation locking device 128 secured in the register case, as shown in Fig. 2. The construction of such locking device is shown in Figs. 17, 18 and 19, from which it will be seen that there are a plurality of levers, preferably three in number, 129, 130, and 131, respectively. Said levers are mounted upon a pivot 132, the lever 129 extending horizontally in one direction and levers 130 131 extending in the opposite direction. Said levers are provided, respectively, with segments 133 134 135, each of which is provided with slots 136 137 138, respectively. When the several levers are moved into the proper position, the several slots may be brought into line with each other as shown in Fig. 17, and said parts are so arranged that when this occurs said slots are in line with a downwardly-projecting end portion 139 of the lever 125. The end of the lever, 139, is adapted to fit in said slots when they are alined, but when they are not in alinement they act as a stop to prevent the rocking of the lever 125, as best shown in Fig. 2. A spring 140 serves normally to hold the several levers so that their several slots are out of alinement. This locking device is actuated to permit of the rocking of the lever 125 when the setting up attachment is applied to the register by means of two rods 141 142 carried by the frame of the setting up device and adapted to project through suitable passages provided in the register

case into engagement with the ends of the levers 129 130 131 and thereby automatically move such levers so as to bring the several slots into registration and permit of the actuation of the lever 125. This is fully illustrated in Figs. 17 and 18. The application of the setting up device to the register, therefore, automatically unlocks the lever 125, and the weight of said device automatically moves the pinion 124 into engagement with the gear 87, as indicated by dotted lines in Fig. 27. The shaft 120 is provided with a burred head 143, as shown in Fig. 28, by which said shaft may be rotated. It is apparent, therefore, that by rotating said shaft the gear 87 may be rotated to any desired extent, thereby actuating the value registering disks. Of course when this is to be done the gear 87 must first be released from the lever 109, and this is effected by shifting the segment 116 to the day work position, and the lever 109 is automatically rocked to release gear 87 by means of a lug 145 carried by the lever 125 which engages a lug 146 projecting outwardly from the pivot of the lever 109, as shown in Figs. 2, 12 and 13,—the arrangement being such that when the lever 125 is rocked to carry the pinion 124 into engagement with the gear 87 the lug 145 strikes the lug 146 and bears down on it, thereby throwing the upper end of the lever 109 away from the gear 87 and the lower end of said lever inward out of operative position.

As shown in Fig. 28, the gear 123 carried by the shaft 120 meshes with a pinion 147 mounted on a shaft 122 which operates a registering device 149 which exposes at a sight opening 150 a reading corresponding with the amount which the value indicating disks are set up. For example, if the setting up device is actuated to add $1.20 to the value indication of the register, the head 143 is rotated until 120 is exposed at the sight opening 150. Thus the operator may set up the value indicating disks of the register with perfect accuracy. In order also to provide the employee with a record of the amount so set up, the setting up device is also provided with another registering device 151 similar to the registering device 149, except that such registering device is provided with type and is arranged so that the reading thereof is on its lower surface, lying over the sight opening in the register case. The register 151 is also mounted on the shaft 122 so that it corresponds with register 149, as shown in Fig. 28. 155 indicates an inking roller for inking the type of the register 151, and 156 indicates a handle for conveniently depressing the setting up device to cause the printing register to print on a card. The purpose of this arrangement is to enable the foreman or other operator to give to the employee, when the employee reports on a piece work job, a card bearing a record of the value of such piece work as placed to the employee's credit on his register. The card may also be filled in by the foreman or operator to show the number of pieces and the value of such pieces per hundred and also the job number, as indicated in Fig. 29. Thus the employee is enabled to check up his piece work credits, and in case of any dispute as to the amount due it may easily be rectified. For example, if the foreman in setting up the workman's register failed to set up the proper amount due him on a job of piece work, the employee's ticket would show the amount set up as would also the record of the several jobs made as hereinafter described, and consequently there would be no danger of error in favor of either for or against the employee. Upon the withdrawal of the setting up device from the apparatus, the lever 125 would be drawn up out of operative position by the spring 127 and would be automatically locked out of operative position by the locking device 128.

