

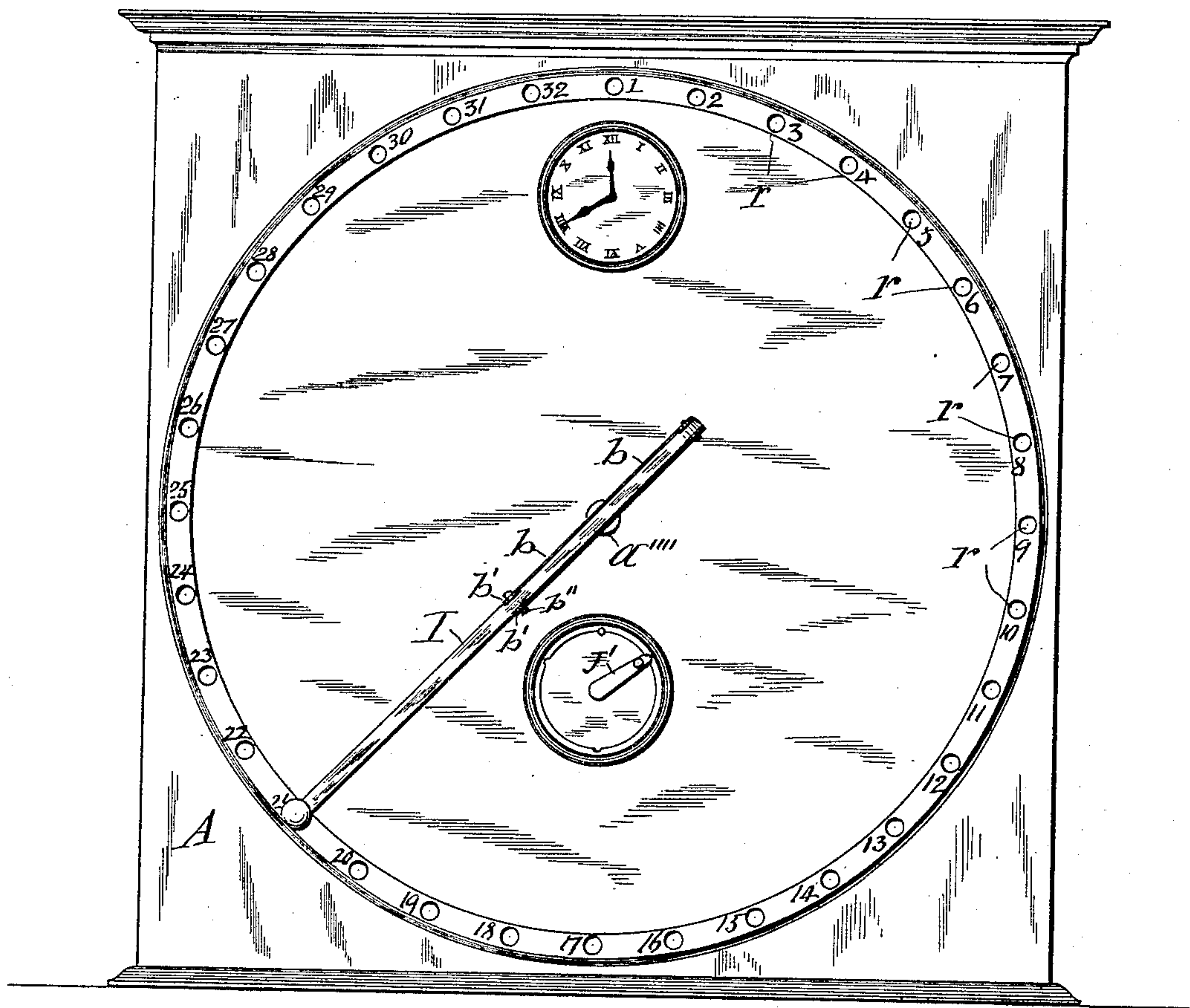
(No Model.)

7 Sheets—Sheet 1.

J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



*Fig. 1*

WITNESSES:

J. J. Grass  
C. L. Bendixon

INVENTOR:

John Dey  
By Hull, Lussick & Co.  
his ATTORNEYS.

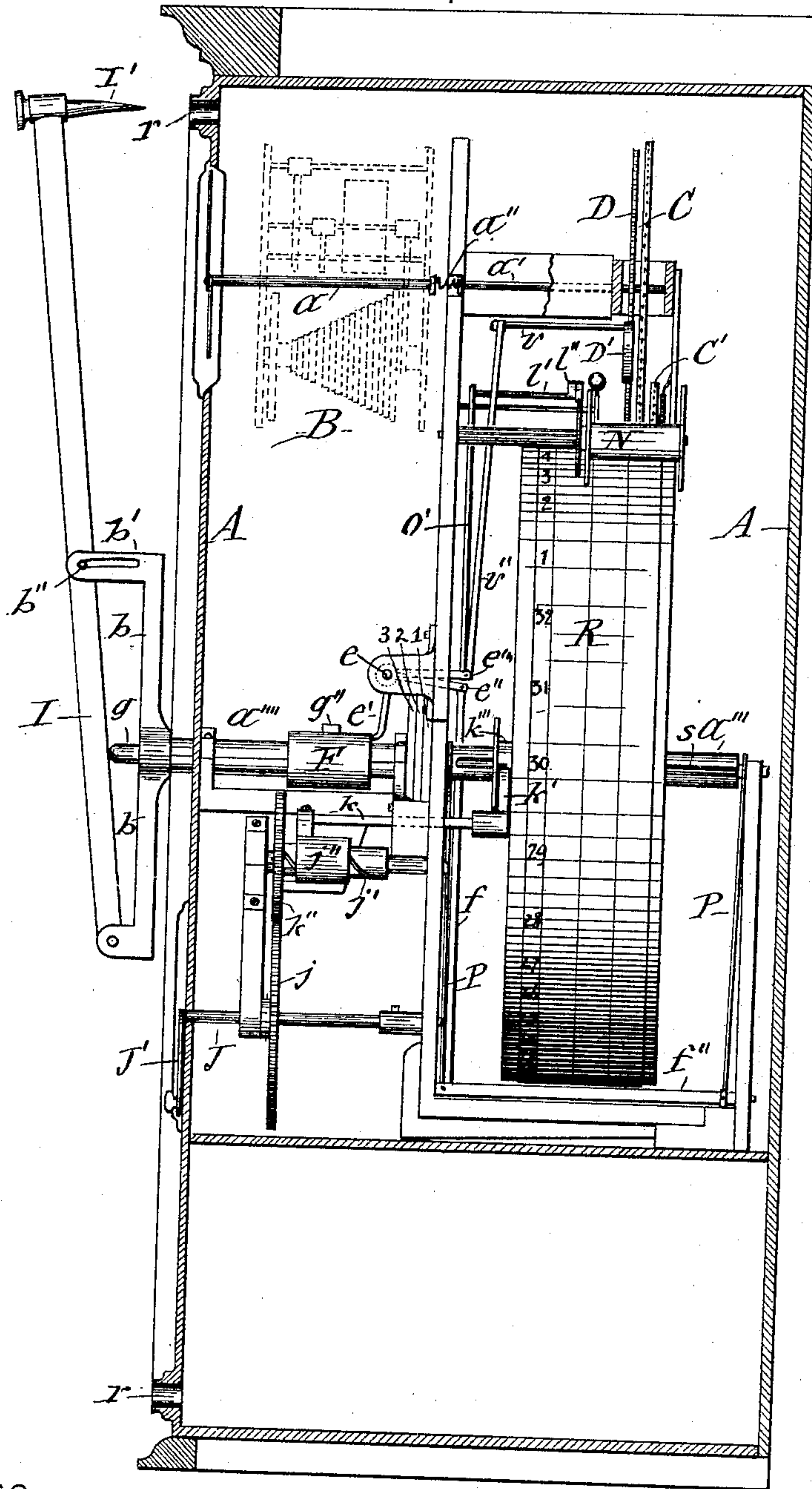
(No Model.)

