(No Model.)

E. S. GAINES.

TIME RECORDER.

No. 561,985. Patented June 16, 1896.

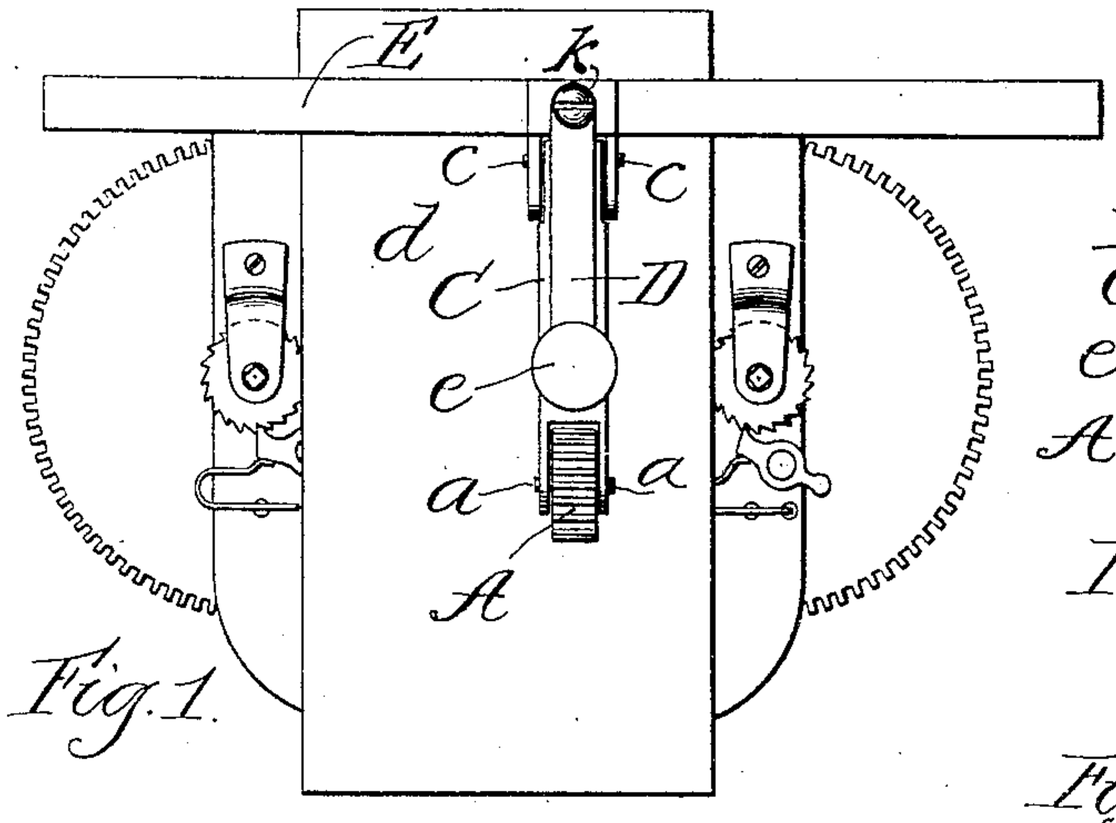


Fig. 1.

