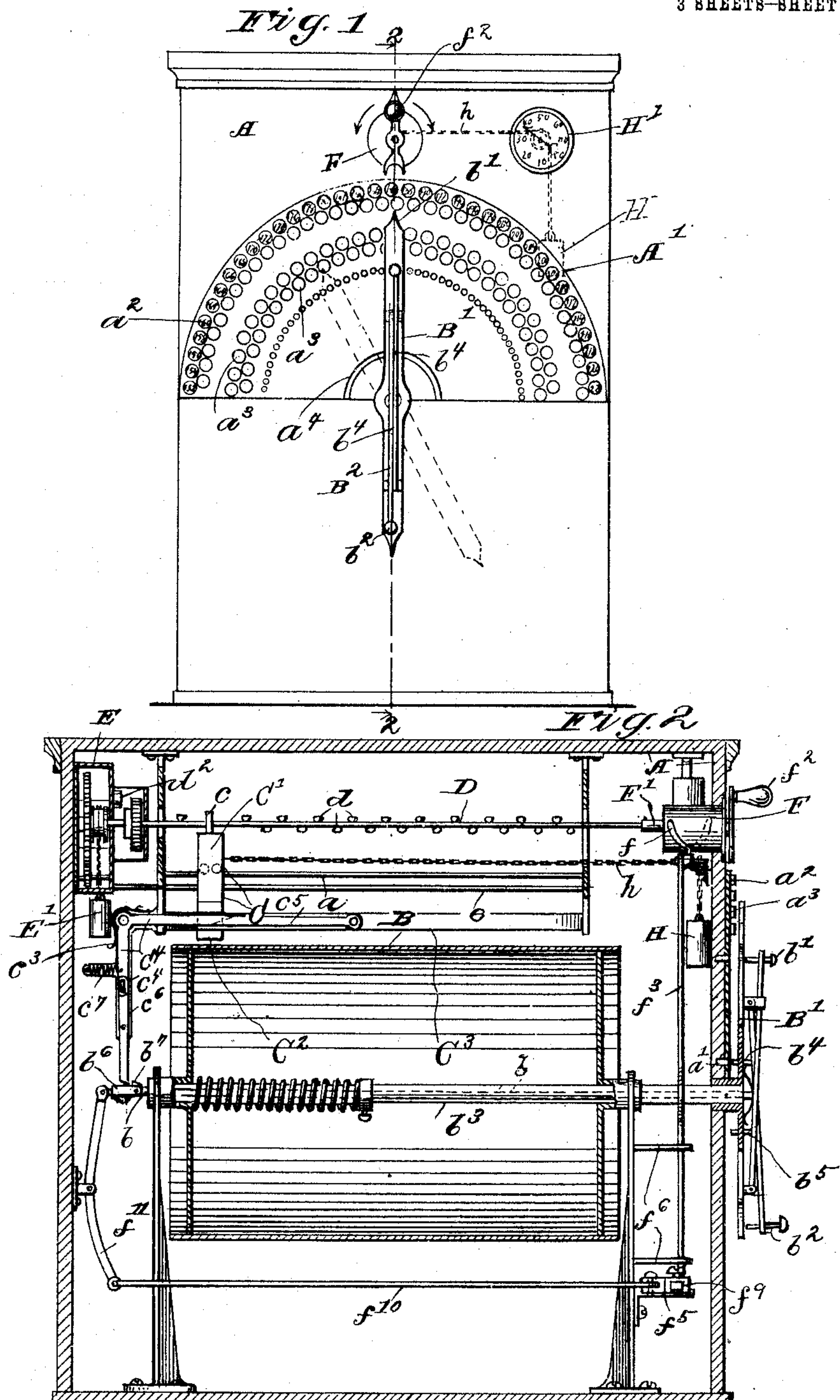


F. J. TRAN & F. CAIS.
 WORKMAN'S TIME RECORDER.
 APPLICATION FILED OCT. 7, 1908.

979,108.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 1.



