

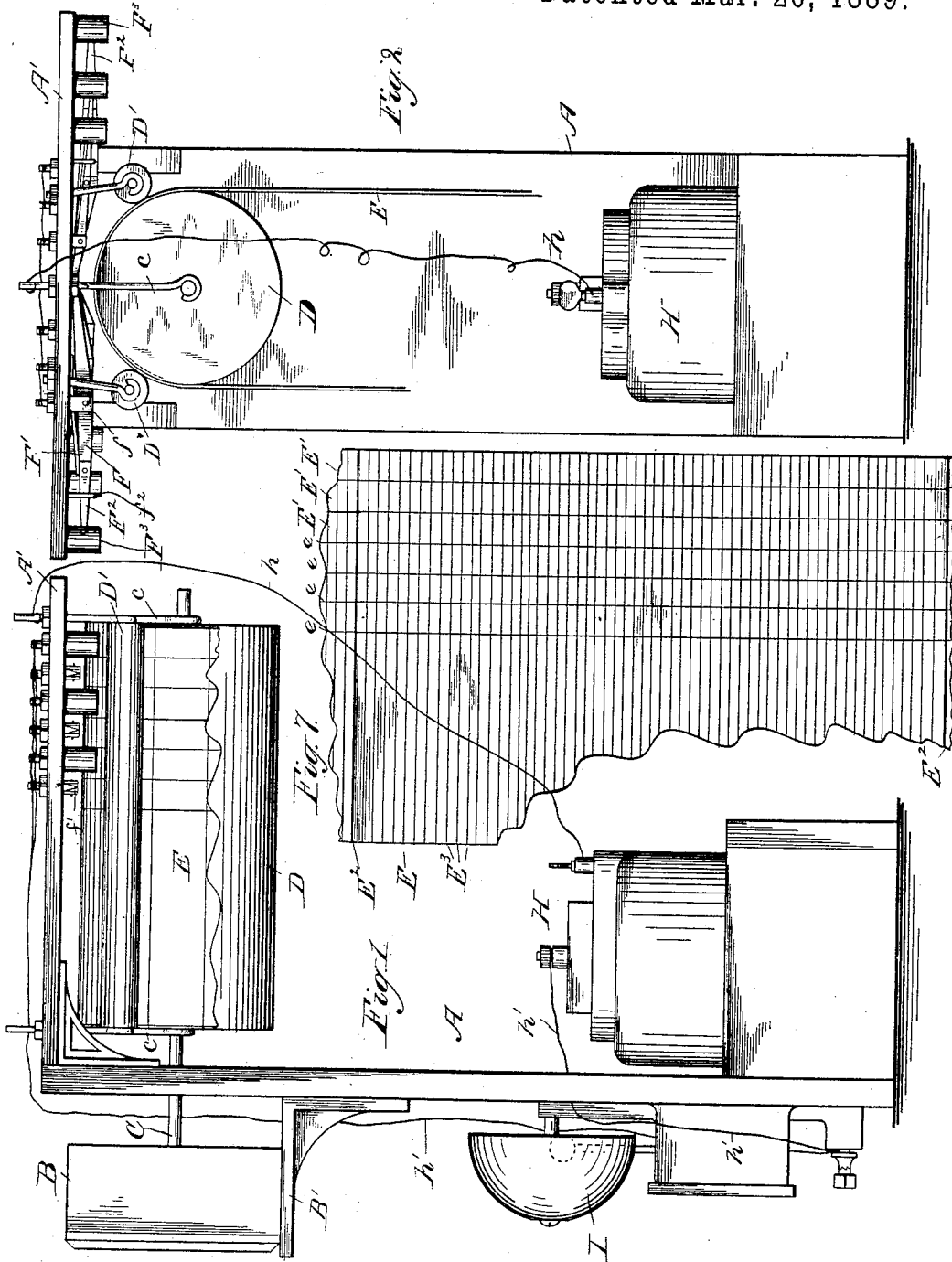
(No Model.)

2 Sheets—Sheet 1.

H. R. ADAMS
TIME RECORDER.

No. 400,283.

Patented Mar. 26, 1889.



