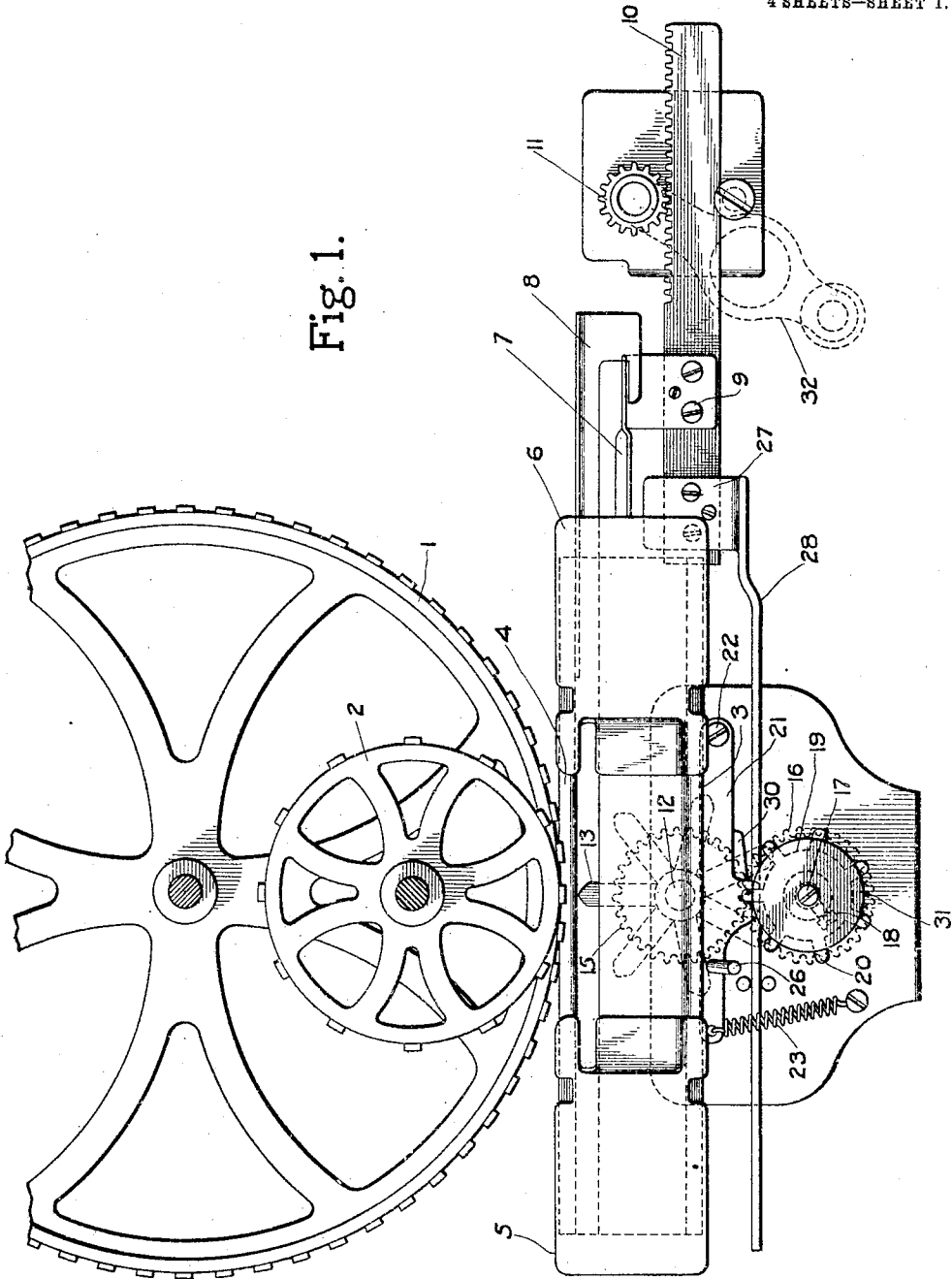


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4 SHEETS—SHEET 1.

100



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TIME RECORDER.

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956,309.

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4 SHEETS—SHEET 2.