Witnesses:
 J. C. Turner
 Jno. F. Oberlin

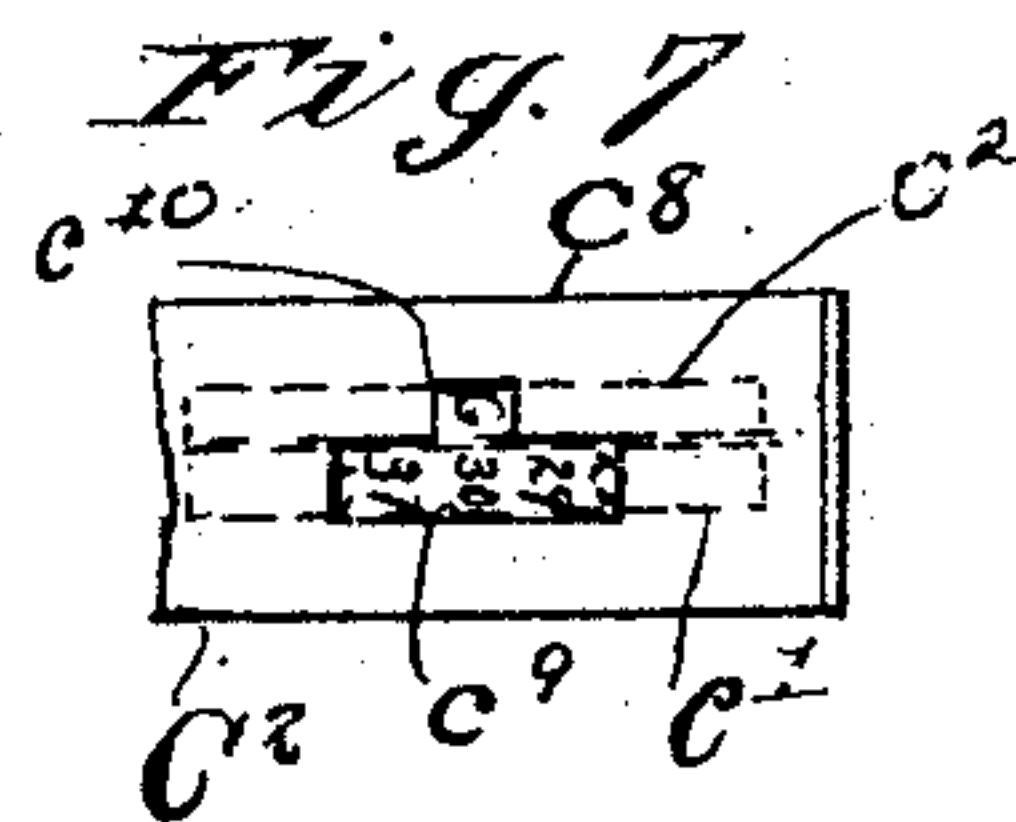
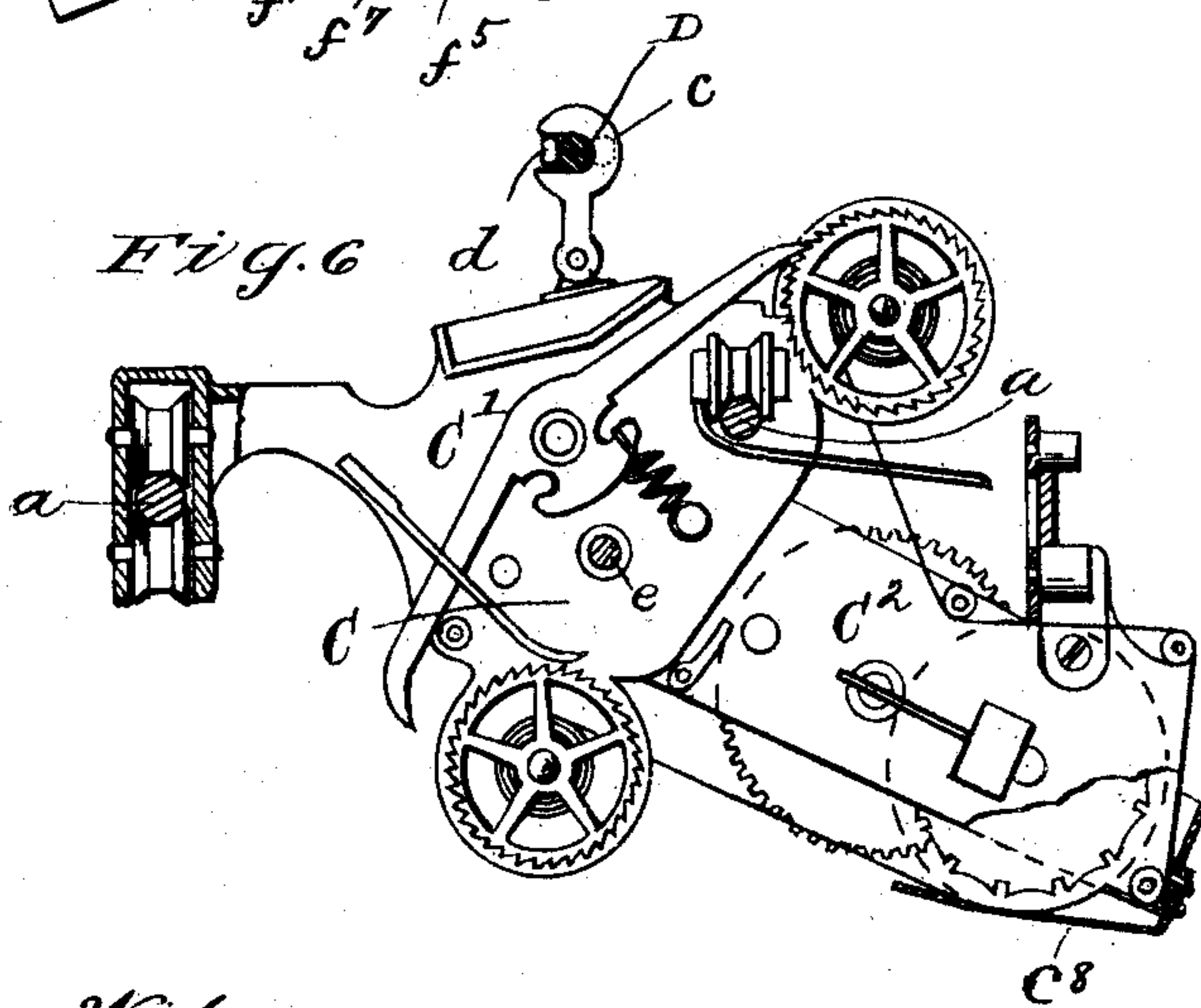
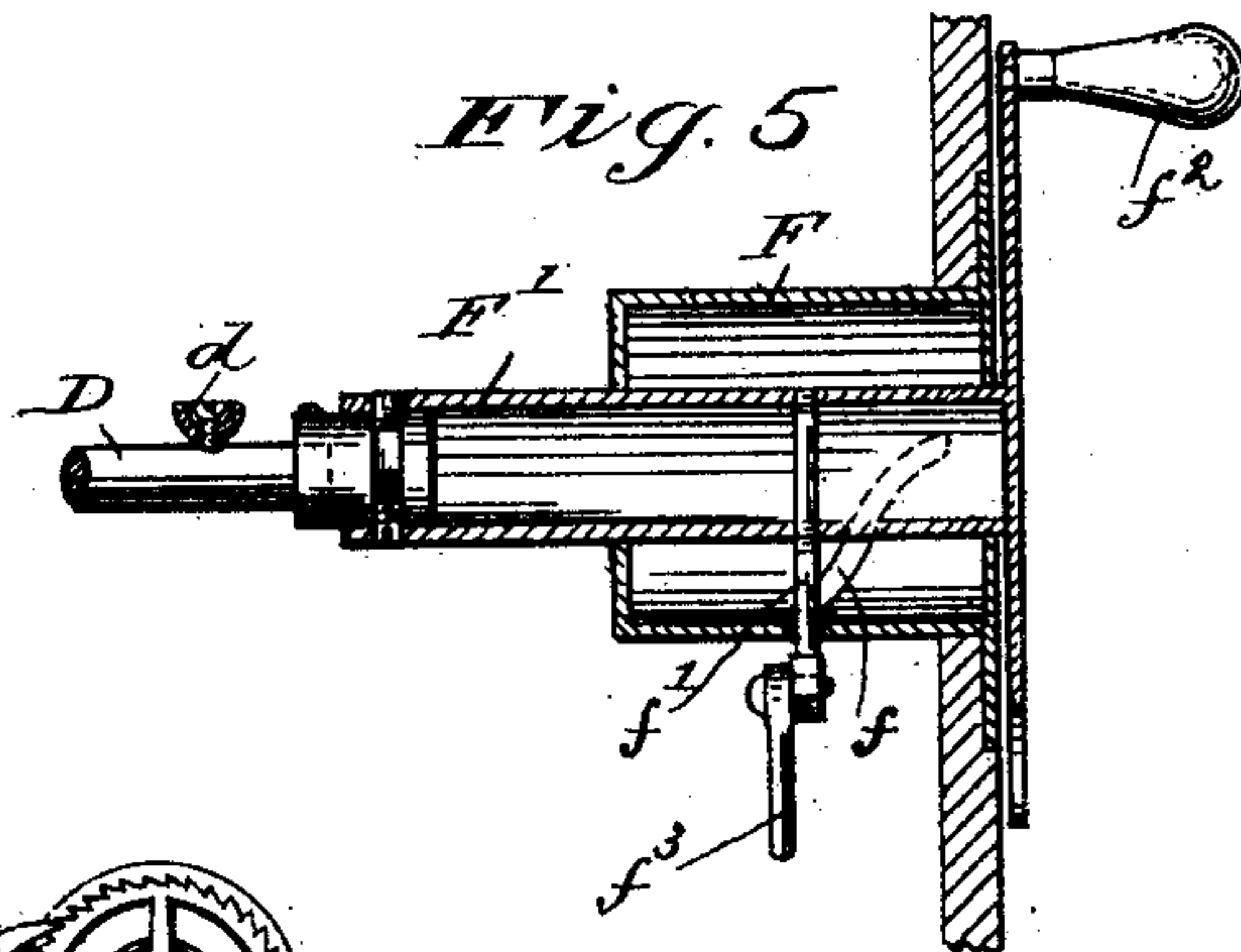
