G. R. WOOD.

RECORDING MECHANISM.

APPLICATION FILED FEB. 8, 1921.

1,413,646.

Patented Apr. 25, 1922.

4 SHEETS—SHEET 1.

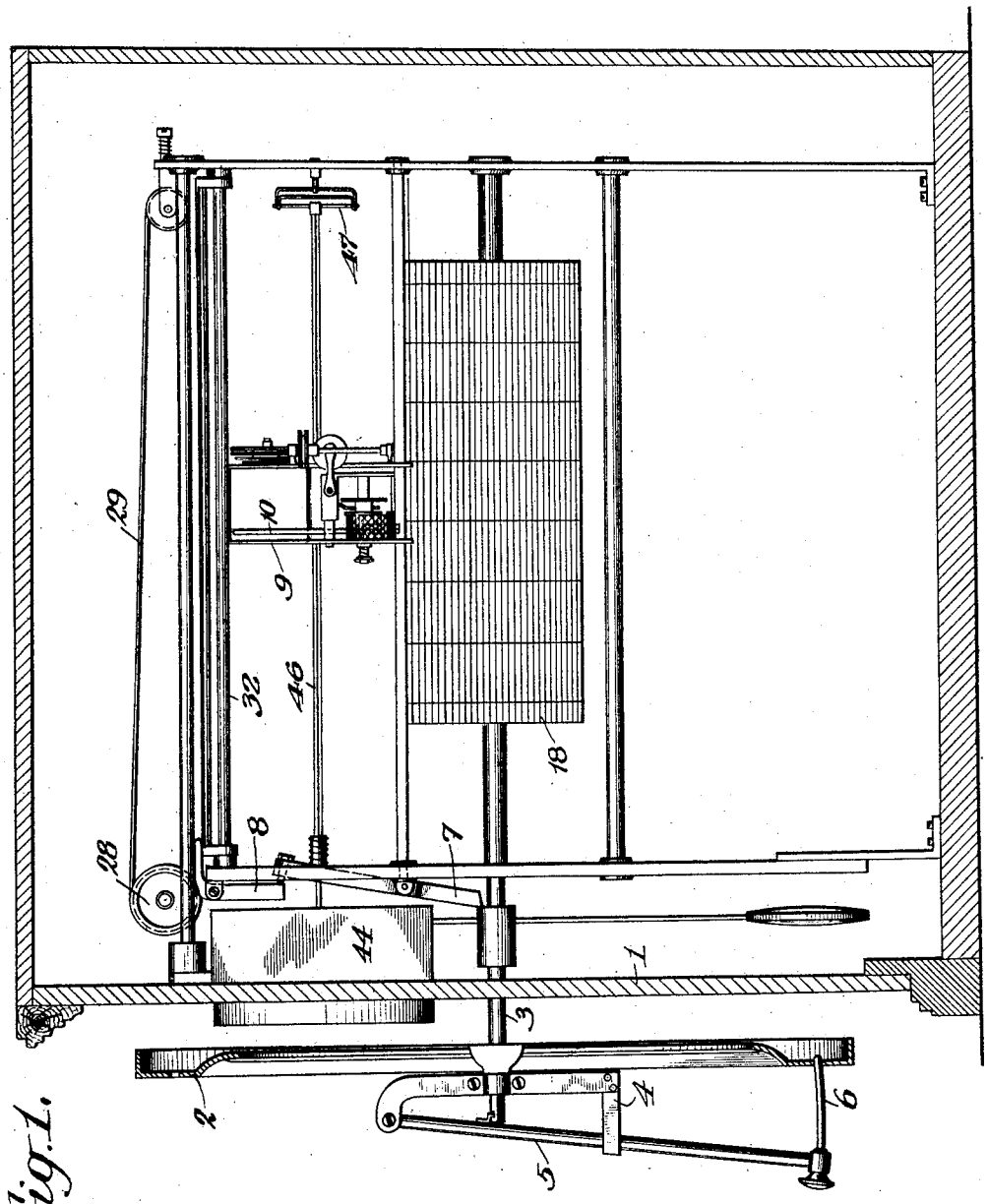


Fig. 1.