7 Sheets—Sheet 2.

J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



WITNESSES:

J. J. Laasz  
C. L. Bendixon

Fig. 2

INVENTOR:

John Dey  
By Hull, Laas & Hull  
his ATTORNEYS.

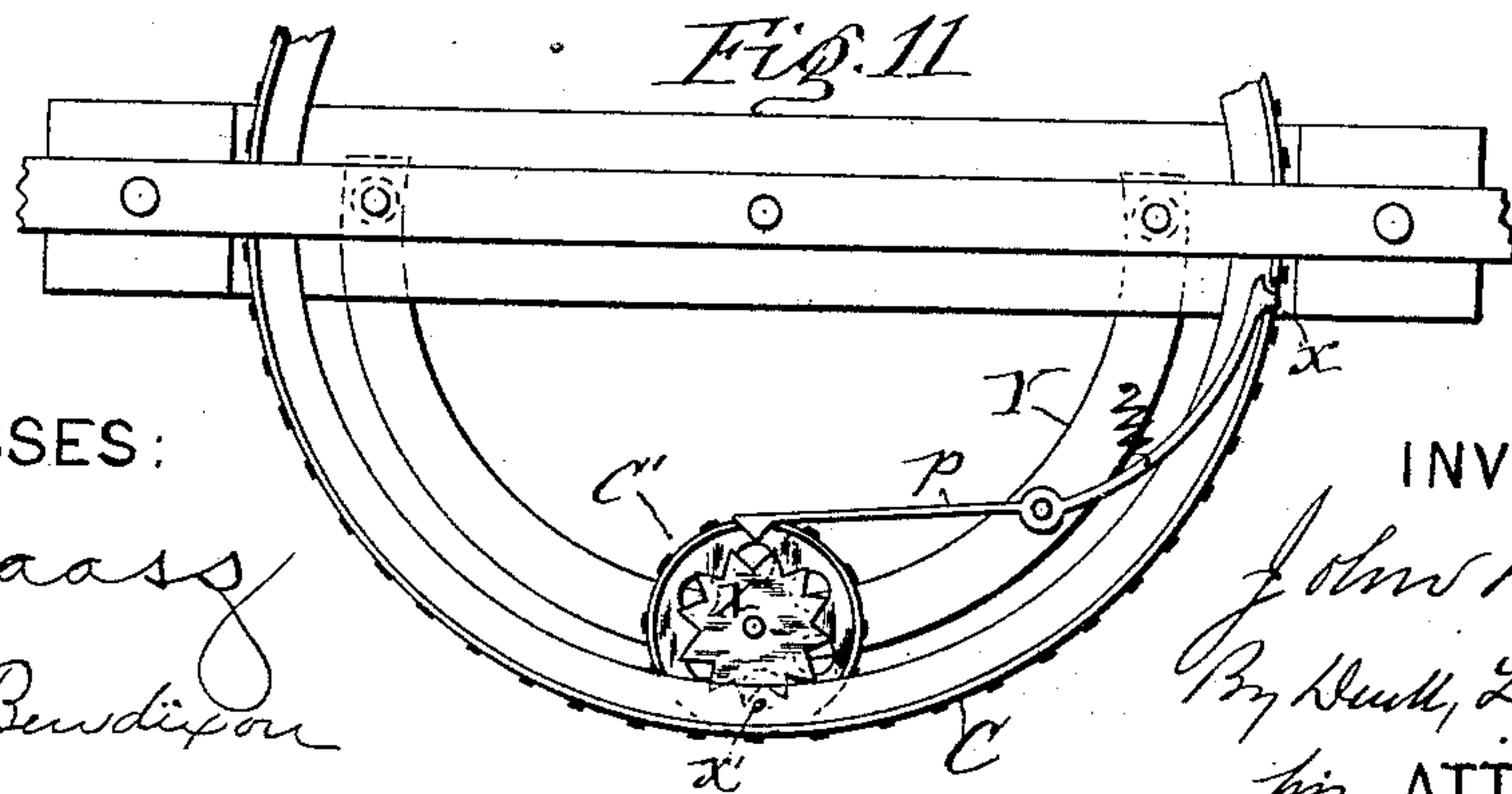
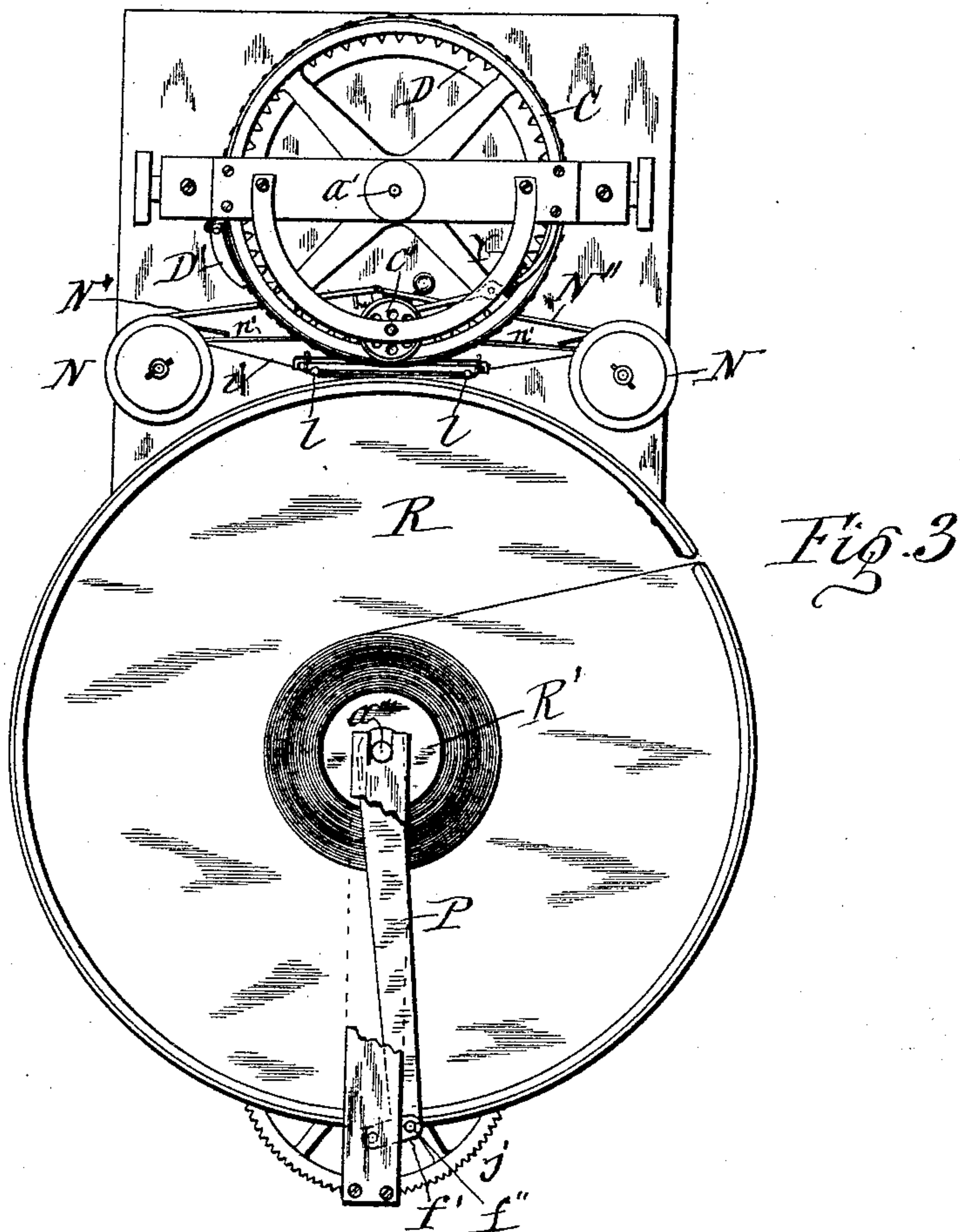
(No Model.)