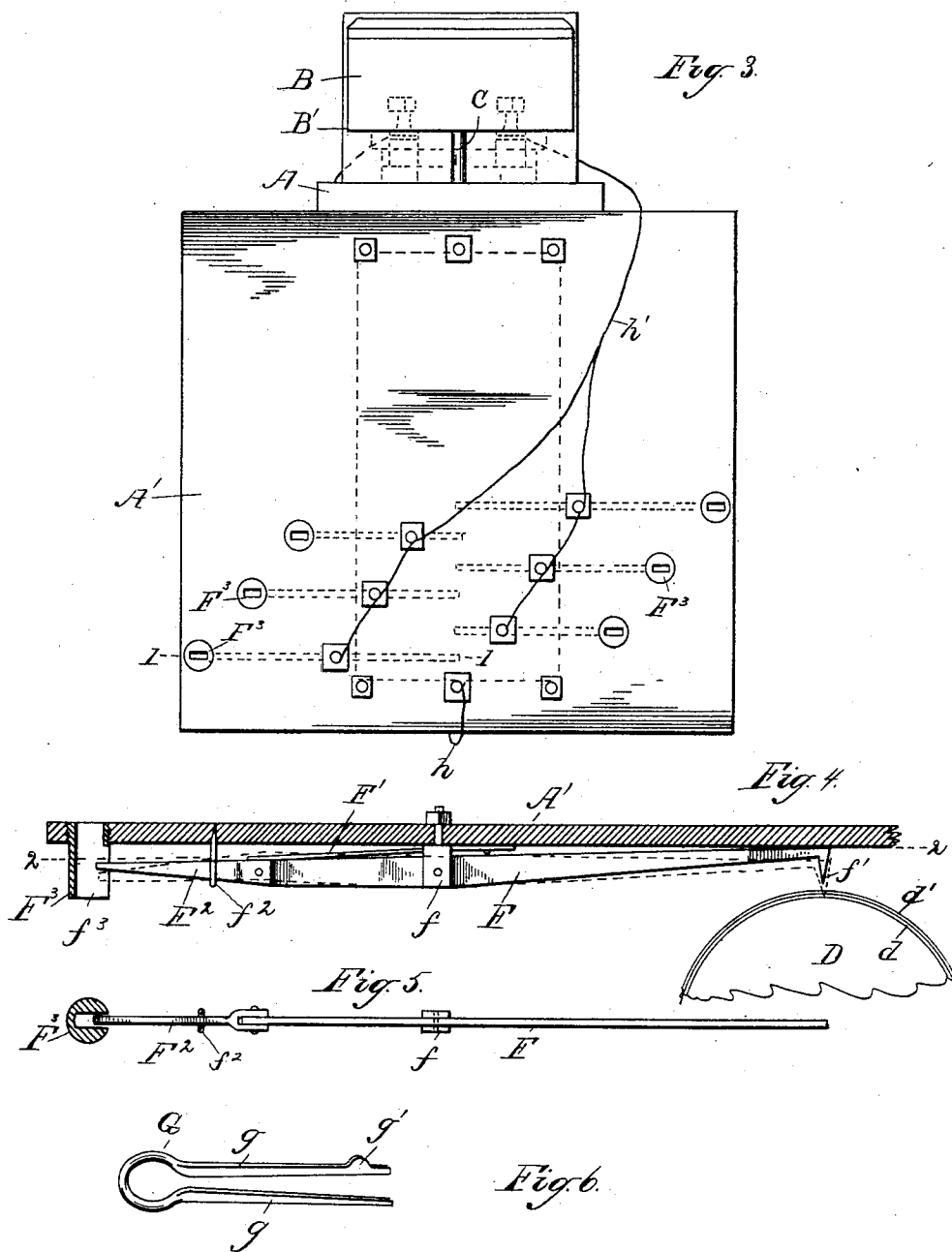
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UNITED STATES PATENT OFFICE.

HARVEY RAYMOND ADAMS, OF MARSEILLES, ILLINOIS.

TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 400,283, dated March 26, 1889.

Application filed April 16, 1888. Serial No. 270,853. (No model.)

To all whom it may concern:

Be it known that I, HARVEY RAYMOND ADAMS, a citizen of the United States, residing at Marseilles, in the county of La Salle and State of Illinois, have invented a certain new and useful Improvement in Time Recorders and Signals, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of an apparatus embodying my invention; Fig. 2, a rear elevation of the same; Fig. 3, a plan view; Fig. 4, a detail sectional view taken on the line 1 1 of Fig. 3; Fig. 5, a detail plan section taken on the line 2 2 of Fig. 4; Fig. 6, a detail view of one of the keys detached, and Fig. 7, a view of the recording-strip detached.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to time recorders and signals, and has for its object to provide an apparatus whereby the time of employes or factory men may be registered by means of a record of the times at which they enter and leave the factory or begin and quit work.

To this end my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the drawings I have shown a suitable supporting-frame consisting of an upright, A, and top piece, A'.