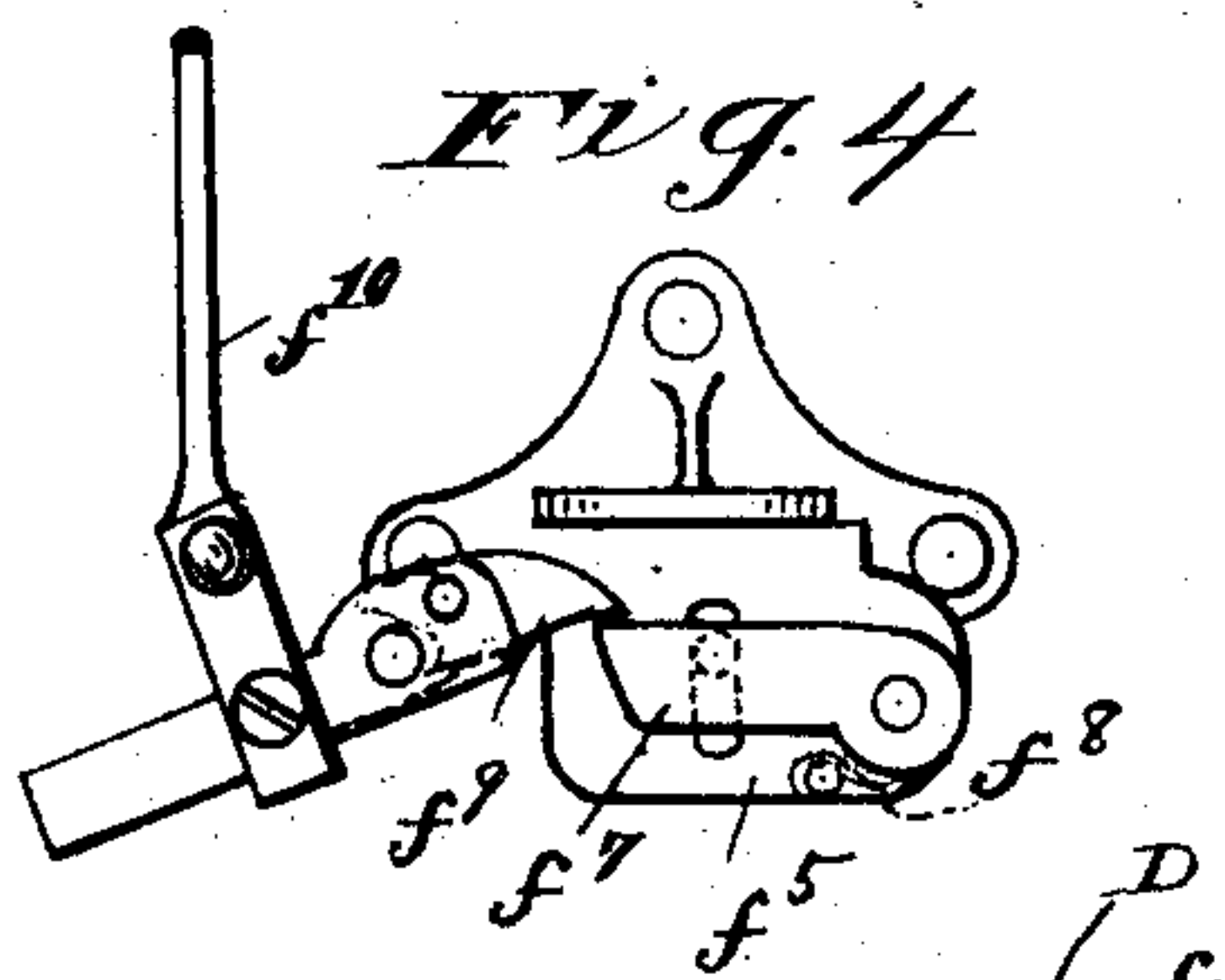
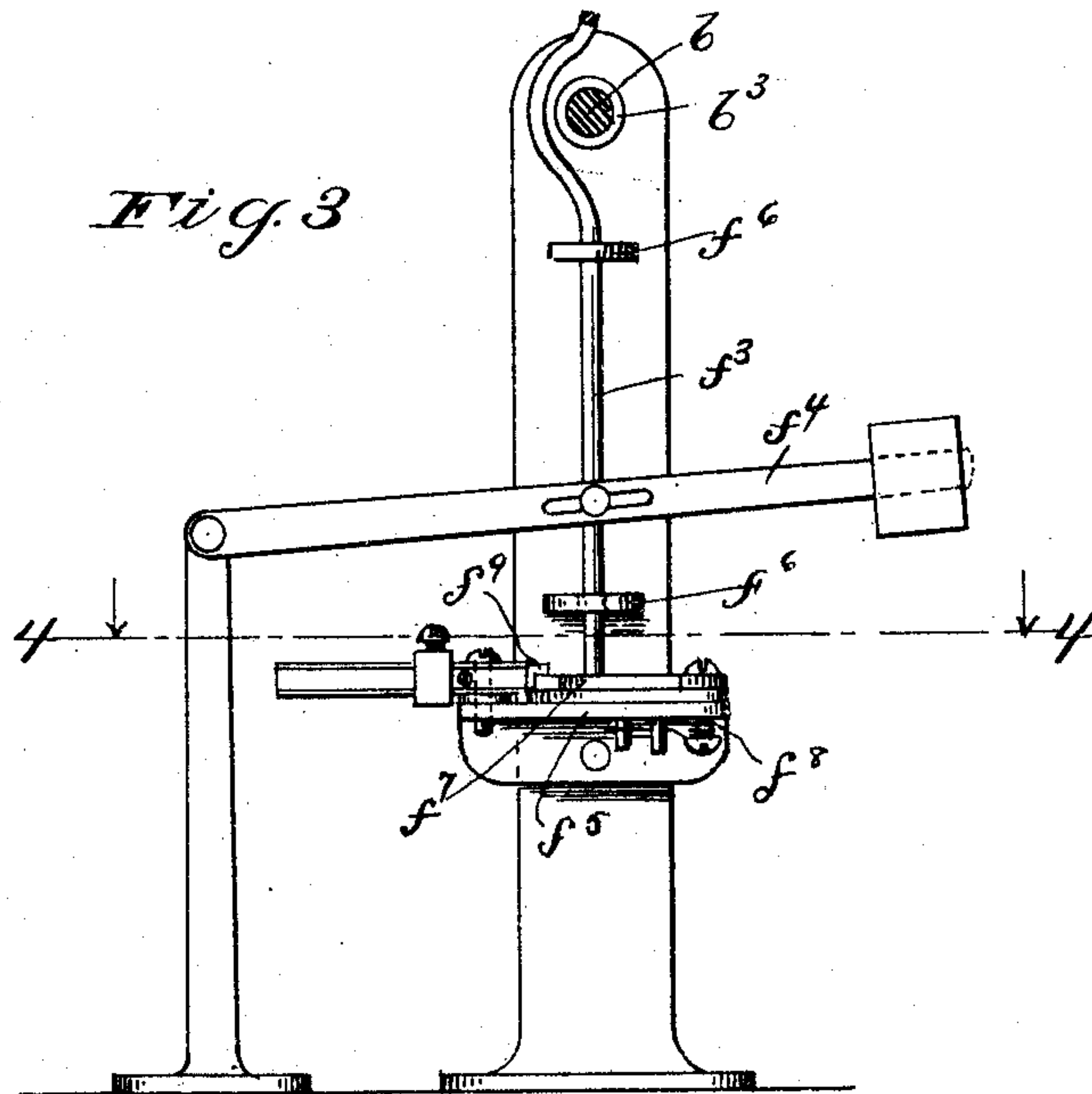
Inventors,
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3 SHEETS—SHEET 2.