In order to preserve a permanent record of the employee's time and of the several jobs, I provide means for taking off such record from time to time in printed form, as shown in Figs. 20 to 22. For making such record I employ a card 157 which is folded longitudinally a little to one side of the center so that one side edge projects beyond the other, as shown at 158 in Fig. 21. Said card is ruled in the manner shown in the drawings, being left blank to indicate the employee's number, the next column being used to indicate the class of work and having blank spaces to receive the imprint of the characters which stand for the different classes of work. The next column is for receiving entries of total time; the next for elapsed time; the next is a blank space which is not used; the next column is for total values; and the next for elapsed values. The last four columns are so positioned on the card as to overlie the several indicating dials or disks in position to receive imprints from them in the appropriate places on the card. The next column, which is headed "Date," is to receive the hour when any entry is made on the card and is subdivided for the forenoon and afternoon indications. The next column is for the entry by hand of descriptive matter relating to the credits on piece work, as, for example, 1200 pieces at 10¢ per hundred. The last column is intended for use in showing the job to which the work relates and is filled in by hand. It will be noted that the line of fold of said card 157 comes between the elapsed value column and the date column, so that when the card is folded said two columns are on opposite sides of the folded card. The purpose of this will herein appear later. In

connection with the card I employ a printing device which is best shown in Figs. 6 to 10. As best shown in Figs. 6 and 7, the printing press comprises a frame 159 which is hinged at 160 to a suitable bar or support 161, as shown in Fig. 8, said bar having depending pins 162 which are adapted to fit in the holes in the case which also receive the rods 141 142. The pins 162 are shorter, however, and do not operate to unlock the lever 125. The frame 159 carries at its outer end a platen 163 which, when the frame 159 is in position upon the register, overlies the sight opening 35. Said platen is held normally out of contact with the type on the registering disks by a spring 164 which is best shown in Fig. 6, but may be depressed upon the type by pressing down on a knob 165 with which the frame is provided, as shown in Fig. 6. 166 indicates a ribbon, such as a typewriter ribbon, mounted upon suitable rollers 167 168 at opposite sides of the registering frame and extending over the sight opening, as shown in Fig. 11. Said ribbon passes between the platen 163 and the registering disks so that when the platen is depressed an imprint may be made from said ribbon. To make a registration on the card 157 the card is placed between the platen and the ribbon, being inserted by an endwise movement, as shown in Fig. 7, the heads of the columns being inserted first. By this depressing of the platen the registration shown at the side of the sight opening will be imprinted on the card. For the purpose of insuring proper registration and bringing the imprint on the proper line, the frame 159 is provided with means for notching the card on its projecting edge and extending such notch at each operation of the printing devices so that the position of the notch indicates the line being printed on. For this purpose the frame 159 is provided with a cutter 169 best shown in Figs. 6 and 10 and a gage 170 which limits the extent to which the card may be inserted by engaging the notched portion thereof, as best shown in Figs. 7 and 9. Each time the card is inserted in the apparatus it is shoved in as far as the notch will permit and then when the printing device is operated the notch is extended the width of one line so that the next time the card is inserted it may go in that much farther.

In addition to printing from the type carried by the registering disks the printing device is provided with a time stamp 171 which is adapted to be set to show the hours and minutes and the letters A. M. and P. M. to indicate forenoon and afternoon time. Whenever the operator wishes to use the printing device, he resets the time stamp to show the proper time of day, and when the printing device is depressed the time stamp is carried down into engagement with the upper surface of the card over the date column, thereby printing the date in the appropriate space in said column. It will be understood, of course, that the time stamp is provided with suitable inking mechanism, but as the construction of such stamp forms no part of my invention it may be of any approved design and it is not deemed necessary to show it more fully.

In order to avoid interfering with the proper actuation of the gears 85 87 when an imprint is being made from the several inking disks, I provide means by which the inking disks which are driven as hereinafter described may be held stationary temporarily without injury to the machine or making erroneous registration. The construction employed for this purpose is best shown in Fig. 2, from which it will be seen that the gears 85 87 are not rigidly connected with their respective shafts 84 86, but are connected therewith by means of springs 172 173, respectively, which are fitted in suitable recesses in said gears near the centers thereof and engage teeth 174 175 carried by the shafts 84 86, respectively—the arrangement being such that the gears 85 87 may be advanced a space of one or two notches even if the inking disks are held against rotation for such interval, the effect being merely to compress the springs 172 173 so that when the disks are released they are advanced to the proper point by the action of such springs. Thus, while the operator is taking off the reading of the register, the actuating mechanism of the gears 85 87 operates to advance such gears. The inking disk will nevertheless remain stationary until the printing operation is completed when they will be automatically advanced to the proper point preserving a correct registration.