B represents a clock mounted on a bracket, B', attached to the upright A or supported in any other suitable manner. Attached to the hour-shaft of the clock B is a shaft, C, suspended in suitable bearings, c, from the top piece, A', and having mounted on it a cylinder, D. The cylinder D is provided with a covering, d, of tin-foil or other suitable conducting material, which extends not only over the periphery, but also over one or both ends of the cylinder, and is in contact with the shaft C, which latter is of some suitable conducting material. The cylinder is preferably provided with an outer covering, d', of cloth or similar material, which is easily pierced, and which is a non-conductor of electricity, in order to protect the tin-foil and to form a blanket or cushion for the recording strip or tape E. This latter is of paper or other

similar material ruled in the manner herein-after described, and is held in position upon the cylinder D, over which it passes, by means of rollers D', so that as the cylinder D rotates it will feed the recording-strip along at an even rate of speed equal to the speed of the said cylinder.

The top A' is constructed of any suitable insulating material—such as wood or the like—and there is mounted on the under side thereof a series of recording-levers, F, corresponding in number to the number of employes whose time it is desired to record. These levers may be of any suitable construction for their purpose, that which I have shown in the present instance being as follows: Each lever is pivoted at about its center to a yoke, f, which extends up through the top A', the said yoke and lever being constructed of any suitable conducting material or metal. One end of the lever F is arranged immediately over the top of the cylinder D, and is provided with a point, f', at said end. This end of the lever is held normally in a raised position, as shown in full lines in Fig. 4 of the drawings, by means of a suitable spring, F', or in any other suitable manner. The lever F is provided with a tail-piece, F², pivoted thereon so as to yield downward, but not upward, the said tail-piece passing through a suitable yoke or staple, f², which forms a fulcrum therefor. The end of the tail-piece F² extends into a slotted sleeve, F³, the slot f³ of which is adapted to receive a suitable key, G, which, when it is inserted in the said slot, will engage with said tail-piece, and thereby operate the lever F. In practice each individual sleeve F³ will be so constructed as to receive a single key, and that key only. One form of key which may be employed is shown in Fig. 6 of the drawings, in which the body G is provided with two spring-arms, g, one of which is provided with a suitable cam or enlargement, g', which, when the said key is inserted in the slot f³, will engage with the end of the tail-piece of the lever F.

H indicates an electric battery or other suitable source of electricity, from one pole of which a wire, h, leads to the tin-foil, d, on the cylinder D. In the present instance this connection is shown as effected by connecting the wire h to the upwardly-projecting end of one

of the supporting-yokes *c*, said yoke being constructed of suitable conducting material and bearing against the shaft C or the tin-foil on the end of the cylinder, or both. From the other pole of the battery H a wire, *h'*, leads to the several levers F, being connected to each lever in any suitable manner. In the present instance I have shown this connection as effected by connecting the said wire *h'* to the projecting upper ends of the yokes *f*, which, as hereinbefore stated, are constructed of some conducting material.

I employ in connection with the apparatus a suitable alarm or bell, I, of any usual construction, through which the wire *h'* passes after it leaves the battery H, and which will be operated whenever the circuit is completed by establishing connection between the wires *h* and *h'*.

The recording-strip E is divided by means of a series of longitudinal lines, *e*, into longitudinal divisions *E'*, which correspond, when the said strip is inserted in position upon the cylinder D, to the levers F, the point *f'* of each lever F being directly over the corresponding longitudinal space or division, *E'*. In addition to this longitudinal ruling there are marked upon the strip E, at distances apart corresponding to the circumference of the cylinder D, transverse lines *E*², which indicate the hours, the spaces between the said lines *E*² being subdivided by transverse lines *E*³, as desired, to indicate fractions of an hour. In the present instance I have shown sixty of these lines, in which case each line indicates a minute. The strip E may of course be of any desired length, and may be supplied to the machine in the shape of a continuous roll or in any other suitable manner.

The operation of the device is as follows: When the employé enters the factory or goes to work, he inserts his individual key, G, into the corresponding slotted sleeve, *F*³, of the recording apparatus and presses the key downward. This downward pressure of the key acts, through the medium of the cam or enlargement *g'* thereof, upon the end of the tail-piece *F*² of the lever F. The tail-piece turns upon the yoke or staple *f*² as a fulcrum and throws the end of the lever F, to which it is pivoted, upward, moving the other end of the said lever downward until the point *f'* thereof passes through the recording-strip E, and also through the cloth, *d'*, in case this latter is employed. When the point passes through the strip and cloth, it comes in contact with the tin-foil, *d*, on the cylinder D, and thus completes the electric circuit, causing the alarm or bell I to give an audible signal, which indicates this fact. When this is accomplished, the cam or enlargement *g'* of the key G passes by the end of the tail-piece *F*² and the spring *F'* returns the lever F to its original position, thus breaking the circuit and causing the alarm to cease. It will be at once seen that the point *f'* of the lever F in passing through the recording-strip in order to reach the tin-

