

W. H. BUNDY.
RECORDING MACHINE.
APPLICATION FILED MAY 5, 1910.

1,034,415.

Patented Aug. 6, 1912.

2 SHEETS-SHEET 1.

Fig. 1-

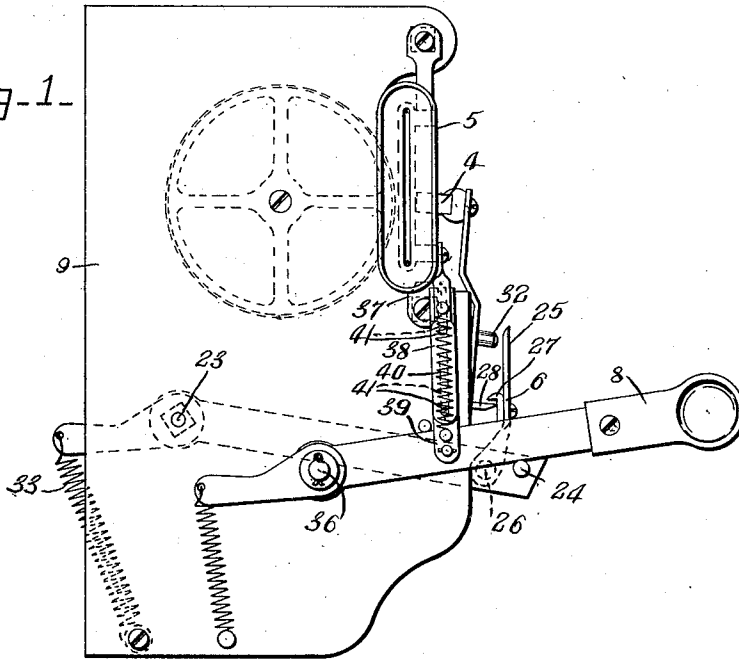
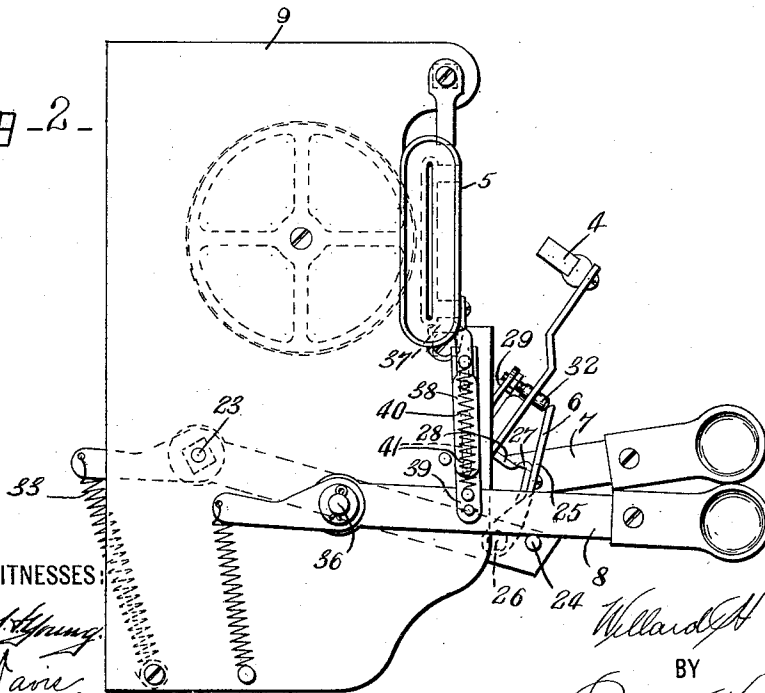