The operation of my improved apparatus has been described incidentally to the explanation of its construction, but it may be conveniently summarized as follows: Each employee having been assigned an individual register adjusted to operate at his wage rate per hour the several registers are connected up with the controlling mechanism and are placed in charge of the foreman, or some other trusted attendant. At the beginning of operations the several segments indicating the class of work are set to expose the absent mark, 0, at the sight opening, the finger-piece 114 being then at the upper end of the slot 115, as shown on registers A B in Fig. 1. Before the hour of beginning work the controlling mechanism is in the position shown in Fig. 1, the lever 63 being in its neutral position. When the opening hour arrives the clockwork will have turned the gear 48 so as to bring the contact point 52 in contact with the contact device 64 and also to bring the contact point

51 into contact with the contact device 66. This will close the circuit through magnet 60 and will shove the lever 63 into engagement with the series of contact points 57 on the commutator. At the same time the bell 67 will ring, notifying the workmen to begin work. Those workmen who have arrived prior to the opening time will have had their work assigned on arriving and if engaged on day work the foreman or attendant will have moved their respective class-of-work indicators to the appropriate position. For example, if the workman to whom register C belongs is engaged on day work the button 114 on his indicator will stand at the central position, and if the workman represented by register D is engaged on piece work his indicator button will stand in the appropriate position as shown in Fig. 1. If the four registers shown in Fig. 1 are assumed to represent the condition of things at the beginning of work, the registers A and B will indicate that their respective workmen are absent. As soon as the opening hour arrives each of the registers assigned to workmen who are present will be actuated by the magnet 65 in the manner already described so that the several dials or indicating disks of said registers will be actuated according to the class of work on which the employees are engaged in the manner hereinbefore explained. For example, workman C being engaged on day work, all the indicating disks of his register will be actuated, the time indicating disks showing the actual elapsed time in hundredths of an hour, while his value indicating disks will show the value of such time in dollars and cents at the rate of twenty-five cents per hour, assuming that is the rate at which he is paid. When the plant shuts down for the noon interval the controlling device will automatically stop all of the registers and they will remain stopped until the opening of the afternoon period of work when they will again continue until the closing time when they will be again automatically stopped. The bell will, of course, be rung whenever the work is stopped or started as hereinbefore described. If the workman C continues on day work for the entire day, there will be no change in the operation of his register, and at the end of the day the foreman or attendant may, if desired, reset his elapsed time and elapsed value indicating disks, after first taking an imprint of the reading thereof, leaving the total value disks as they stand; also at the close of the day the foreman will move all the indicating disks to the absent position in readiness for operations on the next day. If a workman at the beginning of the day is employed on piece work, as shown by register D, his class-of-work indicator is moved to the appropriate position, thereby locking the gear 87 out of operation in the manner hereinbefore described. The time indicating disks of his register, however, will operate just as though he were working on day work. When employee D's piece work is finished he reports to the foreman and the foreman then applies the setting up device 119 to register D and sets up the employee's value indicators the proper amount to indicate the value of the piece work done. At the same time he gives the employee an imprint of the amount so set up. He then applies the card 157 to the machine and takes an imprint of the showing of all the indicating disks together with the class of work on which the employee is engaged. He also fills in on the credit column the number of pieces and the rate, and on the last column the job to which the work is to be charged. If the employee then continues on other piece work his register is again set to show piece work and the operation continues as before. On the other hand if he is then transferred to day work, the class-of-work indicator is properly set and the several indicating disks are operated in the manner described for day work. If the employee is to be paid at the rate of time and a half or double time, the commutator 54 is adjusted on its shaft to bring the proper series of contact points into position to engage the lever 63, in which case the gears 85 87 and the several indicating disks are operated fifty or one hundred per cent. faster, as the case may be. As the total time and total value indicating disks are not reset between pay days, it will be apparent that the time of the employee for successive days will be added to the previous times or amounts shown so that at the end of the pay period the total time and total value indicators will show the total time he has worked and the total wage he has earned. Also as the reading of the several registers is taken at the close of each day, each employee's card will show the time which he has worked on each day, the class of work and the amount of wage he has earned on each day so that it may be told at a glance just what each employee has done on any day during the pay period, *i. e.* the period between pay days. The entries in the last two columns of the card will also show the details of the work and the jobs to which such work is to be charged.