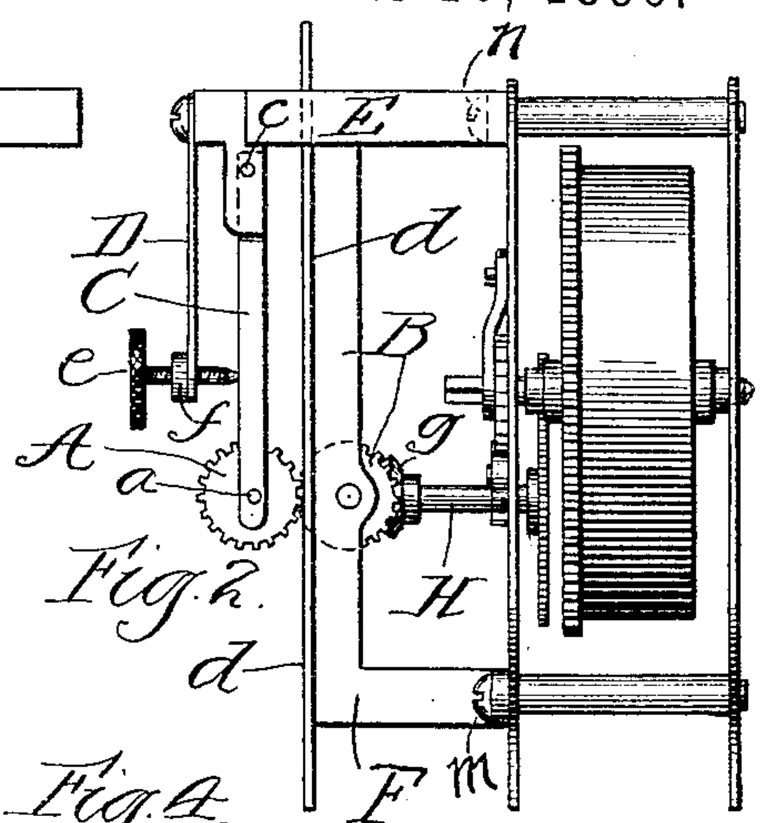
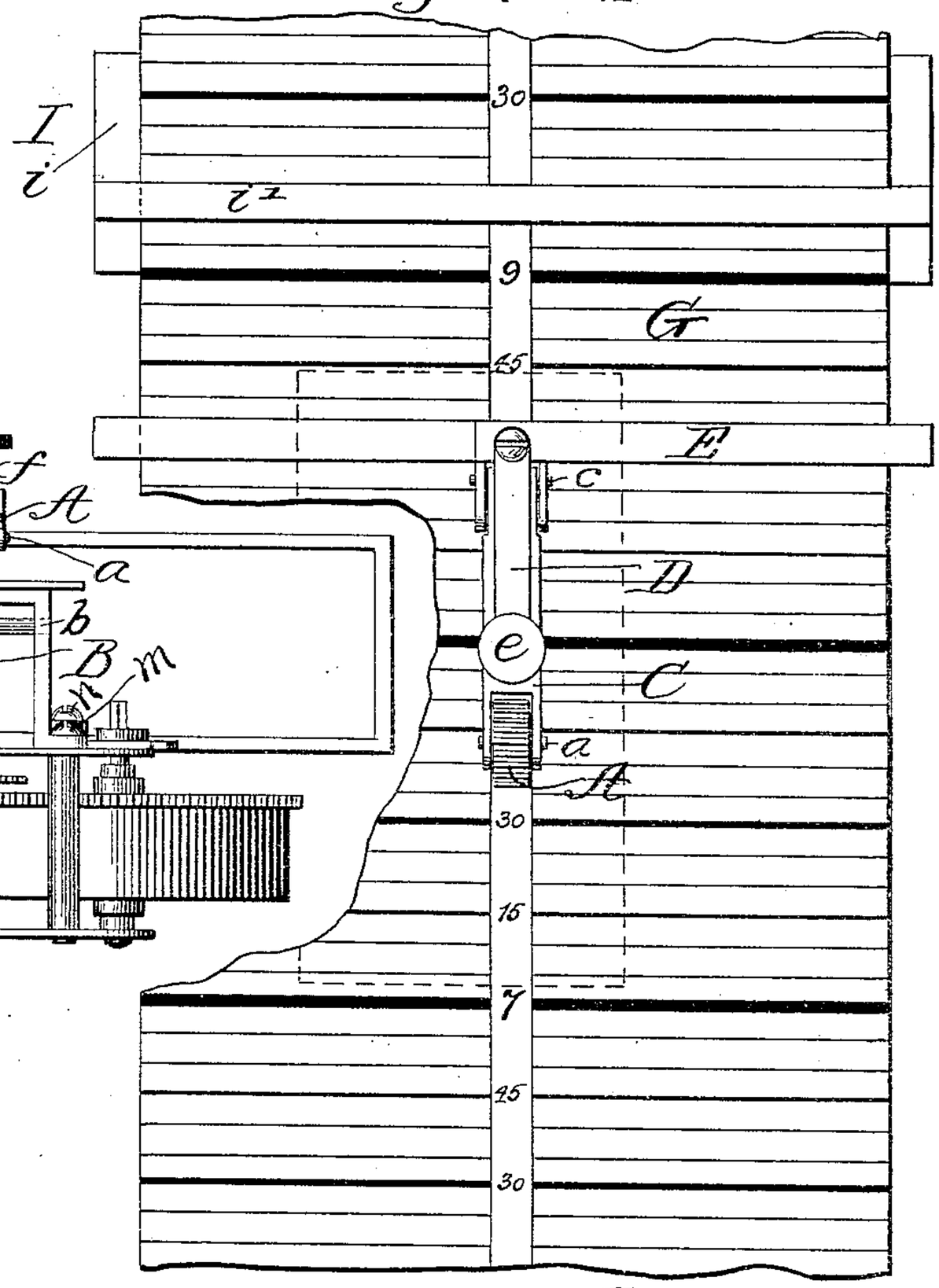


Fig. 2.

Fig. 4.