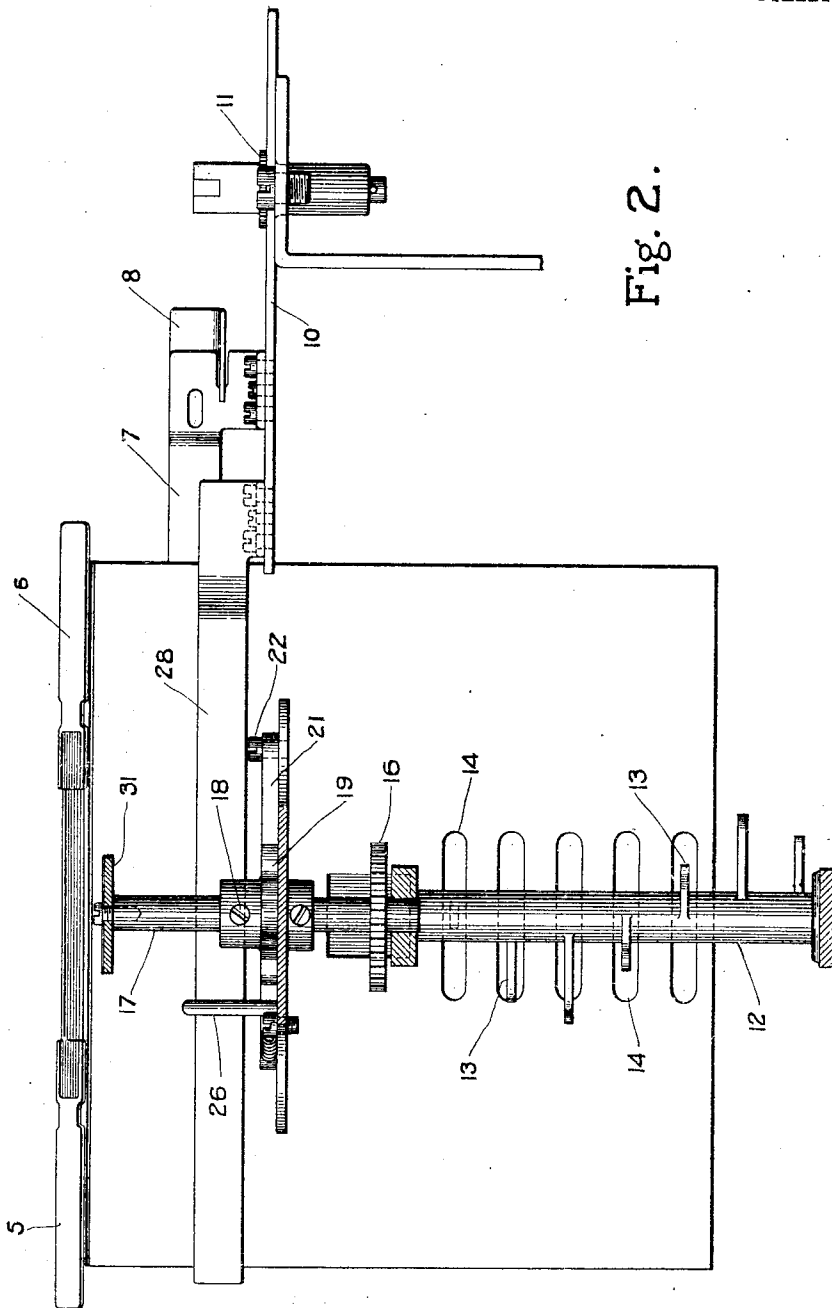


Fig. 2.

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4 SHEETS—SHEET 3.