Fig. 2-



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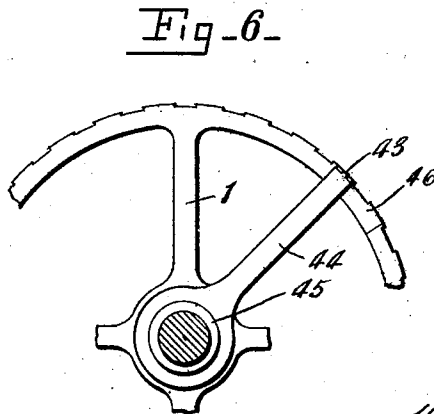
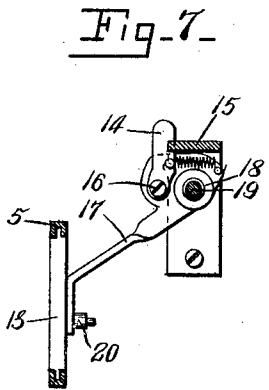
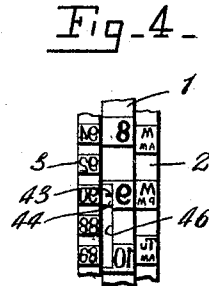
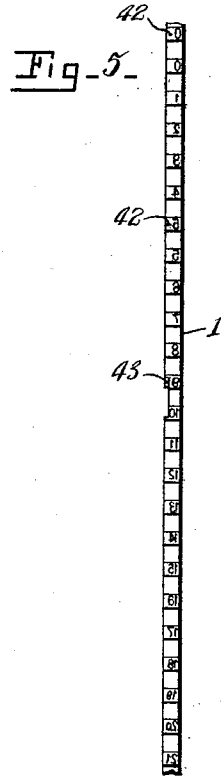
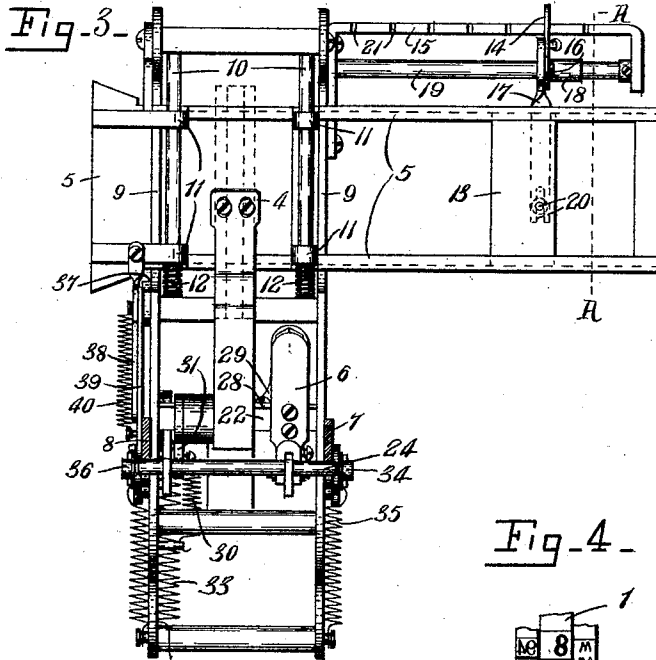
Parsons Hall Bodell
ATTORNEYS

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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLARD H. BUNDY, OF SYRACUSE, NEW YORK, ASSIGNOR TO W. H. BUNDY RECORDING COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

RECORDING-MACHINE.

1,034,415.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed May 5, 1910. Serial No. 559,439.

To all whom it may concern:

Be it known that I, WILLARD H. BUNDY, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Recording-Machine, of which the following is a specification.

My invention relates to recording machines and particularly to that class of recording machines known as cost keepers; and it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevation of the mechanism of my recording machine, the case being omitted. Fig. 2 is an elevation similar to Fig. 1 showing parts thereof in different positions. Fig. 3 is a front elevation of the recording machine mechanism seen in Fig. 1. Fig. 4 is a fragmentary view of the type wheels. Fig. 5 is a plan of the periphery of the hour wheel. Fig. 6 is an elevation partly broken away, of the hour wheel. Fig. 7 is a section on line A—A, Fig. 3.

This recording machine comprises printing mechanism including a movable element for effecting the making of the record, a shiftable card receiver, and an operating lever connected to the card receiver and movable into connection with the movable printing element for successively shifting the card receiver and effecting the actuation of said element in one operation.

As here illustrated the printing mechanism consists of type wheels 1, 2 and 3 indicated in dotted lines in Figs. 1 and 2; and a hammer 4 movable toward and from the characters of the type wheels at the printing point. The card receiver 5 is interposed between the type wheels and the hammer and the front and rear sides thereof are open in order that the card therein may be exposed to the type wheels (or to the inking ribbon, not shown, movable over the type wheels) and to the hammer. The hammer is actuated by a member 6, an operating member or lever 7 for actuating the member 6, and a second operating member or lever 8 connected to the card receiver and movable into engagement with the member 6 for successively shifting said receiver 5 and actuating the hammer 4. The lever 8 constitutes an operating member movable back

and forth, that is, downwardly and upwardly, for successively shifting the card receiver and effecting the movement of the hammer in one back and forth movement.