Inventor
George R. Wood
By his Attorneys,
Kerr, Page, Cooper & Hayward

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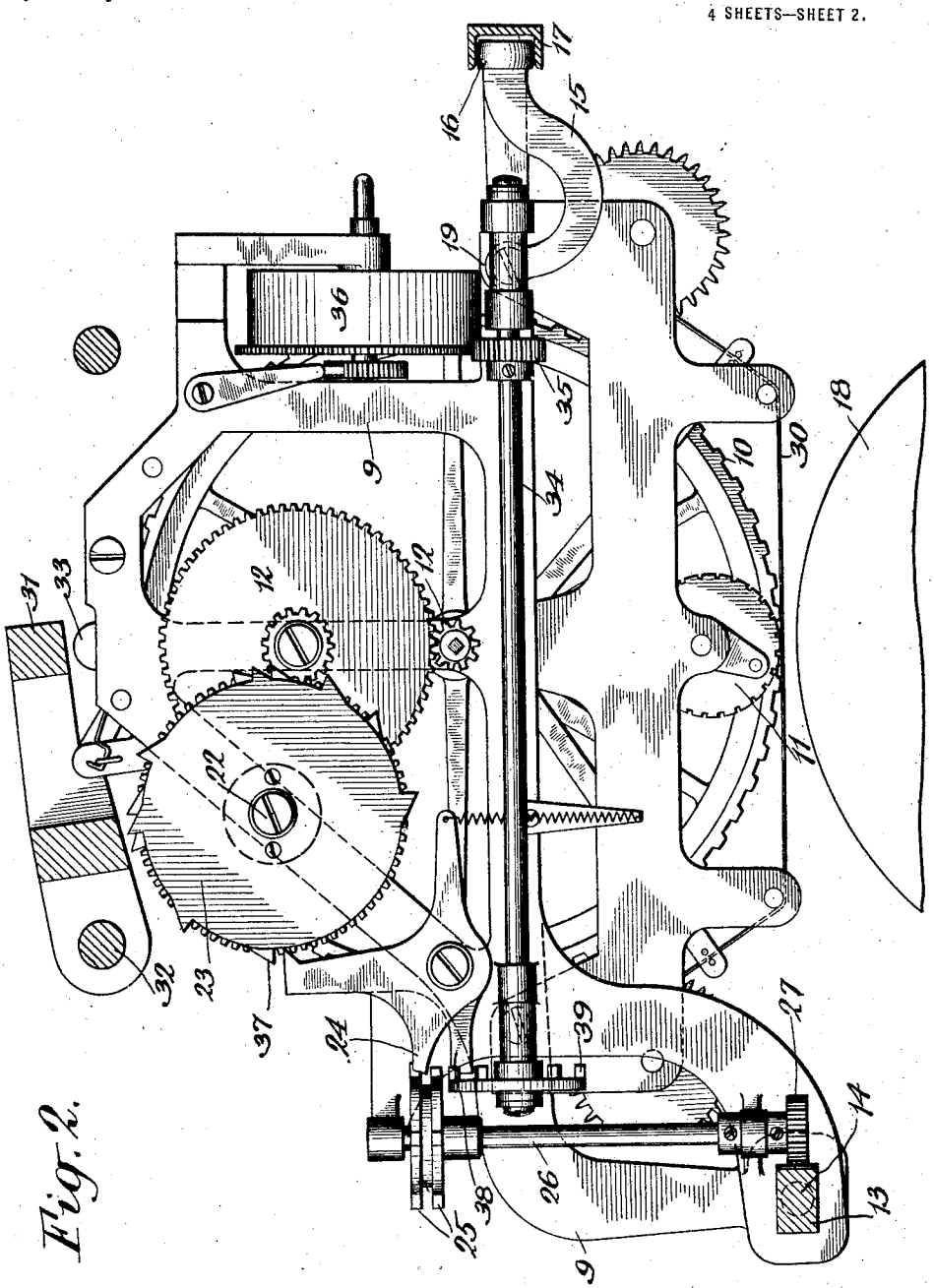


Fig. 2.

