

No. 632,712.

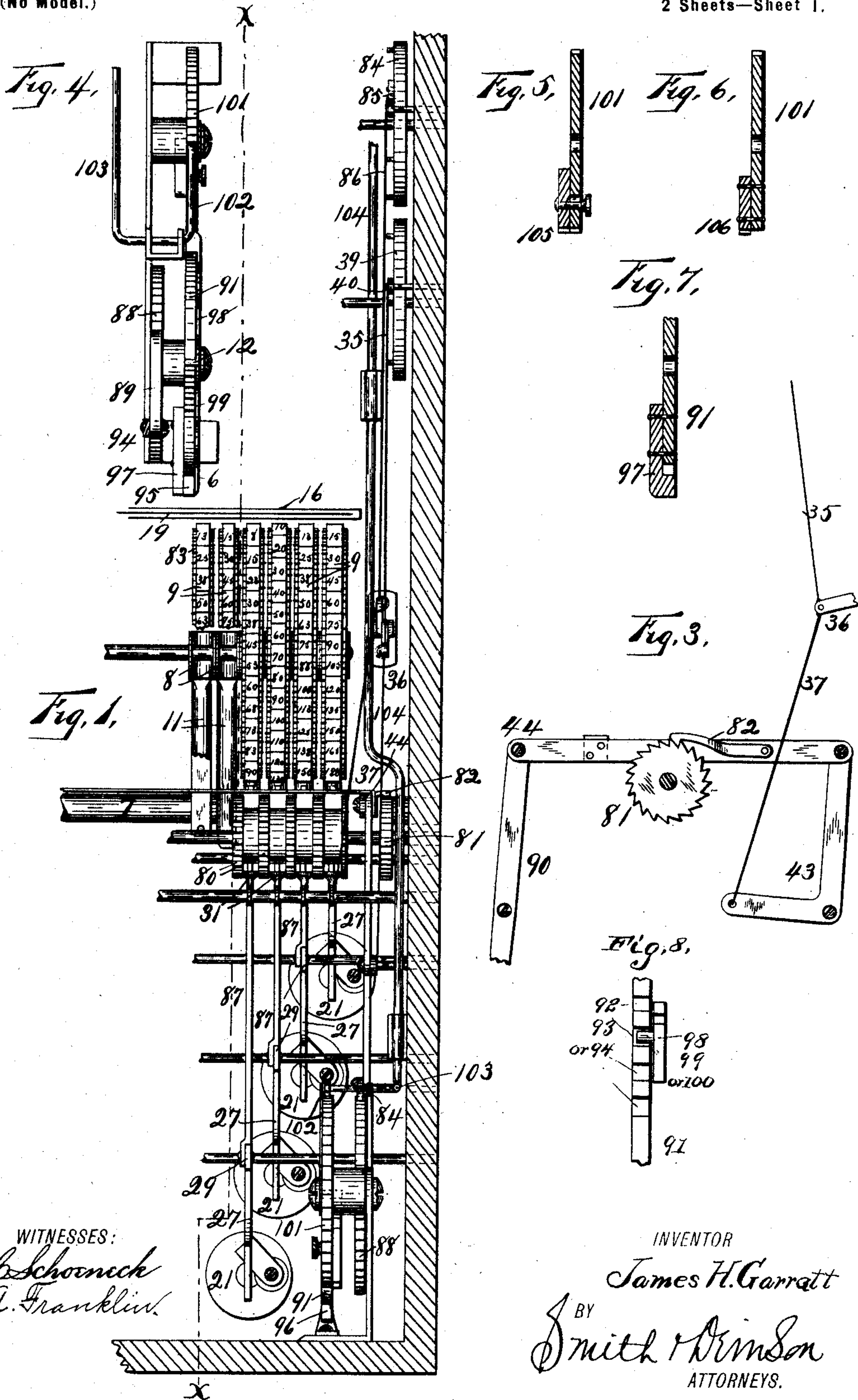
Patented Sept. 12, 1899.