The apparatus shown and described is one of a number of forms in which the several features of my invention hereinbefore pointed out may be embodied, and I wish it to be understood that in describing specifically the construction illustrated I have not intended to restrict my invention to the details of such construction, as it is generic in character and the claims hereinafter made are therefore to be construed accordingly.

The word "time clock" as used herein is not intended to indicate any particular form of mechanism, but is used in a broad sense to mean any form of mechanism whatsoever by which the time or the value of the time of an employee may be registered or shown, either in the form of a temporary indication or a permanent record.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. A time-clock, comprising means for registering the individual's working time, means for registering the value of such time, means for interdependently actuating said time and value registering means, and means for locking said valve registering means against operation and permitting the time registering means to continue to operate, said value registering means being capable of operation independently of the time registering means.

2. A time-clock, comprising registering means, means for actuating said registering means, and a controlling device for controlling the operation of said registering means, said controlling device having variable means for automatically starting and stopping said actuating mechanism at predetermined intervals.

3. A time-clock, comprising time registering means, value registering means, means for appropriately actuating said time and value registering means, a class-of-work indicator, and means controlled by said class-of-work indicator for varying the operation of one of said registering means.

4. A time-clock, comprising time registering means, value registering means, means for appropriately actuating said time and value registering means, a class-of-work indicator, and means operated by said class-of-work indicator for connecting or disconnecting one of said actuating means and said value registering means.

5. A time-clock, comprising an individual working time registering device, an individual working time value registering device, means for actuating said registering devices, an indicator for showing day work and piece work, and means actuated by the movement of said indicator to the piece work position for disconnecting the value registering device from said actuating mechanism.

6. A time-clock, comprising a time registering device, a value registering device, means for actuating said registering devices, an indicator for showing day work, piece work or absence, and means actuated by the movement of said indicator to the absent position for disconnecting both said registering devices from the actuating mechanism.

7. A time-clock, comprising a time registering device, a value registering device, means for interdependently actuating said time and value registering devices, means for disconnecting said value registering device from said actuating mechanism whereby the time registering device may operate independently thereof, and means for setting up said value indicating devices independently of the time registering device.

8. A time-clock, comprising a time registering device, a value registering device, means for interdependently actuating said time and value registering devices, means for disconnecting said value registering device from said actuating mechanism whereby the time registering device may operate independently thereof, and registering means for setting up said value indicating devices independently of the time registering device.

9. An individual register for time-clock systems, comprising a registering device, means for actuating said registering device, controlling mechanism for controlling the operation of said actuating means, and separate register mechanism adapted to be applied to said registering device for setting up the same to any desired extent independently of said actuating means.

10. A time-clock, comprising a registering device, means for actuating said registering device, controlling mechanism for controlling the operation of said actuating means, and a registering setting up device adapted to be applied to said registering device for setting up the same independently of said actuating means.

11. A time-clock, comprising a plurality of individual registers, each of said registers having a time registering device and a value registering device, actuating mechanism for said registering devices, means for connecting and disconnecting its value registering device independently of its time registering device with the actuating mechanism therefor, and a controlling device for said registers, said controlling device having means for starting and stopping the actuating devices of the several registers at predetermined intervals.

12. An individual register for time-clock systems, comprising a register having a time registering device and a value registering device adapted to be operated independently of said time registering device, said registering devices having type for printing the indications thereof, means for actuating said registering devices, and separate means adapted to be applied to said register for taking off the reading of its registering devices.

