(No Model.) 4 Sheets—Sheet 1.

F. BARKER.

TIME RECORDER.

No. 589,924. Patented Sept. 14, 1897.

Fig. 1.

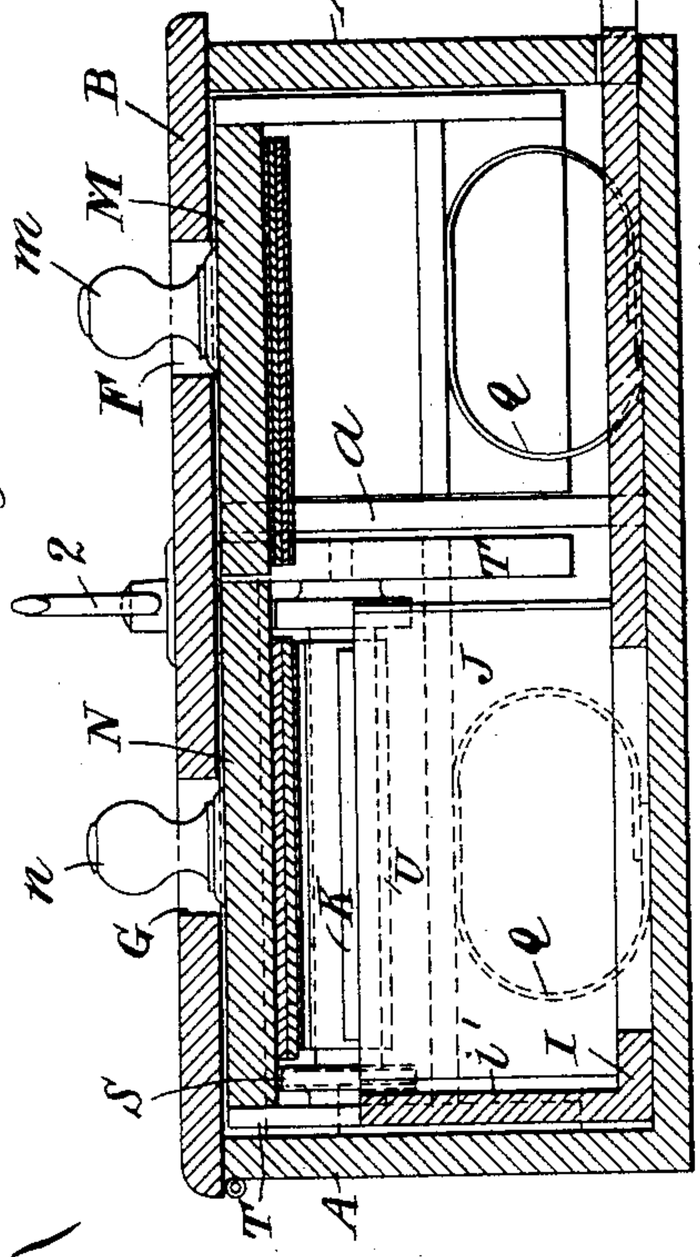


Fig. 2.