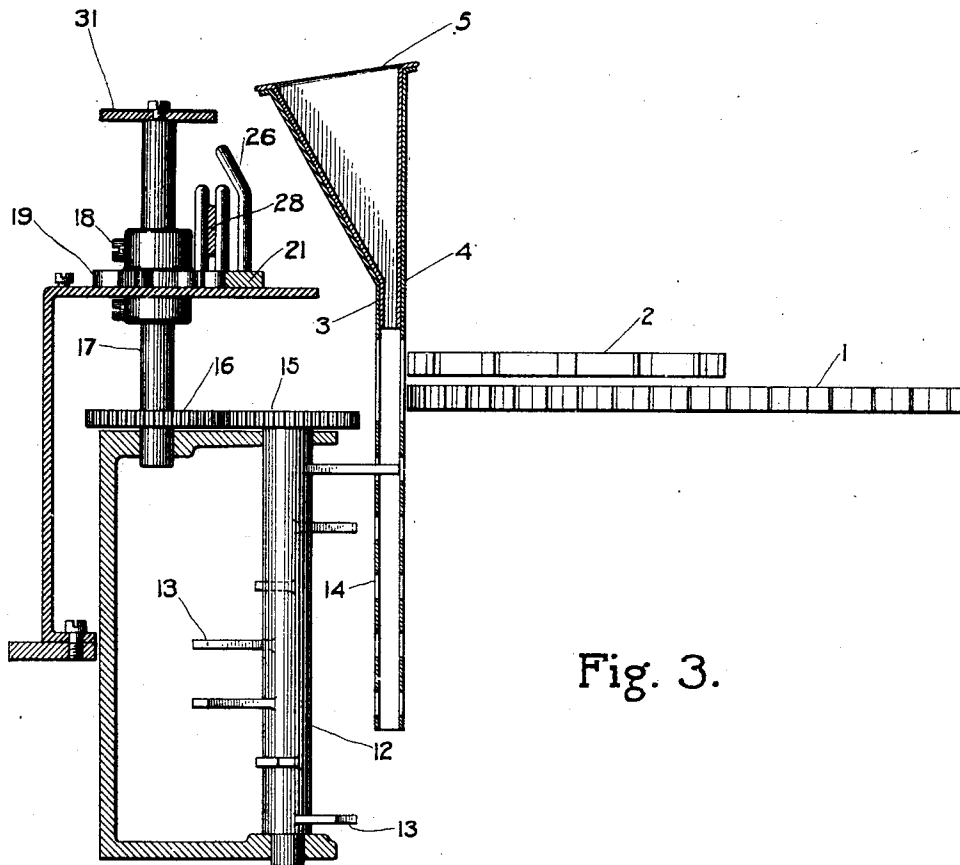


Fig. 3.

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UNITED STATES PATENT OFFICE.

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TIME-RECORDER.

956,309.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed June 15, 1905. Serial No. 265,388.

To all whom it may concern:

Be it known that we, JOHN DEY and
ALEXANDER DEY, residing at Syracuse, in
the county of Onondaga and State of New
York, have invented certain new and useful
Improvements in Time-Recorders, of which
the following is a full, clear, and exact de-
scription, such as will enable others skilled
in the art to which it appertains to make and
use the same.

This invention relates to time recorders.

One of the objects thereof is to provide
simple and efficient means for placing a
record receiving member in a desired posi-
tion relative to the printing mechanism of a
recorder.

Another object is to provide means of the
above type, independent of clockwork or sep-
arate manual control, whereby, upon a
record receiving member being correctly po-
sitioned to receive matter in a line in one
direction across the surface thereof, the same
will be automatically shifted in position so
as properly to space the successive lines thus
formed.

Another object is to provide means in con-
nection with means of the type first referred
to whereby the position of a record receiving
member may be manually adjusted in either
direction without affecting the relative posi-
tion of the same with reference to the print-
ing mechanism in the other direction.

Other objects will be in part obvious and
in part pointed out hereinafter.

The invention accordingly consists in the
features of construction, combinations of
elements and arrangement of parts which
will be exemplified in the mechanism herein
described and the scope of the application
of which will be indicated in the following
claims.

In the accompanying drawings, wherein
is shown one of various possible embod-
iments of the several features of our inven-
tion, Figure 1 is a plan of the same. Fig. 2
is a front elevation of the parts shown in
Fig. 1. Fig. 3 is a side elevation thereof.
Fig. 4 is an enlarged detail plan of certain
parts appearing in Fig. 1. Figs. 5 and 6
are perspective views of parts appearing in
Fig. 1, showing the same isolated from the
surrounding mechanism.