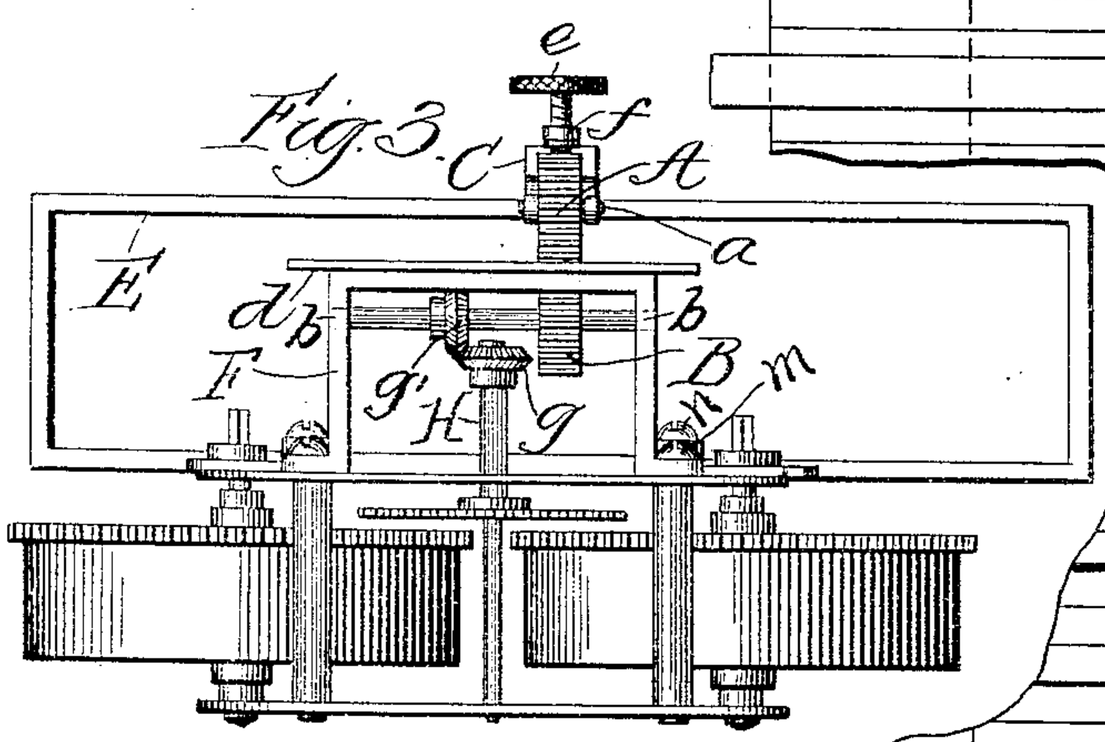


Fig. 3.

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UNITED STATES PATENT OFFICE.

EGBERT S. GAINES, OF CHICAGO, ILLINOIS.

TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 561,985, dated June 16, 1896.

Application filed March 25, 1895. Serial No. 543,078. (No model.)

To all whom it may concern:

Be it known that I, EGBERT S. GAINES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Time-Recorders, of which the following is a specification.

My invention relates to time-recorders in which the record is made on longitudinal sheets; and its objects are, first, to provide a simple mechanism for feeding such sheets to or drawing same through a record-marking device in synchronous movement with a clock mechanism; second, to provide means for readily stopping the feed of such recording-sheets without removing same and without stopping the clock mechanism; third, to render it possible to at any time detach the portion of the sheet upon which the record has been made. I attain these objects and such further objects as will appear from the following description by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my device hung in the ordinary position for operation, having the clock mechanism in its rear. Fig. 2 is a side elevation, and Fig. 3 an underneath plan of same. Fig. 4 is the same view as Fig. 1, showing a recording-sheet G interposed between the wheels A and B and being fed through a record-marking device I.

Similar letters refer to similar parts throughout the several views.

The main feature of my invention, as illustrated in all of said views, is a set of wheels or rollers suitably arranged for having a longitudinal recording-sheet interposed and carried forward by said wheels, said wheels being actuated by a clock mechanism attached thereto.

The form of my device as illustrated in the drawings shows the wheels A and B mounted in frames E and F, attached to the frame of the clock mechanism. The wheel B is mounted in stationary bearings *b b* in the frame F, which is attached to the frame of the clock mechanism at *m m*.