13. An individual register for time-clock systems, comprising a register having a time registering device and a value registering device adapted to be operated independently of said time registering device, said regis-

tering devices having type for printing the indications thereof, means for actuating said registering devices, separate means adapted to be applied to said register for taking off the reading of its registering devices, and means yieldingly connecting said registering devices with the actuating mechanism therefor.

14. A time-clock register, comprising individual working time indicating disks, individual working time value indicating disks, chronometrically-controlled means for appropriately rotating said time and value indicating disks, means whereby said time indicating disks independently of said value indicating disks may be rotated, means for locking said value indicating disks against rotation and means for starting and stopping each individual register as a whole independently of the other registers in the system.

15. A time-clock register, comprising individual working time indicating disks, individual working time value indicating disks, chronometrically-controlled means for appropriately rotating said time and value indicating disks, means whereby said time indicating disks may be rotated independently of said value indicating disks, means for locking said value indicating disks against rotation, and means for advancing said value indicating disks independently of the time indicating disks.

16. A time-clock register, comprising individual working time indicating disks, individual working time value indicating disks, means for appropriately rotating said time and value indicating disks, means for rotating said time indicating disks independently of said value indicating disks, means for locking said value indicating disks against rotation, and means adapted to be applied to said register for advancing said value indicating disks independently of the time indicating disks.

17. A time-clock register, comprising a series of time indicating disks, a series of value indicating disks, a gear connected to operate said time indicating disks, a gear connected to operate said value indicating disks, means for interdependently actuating said gears, and means for disconnecting the actuating means from said value indicating disks and operating the time indicating disks independently thereof.

18. A time-clock register, comprising a total time registering disk, an elapsed time registering disk, a total value registering disk, and an elapsed value registering disk, means for interdependently actuating said time and value registering disks, and means for disconnecting said value registering disks from said actuating means and for actuating the time registering disks independently thereof.

19. A time-clock register, comprising a total time registering disk, an elapsed time registering disk, a total value registering disk, and an elapsed value registering disk, means for interdependently actuating said time and value registering disks, means for disconnecting said value registering disks from said actuating means and for actuating the time registering disks independently thereof, and means for setting up said value registering disks independently of the time registering disks.

20. A time-clock register, comprising time indicating disks, value indicating disks, a gear connected with said time indicating disks for rotating the same, a gear connected with said value indicating disks for rotating the same, and an electrically-operated actuating device adapted to engage said gears for rotating the same intermittently, said actuating device being arranged to actuate one of said gears at longer intervals than the other.

21. A time-clock register, comprising time indicating disks, value indicating disks, a gear connected with said time indicating disks for rotating the same, a gear connected with said value indicating disks for rotating the same, an electrically-operated actuating device adapted to engage said gears for rotating the same intermittently, said actuating device being arranged to actuate one of said gears at longer intervals than the other, and means for preventing the engagement of said actuating device with the gear which operates said value indicating disks.

22. A time-clock register, comprising time indicating disks, value indicating disks, a gear connected with said time indicating disks for rotating the same, a gear connected with said value indicating disks for rotating the same, an electrically-operated actuating device adapted to engage said gears for rotating the same intermittently, said actuating device being arranged to actuate one of said gears at longer intervals than the other, and a rocking lever for preventing the engagement of said actuating device with the gear which operates said value indicating disks and at the same time locking said gear against operation.

23. A time-clock register, comprising a series of indicating disks, a gear for rotating said disks, an arm adapted to swing toward said gear and having means engaging the same, said arm being also movable endwise to rotate said gear, and an electromagnet, and means actuated thereby for first moving said arm into engagement with said gear and then moving it endwise to rotate the gear.

24. A time-clock register, comprising a series of indicating disks, a gear for rotating said disks, an arm adapted to swing toward

said gear and having means engaging the same, said arm being also movable endwise to rotate said gear, and an electromagnet having angularly-disposed means for moving said arm into engagement with said gear and then moving it endwise to rotate the gear.

25. A time-clock register, comprising a series of indicating disks, a gear for rotating said disks, an arm adapted to swing toward said gear and having means engaging the same, said arm being also movable endwise to rotate said gear, electro-magnetic means for first moving said arm into engagement with said gear and then moving it endwise to rotate the gear, and means for locking said arm against endwise movement until it has been moved into engagement with said gear.