7 Sheets—Sheet 3.

J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



WITNESSES:

J. J. Gaass  
C. L. Burdison

INVENTOR:

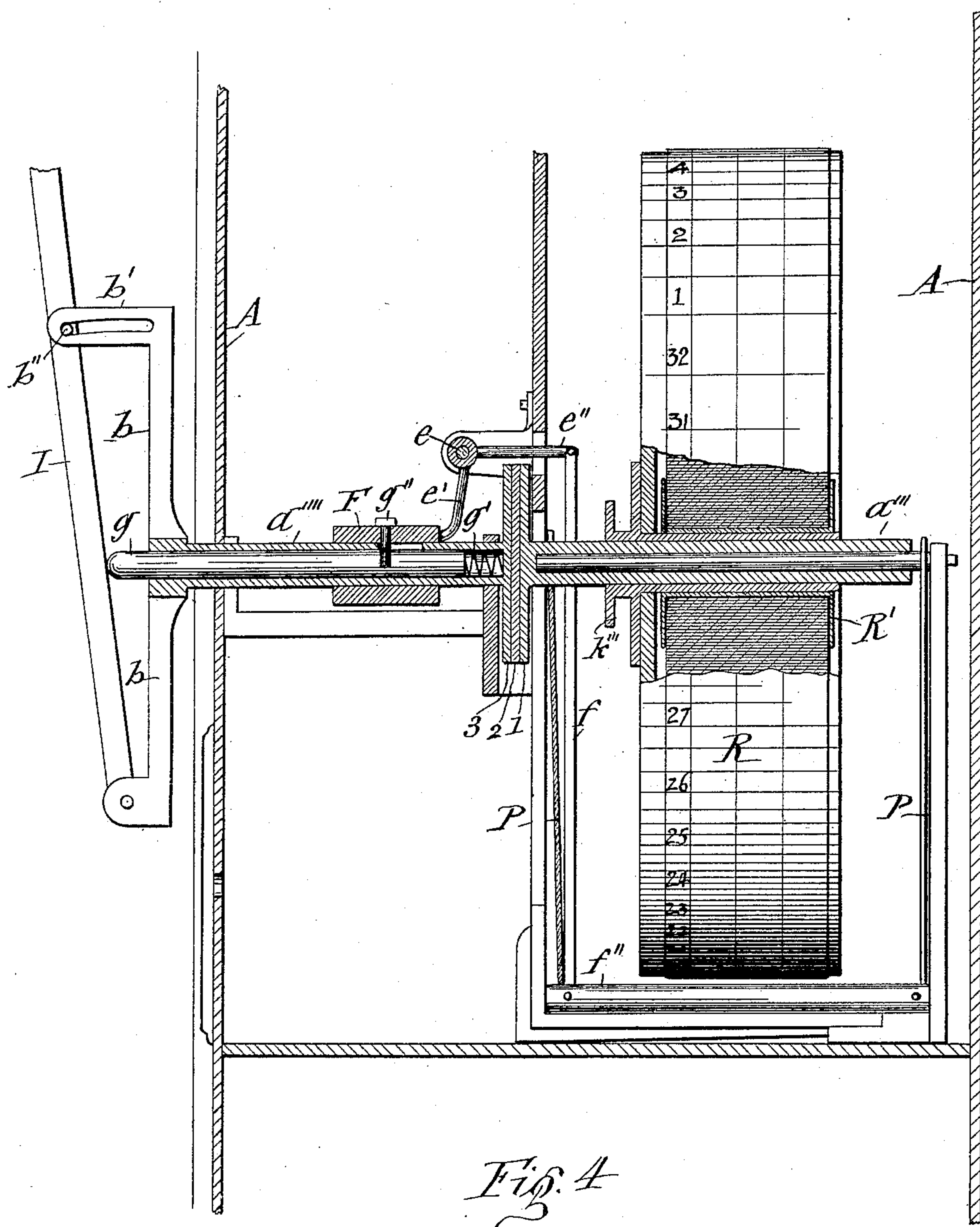
John Dey  
By Bush, Lanest & Radt  
his ATTORNEYS.



J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



WITNESSES:

J. J. Gaase  
C. L. Bendixen

INVENTOR:

John Dey  
By Knell, Lassar & Knell  
his ATTORNEYS.

(No Model.)