The wheel B is geared to the arbor H by means of the gear-wheels *g g'*, the wheel *g* being attached to the arbor H at the place where the hands of the clock would ordinarily be attached. The wheel A is mounted in a movable arm or bearing C at *a a*, supported by the frame E, which is attached to the frame of the clock mechanism at *n n*, the arm C being hung in the frame E at *c* and being urged inward by the spring D. The tension of the spring D is regulated by the set-screw *e*, seated in the nut *f*. The plate *d* is mounted on the frame F and forms a back-rest for the recording-sheet, but is not necessary to the operation of the device. A slot or opening is provided in the plate *d*, permitting the wheel B to project through same. In operating this form of my invention the spring D is first turned on its seat at *k* to either side, thus freeing the arm C from the operation of the spring. The bearing C, with the wheel A, is then lifted or swung outwardly, the arm or bearing C having a pivotal connection at *c*. A recording-sheet is then pushed down between the wheels, being inserted from the top of the device. The wheel A is then dropped back into its former position and the spring D turned back, so that the set-screw *e* again rests upon the arm C, urging the wheel A against the recording-sheet, thus pressing same firmly between the two wheels.

In Fig. 4, I represents a record-marking device through which the sheet G is drawn or fed by means of my device, *i* being the main part of the marking device, and *i'* being a bar or band against which the sheet is pressed in making the record. This is shown to illustrate the operation of my invention; but any other suitable record-marking device may be substituted therefor.

It will be readily seen that, without departing from the spirit of my invention, long rollers may be substituted for the wheels A, B, A', or B', and that the peripheries of these wheels or rollers may be roughened, cogged, coated with rubber, or otherwise provided with a suitable surface for carrying forward an interposed recording-sheet. The recording-sheet may be made of any material suitable for being conveyed between said wheels or rollers and for receiving an impression of the record. The sheet is suitably marked or ruled. The markings are made in accord with the length of sheet passing through the wheels in a given time, so that when a record

is marked on the sheet the position of the record on the sheet will indicate the precise time at which the record was made.

I regard it as an important improvement to have movable bearings for one of the wheels or rollers, together with means for adjusting said bearings, so that the wheel or roller mounted therein will exert a uniform pressure upon the recording-sheet, and so that after the degree of pressure is fixed the device may be readily thrown into an adjustment which will permit of the wheel mounted in said bearings being lifted from the recording-sheet and may again be readily returned to the former adjustment exerting said fixed pressure. In such construction the progress of the sheet may be stopped at any time by adjusting the wheel supported in the movable bearing to a position free from contact with the sheet. This will be of great advantage where the recording device is used during only a part of each day. A further advantage will be found in such construction in that the pressure upon the sheet may be regulated, whereby, especially when cogged wheels are used, the feed of the sheet may be slightly varied.

It may in some cases be desirable to operate my device in connection with a clock having the ordinary clock dial and hands attached. This may be done by attaching a gear-wheel to some convenient part of the clock-arbor, such as the part immediately below the dial, and providing a suitable mechanism for communicating power from said gear-wheel to my device, which in such case will be attached below or near the clock mechanism.

Any suitable mechanism besides that above described may be used to render the bearings of one of the wheels or rollers movable.

It is an essential feature of the invention that the device used for urging said bearings toward the opposite wheel or roller be capable, first, of an adjustment for regulating or fixing the degree of pressure, (this office in the construction shown being performed by the set-screw *e*,) and, second, of separate adjustment, enabling an operator to readily release such pressure or cause it to be again applied, which in the construction shown is done by turning the spring D on its seat *k*. I do not confine myself to the particular mechanism furnishing means for such double adjustment, as it will be readily seen that there are numerous ways in which a spring device might be constructed to combine these features. It is not essential that the set-screw or equivalent device be in the spring. This may be seated in the bearing-piece and operate against the spring with equal effect.

The lower end of the sheet having passed through the record-making device may at any time be detached to be filed away for preserving the record.

I am aware that longitudinal recording-sheets and means for conveying same in synchronous movement with a clock mechanism in combination with movable bearings for one of said wheels are old in the art. I therefore make no claim to broadly cover such a device.

What I do claim, and desire to secure by Letters Patent, is—

1. In a time-recorder, the combination of a clock mechanism, with a wheel or roller, B, geared to the clock-arbor; a supporting-frame for the wheel or roller B; a frame E having a recess for a recording-sheet; an arm C, pivoted at one end to the frame E, and supporting at its other end, a wheel or roller, A opposed to the wheel B; a spring seated on the frame E having adjustment enabling same to be set either upon or free from the arm C; and means, additional to said adjustment, for regulating the tension of the spring, substantially as and for the purposes specified.

2. A time-recorder consisting essentially of a clock mechanism, a wheel or roller B, geared to the clock-arbor, an opposed wheel or roller A, mounted on a pivotally-supported arm C, a longitudinal recording-sheet, a supporting-frame for the wheels or rollers having a recess permitting the recording-sheet to be passed through the frame and between the wheels or rollers, a spring seated on the frame, having adjustment enabling same to be set either upon or free from the arm C, means additional to said adjustment, for regulating the tension of the spring, and a record-marking device, independent of said wheels or rollers, substantially as described.

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Witnesses:
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