Similar reference characters refer to simi-
lar parts throughout the several views.

As conducing to a better understanding of

certain features of our invention, it may here
be noted that when the records of time re-
corders were to be spaced properly without
manipulation by the workman, it has been
customary either to actuate certain parts in-
termittently, as by means of clockwork, or
manually, as by an attendant. Both of such
arrangements are open to objection, the for-
mer on account of the complication of the
mechanism of the instrument and excessive
burdening of the clockwork at the time of
actuation of the intermittently driven parts,
and the latter requiring the presence of an
additional employee and rendering the au-
thenticity of the records dependent upon the
integrity of such person. The above and
other defects are remedied in constructions
of the nature of that hereinafter described.

Referring now to Fig. 1 of the accom-
panying drawings, there are shown printing
wheels 1 and 2 driven by any desired means,
the same not being here shown as they form
no part of the present invention. Opposite
these printing wheels is a card receiver com-
prising the front and rear plates 3 and 4
and members 5 and 6 adapted respectively
to engage the lateral edges of the card or
other record receiving member. These card
engaging members are spaced one from an-
other as by the strips 7 and 8 respectively
secured thereto. To the member 7 is secured
as by screws 9 a rack 10 intermeshing with
a pinion 11 by the rotation of which the
record card is shifted laterally with respect
to the printing wheels 1 and 2.

As heretofore stated the invention con-
templated improved and simplified means in
combination with the card guide or receiver
for limiting the movement of the record re-
ceiving surface in one direction within the
receiver and relative to the printing mech-
anism. Broadly stated, the feature referred
to comprises a plurality of movable abut-
ments or stops constructed and arranged to
be moved progressively and successively
within the receiver into the path of move-
ment of the card and position it with rela-
tion to the printing mechanism.

Rotatably mounted in fixed bearings at a
point substantially opposite the center of the
printing wheels is what may be termed a
"banking roller" 12, the same consisting of
a vertically disposed shaft provided with a
series of radial arms 13 fixed thereon and
disposed spirally thereabout, said roller be-

ing held against endwise movement in said fixed bearings. These arms are of such length that when the shaft is rotated, they will be turned toward the receiver and successively and progressively projected within the receiver, as through slots 14, into the path of movement of the card, each arm constituting a stop or abutment to be engaged by the card whereby the latter is positioned with relation to the printing mechanism. In the illustrated embodiment shown there are seven of the arms 13, one arm corresponding to each day of the week and serving to bring the record for that day upon a predetermined horizontal line upon the surface of the card.

Fixed upon the upper end of the banking roller 12 is a spur gear 15 intermeshing with a similar gear 16 upon a shaft 17 journaled upon the frame of the instrument. Mounted upon this shaft as by means of the set screw 18 is what may be termed a "star wheel" 19, the same being provided with a series of spur teeth 20 for a purpose hereinafter described.

Mounted upon the frame of the instrument, adjacent the star wheel 19, is a locking lever 21, the same being pivoted as at 22 and drawn as by spiral spring 23 toward the shaft 17. Lever 21, as best shown in Fig. 4 of the drawings, has formed thereon or secured thereto a projecting portion 24 adapted to receive within a recess 25 formed therein, one of the teeth 20 of the star wheel, thus positively locking the same against movement in either direction. A suitable pin 26 is fixed upon the lever 21 so as to permit the same to be manually retracted upon the casing being opened so as to give access to the above-described parts.

Secured to the rack 10, as by a flange 27, is a strip 28 having thereon a block 29. This block is adapted upon the card engaging members 5 and 6 being shifted to the extreme of their path of travel to ride over the projecting portion 24, such action being facilitated by the inclined surface 30 formed thereon. Upon falling below the projection 24 after having passed the same, the block 29 having reached the extreme of its path of travel is adapted when retracted to engage the inclined surface 24 thereof, thus swinging the lever 21 away from the star wheel 19. A further movement of the block 29 in this direction causes the same to engage the tooth 20 of the star wheel which has just been released by the locking lever 21 and swing the same throughout such an angle as to bring the next succeeding tooth into operative relation to the recess 25. The parts are so formed and adjusted as upon the latter tooth reaching the above position, to cause the block 29 to release the locking lever 21 and permit the same to snap back into a position in which the tooth 20 is engaged

thereby and the star wheel positively locked against movement in either direction.