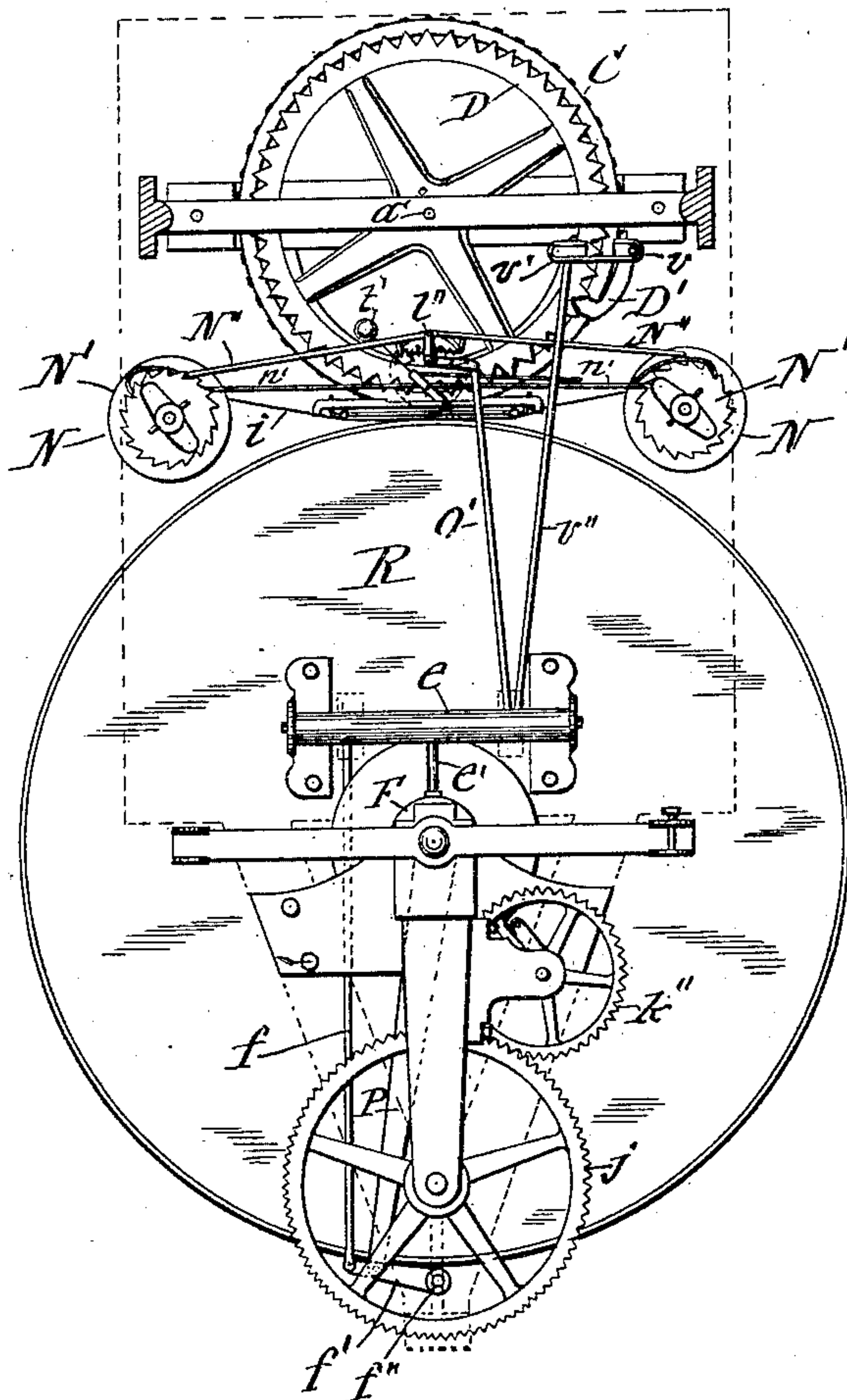
7. Sheets—Sheet 5.

J. DEY.

WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



*Fig. 5*

WITNESSES:

J. J. Laass.

C. L. Bendison

INVENTOR:

John Hey  
By Hunt, Laas & Hunt  
his ATTORNEYS.

*his* ATTORNEYS:

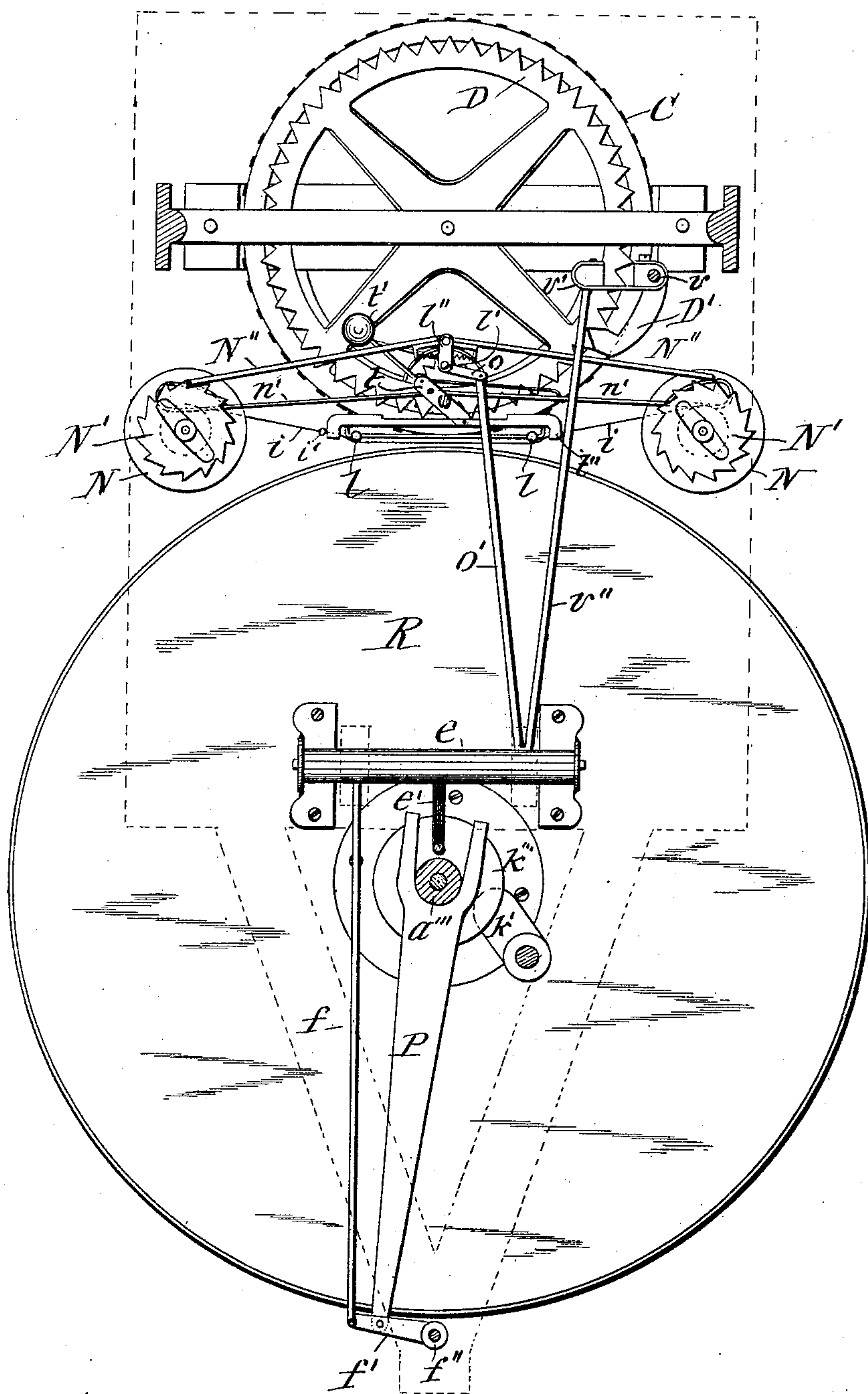
(No Model.)

7 Sheets—Sheet 6.

J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.



WITNESSES:

J. J. Laasy  
C. L. Bendison

Fig. 6

INVENTOR:

John Dey  
By *Black, Lacey & Smith*  
his ATTORNEYS.



(No Model.)

7 Sheets—Sheet 7.

J. DEY.  
WORKMAN'S TIME RECORDER.

No. 522,784.

Patented July 10, 1894.