J. H. GARRATT.
WORKMAN'S TIME RECORDER.

(Application filed Nov. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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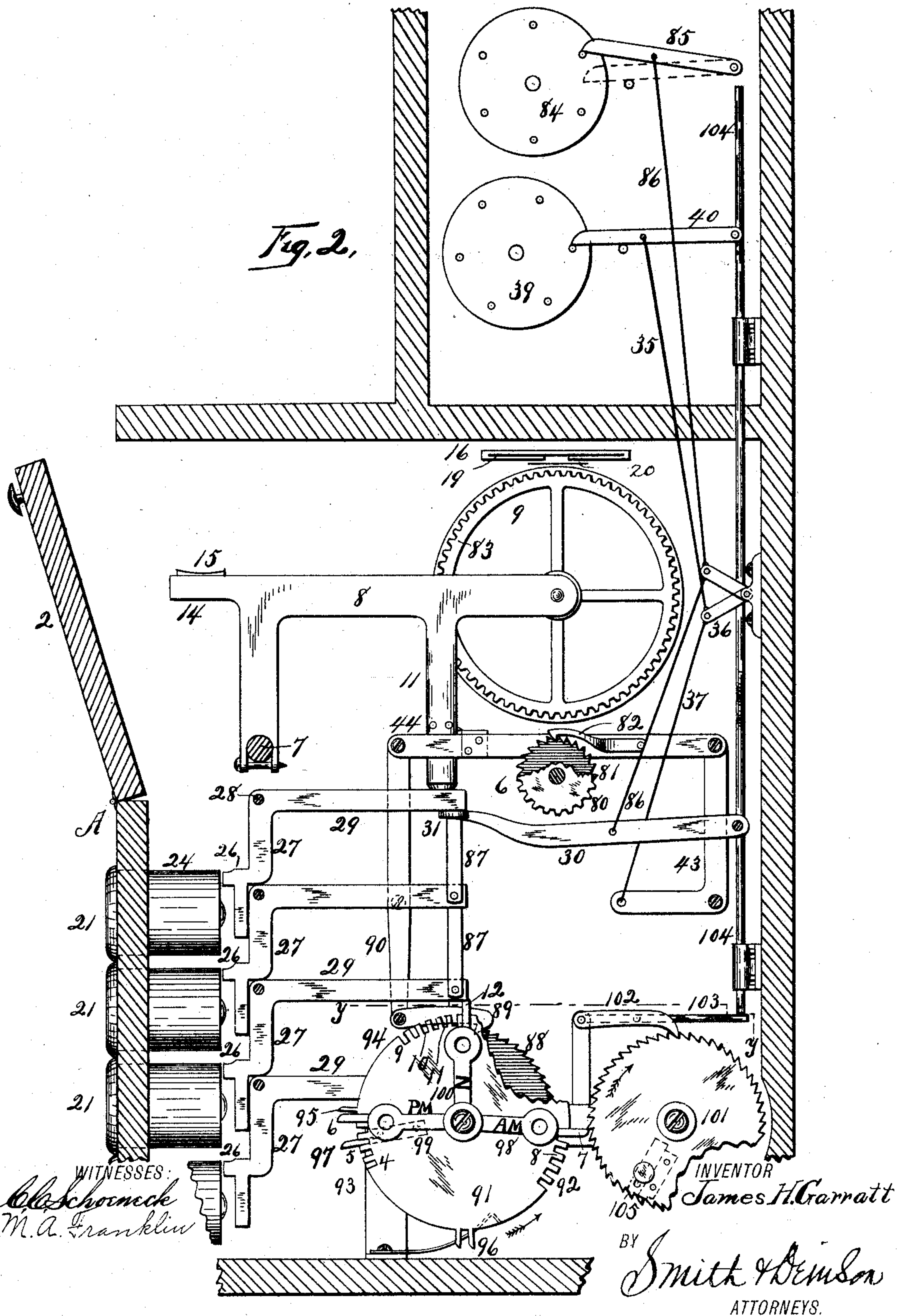
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2 Sheets—Sheet 2.

Fig. 2.



UNITED STATES PATENT OFFICE.

JAMES H. GARRATT, OF GROTON, NEW YORK.

WORKMAN'S TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 632,712, dated September 12, 1899.