The foregoing parts are suitably supported by a frame 9, and the type wheels 1, 2 and 3 are suitably connected to a clock mechanism, not shown, in any well known manner. As here illustrated the frame is formed with upright guides or rods 10 in front of the type wheels and the card receiver 5 is formed with eyes or passages 11 for receiving the guide rods, the receiver being held in its upper position on the rods by springs 12 encircling the guide rods and located between the lowermost eyes 11 and the frame 9.

Preferably the mouth of the card receiver is directed laterally and is located on one side of the frame and the receiver extends laterally beyond the opposite side of the frame and is provided with an abutment 13 which is shiftable therein. This abutment is shifted by hand by the person having control of the recorder. As here shown the abutment is actuated by a hand piece 14 movable along a scale supported on a member 15 projecting laterally from the frame parallel to the card guide. The hand piece is pivoted at 16 to a link 17 which is provided with a sleeve 18 movable along a guide 19 supported by the frame, the link being connected to said abutment by a pin-and-slot 20 in order to permit the vertical movement of the card receiver. The scale usually consists of numerals from 1 to 7 inclusive, not shown, indicating the days of the week and the member 15 is formed with notches 21 arranged opposite said numerals for receiving the hand piece 14.

The hammer 4 may be of any desirable form, size, and construction, is here shown as mounted upon a rock shaft 22 journaled in the frame. The actuating member 6 for the hammer is a lever in the form of a frame consisting of side bars which are pivoted at 23 to the frame 9 and a cross piece 24 at the front end of the side pieces, this cross piece 24 extending under and in front of the rock shaft 22 upon which the hammer 4 is mounted. Said actuating member is provided with an upwardly-extending catch 25 pivoted at 26 thereto and having a hooked-shaped part 27 which engages a lug 28 provided on an arm 29 fixed on the hammer

shaft 22, so that during the downward movement of the actuating lever 6 the rock arm will be actuated rearwardly in order to pull the hammer back into striking position against the action of a spring 30 connected to an arm 31 on the shaft 22 and to the main frame 9. The rock arm 29 is provided with a knock off device 32 arranged above the lug 28 for cooperating with the upper end of the catch 25 and forcing the catch 25 on its pivot 26 during the downward movement of the member 6 and carrying the hooked-shaped part out of engagement with the lug 28 when the hammer has been pulled back to nearly its fullest extent. When the hooked-shaped part 27 is disengaged from the lug 28, the hammer 4 is impelled forwardly by the spring 30, and the actuating member is returned by a spring 33 connected thereto.

The hand lever 7 which actuates the hammer without moving the card receiver, is pivoted at 34 to the frame 9, and is movable in a vertical plane downwardly into engagement with the cross piece 24 of the actuating lever 6 for operating the hammer in the usual manner. It is moved in the reverse direction by a spring 35 connected to its rear end. The other hand lever 8 is pivoted at 36 to the frame 9 and extends over the cross piece 24 of the actuating lever 6 and operates in the same manner as the lever 7 to actuate the hammer, but said lever 8 is also connected to the card receiver 5, so that during the downward movement of said lever 8 it shifts the card receiver 5 vertically against the springs 12 until the card receiver is limited in its vertical movement by a fixed stop 37 on the frame. These connections are so arranged that the lever 8 has shifted the card receiver 5 into engagement with the stop 37 before said lever has depressed the cross piece 24 of the actuating lever 6 sufficiently to have effected the release of the hammer 4.

The connections between the lever 8 and the card receiver 5 includes links 38, 39 connected, respectively, to the card receiver 5 and to the lever 8, the links lapping each other and being slidably interlocked and a spring 40 connecting the links, the spring 40 being strong enough to overcome the tension of the springs 12 on the guide rods 10 during the movement of the lever 8 until the movement of the card receiver is limited by the stop 37. As here shown the links 38, 39 are connected by a pin-and-slot 41. Thus when the card is inserted in the receiver at the time work is commenced on a job, the lever 7 is operated, and at the time the job is finished the card is inserted in the receiver and the lever 8 operated shifting the receiver vertically so that the finished record is above the starting record and an example in subtraction is set up on the record

sheet and the difference between the two records can be easily computed. Each day the card abutment is shifted by the person having charge of the clock, it being understood that the frame is inclosed within a suitable case and that the only part located outside of the case are the mouth of the card receiver and the handles of the levers 7 and 8.