Witnesses
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 WORKMAN'S TIME RECORDER.
 APPLICATION FILED OCT. 7, 1908.

979,108.

Patented Dec. 20, 1910.

3 SHEETS—SHEET 3.

Fig. 8

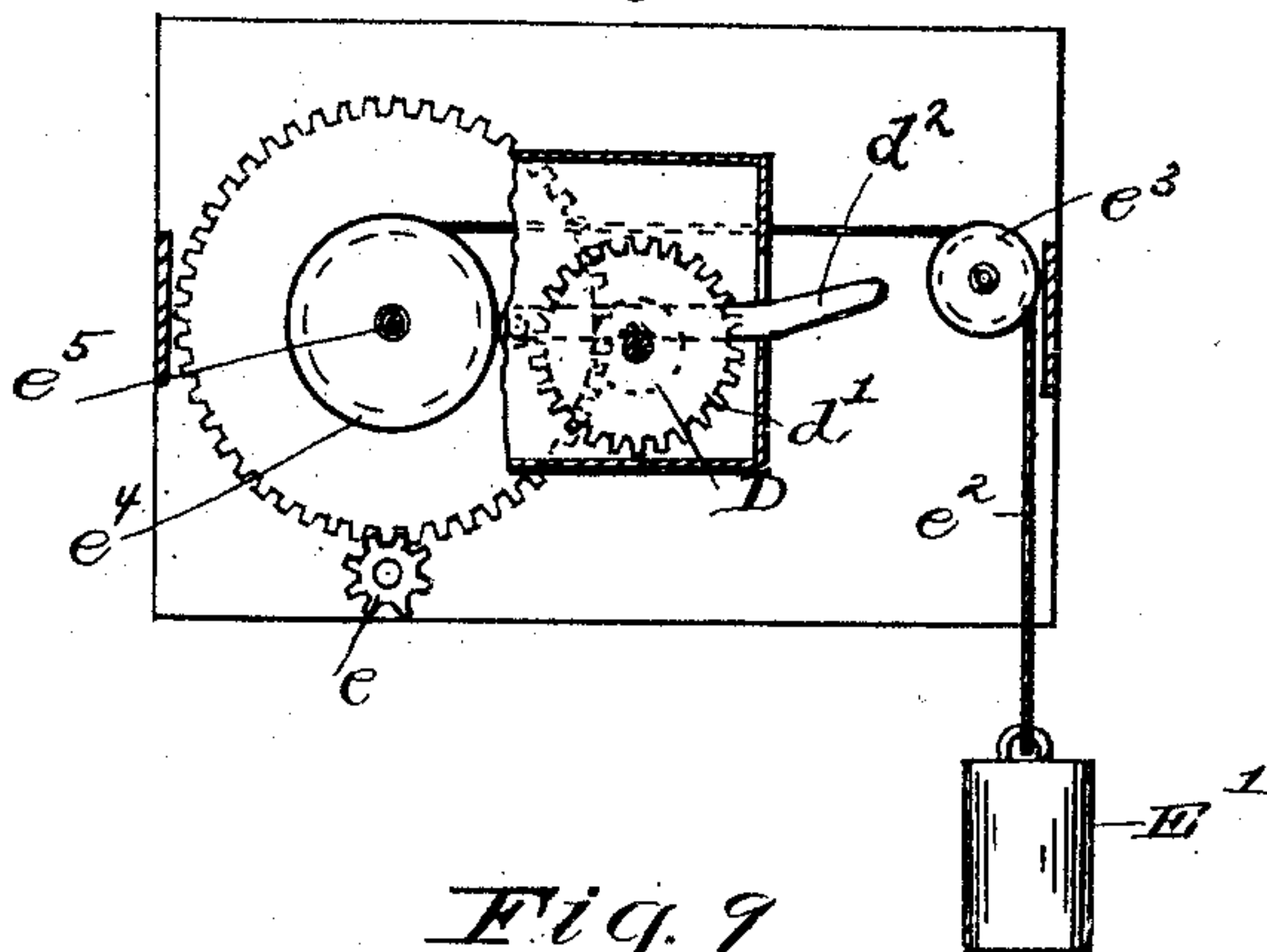