Application filed November 25, 1898. Serial No. 697,391. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. GARRATT, of Groton, in the county of Tompkins, in the State of New York, have invented new and
5 useful Improvements in Workmen's Time-Recorders, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to workmen's time-
10 recorders for recording their time and at the same time mechanically computing the amount of money due each workman at any predetermined rate per hour and entering,
15 printing, or otherwise indicating it upon a suitable card or record-strip.

My object is to improve the construction and operation of the time-recorders shown and described in my application filed December
23, 1897, Serial No. 663,187, in the particulars
20 and mechanisms hereinafter set forth and described.

It is constructed as follows, reference being had to the accompanying drawings, in which—

25 Figure 1 is a vertical section in a plane crosswise to the casing or from one side to the other. Fig. 2 is a vertical section in a different plane or on line $x x$ in Fig. 1. Fig. 3 is a detail in elevation of the mechanism for the
30 rotation of the universal roller whereby the same is driven by secondary power taken from the clockwork or time mechanism. Fig. 4 is a cross-section on line $y y$, Fig. 2. Fig. 5 is a cross-section of ratchet, showing sliding
35 tooth. Fig. 6 is a similar view showing stationary tooth. Fig. 7 is a cross-section of disk, showing tooth. Fig. 8 is a detail in edge elevation of the time-wheel 91 and the lug or
40 pin on either of the fingers 98, 99, or 100 detachably engaging therewith.

A is a suitable casing in which a suitable clockwork is suitably mounted. 2 is a suitable door in said casing. 6 is a universal
45 roller suitably mounted in the casing. 8 8 are rockers. 9 9 are the record-wheels. 11 11 are the legs on the rockers. 16 is the flanged record-strip holder. 19 is the record-strip; 20, the ink-ribbon. 21 21 are the tumblers operated by the insertion and turning of the
50 workmen's keys; 27, the locking-pawl, having a point 26 suitable in form to engage with a tumbler 21, as described in said application;

28, the cross-bearing rod for the bell-cranks, each having an arm 27 and an arm 29. 30 is the universal frame or support for the arms
55 29; 43, a bell-crank connected to and actuating the reciprocating bar 44 and itself actuated by the cords 37 35, bar 36, escapement 39, and lever 40, to which the cord 35 is connected, all mounted with relation to each other
60 as shown and described in said application, and the same will not be further described except to detail differences in construction, operation, and function.

The universal roller 6 consists of a central
65 shaft, pinions 80, secured thereon and spaced apart, substantially as shown, creating lands, and a ratchet 81, with which the pawl 82 on the bar 44 suitably engages, whereby each
70 time the lever 40 is lifted by the escapement 39 the resultant movement of this bar rotates said universal roller a distance of one or more teeth at stated intervals, as every half-hour.

Each of the record-wheels is provided with
75 a gear 83 on each side of the numerals of lesser radius than said wheel, so that when any wheel is lowered toward the universal roller its gear will mesh with one or more of said
80 pinions 80 and be revolved intermittently by the intermittent rotation of said roller. The record-wheels are lowered by the release of the rockers 8 through the turning of a tumbler by the workman's key, the same as described in said application, whereby each
85 lock-pawl 27 and arm 29 can swing when released by the universal support 30 31. This universal bar is raised and lowered intermittently by means of a separate or secondary escapement 84, lever 85, and cord 86, connected
90 to it. Guide-rods 87 are connected to the several arms 29 of the several lower series and move freely through mortises (not shown) in this universal bar, whereby when said bar is
95 lowered said arms 29 are released to swing down, when a key-tumbler 21 is turned to permit the dog 27 to engage with and lock said tumbler and lock the key therein.

The escapement 84 is a five-hour escapement, whereby the lever 85 is raised every
100 five hours and through the cord 86 lifts the bar 31, raises the arms 29, and releases the several tumblers, which have been locked, for further rotation, and the removal of such

keys as it may be desired to remove, and when the lever 85 is dropped all of the tumblers are again locked which are in proper position, the others remaining unlocked until rotated by a workman. At the same time the record-wheels are all raised above the universal roller and are supported there by the arms 29, being free to fall onto said roller whenever a tumbler is rotated by a workman's key and are revolved by said roller. This escapement is arranged so as to be operated at seven a. m., twelve m., one p. m., and six p. m., thus representing ten hour's labor, as hereinafter described, or at any other predetermined times for shorter hours of labor.