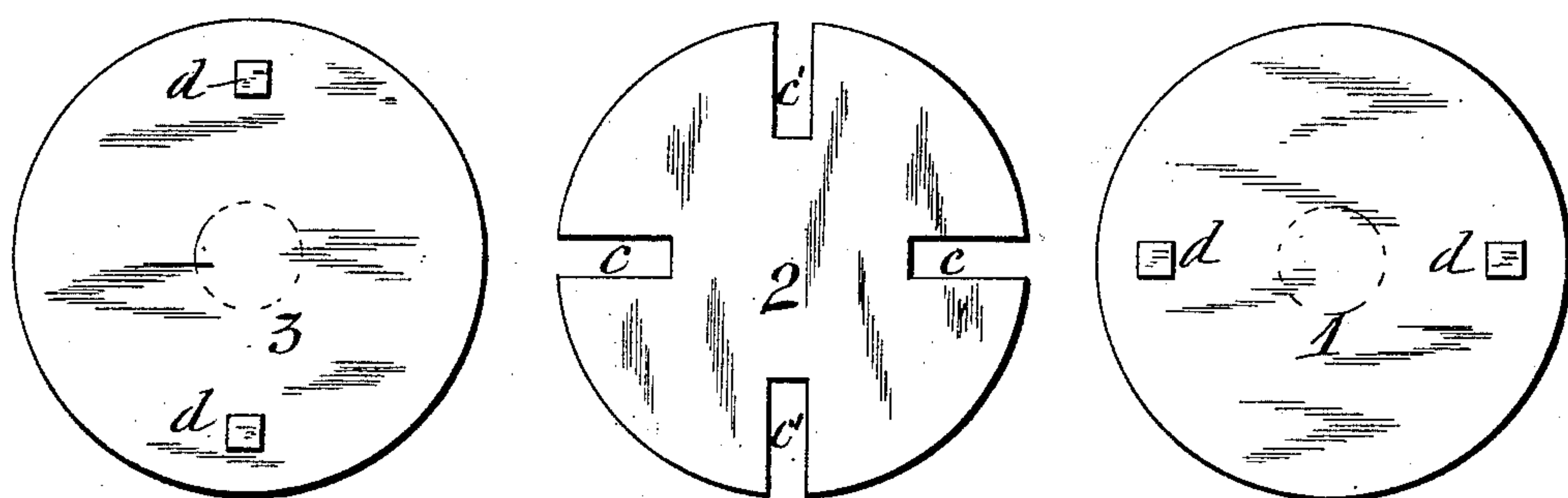
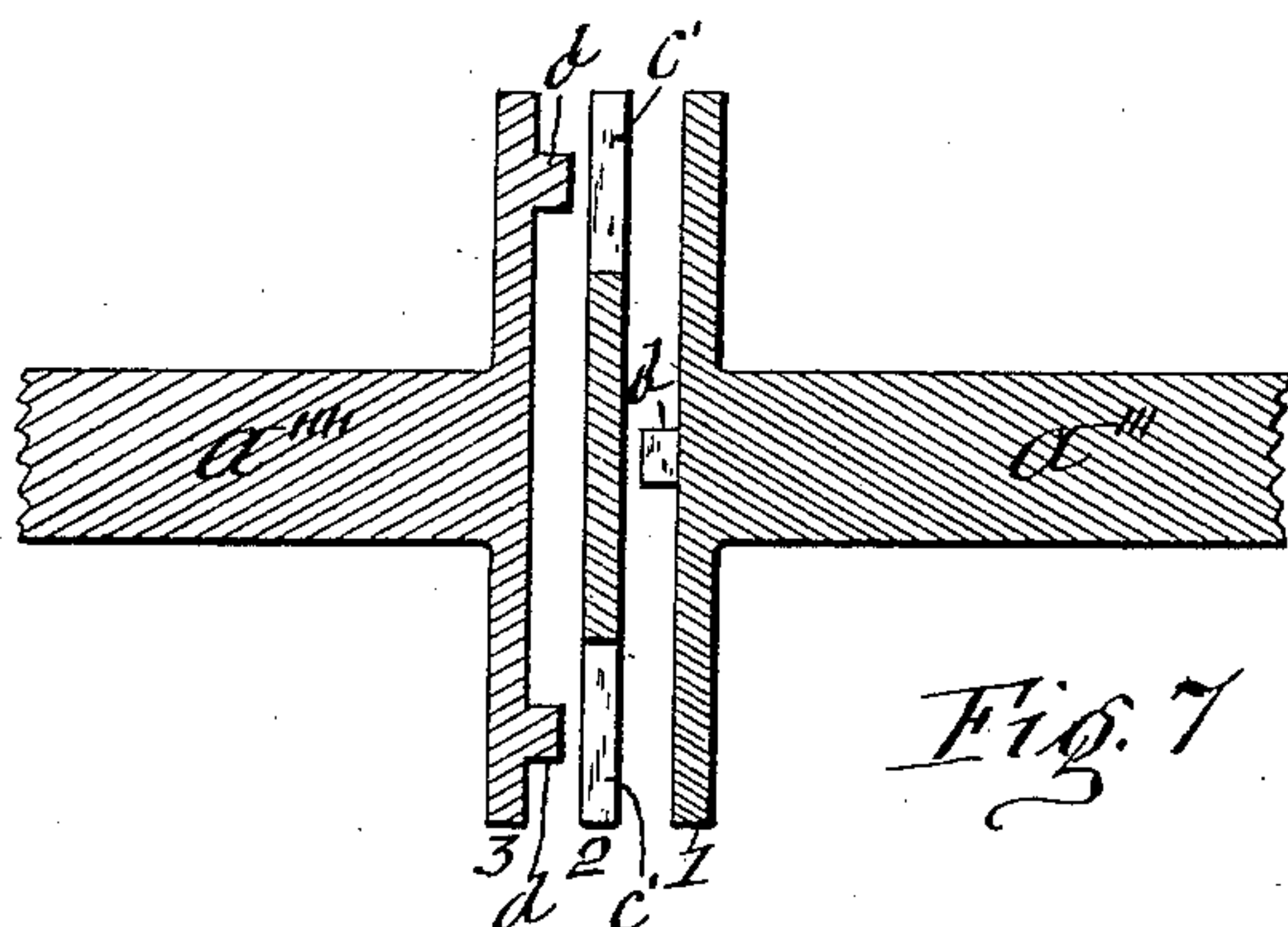