For the purpose of facilitating the computing of the time on the cards, the hour wheel 1, Fig. 6, is provided with printing members designating the hours of the day, these numbers being arranged consecutively with the exception that the starting hour of a regular work period and the hour preceeding the starting hour are denoted by the same character and the beginning and ending of a regular recess are denoted by the same number, so that the numbers advance consecutively from 0 to 21 inclusive with the exception of the repetitions. For example in a work day in which the hours are from 7 a. m. to 6 p. m. with a one hour recess at noon, 6 a. m. is designated "0", 7 a. m. is also denoted "0" and 12 o'clock noon is denoted "5", and 1 p. m. is also denoted "5". In establishments having regular working periods it is not customary to count the time before the regular starting period at 7 o'clock or the noon hour between 12 and 1 and for the purpose of notifying the time keeper that such time is not to be counted, the hour wheel is provided with minus signs or other indicating characters 42 before the "0" indicating the hour 6 a. m. and before the "5" indicating the fifth hour or noon.

The numeral denoting the end of the regular work day as 5 or 6 p. m. that is the ninth or tenth working hour is also provided with a minus sign 43 in order that the time after the regular working period has expired will not be counted, the sign being here shown as adjustable to accompany either the number 9 denoting 5 p. m. or the number 10 denoting 6 p. m. As shown this minus sign is carried at the end of an arm 44 on the hub 45 of the wheel 1, the end of the arm being movable in a recess 46 in the side of the wheel 1 opposite the numbers 9 and 10. The arm is adjusted opposite to the number 9 when a nine hour day is in force and opposite to the number 10 when a ten hour day is in force. The type wheel 3 expresses the divisions of the hour in decimals and not in minutes, so that in computing the time it is unnecessary to reduce minutes to hours, but an ordinary example in subtraction is set up on the time card.

In use, assuming that a workman enters the factory at half past six and stamps his card, the type wheels will print the number 0—50 on the card upon the placing of the

card in the receiver and the operating of the lever 7 as described, and assuming that the job upon which this particular workman was engaged was finished at twelve minutes
5 past three, and the card was placed in the receiver, and the lever 8 actuated, the impression 7 20 will be made directly above the impression 0—50, thus

7 20
0—50.

The minus sign before 50 indicates that .5 of an hour is not to be counted in computing the time therefore the full time that
15 it took to complete the job is 7.2 hours. Assuming that the workman began work on a particular job at half past seven and finished at twelve minutes past three, the record on the card will be set up 0 50 and
20 the finishing time will be arranged directly above the starting time and will read

7 20
0 50.

25 The time is computed by subtracting the lower number from the upper and in this case there being no minus sign, the .5 of an hour is taken into account and the result is 6.7 hours.

30 It will be apparent that the noon hour is automatically eliminated from consideration by designating 12 noon and 1 p. m. by the same number and that should a record be made after 12 and before 1 p. m. the
35 minus sign will be printed before the fraction of the minute, indicating to the time keeper that the number following the sign is not to be taken into account.

By my recording machine the finishing
40 time is arranged above the starting time and the example set up by the machine is one of simple subtraction.

What I claim is:—

1. In a recording machine, two printing
45 elements, one being movable toward and from the other for effecting the making of a record, a card receiver extending between said elements and being normally in position to support the record card in one operative position relatively to the printing
50 elements and shiftable to carry the card in another operative position with respect to said elements, and an operating member connected to the card receiver and movable into connection with the movable printing
55 element for successively shifting the card receiver and actuating the movable printing element toward the other printing element in one operation, substantially as
60 and for the purpose described.

2. In a recording machine, two printing
elements, one being movable toward and from the other for effecting the making of a record, a card receiver extending between
65 said elements and being normally in position

to support the record card in one operative position relatively to the printing elements and shiftable to carry the card in another operative position with respect to said elements, and an operating member
70 movable back and forth and connected to the card receiver and movable into connection with the movable printing element for successively shifting the card receiver and actuating the movable printing element toward the other printing element during
75 each back and forth movement, substantially as and for the purpose specified.

3. In a recording machine, two printing
elements, one being movable toward and from the other for effecting the making of
80 a record, a shiftable card receiver extending between said elements, an operating member for actuating the movable printing element to effect the making of a record on
85 the card in the receiver, and a second operating member connected to the card receiver and movable into connection with the movable printing element for successively shifting the card receiver and actuating the
90 movable printing element toward the other printing element in one operation, substantially as and for the purpose set forth.