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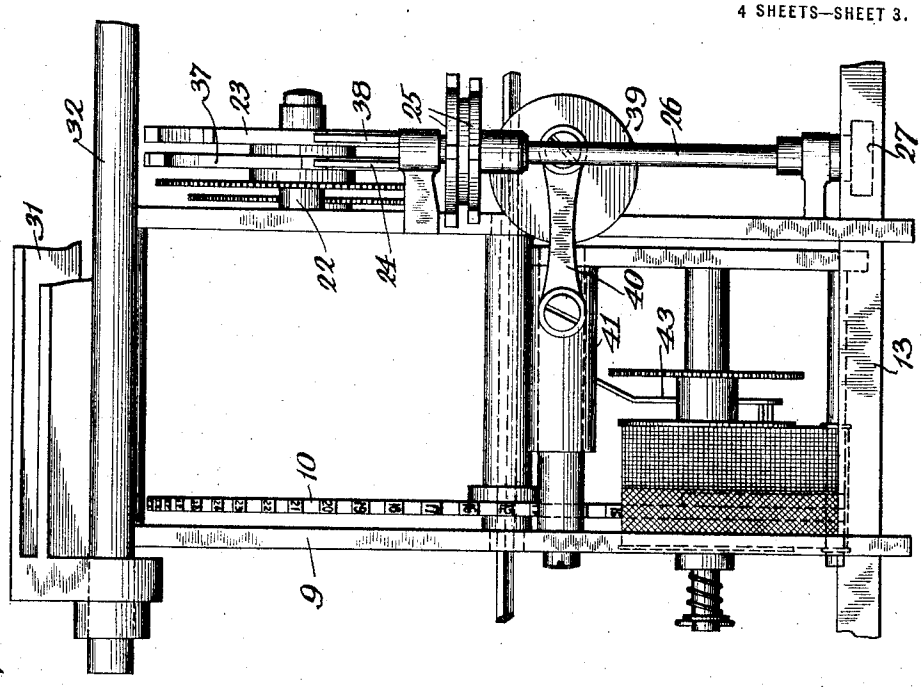


Fig. 3.

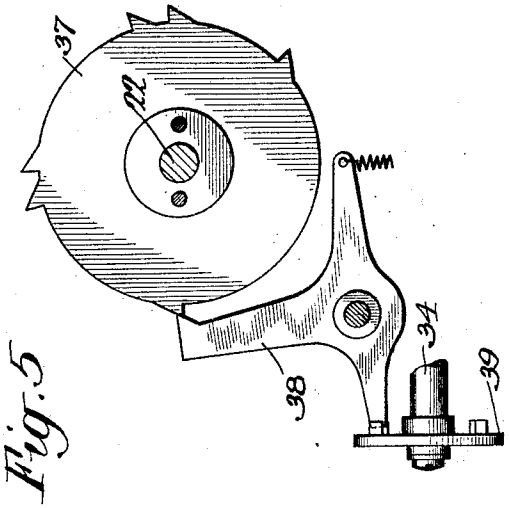


Fig. 5

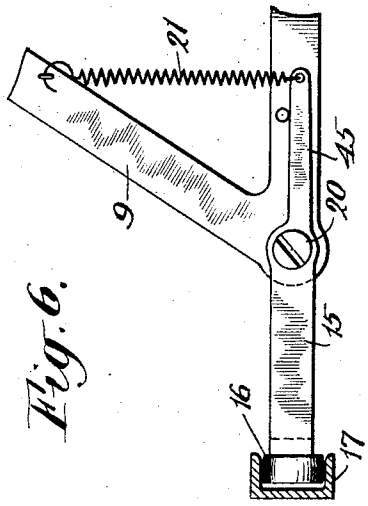


Fig. 6.

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4 SHEETS—SHEET 4.