Fig. 8

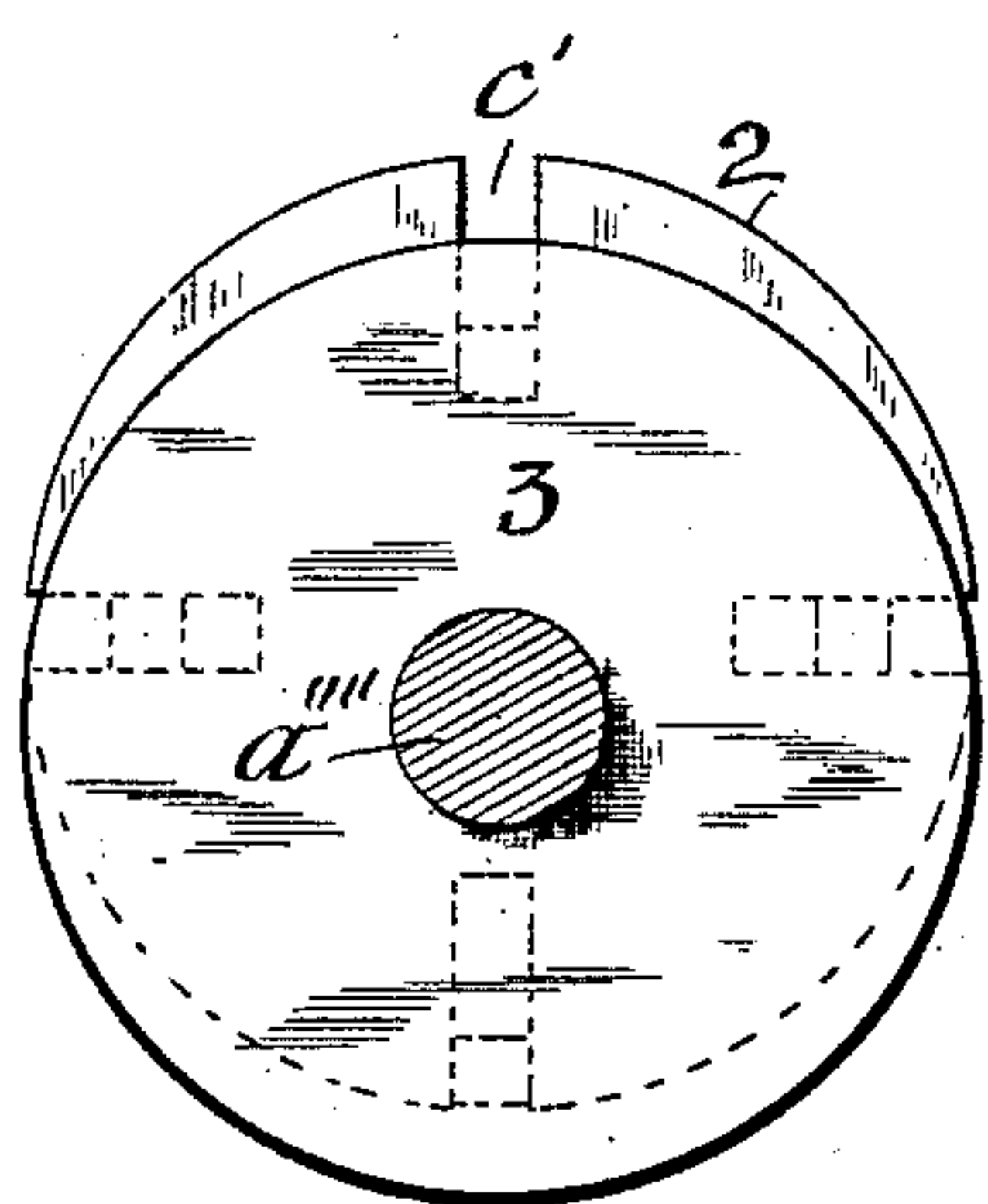


Fig. 9

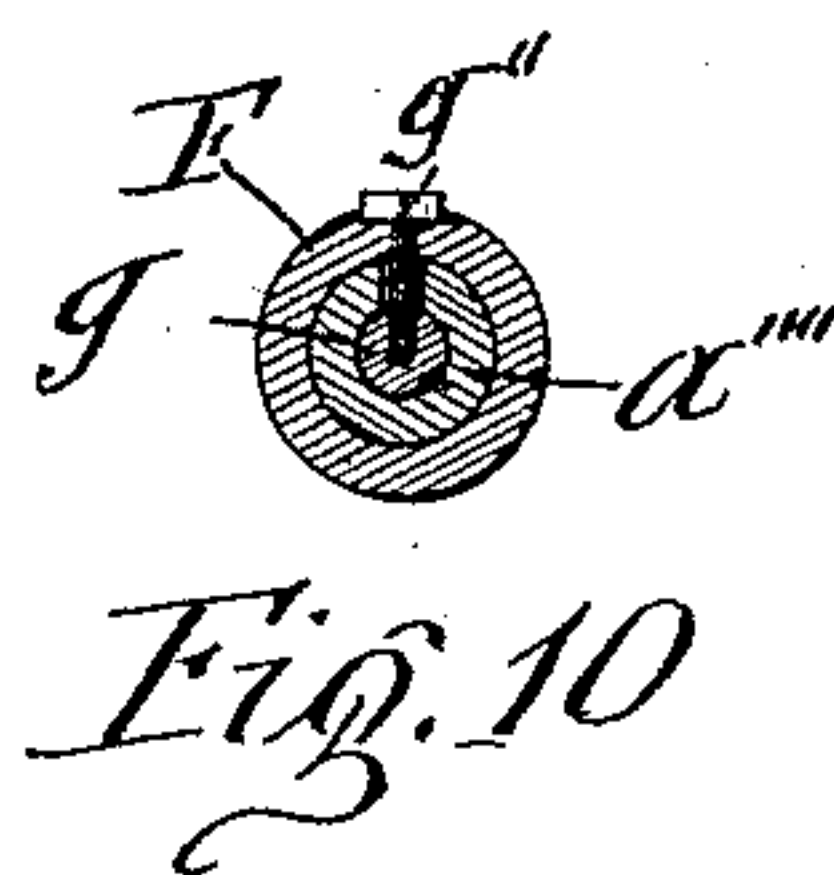


Fig. 10

WITNESSES:

J. J. Laess  
C. L. Bendixen

INVENTOR:

John Dey  
By *Smith, Laess & Bend*  
his ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN DEY, OF SYRACUSE, NEW YORK.

## WORKMAN'S TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 522,784, dated July 10, 1894.

Application filed January 16, 1893. Serial No. 458,469. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN DEY, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Workmen's Time-Recorders, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of apparatus which are employed in factories and other establishments for the purpose of compelling each employé to record his own time of entering and leaving the place of business during the day.

My present invention resembles in some respects the time recorder shown in my prior applications for patents, Serial Nos. 451,602 and 452,680, filed respectively November 11, 1892, and November 21, 1892, and it consists more particularly in specific improvements of the construction and combination of the details of the apparatus as hereinafter fully described and set forth in the claims.

In the annexed drawings Figure 1 is a front elevation of the time recorder. Fig. 2 is a side view of the mechanism of said recorder. Fig. 3 is a rear view of the same. Fig. 4 is an enlarged vertical transverse section through the center of the apparatus. Fig. 5 is a front view of the recording mechanism, the front plate or dial and manually operated levers being removed. Fig. 6 is an elevation taken immediately inside of the rear of the inclosing case. Fig. 7 is an enlarged longitudinal section of the coupling of the shaft of the impression cylinder. Fig. 8 presents face views of the coupling disks of said shaft. Fig. 9 is a transverse section of the shaft adjacent to its coupling. Fig. 10 is a transverse section of the hollow shaft with inclosed plunger and external collar attached to said plunger in Fig. 2, and Fig. 11 is a detail view of the means for moving the hour-wheel.

Similar letters and numerals of reference indicate corresponding parts.