4. In a recording machine, two printing
elements, one being movable toward and from the other for effecting the making of
95 a record, an actuating member connected to the movable element, a shiftable card receiver, an operating lever for moving said actuating member, and a second operating
100 lever connected to the card receiver and movable into engagement with the actuating member for successively shifting the card receiver and actuating the movable
105 printing element toward the other printing element in one operation, substantially as and for the purpose described.

5. In a recording machine, two printing
elements, one being movable toward and from the other for effecting the making of
110 a record, an actuating member connected to the movable element, a card receiver extending between said elements and being normally in position to support the record card in another operative position with respect to said elements, a stop for limiting
115 the shifting movement of the card receiver, and an operating lever connected to the card receiver for shifting the same into engagement with the stop, the lever being
120 movable into engagement with the actuating member after the said receiver engages the stop, substantially as and for the purpose
125 specified.

6. In a recording machine, two printing
elements, one being movable toward and from the other for effecting the making of
130 a record, an actuating member connected to

the movable element, a shiftable card receiver extending between said elements, a stop for limiting the shifting movement of the card receiver, an operating lever movable into engagement with the actuating member, and a second operating lever connected to the card receiver and operating to shift the receiver until said receiver engages the stop, said second operating lever being also movable into engagement with the actuating member, substantially as and for the purpose set forth.

7. In a recording machine, type wheels, a hammer movable toward and from the type wheels, a card receiver extending between the type wheels and the hammer and being normally in position to support the record card in one operative position relatively to the printing elements and shiftable to carry the card in another operative position with respect to said elements, and an operating member connected to the card receiver and movable into connection with the hammer for successively shifting said receiver and actuating the hammer, substantially as and for the purpose described.

8. In a recording machine, type wheels, a hammer movable toward and from the type wheels, a shiftable card receiver extending between the type wheels and the hammer, an operating lever for actuating the hammer, and a second operating lever connected to the card receiver and movable into connection with the hammer for successively shifting the card receiver and actuating the hammer, substantially as and for the purpose specified.

9. In a recording machine, a frame having a guide, two printing elements, one being movable toward and from the other for effecting the making of a record, a card receiver shiftable along the guide and extending between said elements, an operating member movable in a plane parallel to the direction of movement of the receiver and connected to the card receiver and movable into connection with the movable printing element for successively shifting the card receiver along the guide and actuating the movable printing element, substantially as and for the purpose set forth.

10. In a recording machine, a frame having an upright guide, two printing elements, one being movable toward and from the other for effecting the making of a record, a card receiver shiftable vertically along the guide and extending between said elements, the card receiver having its mouth directed laterally, a lever pivoted to the frame and extending forwardly and having its front end arranged below the movable printing element, an operating lever movable in a vertical plane into engagement with the first-mentioned lever, a second operating lever movable in a vertical plane and con-

nected to the card receiver and being movable into engagement with the first-mentioned lever, and a stop for limiting the shifting of the card receiver before the second operating lever has completed its downward movement, substantially as and for the purpose described.

11. In a recording machine, two printing elements, one being movable toward and from the other for effecting the making of a record, a shiftable card receiver extending between said elements, a movable abutment for the card receiver, and an operating member connected to the card receiver and to the movable element for successively shifting the card receiver and actuating the movable printing element toward the other printing element, substantially as and for the purpose specified.

12. In a recording machine, a frame having an upright guide, two printing elements, one being movable toward and from the other for effecting the making of a record, a card receiver shiftable vertically along the guide and extending between said elements, the card receiver having its mouth directed laterally in one direction and being provided with a movable abutment, a lever pivoted to the frame and extending forwardly and having its front end arranged below the movable printing element, an operating lever movable in a vertical plane into engagement with the first-mentioned lever, a second operating lever movable in a vertical plane and connected to the card receiver and being movable into engagement with the first-mentioned lever, and a stop for limiting the shifting movement of the card receiver before the second operating lever has completed its downward movement, substantially as and for the purpose set forth.

13. In a recording machine, an hour wheel having printing numerals denoting the hours of the day, the numerals denoting the beginning and the end of a regular recess being the same, the numerals denoting the beginning of the recess having a distinguishing character associated therewith, substantially as and for the purpose specified.

14. In a recording machine, an hour wheel having printing numerals arranged consecutively with the exception that two numerals denoting consecutive hours are the same, one of said two numerals having a distinguishing character associated therewith, substantially as and for the purpose described.