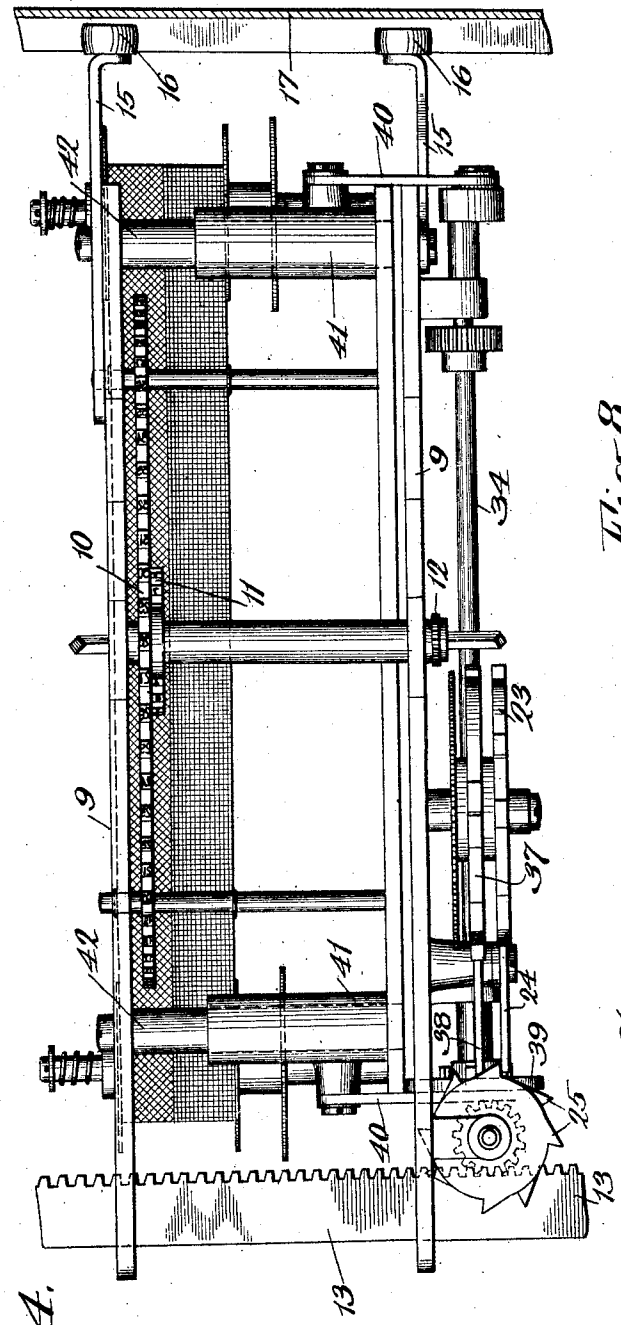


Fig. 4.

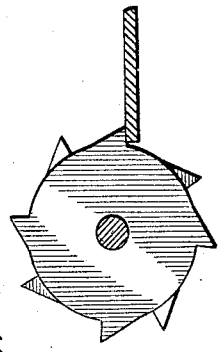


Fig. 8.

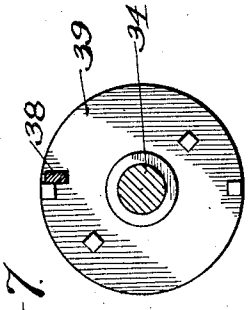


Fig. 7.

Inventor
George R. Wood

By his Attorneys:
Kerr, Page, Cooper & Hayward

UNITED STATES PATENT OFFICE.

GEORGE R. WOOD, OF DAYTON, OHIO, ASSIGNOR TO INTERNATIONAL TIME RECORDING COMPANY OF NEW YORK.

RECORDING MECHANISM.

1,413,646. Specification of Letters Patent. Patented Apr. 25, 1922.

Application filed February 8, 1921. Serial No. 443,397.

To all whom it may concern:

Be it known that I, GEORGE R. WOOD, a subject of the King of Great Britain, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Recording Mechanism, of which the following is a full, clear, and exact description.

In patent of the United States No. 888,456, granted to W. A. Wood on May 5, 1908, is shown and described a workman's time recorder, on which the invention of this application is an improvement, and the said improvement involves in the main two features of novelty. First, I employ in connection with a drum or cylinder, serving among other things as a platen, a traveling carriage which is capable also of an oscillatory movement under the influence of the print controlling mechanism to cause the type wheels of the recorder to effect the printing of a workman's time, and second, I mount on said carriage an auxiliary spring or motive device under the control of a suitable escapement to operate a two-colored inking ribbon so that the impressions made by the machine will be of different colors according to the relative times at which they are made.