Each escapement 39 or 84 is driven by a suitable motor. The escapement 39 can be connected to the clockwork and released by a trip mechanism analogous to the well-known device for releasing an hour-striking mechanism in a clock. The escapement 84 is usually driven by a separate motor, as a wound-up-spring device of any ordinary or suitable construction and a suitable tripping mechanism adapted to release it at predetermined intervals analogous to an hour-striking mechanism in a clock.

Upon a suitable shaft or arbor suitably journaled a ratchet-wheel 88 is suitably mounted to be revolved a fixed distance every half-hour by means of a pawl 89 and a pivoted lever 90, connecting it to the reciprocatory bar 44. Upon the same shaft and driven by it is a disk 91, provided with several series of notches 92, 93, and 94 (each notch representing half an hour) and having the fixed teeth 95 96 projecting beyond its periphery and a movable tooth 97 upon a slide (dotted lines in Fig. 2) mounted to be moved in or out on a radial line in suitable ways on the side of said disk into equal or lesser projection with the teeth 95 96. Contiguous to the face of said disk three fingers 98, 99, and 100 are pivoted upon the end of the disk-shaft, each of which is separately adjustable with reference to the notches which are adjacent to it, and each is of spring material and provided with a pin or lug, whereby it can suitably engage with any notch to which it is shifted. Each notch indicates a half-hour of time. Thus the finger 98 is shown as set at seven o'clock a. m., the time to begin work, and by shifting it one notch it will indicate the opening time at 7.30 a. m., and a shift of two notches will indicate the opening time at eight a. m., and can be shifted to indicate nine a. m. The finger 99 is shown as indicating the closing time as six p. m., and by shifting it one notch to the right it will indicate 5.30 p. m., or two notches five p. m., as the closing or quitting time, and can be shifted to four. The finger 100 is shown as set at midnight and is the overtime-finger, indicating the time of closing the factory, and by shifting it to the notches 9 10 11 respectively, will thus indicate one of those hours

as the closing time, or an intermediate notch will set this finger to actuate the mechanism for making the overtime-record. The disk or wheel 91 thus indicates the starting and closing times of work, the number of hours of labor, varied as desired for ten, nine, or eight hours labor, and overtime also, and makes a complete revolution every twenty-four hours.

Upon a suitable shaft a ratchet 101 is suitably mounted in such relation to the wheel 91 that the teeth and fingers thereon will engage with it successively, each driving it one or more teeth, and 102 is a pawl performing the function of preventing backward rotation, and it is also provided with an arm 103, which is vibrated vertically by the passage of said pawl from one tooth to another, thereby raising and lowering the trip-rod 104, the upper end of which suitably engages with a trip, such as is used in a clock to release an hour-striking mechanism, and thereby when said rod is raised the escapement 84 is released to revolve a fixed distance, as far enough to lift the lever 85 a fixed or predetermined distance and eventually far enough to once in five hours or such other time as arranged disengage the pin from the lever and permit the latter to drop and lower the universal support 31 to lock the workmen's tumblers.

The ratchet 101 makes a full revolution once a week, or in seven days, and normally represents sixty hours' work.

It is a custom in many factories to close Saturday night at five p. m. instead of six p. m., as on other week-days, making fifty-nine hours of labor for the week. To operate the escapement 84 at five p. m. and release the key-tumblers and the keys therein, I have provided the following means: In the ratchet, as in ways on one side, I mount a slide having one tooth (or more) 105, so that while this tooth is normally projected the several fingers 96 98 99 100 will regularly engage with it the same as with all of the other teeth. This movable tooth is particularly located with reference to the tooth 99. (Shown in Fig. 2 as the six-p.-m. tooth.) When it is desired, as on Saturday, to close the labor hours of the day at five p. m., the sliding tooth 97 is pushed out so that it will engage with the tooth of the wheel 101 next to the sliding tooth 105, which is then retracted and will trip the escapement 84 at five p. m. and make the record. Then the teeth 99 will skip the tooth 105, and thus fail to make a record at six p. m., and as it is necessary to advance the wheel 101 to maintain its proper time the tooth 95 will duly engage with a stationary tooth 106 upon the wheel 101 at one side of the regular teeth thereon, the tooth 95 being widened at its point for that purpose, and advance the wheel 101 to its proper position and prevent any break in its time.