Fig. 9

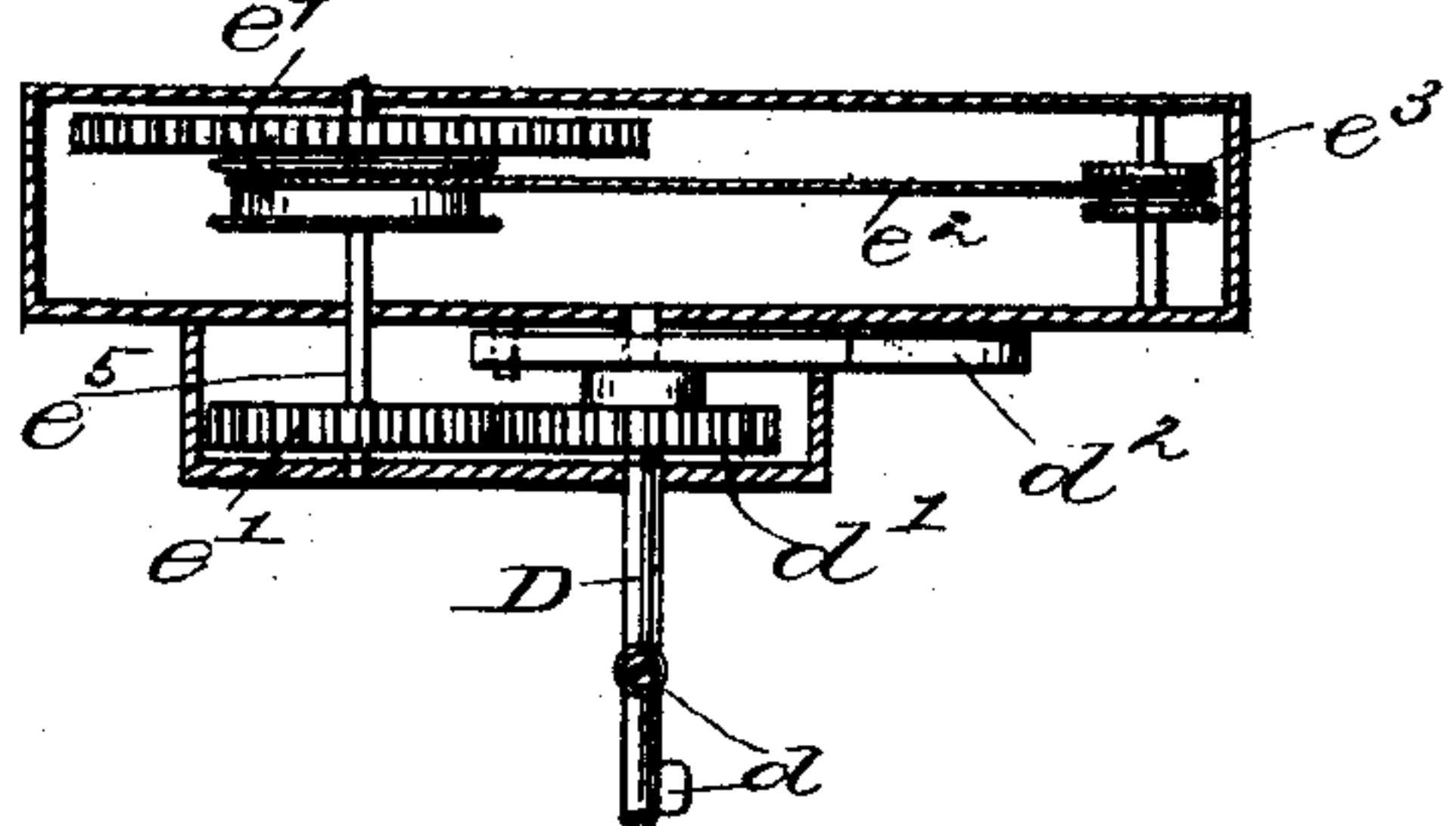


Fig. 10

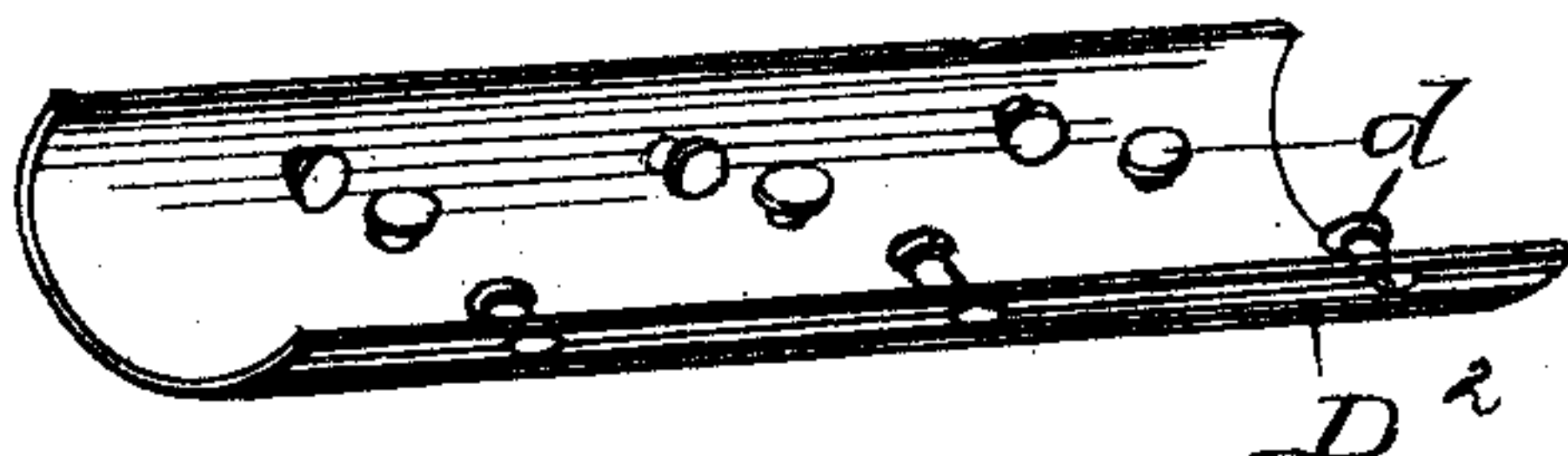


Fig. 12

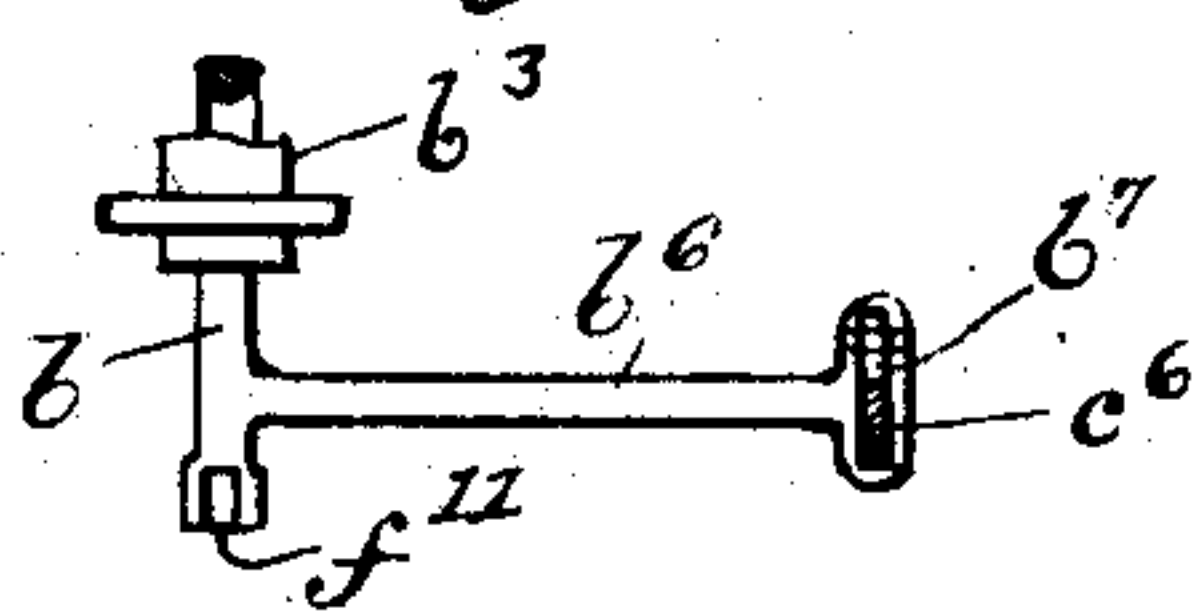
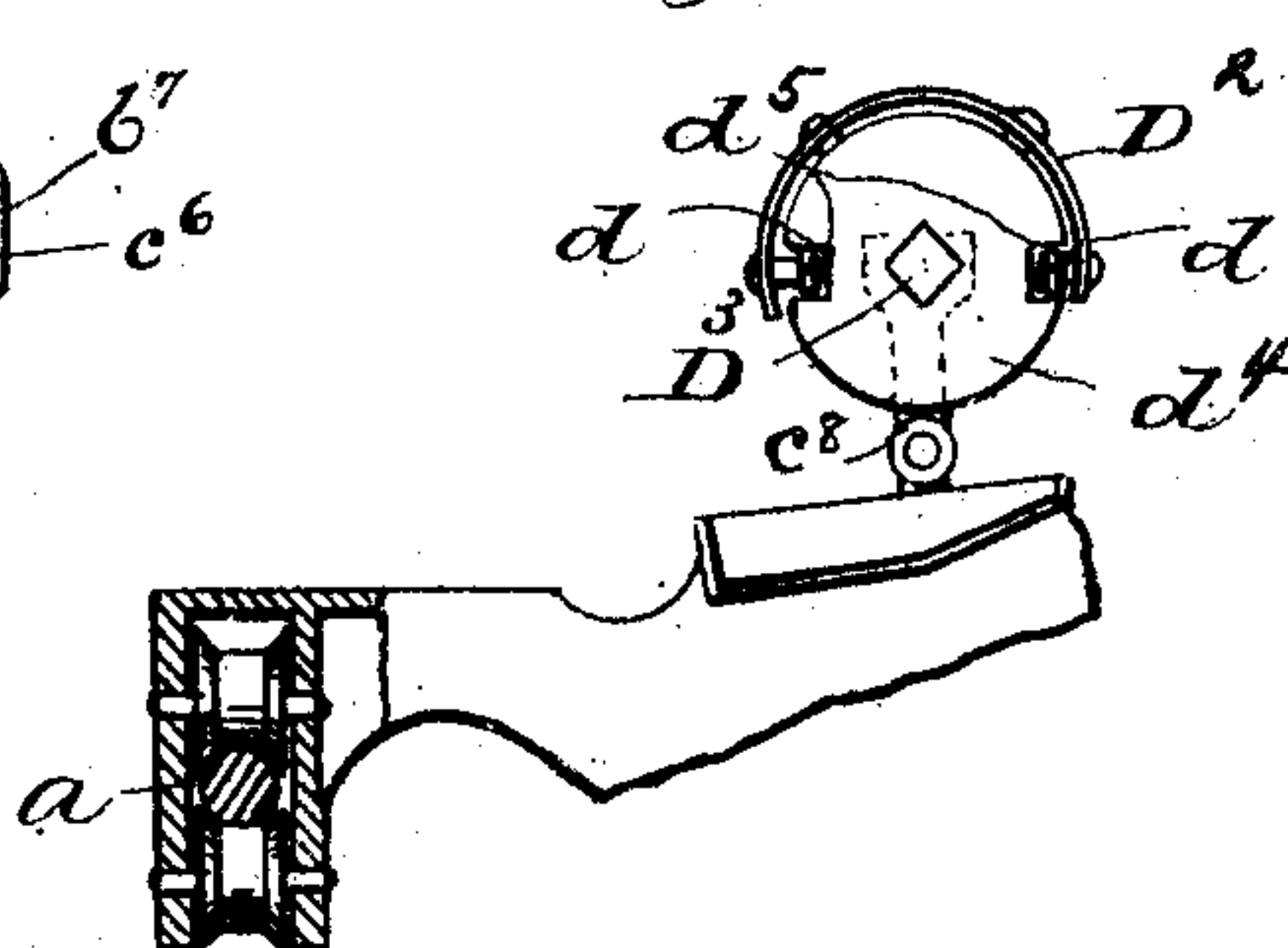