The machine which I have herein shown has also other minor features of novelty, but these will be more fully pointed out in the following description.

In the drawings hereto annexed,

Fig. 1 is a general view, in elevation, of my improved machine as a whole.

Fig. 2 is an enlarged end view mainly in elevation of my improved carriage, portions, however, being shown in section.

Fig. 3 is a side view of parts of the carriage.

Fig. 4 is a view in elevation of parts of the carriage, taken at right angles to the direction of looking at Fig. 1.

Figs. 5, 6, 7 and 8 are enlarged details of special elements such as cams, escapement and other parts the nature and purpose of which will be more fully hereinafter set forth.

The machine, as a whole, is of well known character and is contained in a box or casing 1 in front of which is the usual dial 2 having a central and longitudinally movable spindle 3 about which turns the bar or frame 4 to which is pivoted the hand lever 5. When a workman records his time coming or going he turns this lever 5 until a pin 6 thereon registers with his distinguishing number on the dial 2. Whereupon the lever is forced forward carrying the pin 6 into a hole. This operation sets the machine to print in the proper place on a card or sheet and the forward movement of the lever operates a pivoted lever 7 which in turn operates the print controlling lever 8.

As these devices are well known in the art no further detailed description of the remaining parts will be given, except so far as may be necessary to a full understanding of my special improvements.

Fig. 2 is a general showing of the character of the carriage. It comprises a frame 9 in which are mounted the minute wheel 10, the hour wheel 11 and the proper gears 12 for rotating the same, the latter being driven by a stationary time mechanism 44 in the usual manner by means of a pinion shaft 46 which is capable of oscillating with the carriage. This oscillatory movement of the pinion shaft is rendered possible by the fact that its outer end is journaled in a bearing 47 supported by levers which permit it to swing. Any suitable and known means may be used for this purpose. The carriage frame 9 is supported at one side by a square rack bar 13, over which the ends of the frame arms 9 slide, and this rack bar extends substantially across the casing and is mounted on and capable of turning about a spindle 14, supported at the sides of the casing. At the other side the carriage frame is supported by arms 15, having rollers 16 that run in guide ways 17. The carriage is capable of movement towards and from the drum 18 for the sheet or card for which purpose one arm 15 is pivotally connected with the frame at 19 while the other arm 15 as shown in detail in Fig. 6 is connected to said frame at 20 and has a prolonged end 45 to which a spiral spring 21 connected to the frame 9 is connected. This spring has sufficient force to sustain the weight of the carriage and maintain the same in its normal or elevated position above the drum.

The carriage is also movable longitudinally with reference to the rack bar 13, this movement being imparted by the timing mechanism by the following means. On a shaft 22 driven by the timing mechanism is a cam wheel 23 which oscillates a bell crank lever 24, the free end of which operates as a

pawl to permit a double ratchet wheel 25 shown in detail in Fig. 8, to rotate step by step and to impart this movement to a counter shaft 26, carrying a pinion 27 that gears with the rack bar 13. The carriage is impelled by a spring barrel 28 and a metal tape 29, so that as the ratchet wheel 25 is released the carriage will travel in proportion to the time and is thus moved by the timing mechanism intermittently in a plane parallel to the axis of said drum.

The movement of the carriage which brings down the type wheels upon the ribbon 30 and prints the time is effected by the workman through the instrumentality of the lever 8. This lever when depressed engages a double bar 31, eccentrically mounted on a shaft 32 and extending across the entire path of travel of the carriage and depresses said bar with the result that its outer portion or bar engages a stud 33 on the carriage frame and thus depresses the carriage and effects the printing wherever the said carriage may happen to be in its path of travel.

Under ordinary conditions the inking ribbon prints in but one color but it is generally desirable that all impressions made after a certain number of minutes after the regular starting or before the regular stopping times or at other periods should be in a distinctive color so as to be more readily detected. For this purpose it is customary to use in machines of this character a two colored ribbon and to shift the same so as to print from the abnormal color at given instants. This I effect by the following means.