The angular position of banking roller 12, in accordance with which the instrument is adapted to print upon different portions of the record receiving surface, is preferably indicated as by a disk 31 bearing characters indicative, in this illustrative embodiment, of the several days of the week. This disk is so positioned and adjusted as to show by means of the characters brought opposite an opening in the casing of the instrument, the day whose record the instrument is in condition to print.

The operation of the above-described embodiment of our invention is substantially as follows: Assuming that a record card is inserted within the receiver and successive impressions are made thereon in a horizontal line, as, for example, to indicate the entry of the workman in the morning, his exit and reentry at noon and departure at evening. These impressions are placed in the desired predetermined position upon the card merely by means of a proper manipulation of a crank 32 upon the shaft of pinion 11. Upon the card receiver having reached the extreme of its path of travel, however, further movement thereof being limited by any desired form of stop, it is necessary to reverse the direction of rotation of the crank 32 to shift the receiver to cause the card to be positioned so that the record printed upon the workman's entry the following morning will be correctly positioned upon the card. As the card receiver is retracted, however, by the means immediately above referred to, the block 29 releases locking lever 21, turns the star wheel 19 and permits the lever again to fall into locking position as above described, thus throwing one of the arms 13 out of its position within the card receiver and placing in such position the next succeeding arm. It will thus be seen that owing to the spiral disposition of the arms 13 the depth to which the card may be inserted is changed daily by successive equal steps with a corresponding disposition of the records for each day upon the surface of the card. At the end of the week or such other period of time as it is desired that a single card bear the records for, the banking roller has completed its revolution and the next arm 13 thrown into operative relation to the card receiver is at the further end of the roller from that last in such position.

It may here be noted that the terms of the nature of "vertical" and "lateral" are used throughout this description and the following claims in a loose sense as roughly indicative of relative directions and not with the absolute meaning with which they sometimes occur.

It will thus be seen that we have provided means well adapted to accomplish the sev-

eral objects of our invention and that these means are not only of the simplest and most inexpensive construction, but are so positive in action as to reduce to a minimum

the chance of the instrument becoming de-
 5 ranged during use. The mechanism, more-
 over, although peculiarly adapted for use
 in the relation shown, is of value, as regards
 certain portions thereof, in other relations.
 10 As many changes could be made in the
 above construction and many apparently
 widely different embodiments of our inven-
 tion could be made without departing from
 the scope thereof, we intend that all matter
 15 contained in the above description or shown
 in the accompanying drawings shall be in-
 terpreted as illustrative and not in a limit-
 ing sense. We desire it also to be under-
 stood that the language used in the follow-
 20 ing claims is intended to cover all of the
 generic and specific features of the inven-
 tion herein-described and all statements of
 the scope of the invention, which as a matter
 of language, might be said to fall therebe-
 25 tween.

Having described our invention, what we
 claim as new and desire to secure by Let-
 ters Patent, is:—

1. In a time recorder, in combination,
 30 printing mechanism, a banking roller to
 limit the relative movement in one direction
 of a co-acting record card, manually con-
 trolled means to control the position of said
 banking roller, a visual indicator to indicate
 35 the position of said banking roller, and
 means positively to lock said banking roller
 against movement in either direction.

2. In a time recorder, in combination,
 printing mechanism, a card receiver, a bank-
 40 ing roller mounted adjacent said card re-
 ceiver the arms of which are arranged to
 be projected within the same, manually op-
 erable means to actuate said banking roller,
 means adapted to lock the same against
 45 movement in either direction, manually-
 controlled means for releasing said locking
 means, and a visual indicator controlled in
 accordance with the position of said bank-
 ing roller to indicate the portion of a co-
 50 acting record card upon which the recorder
 is in position to print.