26. A time-clock register, comprising an indicating member, a gear for rotating said indicating member, an arm adapted to swing toward said gear and having means engaging the same, said arm being also movable endwise to rotate said gear, electro-magnetic means for first moving said arm into engagement with said gear and then moving it endwise to rotate the gear, said electro-magnetic means having poles angularly disposed, a lever pivotally connected at one end to a suitable support and at the other end pivotally connected to said arm, an armature carried by said lever and coacting with one of the poles of the magnet, an armature carried by said arm and coacting with the other pole of the magnet, and a stop for preventing endwise movement of said arm until it has been moved into engagement with said gear.

27. A time-clock register, comprising time indicating means, value indicating means, means for appropriately operating said indicating means, a class-of-work indicator adapted to indicate day work, piece work or absence, and means for disconnecting said indicating means with said operating means when said class-of-work indicator indicates absence.

28. A time-clock register, comprising time indicating members, value indicating members, electrically-operated means for appropriately rotating said indicating members, a class-of-work indicator adapted to indicate day work, piece work or absence, and means for automatically breaking the circuit through said actuating mechanism when said class-of-work indicator is moved to the absent position.

29. A time-clock register, comprising time indicating disks, value indicating disks, means for appropriately rotating said disks, a class-of-work indicator movable to indicate day or piece work, and means automatically operated by the movement of the class-of-work indicator to piece work position for disconnecting said actuating mechanism from said value indicating disks.

30. A time-clock register, comprising time registering disks, value registering disks, gears connected respectively with said time and value indicating disks for operating the same, means for actuating said gears, a pinion movable into engagement with the value operating gear for rotating the same independently of the other gear, and means for rotating said pinion to set up the value registering disks.

31. A time-clock register, comprising time registering disks, value registering disks, gears connected respectively with said time and value indicating disks for operating the same, means for actuating said gears, a pinion movable into engagement with the value operating gear for rotating the same independently of the other gear, means for rotating said pinion to set up the value registering disks, and means for normally locking said pinion out of operative position.

32. A time-clock register, comprising time registering disks, value registering disks, gears connected respectively with said time and value indicating disks for operating the same, means for actuating said gears, a pinion movable into engagement with the value operating gear for rotating the same independently of the other gear, and a setting up device adapted to be applied to the register to operate said pinion for setting up the value registering disks.

33. A time-clock register, comprising time registering disks, value registering disks, gears connected respectively with said time and value indicating disks for operating the same, means for actuating said gears, a pinion movable into engagement with the value operating gear for rotating the same independently of the other gear, a setting up device adapted to be applied to the register to operate said pinion for setting up the value registering disks, means for normally locking said pinion out of operative position, and means carried by said setting up device for automatically unlocking said pinion.

34. A time-clock register, comprising time registering disks, value registering disks, gears connected respectively with said time and value indicating disks for operating the same, means for actuating said gears, a pinion movable into engagement with the value operating gear for rotating the same independently of the other gear, a setting up device adapted to be applied to the register to operate said pinion for setting up the value registering disks, means for normally locking said pinion out of operative position, means carried by said setting up device for automatically unlocking said pinion, a class-of-work indicator for indicating day work or piece work, means operated by the movement of said indicator to the piece

work position for disconnecting said value operating gear from the actuating mechanism and locking it against operation, and means operated by the movement of said pinion into engagement with said value operating gear for automatically unlocking said gear.

35. In a time-clock, the combination with an individual register having time indicating means, value indicating means, and means for operating said time indicating means independently of said value indicating means, of a setting up device adapted to be applied to said register for setting up the value indicating means, said setting up device having a direct reading register, and means for actuating said register to show the amount which said value indicating means are set up.

36. In a time-registering apparatus, the combination of a register adapted to print the indication thereof on one surface of a card, and means for pressing said card into contact with the indicators of said register, and having means for printing the time of day on the upper surface of said folded card while the register reading is printed on the under side thereof.

37. In a time-registering apparatus, the combination of a register adapted to print the indication thereof on one surface of a card, means for pressing said card into contact with the indicators of said register and having means for printing the time of day on the upper surface of said folded card while the register reading is printed on the under side thereof, and means for notching a margin of the card.

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Witnesses:

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