Fig. 11



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UNITED STATES PATENT OFFICE.

FRANK J. TRAN AND FRANK CAIS, OF CLEVELAND, OHIO.

WORKMAN'S TIME-RECORDER.

979,108.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed October 7, 1908. Serial No. 456,644.

To all whom it may concern:

Be it known that we, FRANK J. TRAN and FRANK CAIS, citizens of the United States, and residents of Cleveland, county of Cuyahoga, State of Ohio, have jointly invented a new and useful Improvement in Workmen's Time-Recorders, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

Our invention relates to time recorders such as are regularly employed in factories, stores, and similar establishments, where it is found desirable to register the time of arrival and departure each day, or several times each day, of a large number of employees.

Such invention more specifically relates to improvements in a workman's time recorder of the type described in our recently issued Patents Nos. 875,392 and 875,393.

The object of these improvements is to simplify certain details of construction in our earlier forms of recorder, as also to provide means whereby the time-printing device may be moved temporarily from the position given it by the clock automatic controlling mechanism, whereby the setting of such time printing device may be facilitated, and whereby the clock mechanism may be relieved of the major portion of the burden that is imposed upon it in the operation of such controlling means.

To the accomplishment of the above and related objects, said invention then consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings: Figure 1 is a front elevation of a time recorder of the kind referred to above, wherein have been embodied our several improvements; Fig. 2 is a central longitudinal section of such recorder on the line 2—2, Fig. 1; Fig. 3 is a front elevational view of a detail of the recorder mechanism; Fig. 4 is partly a plan-

view and partly a section of a portion of such detail; Fig. 5 is a sectional view of another detail coöperative with the detail shown in Figs. 3 and 4; Fig. 6 is a side elevation, with a portion of the frame broken away, of the time-printing device; Fig. 7 is a bottom plan view of a portion of such time-printing device; Fig. 8 is an elevational view of a portion of the clock mechanism, whereby the recorder is operated; Fig. 9 is a sectional view of such mechanism; Figs. 10 and 11 are respectively a broken perspective view and a transverse section of an alternative construction of automatic control for regulating the movement of the time printing device; and Fig. 12 is an elevation of the actuating mechanism for the printing device.

In general the recorder comprises a case A within which is revolubly mounted a drum or platen B, shown in section in Fig. 2: a time-printing device C adapted to move on ways *a a* transversely across said platen; a clock actuated spindle *e* parallel with said ways and connected to operate said time-printing device; mechanism, including a shaft D, the more particular construction of which will be presently noted, for controlling the movement of said time-printing device across the platen; and operating means *i. e.* mechanism whereby said platen may be rotated, so as to bring any desired portion thereof beneath the time printing device, and the latter thereupon actuated to print on the record sheet borne by said platen. Inasmuch as the general correlation of these parts is the same in the present device, as in that described in our patents above identified, the following description will be confined to noting the several departures that are now made in the previously described construction, reference being had to such patents for a description of the general operation of the recorder.

As in the recorder described in Patent No. 875,393 we propose to use a dial A' provided with two series *a*² *a*³ of designating characters, Fig. 1, such characters corresponding with transverse portions of the platen. For rotating the platen two levers B' B² are provided in front of said dial, associated with which are pointers *b'* *b*² of unequal lengths, the series of characters just

referred to being so arranged as to be indicated by the longer and the shorter of said two pointers respectively. When a pointer is then brought into position with respect to any particular character and the lever pressed inwardly a reciprocable plunger *b*, Fig. 2, lying in the hollow drum shaft *b*³ will be actuated inwardly, and by suitable connections Figs. 2 and 12 cause the time-printing device to contact with the portion of the platen corresponding with the character indicated. By the foregoing arrangement of characters and pointers, it is possible to keep all the characters for the entire periphery of the platen within a semi-circular dial space. It has been found, however, that inadvertently or otherwise a lever may be operated when directed downwardly, or in other words when not properly indicating any character at all upon said dial; obviously this will cause the printing device to register at the wrong place on the platen. To prevent such occurrence we have accordingly provided means whereby each of said levers is held inoperative, save when its pointer is coöperative with the corresponding series of characters. As a simple form of device for accomplishing this result, a semi-circular groove *a*⁴ is provided in the face of the dial, and on the under side of the levers there are secured pins *b*⁴ *b*⁵ that will normally just graze the surface of the dial, so that actuation of the lever, except when such pin is located over the groove in question, is impossible.