A—represents the case of the recording apparatus. In the front portion of the interior of this case is arranged the clock-mechanism—B—which may be of any suitable and well known type.

a—denotes the minute-hand spindle which I utilize for actuating the type-wheel—C—

which prints the minutes of the hours during which the recordings are made, the hours being printed by another wheel—C'—which receives motion from the minute-wheel—C—as hereinafter described. Said minute-wheel is fixed to a shaft—a'—which is in line with the spindle—a—and flexibly connected therewith by a suitable spring—a''—as shown in Fig. 2 of the drawings, said flexible connection being required to allow the type-wheel—C—to be held sufficiently at rest to allow it to make its impression on the record receiving band hereinafter described. To temporarily arrest the movement of said wheel for the purpose aforesaid, I mount on the shaft—a'—of said wheel another wheel—D—which has its periphery formed with V-shaped notches, a detent—D'—thrown into one of the notches as hereinafter described arrests the wheel as aforesaid.

Beneath the minute-wheel—C—and hour-wheel—C'—is the impression roller—R—mounted longitudinally movable on a shaft—a'''—which is parallel with the shaft of the said minute-wheel and journaled in vertically movable props—P—P—by which the roller—R—is lifted to cause the types of the wheels—C—C'—to make their impressions on the band of paper secured to the periphery of the roller. This paper has printed upon it consecutive numerals arranged in a row extending lengthwise of the paper, and I preferably wind one end thereof upon a spool—R'—mounted on the shaft—a'''—inside of the roller—R—which latter is formed hollow and provided with a transverse slot in its periphery, through which slot the paper band passes and thence around the external periphery of the roller and back through the aforesaid slot and is clamped or otherwise suitably fastened to the inner periphery of the roller as illustrated in Fig. 3 of the drawings. At the end of each working day the portion of paper containing the records is removed from the roller—R—and torn from the roll and another section of paper is drawn out and applied to the exterior of the roller—R—in the manner as before described. The successive sections of the roll of paper are numbered alike.

Axially in line with the shaft—a'''—is another shaft—a''''—which extends through the front of the case—A—and is journaled



in suitable bearings secured to the interior of the case. The outer end of the shaft  $a''''$  has affixed to it two arms  $b-b$  extending radially in opposite directions. To the free end of one of said arms is hinged the lever  $I$  which extends with its free end beyond the other arm  $b$  which latter terminates with two prongs  $b'$  between which the aforesaid lever passes. Said prongs are slotted longitudinally, and a pin  $b''$  passes through the lever and through the slots of the prongs to retain the lever in connection with the latter arm  $b$  and at the same time allow the lever to be moved with its free end toward and from the case  $A$  for the purpose hereinafter explained. By means of said lever rotary motion can be imparted to the shaft  $a''''$  and in order to transmit said motion to the shaft  $a'''$  of the roller  $R$  and at the same time permit the latter to be lifted out of axial line with the shaft  $a''''$  I connect said shafts by means of three disks 1, 2 and 3. The disk, 1, is rigidly attached to the shaft  $a'''$ , the disk, 3, is likewise fastened to the shaft  $a''''$  and the disk, 2, is interposed between them. This interposed disk is formed with two pairs of radial slots  $c-c$  and  $c'-c'$  extending from the periphery of the disk part way toward the center thereof as shown in Fig. 8 of the drawings, the slots of each pair being in line with each other and at right angles to those of the other pair. Each of the other disks 1 and 3 is provided with two lugs  $d-d$  on its side adjacent to the disk 2. The lugs of one of said disks enter the slots  $c-c$  and the lugs of the other disk project into the slots  $c'-c'$ . The engagement of said lugs with the side edges of the slots compels the shaft  $a'''$  to turn with the shaft  $a''''$  while the elongation of the slots permit the lugs to slide lengthwise therein and thus permit the shaft  $a'''$  with the roller  $R$  to be lifted out of line with the shaft  $a''''$  as represented in Fig. 9 of the drawings. For lifting said shaft  $a'''$  I employ the horizontal rock-shaft  $e$  from which project the downwardly extending finger  $e'$ , and the horizontal arm  $e''$  which latter is connected by a rod  $f$  to a crank  $f'$  affixed to one end of a horizontal crank-shaft  $f''$  beneath the roller  $R$ . The opposite end of said crank-shaft has projecting from it another similar crank, and to the said two cranks are connected the props  $P-P$  which support the shaft  $a'''$ .

The shaft  $a''''$  is hollow and in the interior thereof is the longitudinally movable plunger  $g$  which is forced outward and caused to abut against the lever  $I$  by means of a spring  $g'$  pressing against the inner end of the plunger.

On the exterior of the shaft  $a''''$  is a longitudinally movable collar  $F$  which is connected to the plunger  $g$  by a pin  $g''$  passing through a longitudinal slot in

the shaft  $a''''$ . The free end of the finger  $e'$  bears on the rear end of the collar  $F$ . The result is that by pressing the free end of the lever  $I$  toward the case  $A$ , the plunger  $g$  is pushed inward and carries with it the collar  $F$ . This movement of the collar causes the finger  $e'$  to turn the rock-shaft  $e$  which, by means of the rod  $f$  imparts a corresponding motion to the lower crank-shaft  $f''$  and this action of the latter shaft causes the cranks  $f'$  thereof to lift the roller  $R$  by means of the props  $P-P$ .

To produce the impressions of the minute wheel  $C$  and hour-wheel  $C'$  upon the paper band mounted on the roller  $R$  the ink ribbon  $i$  is interposed between said wheels and paper. This ribbon is wound at opposite ends upon spools  $N-N$  pivoted to suitable supports in the interior of the case  $A$ . By means of guides  $l-l$  the ribbon is held normally out of contact with the roller  $R$  and wheels  $C-C'$  as shown in Fig. 6 of the drawings. The spools are turned automatically to shift the tape longitudinally at each time of recording. This movement is effected by means of the following mechanism: To the end of each spool is fastened a ratchet wheel  $N'$ . A rock-shaft  $l'$  between the two ratchet wheels has extending from it a crank  $l''$  to which are connected the two pawls  $N''-N''$  which are adapted to engage and release the ratchet-wheels. The shaft  $l'$  receives its rocking motion by a crank  $o$  on said shaft connected by a rod  $o'$  to a crank  $e''$  projecting from the rock-shaft  $e$  which is actuated by the plunger  $g$  as hereinbefore described.

In order to allow only one of the pawls  $N''$  at a time to engage its respective ratchet-wheel, I employ the two lifting bars  $n'-n'$  which ride with their free ends on the hubs of the ratchet-wheels and are connected at their opposite or inner ends to a rock-arm  $t$ , above the pivot thereof, the upper end of which rock-arm is weighted as shown at  $t'$  and to the lower end thereof is connected centrally the horizontal bar  $t''$  the ends of which are disposed in the path of the ink-ribbon. To each end-portion of this ribbon is attached a barrier,  $i'$  which in the travel of the ribbon comes in contact with one end of the bar  $t''$  and by pushing the same along it tilts the rock-arm  $t$  so as to cause the weighted end thereof to swing from one side of a vertical position to the opposite side and sustain the bar  $t''$  in its shifted position until the barrier  $i'$  on the opposite end of the ribbon comes in contact with said bar, which is then again tilted in the opposite direction. This rocking motion of the arm  $t$  pushes the lifting bars  $n'-n'$  alternately in opposite directions and thereby throws the two pawls  $N''$  alternately out of engagement with their respective ratchet-wheels.