On the carriage 9 I mount a spring barrel 36 which may be wound up at proper intervals and which gears with a pinion 35 on a shaft 34. This shaft is controlled by a double ratchet 39 shown in detail in Fig. 7, which it carries at its end, the said ratchet being controlled in turn by a bell crank pawl 38 working on the periphery of a cam disk 37, on the shaft 22 and rotated by the timing mechanism. The said cam disk has projections that permit the ratchet 39 and the shaft 34 to make partial rotation at given instants of time and such movements of the shaft operate to shift the inking ribbon.

This action is effected by the means shown in Figs. 3 and 4. The shaft 34 carries links 40 at its ends which are pivoted to it eccentrically and these links are pivoted to sleeves 41 adapted to slide on guide bars 42. When the shaft 34 turns a part revolution, the sleeves 47 are shifted and they carry arms 43, Fig. 3 which connect with or bear upon the ribbon spools and therefore shift the latter.

The details of construction of this machine in other respects than those herein specified are not of the essence of my invention and may be very greatly modified.

What I claim as my invention is:—

1. In a workman's time recorder, the combination with the timing and the printing mechanisms, of a carriage on which are mounted type wheels rotated and controlled by the timing mechanism, a rack bar capable of partial rotation forming the support for one side of said carriage, a guide and spring actuated arm resting thereon and pivoted to the carriage forming the support for the other side of the carriage, the said carriage being movable as a whole transversely over the platen of the printing mechanism under control of the timing mechanism, and about the axis of the rack bar towards and from the said platen under control of the printing mechanism.

2. In a workman's time recorder, the combination with the timing mechanism and means for printing comprising an elongated rotary drum platen, of a carriage supported with the capability of moving in a plane parallel with the axis of said drum a pivotal support for one side of said carriage, a fixed guide and spring actuated connections from the same to the other side of the carriage which permit the said carriage to oscillate at right angles to the surface of the drum, means operative through the pivotal support and under the control of the timing mechanism for moving the carriage bodily parallel to the drum's axis, and means under the control of a workman for oscillating the carriage to effect the printing.

3. In a workman's time recorder, the combination with timing mechanism and means for printing comprising an elongated drum platen, a pivotally supported carriage capable of oscillation towards and from the platen and on which the time type wheels are mounted, said carriage being movable as a whole in line with the axis of the platen, time controlled means for imparting such movement to the carriage, a rack bar capable of partial rotation, a pinion engaging therewith and mounted on the carriage, a ratchet on the carriage controlled by the timing mechanism for permitting an intermittent movement of the pinion and hence a lateral movement of the carriage, and means under the control of a workman for oscillating the carriage towards and from the platen to effect the printing.

4. In a workman's time recorder, the combination with timing and printing mechanism, the latter comprising an elongated drum platen of a rack bar mounted to oscillate at right angles to the axis of said drum, a carriage carrying the time controlled type wheels mounted on but movable along said rack bar, means for impelling the carriage, a time controlled ratchet for governing its

movement on the rack bar, and print controlling mechanism for oscillating the carriage and said rack bar when printing is to be effected.

5. In a workman's time recorder the combination with the timing mechanism of a longitudinally movable and oscillating carriage, an auxiliary motor on said carriage means operated thereby for shifting a two colored ribbon and means controlled by the timing mechanism for controlling the action or operation of the said ribbon shifting means.

6. In a workman's time recorder the combination with the timing mechanism and an elongated drum platen of a carriage movable under control of the timing mechanism in line with the axis of said drum, an auxiliary motor mounted on said carriage, a two colored ribbon carried by the carriage, means intermediate the same and said motor for shifting the ribbon and time controlled means for controlling the action or operation of the same.

7. In a workman's time recorder the combination with the timing mechanism and an elongated drum platen, of a carriage movable by said timing mechanism in line with the axis of said drum, an auxiliary motor on said carriage, a shaft driven thereby, a time controlled ratchet for controlling the rotation of said shaft, a two colored ribbon carrier on said carriage and means controlled by the rotation of the said shaft for shifting the same.

In testimony whereof I hereto affix my signature.

GEORGE R. WOOD.