In place of a spindle having a series of adjustably positioned slotted disks mounted thereon for controlling movement of the time-printing device across the platen, we employ a simple shaft *D* upon which are mounted a plurality of lugs or knobs *d* that are rotatable about radially disposed axes, such axes having various angular relation to the axis of said shaft. The time printing device, Fig. 6, is provided with an arm *c* that, as said device thus moves across the platen, passes along such shaft *D*, such movement of the device being permitted only when a lug *d* on the shaft is brought into register with a notch *c*¹ in said arm, as will be readily understood. Rotation of shaft *D*, as in the case of the spindle formerly employed is derived from the same clock mechanism *E* that drives the spindle *e* for rotating the time-printing type-wheels in said device. Since it occasionally becomes necessary, however, to set or change the position of the time-printing device, and since the latter is preferably non-removably secured on its ways, we provide means for detachably connecting said control shaft *D* with the clock mechanism *F*. Such means comprise a gear *d*² slidably, but non-rotat-

ably secured on the shaft and adapted to engage with a gear *c*² of said mechanism, and a lever *d*² that is adapted normally to retain said first gear in such engagement, but when raised to permit the same to be shifted out of such engagement. When thus out of engagement, the shaft may obviously be rotated independently of the clock mechanism, to permit of the free movement therealong of the time-printing device to such position as it may be desired to give the same. In connection with this same clock mechanism, we provide a weight *E*¹ suspended from a cord *e*² which passes over a pulley *e*³ and is connected with a drum *e*⁴ fixedly secured to the same shaft *e*⁵, upon which aforesaid gear *c*² is mounted. Such weight, thus connected, constitutes an auxiliary driving means whereby said control shaft is rotated without placing any burden upon the clock mechanism, the latter serving simply as a brake, or regulator. This is quite important, since, in spite of the anti-friction character of the engagement between the knobs or balls *d* of the control shaft and the printing device, considerable power is required to drive said shaft.

In the use of a recorder of the type in hand, it not infrequently becomes desirable to record the time of arrival, for example, of an employee, even though he arrives after the period allotted within which to register such arrival; otherwise such arrival is noted in a column in which it does not belong, with attendant confusion of the record sheet. We accordingly provide means for longitudinally shifting the control shaft *D*, either forwardly or backwardly, a predetermined amount and thereby correspondingly varying the position of the time-printing device from that which it would be given by the time control means operating alone. Such shifting means comprise a cylindrical element *F* fixedly secured in the front end of the case and provided with a helical way *f*, within which is rotatably mounted a rotatable element *F*¹ having an arm *f*¹ that engages with said helical way. Rotation of said element, which may be had by means of a handle *f*², if in one direction will be effective to draw the element forwardly as will be obvious, while if rotated in the other direction said member will be retracted with respect to the fixed element *F*. The front end of shaft *D* is rotatably secured in the inner end of said rotatable element *F*¹ so that such reciprocation of the latter simultaneously advances or retracts said shaft. The distance through which such advance or retraction takes place is equal to that necessary to secure the variation in the position of the time-printing device desired. The arm *f*¹ borne by member *F*¹ and engaging

with helical groove f , as has been described, is connected at its outer free end with a rod f^3 that will be obviously raised and lowered as the element f' is thus rotated in order to advance or retract the same. A weighted arm f^4 disposed transversely of the front end of the recorder casing and connected with said rod serves normally to depress the same and thereby retain the arm f' in its lower central position corresponding with the normal position of element F' and the shaft D connected therewith. In order, however, that when said shaft D has been advanced or retracted from its normal position it may be temporarily retained in such position pending the act of registration (viz. operation of the time recording mechanism proper) we provide an apertured plate f^5 in position to engage the lower end of said rod f^3 , such rod end being suitably guided in brackets f^6 to register with said aperture and extend therebelow in the lower position of the rod. This, it may be stated, is its normal position. However, if such rod be raised a plate f^7 actuated by spring f^8 obstructs the aperture and prevents the return of the rod. A dog f^9 pivotally mounted laterally of the plate engages therewith and is connected through a rod f^{10} and lever f^{11} with reciprocable shaft b whereby the time-printing mechanism is actuated, the nature of this connection being such that upon actuation of the time-printing mechanism such dog f^9 will be simultaneously actuated to displace the plate f^7 and allow the rod f^3 to now assume its normal position. The operation of this portion of the device should be readily evident:—Assuming the shaft D to have been either advanced or retracted in order to permit registration in a column other than the one over which the time-printing device is located at the time of registration, such device will be retained in its advanced or retracted position until after the desired registration is effected, whereupon automatically the parts are returned to their former normal positions.

The time-printing device C , movable across the platen as hereinbefore described upon ways a , comprises two parts, a carriage C' that is thus actually mounted upon such ways, and a member C^2 , wherein are mounted the minute and hour type-wheels c' c^2 , that is pivotally secured to said carriage. Depression of the pivotal member to bring the type-wheels into contact with the platen is effected by depressing a rocking frame C^3 , Figs. 2 and 12, that is normally retained in elevated position by a spring c^3 coöperative with a bell-crank C^4 , the latter having its upper arm c^5 connected with said frame as clearly appears in the first figure of reference. Oscillation of

this bell-crank to raise its upper arm and frame C^3 is had from the reciprocable rod b within hollow shaft b^3 of the drum, such rod being formed with a lateral extension b^6 bearing a pawl b^7 adapted, when moved outwardly, to engage a lever c^6 that had sliding pivotal connection with the lower arm c^1 of the bell-crank. A tension spring c^7 connected with said arm serves to draw frame C^3 downwardly again, and with sufficient impetus to cause the time-printing device to strike the platen upon release of lever c^6 by pawl b^7 .

In Figs. 10 and 11, we show an alternative construction for controlling the movement of the time-printing device across the platen, consisting, instead of a shaft D bearing knob-like stop members, of a semi-cylindrical plate D^2 similarly equipped, as will be seen by reference to Fig. 10, when, however, it appears in inverted position. Such plate does not rotate, but axially located with respect thereto is an angular shaft D^3 that does, said shaft having a slidably mounted disk d^4 that is carried along with the time-printing device by means of an arm c^8 on the latter. Such disk is notched, as at d^5 , to permit the desired intermittent movement of the device. This movement, it should perhaps have been previously explained, is secured by means of a weight H and cord h . Such cord is carried across the front of the case, see Fig. 1, so as to permit the weight to be located in one corner of the latter out of the way; and also to permit said cord to actuate an indicator H' , by means of which the successive positions of the time-printing device are correctly and promptly shown.

Where as in the illustrated construction of time-printing device, both the minute wheel c' and the hour wheel c^2 are of the same size, we find the imprint is rendered much cleaner by employing a cover plate, as c^8 , Figs. 6 and 7, on the under side of the movable member C^2 that carries these wheels. Such plate, which is preferably a thin metallic sheet, is formed with two communicating apertures c^9 c^{10} through which correspondingly positioned type on wheels c' c^2 may print. The aperture c^{10} is of a size such as to permit but a single hour to be printed, whereas the companion aperture c^9 permits a plurality of minute type to print; of the minutes thus printed the one nearest in line with the hour can be readily determined thus eliminating a difficulty encountered where the wheels are depressed without an interposed shield. Obviously any tendency to blurring, owing to the ribbon coming in contact with the sheet, is likewise overcome.

Other means of applying the principle of our invention may be employed instead

of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such
5 stated means be employed.