foil on the cylinder and sound the alarm must perforate or puncture the recording-strip, and thereby leave thereon a permanent mark, which will indicate by its position on the said strip not only the name of the employé or his number, but also the exact time at which he registered in. In case this record is not made by reason of the point not passing through the paper there will be no alarm sounded and the employé will of course be aware of the fact and remedy the defect. The key G, having once been inserted and pressed down to its full extent, as described, will remain in that position until the employé quits work or leaves the factory. He then withdraws his key, and in doing so the cam or enlargement thereon will engage with the end of the tail-piece *F*², and the said tail-piece being rigid, so far as its upward motion is concerned, the upward movement of the key will carry the end of the lever F, to which the tail-piece is attached, upward along with the said tail-piece and will cause the point *f'* on the other end of the lever to again perforate the recording-strip and sound an alarm, thus indicating on the strip the time at which the employé quits work and at the same time indicating to the employé that the apparatus has properly recorded his time.

Each individual workman is provided with his individual key, and it is of course to his interest to see that his time is correctly kept. This is effected by the operation of the mechanism just described, and at the end of the day's work the recording-strip E will show just at what hour and minute each employé reported for work and just at what hour and minute each employé quit work. Moreover, an inspection of the key-board at any time during the working-day will show just what workmen are in the factory and what ones are absent.

I am aware that it has heretofore been proposed to construct a watchman's time-detector having a rotary barrel provided with a recording-strip substantially such as I have described, in combination with a series of spring-points adapted to be operated by a series of keys located at the different stations; but in this case each key as it is inserted and turned makes a record and is then withdrawn by continuing to turn it until it assumes its original position, so that only a single record is made, to wit: when the key is inserted. In my apparatus, on the contrary, it is impossible to withdraw the key after it has once been inserted without making a record of such withdrawal on the recording-strip, so that by its use not only the time of the insertion of the key, but also the time of its withdrawal, is recorded, the key remaining inserted in the apparatus between these periods. Incorrect recording either by negligence or design is thereby prevented.

It is obvious that various modifications in the details of construction may be made without departing from the principle of my in-

vention. For instance, the alarm with the battery and electric circuit may be omitted, in which case the cylinder D will be employed without tin-foil or other covering. Various
5 other modifications will readily suggest themselves, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

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

1. In a time-recorder, the combination, with a clock-movement, of a cylinder connected
15 thereto, a recording-strip passing over said cylinder and moving with the same, independent recording-levers for marking or perforating the recording-strip, and independent keys which engage their respective levers to operate the same both when inserted and when
20 withdrawn, substantially as and for the purposes specified.

2. In a time-recorder, the combination, with the clock-movement, of a cylinder connected
25 therewith, a suitably-divided recording-strip passing over said cylinder, a series of recording-levers arranged to mark or perforate the recording-strip at different distances from its lateral edges, the slotted sleeves into which
30 the ends of said levers extend, and independent keys, one for each lever, adapted to fit the corresponding slotted sleeves, and when inserted therein to engage with and operate the recording-levers both when inserted and
35 when withdrawn, substantially as and for the purposes specified.

3. In a time-recorder, the combination, with the clock-movement, the cylinder connected thereto, and the recording-strip passing over said cylinder, of the levers F, each provided
40 with a tail-piece, F², pivoted to yield downward, but not upward, a suitable fulcrum for said tail-piece when depressed, the slotted sleeve F³, into which the end of said tail-piece projects, and a spring-key, G, having cam or
45 enlargement g' to engage the end of said tail-piece both when inserted and when withdrawn, substantially as and for the purposes specified.

4. In a time-recorder, the combination, with
50 the clock-movement, of the cylinder connected thereto and provided with a covering of tin-foil or other conductive material, a suitably-divided recording-strip of paper or other non-conductive material passing over and
55 actuated by said cylinder, a series of recording-levers, each provided with a point constructed of conducting material, keys for operating said levers to cause them to pierce the recording-strip and come in contact with the
60 conducting-surface of the cylinder, a battery or other source of electricity, one pole of which is connected to the cylinder and the other pole of which is connected to each of
65 the lever-points, and an alarm or bell arranged in the circuit and adapted to operate when the circuit is closed, substantially as and for the purposes specified.

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Witnesses:

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