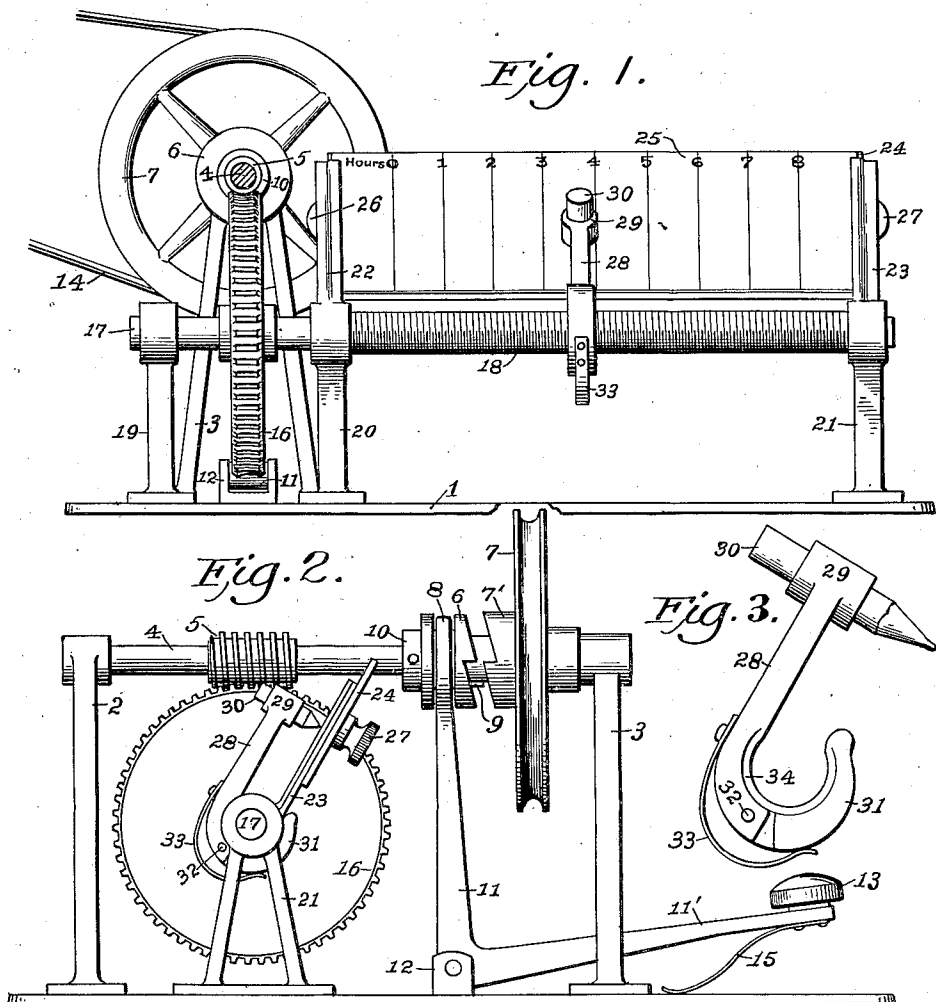


No. 848,149.

PATENTED MAR. 26, 1907.

R. A. WOOD.
AUTOMATIC RECORDER FOR MACHINES.
APPLICATION FILED JAN. 6, 1906.



WITNESSES:
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AUTOMATIC RECORDER FOR MACHINES.

No. 848,149.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed January 6, 1906. Serial No. 294,863.

To all whom it may concern:

Be it known that I, ROBERT A. WOOD, a citizen of the United States, and a resident of the city of New York, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Automatic Recorders for Machines, of which the following is a specification.

My invention relates to automatic recorders for registering the output of machinery, more particularly that of a metal-rolling mill, where sheet, rod, tube, and wire is made, the object being to produce a simple apparatus for recording such output, so as to indicate the efficiency of the machine to which it is attached, and for the purpose of affording a means of comparison as to the daily or hourly output of one machine or of one machine compared with another. I attain this object by means of my improved apparatus, which is shown in the accompanying drawings, in which—

Figure 1 is a front view, an upright at worm-gear being removed. Fig. 2 is an end view. Fig. 3 is an enlarged view of the traveling marker removed from the apparatus.

Similar reference characters indicate similar parts in the several views.

When the recorder is to be attached to a pair of rolls or any machine which has a continuous rotary motion, I prefer to use the mechanism shown in Figs. 1 and 2 with the marker, Fig. 3. The recorder is mounted on a bed-plate 1 and consists of two uprights 2 3, which afford a bearing for the shaft 4, on which a worm 5, a clutch 6, and a loose pulley 7 are mounted. I show a common type of clutch which is operated by a fork 8 for the purpose of engaging or disengaging the sliding part 6 from the toothed or stepped hub 7' of the loose pulley, the part 6 being provided with a key-slot which fits loosely over the key 9, which is fast in the shaft 4. A collar 10 limits the backward movement of the clutch.