We therefore particularly point out and distinctly claim as our invention:—

1. In a time recorder, the combination with a platen and a time-printing device, the
10 one being movable relatively to the other; of means for effecting such movement; time-controlled means for regulating such movement; manually operable means adapted to move said platen and device relatively to
15 each other independently of aforesaid means, said platen and device remaining where placed by said last-named means until said device is actuated to print; and means for automatically restoring said platen and de-
20 vice to the relative position given them by said time-controlled means after actuation of said device to print.

2. In a time recorder, the combination with a platen and a time-printing device, the
25 one being movable relatively to the other; of means tending to effect such movement; time-controlled means for regulating such movement; manually operable means adapted to shift said platen and device relatively
30 to each other from the position given them by aforesaid means a predetermined amount; and means adapted to restore said platen and device to such position upon actuation of said device to print.

3. In a time recorder, the combination with a platen and a time-printing device, the
35 one being movable relatively to the other; of means tending to effect such movement; time-controlled means for regulating such movement; manually operable means adapted to shift said platen and device relatively
40 to each other from the position given them by aforesaid means a predetermined amount in either direction; and means adapted to restore said platen and device to such position upon actuation of said device to print.

4. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to
50 move said device, time controlled means for regulating such movement, and manually operable means adapted to shift said device from the position given it by aforesaid means a predetermined amount in either di-
55 rection from such position.

5. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, time-controlled means for
60 regulating such movement, and other means for independently moving said device, said device remaining where placed by said last-named means until actuated to print.

6. In a time recorder, the combination of a platen, a time-printing device movable
65 across said platen, means tending thus to move said device, time-controlled means for regulating such movement, manually operable means adapted to move said device independently of aforesaid means, means for
70 maintaining said device where placed by said manually operable means until actuated to print, and means for automatically restoring said device to the position given it by said time-controlled means after actua-
75 tion thereof to print.

7. In a time-recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, time controlled means for
80 regulating such movement, manually operable means adapted to shift said device from the position given it by aforesaid means a predetermined amount, and means adapted to restore said device to such position upon
85 actuation thereof to print.

8. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, time-controlled means for
90 regulating such movement, manually operable means adapted to shift said device from the position given it by aforesaid means a predetermined amount in either direction from such position, and means adapted to
95 restore said device to such position upon actuation thereof to print.

9. In a time recorder, the combination of a platen, a time-printing device movable across
100 said platen, means tending thus to move said device, a member disposed parallel with the path of travel of said device and having time-controlled engagement therewith whereby movement of said device is regulated, and means adapted to longitudinally shift said
105 member in either direction, whereby said device may be either advanced or retracted a predetermined amount from the position thus given it, as desired.

10. In a time recorder, the combination of
110 a platen, a time-printing device movable across said platen, means tending thus to move said device, a member disposed parallel with the path of travel of said device and having time-controlled engagement there-
115 with whereby movement of said device is regulated, means adapted to longitudinally shift said member in either direction, whereby said device may be either advanced or retracted a predetermined amount from the
120 position thus given it, as desired, and means adapted to restore said device to such position upon actuation thereof to print.

11. In a time recorder, the combination of a platen, a time-printing device movable
125 across said platen, means tending thus to

move said device, a member disposed parallel with the path of travel of said device and having time-controlled engagement therewith whereby movement of said device is regulated, means adapted to longitudinally shift said member to move said device from the position thus given it, means tending to return said member to its normal position, and means connected to be actuated simultaneously with said device for controlling such return.

12. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, a member disposed parallel with the path of travel of said device and having time-controlled engagement therewith whereby movement of said device is regulated, and means adapted to longitudinally shift said member to move said device from the position thus given it, said means comprising an element formed with a helical way and a rotatable element engaging such way and connected with said member.

13. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, a member disposed parallel with the path of travel of said device and having time-controlled engagement therewith whereby movement of said device is regulated, means adapted to longitudinally shift said member to move said device from the position thus given it, said means comprising an element formed with a helical way and a rotatable element engaging such way and connected with said member, an arm borne by said rotatable element, a vertically reciprocable rod connected with said arm, a stop normally preventing movement of said rod and means connected to be actuated simultaneously with said printing device for withdrawing said stop.

14. In a time-recorder, the combination of a platen, a time printing device movable across said platen, means tending thus to move said device, and time controlled means for regulating such movement, said last-named means comprising two members, one of which is rotatable and one of which is borne by said device, one member lying parallel with the path of travel of said device and bearing a plurality of radially disposed rotatable lugs and the other member being provided with a notch adapted to pass said lugs when in proper angular position.

15. In a time recorder, the combination of a platen, a time-printing device movable across said platen, means tending thus to move said device, and time controlled means for regulating such movement, said last-named means comprising a rotatable shaft parallel with the path of travel of said de-

vice, a plurality of radially disposed lugs rotatably mounted upon said shaft, and an arm borne by said device and provided with a notch adapted to pass said lugs when in proper angular position.

16. In a time recorder, the combination of a rotary platen, a time-printing device, a dial provided with designating characters, levers connected to operate said printing device, and means holding each of said levers inoperative save when it is positioned to indicate one of a particular series of characters on said dial.

17. In a time recorder, the combination of a rotary platen, a time-printing device, a dial provided with two series of designating characters corresponding with transverse portions of said platen, two pointers of unequal lengths mounted in front of said dial and connected to rotate with said platen, such series of characters being so arranged as to be respectively indicated by the longer and the shorter of said two pointers, levers corresponding with said pointers and connected to operate said printing device, and means holding each of said levers inoperative save when its pointer is coöperative with the corresponding series of characters.

18. In a time recorder, the combination of a platen, a time-printing device movable across said platen, a rotatable shaft parallel with the path of travel of said device and adapted to engage the same to control its movement, clock mechanism for driving said shaft, and means for detachably connecting said shaft with said mechanism, said means comprising a gear slidably but non-rotatably secured to said shaft and adapted to engage with a gear of said mechanism, and a lever adapted normally to retain said first gear in such engagement but when raised to permit the same to be shifted out of such engagement.

19. In a time recorder, the combination of a platen, a time-printing device movable across said platen, a rotatable shaft slidably engaged by said device for actuating the time-printing type-wheels therein, a second rotatable shaft parallel with the first and adapted to engage said device to control its movement, clock mechanism for driving said shafts, and auxiliary driving means connected with said second shaft.

20. In a time-recorder, the combination of a platen, a time-printing device movable toward and from the same, resilient means normally retaining said device against movement from a position of rest out of contact with said platen, and means adapted to remove said device still farther from said platen and thereupon to release the same.

21. In a time-recorder, the combination of a platen, a time-printing device movable to-

ward and from the same, resilient means
normally retaining said device against move-
ment in either direction from a position of
rest out of contact with said platen, and
5 means adapted to remove said device still
farther from said platen and thereupon to
release the same.

22. In a time-recorder, the combination of
a platen, a time-printing device movable to-
10 ward and from the same, resilient means
normally retaining said device against move-
ment from a position of rest out of contact

with said platen, and means adapted auto-
matically to remove said device still farther
from said platen and thereupon to release 15
the same.

Signed by us this 15th day of August,
1908.

FRANK J. TRAN.
FRANK CAIS.

Attested by—

E. R. RODD,
JNO. F. OBERLIN.