D'— denotes the detent by which the minute-wheel —C— is held at rest during the operation of printing. Said detent is of the form of a pawl adapted to enter into the notches of the wheel —D— and supported on a shaft —v— pivoted to suitable supports secured to the case —A—. A spring-arm —v'— is connected by a rod —v''— to the crank —e'''— of the rock-shaft —e— and thus the detent is thrown into engagement with the wheel —D— simultaneously with the lifting of the impression roller —R— to imprint the paper mounted thereon.

The front-plate of the case —A— is provided with an annular row of sockets —r—r— arranged concentric to the shaft —a'''—, and from the free end of the lever —I— projects a pin —I'— adapted to enter said sockets. These sockets are numbered consecutively, and each person who is required to use the recorder must adopt one of said numbers to identify said person from all others using the same recorder.

In recording the time of entering or leaving the place of business each employé must turn the lever —I— so as to bring the pin —I'— opposite the number by which said employé is identified. Then by pushing the lever toward the case —A— the plunger —g— is actuated to arrest the movement of the minute-wheel —C— and lift the impression roller —R— to print the time upon the paper mounted on said roller. Said paper is so arranged on the roller as to bring directly under the printing wheel —C— that number marked on the paper which corresponds to the number of the socket —r— which is entered by the pin —I'— in the operation of the lever —I—.

In order to allow the recordings during different periods of the day to be made distinctly on the band of paper, I make the latter and its carrying roller —R— of sufficient width to allow the different times of recording to be printed in rows opposite the respective numbers marked on the paper, and to allow the roller to be shifted laterally and thus permit the printing to be done at different points in the width of the paper I mount said roller loosely on its shaft —a'''— and connect it thereto by a spline in the hub of the wheel entering a longitudinal groove —s— in the shaft.

A horizontal shaft —J— pivoted so the interior of the case and protruding at the front thereof has affixed to its outer end a handle —J'— by which to turn it, and a dial on the front of the case and concentric to the shaft —J— is marked to indicate the position of the handle required for adjusting the roller —R— laterally as aforesaid. To the shaft —J— is fastened a gear-wheel —j— which meshes with a pinion  $k''$  on the worm-shaft —j'— parallel with the shaft —J— and on this worm shaft is mounted a collar —j''— which engages the spiral groove of the worm and is thus caused to move longitudinally when the worm is rotated. An arm —k— ex-

tending from said collar has affixed to it a laterally projecting tongue —k'— which engages a circumferential groove in the hub —k'''— of the roller —R— and therefore compels said roller to move laterally when the worm-shaft is rotated.

The hour-wheel —C'— has the numbers from 1 to 12 projecting from its periphery and receives one-twelfth of a revolution at the end of each complete revolution of the minute-wheel —C—. This may be effected by mechanism similar to that shown in my prior application for patent, Serial No. 451,602, filed November 11, 1892, and it consists of the lever —p— pivoted at the central portion of its length to a yoke —Y— attached to the frame of the machine. Said lever has one end engaging a ratchet wheel —X— fixed to the shaft of the hour wheel. The opposite end of said lever lies on an annular flange on the side of the minute-wheel, which flange has a notch —x— which allows the lever to rock and thereby release the ratchet wheel. A lug —x'— on the minute-wheel then enters between two of the teeth of the ratchet-wheel and causes the same to turn one-twelfth part of a revolution. There are twelve teeth on the said ratchet, hence twelve revolutions of the minute wheel imparts one complete revolution to the hour wheel.

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

1. In combination with the time-printing wheel and a revoluble impression roller, a lever turning said roller, a rock-shaft moving said roller toward the printing wheel, and a plunger operated by the lever and actuating said rock-shaft, as set forth.

2. In combination with the time-printing wheel, a horizontal crank shaft, props mounted on the cranks of said shaft, a shaft mounted on said props, the impression roller mounted on the latter shaft, a rock-shaft transmitting motion to the aforesaid crank-shaft, a lever turning the shaft of the aforesaid roller, and a plunger actuated by said lever and imparting motion to the rock-shaft, as set forth.

3. In combination with the time printing wheel, a horizontal shaft mounted on vertically movable supports, an impression roller mounted on said shaft, a second horizontal shaft disposed end to end with the first shaft, disks on the adjacent ends of said shaft, lugs on the adjacent faces of the disks and disposed on one disk in a line at right angles to that of the lugs on the other disk, and a disk interposed between the aforesaid disks and provided with slots at right angles to each other and receiving the aforesaid lugs in the manner set forth.

4. In combination with the printing wheel, the shaft —a'''— mounted on vertically movable supports, the impression roller —R— mounted on said shaft, the hollow shaft —a''''—, disks 1 and 3 on the said shafts provided with lugs —d—d—, the intervening



disk 2, provided with slots —c—c'—c'—, the plunger —g— in the hollow shaft, arms —b—b— on the outer end of the shaft —a'''—, the lever —I— pivoted to one of said arms and bearing on the end of the plunger, the collar —F— connected to the plunger, and the rock-shaft —e— actuated by said collar and imparting motion to the supports of the shaft —a'''—, as set forth.

10 5. In combination with impression roller —R— mounted movable longitudinally on its shaft, the hub —k'''— grooved circumferentially, the shaft —J— provided with the handle —J'—, the gear-wheel —j— attached to the latter shaft, the worm-shaft —j'— pinion —k''— meshing with said gear-wheel, the collar —j''— having the arm —k— and the tongue —k'— attached to said arm and engaging the circumferential groove of the hub —k'''— substantially as set forth.

20 6. In combination with the printing wheel and notched wheel —D— mounted on one and the same shaft, the detent —D'— adapted to engage said notched wheel, the shaft —a'''— beneath the printing wheel and mounted on vertically movable supports, and the impression roller —R— mounted on said shaft, the hollow shaft —a'''— connected to the shaft

—a'''— by a laterally yielding coupling, the plunger —g— in the hollow shaft, the lever —I— actuating the plunger, the collar —F— attached to the plunger, the rock-shaft —e— actuated by the movement of said collar, an arm on the rock-shaft, and a rod transmitting motion from said arm to the aforesaid detent, as set forth. 30 35

7. In combination with the printing wheel, impression roller, spools —N—N—, ink-ribbon —i—, barriers —i'— on said ribbon, ratchet-wheels —N'—N'—, rock-shaft —l'— provided with crank —l''— and pawls —N''—N''— connected to said crank, the rock-arm —t— weighted at its upper end, the lifting bars —n'—n'— connected to said rock-arm above the pivot thereof, and the bar —t''— connected to the same rock-arm beneath its pivot and having its ends in the path of the ink-ribbon and adapted to engage the barriers —i'—, substantially as set forth. 40 45

In testimony whereof I have hereunto signed my name this 5th day of January, 1893. 50

JOHN DEY. [L. S.]

Witnesses:

H. M. SEAMANS,  
J. J. LAASS.