3. In a time recorder, in combination,
 printing mechanism, means to control the
 relative lateral movement of a co-acting
 55 record receiving member, means to control
 the relative vertical movement of said mem-
 ber, and a single manually controlled means
 operatively connected with both of said con-
 trolling means and adapted to control both
 60 of the same.

4. In a time recorder, in combination,
 printing mechanism, a card guiding ele-
 ment, a rotatable member held against end-
 wise movement and provided with spirally
 65 disposed projections constituting stops to

limit the relative movement in one direction
 of a card, means to rotate said member and
 means to lock said member against rotation.

5. In a time recorder, in combination,
 printing mechanism, means to control the
 70 relative movement of a record receiving
 member in one direction, means to control
 the relative movement of said member in
 another direction, and means acting auto-
 matically, upon a predetermined movement
 75 of one of said means taking place, to cause
 a predetermined movement of the other
 means.

6. In a time recorder, in combination,
 printing mechanism, means to move a record
 80 card laterally with respect thereto, means
 to limit the relative vertical movement of a
 record card with reference to said printing
 mechanism, and means effective upon said
 first-mentioned means being moved through-
 85 out a predetermined path of travel to cause
 said second-mentioned means to move
 throughout a predetermined path of travel.

7. In a time recorder, in combination,
 printing mechanism, means to move a co-
 90 acting record card laterally with respect
 thereto, means to limit the relative ver-
 tical movement of said record card with
 respect to said printing mechanism, and
 manually-actuated means effective, upon
 95 said first-mentioned means moving through-
 out a predetermined path of travel, to cause
 said second-mentioned means to change the
 limit of said relative vertical movement of
 a record receiving member.

8. In a time recorder, in combination,
 printing mechanism, means to move a record
 card laterally with respect thereto, means
 to limit the relative vertical movement
 of said card with respect to said print-
 105 ing mechanism, and means effective, upon
 said first-mentioned means passing a pre-
 determined point in a predetermined direc-
 tion, to cause movement of said second-
 mentioned means.

9. In a time recorder, in combination,
 printing mechanism, means to move a record
 card in one direction with respect thereto,
 means to limit the relative movement of said
 record card in another direction with re-
 115 spect to said printing mechanism, and means
 effective, upon said first-mentioned means
 completing its entire path of travel, to cause
 said second-mentioned means to limit the
 movement of said card at another point.

10. In a time recorder, in combination,
 printing mechanism, means to move a record
 card in one direction with respect thereto,
 means to limit the relative movement of said
 record card in another direction with re-
 125 spect to said printing mechanism, and means
 effective, upon said first-mentioned means
 completing its entire path of travel, to cause
 said second-mentioned means to limit the
 movement of said card at another point

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spaced a predetermined distance from the point of limitation prior to such movement.

11. In a time recorder, in combination, printing mechanism, means to move a record card laterally with respect thereto, a banking roller to limit the vertical movement of said record card at a predetermined point, and means effective upon said first-mentioned means completing its entire path of travel to actuate said banking roller and limit the vertical movement of said card at another point.

12. In a time recorder, in combination, printing mechanism, means to move a record card laterally with respect thereto, means to limit the relative vertical movement of said card, and means effective upon each completion of the path of travel of said first-mentioned means to actuate said second-mentioned means and limit said relative movement of said card at another point.

13. In a time recorder, in combination, printing mechanism, means to move a record card laterally with respect thereto, means to limit the relative vertical movement of said card, means effective upon each completion of the path of travel of said first-mentioned means to actuate said second-mentioned means to limit said relative movement of said card at another point, and time-controlled means controlling said printing mechanism.

14. In a time recorder, in combination, printing mechanism, manually-controlled means to move a record card laterally with respect thereto, means to limit the relative vertical movement of said record card with respect to said printing mechanism, and automatically acting means effective, upon said manually-controlled means being moved to the limit of its path of travel and retracted, to move said limiting means and vary the point at which said relative movement of said record card is limited.