The fork 8 is at the end of an angle-lever 11, supported in a socket 12, in which the lever is fulcrumed. The free end 11' of said lever has a button 13, over which the sheet of metal travels, the said metal depressing the lever, causing the clutch to engage the loose pulley, which is driven by a belt 14, as will be more fully described in the operation. 15 is a spring to raise the lever when no metal is going through the rolls.

The worm 5 engages a spur-wheel 16, which

is fastened on a shaft 17, provided with a long screw-thread 18, said threaded shaft being rotatively mounted on uprights 19 20 21, as shown.

22 and 23 are arms which may be part of uprights 20 and 21, respectively, or be attached thereto for the purpose of carrying an adjustable table or board 24, upon which the card or chart 25 is secured in any desirable manner. This table is held in place by thumb-screws 26 27. Any simple pencil or pen carrying means may be used. I show a very simple form which consists of a body 28, pencil-socket 29, and pencil 30. At the lower end the body is curved to suit the diameter of the screw 18.

31 is a segmental arm, which is pivoted to the arm 28 by means of a pin 32.

33 is a spring.

34 is a thread of the same pitch as that of the screw-thread 18.

It is obvious that when an electric motor is used as a means for driving the shaft the worm, gear, and clutch may be used, in which case the motor takes the place of the loose pulley 7.

In practice it is customary to make the lever-arm 11' much longer than is shown in the drawing, so that the button 13 will be in the path of the metal which is going through the rolls, though for small Jemless rolls the proportion shown would be right.

Such being the construction of my improved recorder, the operation is as follows: The recorder being attached to a machine, the button is so placed that it will be in the path of the metal or other material passing over it, whereby the lever which carries the button is depressed. This causes the rotating means to be actuated and transmitted to the threaded shaft 17 18, which carries the marker along the card and marking a line thereon, the marker moving along said card or chart as long as the material is passing over the button 13. As soon as the end of the material has passed the button the lever is raised by the spring 15 and the shaft 4 ceases to rotate, the recording naturally also ceasing, to be continued, however, as soon as another lot of the material goes through the machine. At a stated period—say every eight hours, for instance—the thumb-screws 26 27 are loosened and the card is raised, say, one quarter of an inch, the screws being again tightened. The marker is slipped off the threaded shaft and posi-

tioned at the zero-mark of chart, when the apparatus will be ready to record the next following day's output of the machine.

By calculating the theoretical efficiency of the machine or by timing, say, a roll of metal one hundred feet long a comparative guide or quantity measure can be established by measuring the length of the line marked on the card or chart, and when once determined vertical lines on the card will show at a glance the relative output of the machine to which my recorder is attached.

Having fully described my invention, what I claim as new is—

1. The combination with a machine of a recording mechanism comprising a plurality of standards, a shaft mounted in said standards, a loose pulley on said shaft, means for engaging said pulley and rotating said shaft, a second set of standards, a screw-threaded shaft mounted in said second-named standards, a gear-wheel mounted on said second-named shaft, and having threaded engagement with said first-named shaft, and adapted to be operated thereby, and a marker threaded on said second-named shaft and adapted to move longitudinally thereof, substantially as described.

2. In combination with a metal-rolling machine, a recording mechanism comprising a plurality of standards, a shaft mounted in said standards, a pulley loosely mounted on said shaft a clutch mounted on said shaft and adapted to engage said pulley and impart

motion to said shaft, and means for automatically operating said clutch, a worm-gear carried by said shaft, a second set of standards, a threaded shaft mounted in said second-named standards, a gear-wheel mounted on said second-named shaft, and a marker threaded on said second-named shaft, and adapted to be operated thereby, substantially as described.

3. A recording mechanism for metal-rolling machines, comprising a plurality of standards, a shaft mounted in said standards, a pulley loosely mounted on said shaft, a clutch carried by said shaft and adapted to engage said pulley, thereby operating said shaft, a second set of standards, a screw-threaded shaft mounted in said second set of standards, a gear-wheel mounted on said second shaft, a worm-gear mounted on said first-named shaft, and adapted to engage the gear-wheel on said second-named shaft, a marker threaded on said second-named shaft and through the medium of said threaded engagement adapted to move longitudinally thereof, and a bell-crank lever adapted to automatically operate said clutch, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 5th day of January, A. D. 1906.

ROBERT A. WOOD.

Witnesses:

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