15. In a recording machine, an hour wheel having printing characters thereon arranged consecutively with the exception that the numeral denoting the hour preceding the regular working period and the numerals denoting the beginning and the end of a regular recess are the same, the

numeral denoting the hour preceding the beginning of the regular working period and the numeral denoting the beginning of the regular recess having distinguishing characters associated therewith, substantially as and for the purpose set forth.

16. In a recording machine, an hour wheel having printing numerals thereon, and a supplemental character movable in synchronism with the hour wheel and associated with the numeral denoting the end of the work day and movable with the numerals denoting the end of the day into position to print in conjunction therewith, substantially as and for the purpose described.

17. In a recording machine, an hour wheel having printing characters thereon arranged consecutively with the exception that the numeral denoting the hour preceding the regular working period and the numeral denoting the hour beginning the working period are the same and that the numerals denoting the beginning and the end of a regular recess are the same, the numerals denoting the hour preceding the beginning of the regular working period and the numeral denoting the beginning of the regular recess having distinguishing characters associated therewith, and the numeral denoting the ending of a regular working day having a distinguishing character associated therewith, substantially as and for the purpose specified.

18. In a recording machine, an hour wheel having printing numerals thereon spaced from each other, and a supplemental character movable in synchronism with the hour wheel and adjustable in reference thereto for bringing said character into cooperative relation with a selected one of a plurality of said printing numerals, the supplemental character being movable with the selected printing numeral into position to print in conjunction therewith, substantially as and for the purpose specified.

19. In a time recorder and in combination, a movable member having a plurality of hour indicating characters thereon spaced apart from one another, a second movable member having a plurality of printing characters thereon for printing fractions of the hour in connection with the aforesaid hour printing characters, and printing means cooperating with one of said hour printing characters for indicating that any fractional hour characters and printing in conjunction with said hour printing character printed in association therewith are to be disregarded, substantially as and for the purpose set forth.

20. In a recording machine, an hour wheel having printing numerals thereon, the numeral denoting the beginning of the first hour being "0" and the numeral denoting the hour preceding the first hour be-

ing "0", the numerals being arranged consecutively with the exception that the hour ending the noon recess is denoted by the same numeral as the hour beginning said recess, the "0" denoting the hour preceding the first hour and the numeral denoting the beginning of the noon recess and also the numeral denoting the hour ending the work day having distinguishing characters associated therewith, substantially as and for the purpose specified.

21. In a time recorder and in combination, a movable member having a plurality of hour indicating characters thereon spaced apart from one another, certain adjacent characters being duplicated, and the remaining characters being of increasing value, in regular sequence, a second movable member having characters thereon for printing fractions of the hour, and printing means associated with certain of said duplicate hour characters and printing in conjunction with certain of said duplicate hour characters for indicating that the fractional hour characters printed in association therewith are to be disregarded, substantially as and for the purpose described.

22. In a recording machine, a type wheel having printing characters thereon, and a supplemental character-carrying member associated with the wheel and adjustable for carrying the supplemental character opposite to different characters on the wheel, said member comprising a rock arm mounted on the hub of the wheel and carrying the supplemental character at its end, substantially as and for the purpose described.

23. In a recording machine, an hour wheel having printing numerals thereon, a supplemental character-carrying member associated with the numeral denoting the end of the work day, said member being adjustable to accompany different numerals for adapting the machine to work days of different lengths, substantially as and for the purpose specified.

24. In a recording machine, a wheel having printing characters on the periphery thereof and formed with a recess in a side face thereof, the recess opening through the periphery of the wheel, a supplemental character-carrying member having a portion movable in the recess, substantially as and for the purpose set forth.

25. In a recording machine, an hour wheel having printing numerals thereon, the numeral denoting the beginning of the first hour being "0" and the end of the first hour being "1", the numeral denoting the hour preceding the first hour being "0", the numerals being arranged consecutively to the end of the working period with the exception that the beginning and ending of a regular recess is denoted by the same numeral, and a supplemental character-carry-

ing member associated with the wheel and arranged so that the supplemental character accompanies the numeral denoting the end of the work period, said member being adjustable for carrying said supplemental character to accompany another numeral, substantially as and for the purpose described.

26. In a time recorder, a printing wheel having a plurality of hour printing characters thereon spaced apart from one another, certain adjacent characters being of the same value and the remaining characters being of increasing value, in regular

sequence, and an auxiliary character associated with one member of each set of characters of the same value and arranged to print in conjunction therewith, substantially as and for the purpose specified.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 22nd day of September, 1909.

WILLARD H. BUNDY.

Witnesses:

E. K. SEEMILLER,

S. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."