The teeth 96 are arranged to trip the escapement 84 at twelve noon and at 12.30 p. m.,

respectively, when the nooning is of a half-hour duration, whereby the keys are released at twelve noon and relocked at 12.30 p. m.

It will thus be seen that the escapement 39 intermittently revolves the roller 6 and such of the record-wheels 9 as may be lowered every half-hour; that the escapement 84 is operated normally every five hours with provision for operating it at different intervals of time, and that by operating them by secondary power the clock-movement is relieved of the strain imposed upon it by the construction shown in my aforesaid application, and when a separate motor is provided for the escapement 39 all the clock has to do is to trip it to permit its motor to operate, whereby the time-keeping of the clock is not injured or impaired. It will also be seen that when the pointer 100 is set in notch 9 it will indicate two hours overtime, in the notch 10 three hours overtime, and so on, and that after that hour—9, 9.30, 10, &c.—the keys, &c., will be locked until the opening time, as seven a. m.

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

1. In a workman's time-recorder, the combination with a record-wheel, having a rate-strip on its face, and provided with a gear, of a roller provided with a pinion engaging with said gear to revolve said wheel, and means to drive said roller.

2. In a workman's time-recorder, the combination with a record-wheel, provided with a gear, an escapement mechanism, a lever connected thereto and a universal bar engaging with and whereby said record-wheel is oscillated vertically, of a roller having a pinion with which said gear engages when said wheel is lowered, and means to drive said roller, and thus revolve said wheel during such engagement.

3. In a workman's time-recorder, the combination with a series of record-wheels, each geared substantially as shown and described, of a universal roller having a series of pinions with which the gears of said record-wheels engage when lowered, and by which said wheels are revolved by said roller during such engagement, and means to drive said roller.

4. In a workman's time-recorder, a universal roller comprising a shaft and pinion spaced apart thereon, in combination with a series of record-wheels, each having a rate-strip upon its periphery, and on one or both sides a gear of a lesser radius than said wheel, whereby when any one of said wheels is lowered its

gear will engage with a pinion to be revolved, and means to drive said roller.

5. In a workman's time-recorder, the combination with a time-notched wheel, provided with projecting teeth, of a ratchet-wheel intermittently rotated by said teeth at predetermined intervals of time, and an escapement released by each impulse given to said ratchet-wheel.

6. In a workman's time-recorder, the combination with a power-driven time-notched wheel, of fingers mounted upon its shaft, and adjustable with reference to said notches to indicate the hours of labor of a workman.

7. In a workman's time-recorder, the combination with a power-driven time-notched wheel, of fingers mounted upon its shaft, and adapted to engage with said notches, and separately adjustable to indicate the time of the opening and closing of the labor hours of a day, and also the overtime closing when a workman works overtime.

8. In a workman's time-recorder, the combination with a power-driven and time-notched wheel, and adjustable fingers, mounted upon its shaft indicating the labor hours of a day by the spaces between them, and teeth upon said wheel, of a ratchet driven by the successive engagement of said fingers therewith to release a power-driven escapement, and a workman-designating device locked and released at predetermined intervals of time by said escapement.

9. In a workman's time-recorder, the combination with an escapement driven by a clock-movement, a universal roller intermittently driven by said escapement, of record-wheels adapted to be raised or lowered into or out of engagement with said roller, a secondary escapement driven by a separate or secondary power and operative to raise or lower said wheels at predetermined intervals of time.

10. In a workman's time-recorder, a series of workman's record-wheels mounted in separate vibratory frames and a universal roller common to all of them driven by a primary power, and a device driven by a secondary power whereby said wheels are separately lowered into engagement with said roller to be driven, or raised out of engagement therewith at fixed or predetermined times.

In witness whereof I have hereunto set my hand this 15th day of November, 1898.

JAMES H. GARRATT.

Witnesses:

C. FITCH COX,
E. A. BROWN.