15. In a time recorder, in combination, time-controlled printing mechanism, manually-controlled means to move a record card laterally with respect thereto, means to limit the relative vertical movement of said record card with respect to said printing mechanism, and automatically acting means effective, upon said manually-controlled means being moved to the limit of its path of travel and retracted, to move said limiting means and vary the point at which said relative movement of said record card is limited.

16. In a time recorder, in combination, printing mechanism, means to move a co-acting record card laterally with respect thereto, means to limit the relative vertical movement of said record card with respect to said printing mechanism, said means comprising a banking roller, means effective to lock said banking roller against movement

in either direction, manually-controlled means to actuate said first-mentioned means, and means effective, upon said manually-controlled means being moved to the limit of its path of travel and retracted, to move said banking roller and vary the point at which said relative movement of said record card is limited.

17. In a time recorder, in combination, time-controlled printing mechanism, a card receiver adjacent thereto, means to move a co-acting record card laterally with respect to said printing mechanism, a banking roller provided with arms and mounted adjacent said card receiver and having its arms projecting within the same, means to lock said banking roller against movement in either direction, manually-controlled means to actuate said first-mentioned means, and means connected with said manually-controlled means and effective, upon the same being moved to the extreme of its path of travel and retracted, to release said banking roller, move the same throughout a predetermined distance and relock the same.

18. In a time recorder, in combination, time-controlled printing mechanism, a banking roller adjacent said printing mechanism, manually-controlled means to move a co-acting record card laterally with respect thereto, means operatively connected with said manually-controlled means operating upon passing a certain point in a certain direction to release said banking roller, move the same throughout a predetermined distance and relock the same, and a visual indicator controlled in accordance with the position of said banking roller.

19. In a time recorder, in combination, time-controlled printing mechanism, record card receiving means, means to determine the lateral position of a card relative to said printing mechanism, a banking roller to limit the relative vertical movement of a record card, a member provided with outwardly projecting teeth operatively connected to said banking roller, a locking member to engage one of said teeth and lock said banking roller against movement in either direction, manually-controlled means operatively connected with said first-mentioned means, and a member connected with said first-mentioned means adjacent said locking member constructed upon passing the same in one direction to pass over the same and adapted upon movement in the opposite direction to release said locking member, rotate said toothed member throughout a predetermined distance and permit said locking member to engage another of the teeth thereon.

20. In a time recorder, in combination, time-controlled printing mechanism, means to move a co-acting record card laterally with respect thereto, a rack connected with

said means, a pinion gearing with said rack, a crank operatively connected with said pinion and to manually control the lateral position of a record card with respect to said printing mechanism, a banking roller mounted adjacent said printing mechanism to limit the relative vertical movement of said card, a gear upon said banking roller, a second gear meshing therewith, a member provided with outwardly projecting teeth in fixed relation to said second gear, a spring-pressed locking member to engage one of said teeth and lock said banking roller against movement in either direction, a member connected with said first-mentioned means and projecting adjacent said locking member constructed upon movement in one direction to pass over the same and upon movement in the other direction to release said locking member, move said toothed member throughout a predetermined distance and permit said locking member to engage another of said teeth.

21. In a time recorder, in combination, time-controlled printing mechanism, means to move a co-acting record card laterally with respect thereto, a rack connected with said means, a pinion gearing with said rack, a manually operated crank operatively connected with said pinion to control the lateral

position of a record card with respect to said printing mechanism, a banking roller mounted adjacent said printing mechanism to limit the relative vertical movement of said card, a gear upon said banking roller, a second gear meshing therewith, a member provided with outwardly projecting teeth in fixed relation to said second gear, a spring-pressed locking member to engage one of said teeth and lock said banking roller against movement in either direction, a member connected with said first-mentioned means and projecting adjacent said locking member constructed upon movement in one direction to pass over the same and upon movement in the other direction to release said locking member, move said toothed member throughout a predetermined distance and permit said locking member to engage another of said teeth, and a visual indicator operatively connected with said banking roller to indicate the position thereof.

In testimony whereof we affix our signatures, in the presence of two witnesses.

JOHN DEY.
ALEXANDER DEY.

Witnesses:

CLARA SACKETT RAYMOND,
F. P. WARFIELD.