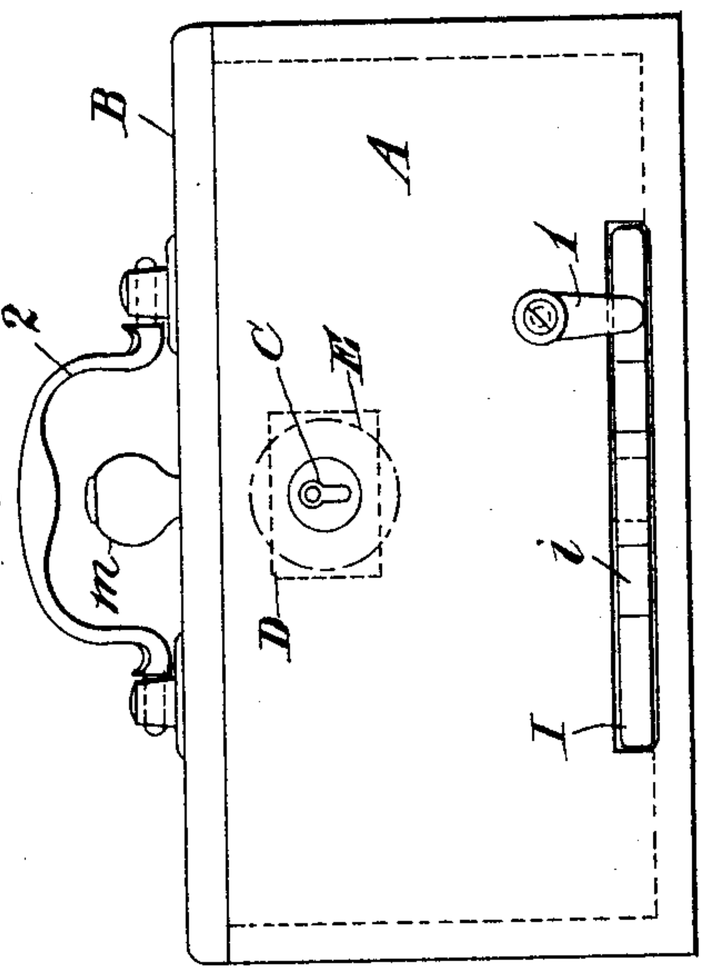


Fig. 3

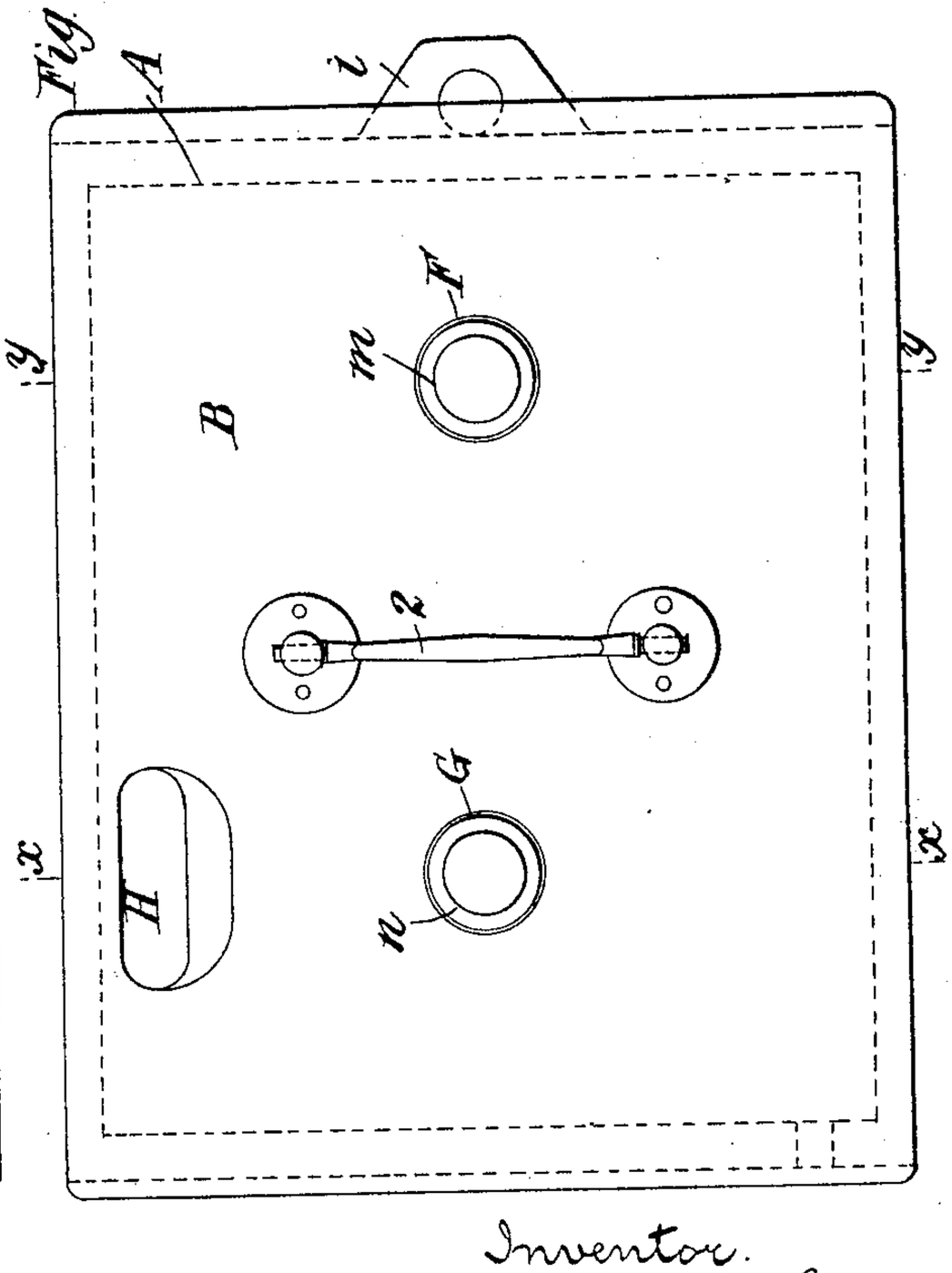
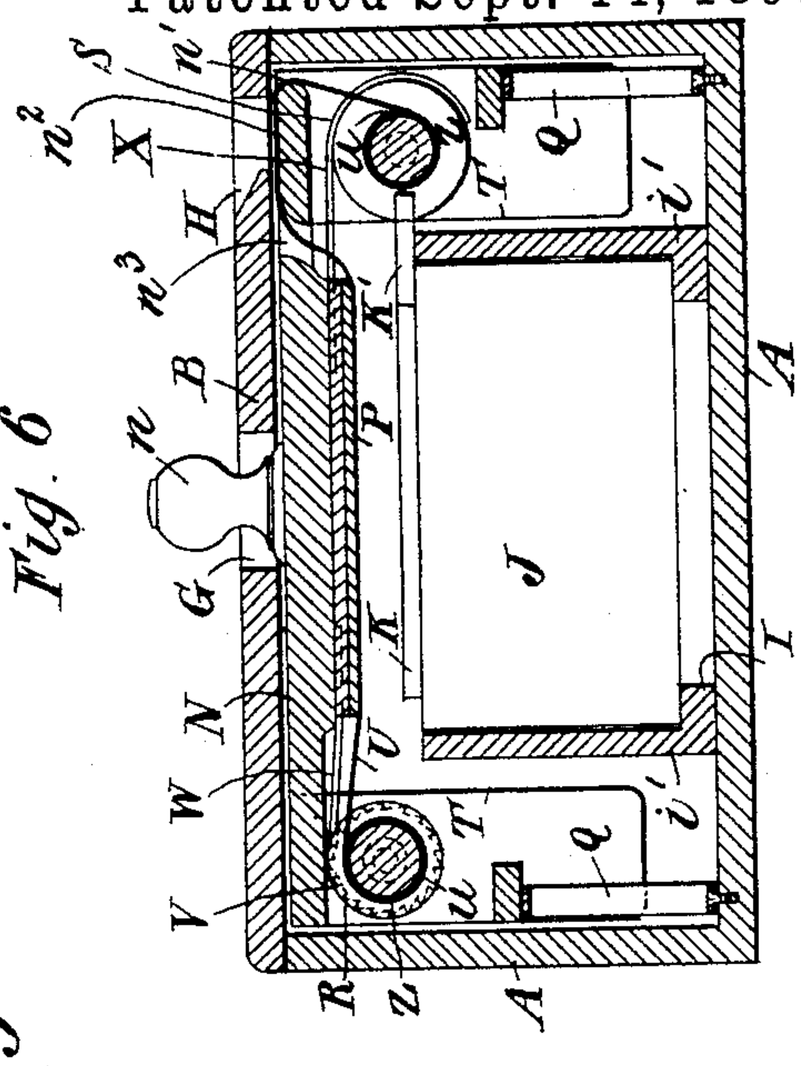


Fig. 6



Witnesses.
Adam C Hart
Alan Balch

Inventor.
Francis Barker
by Fairbanks Hach
Attorneys

(No Model.)

4 Sheets—Sheet 2.

F. BARKER.

TIME RECORDER.

No. 589,924. Patented Sept. 14, 1897.

Fig. 7.

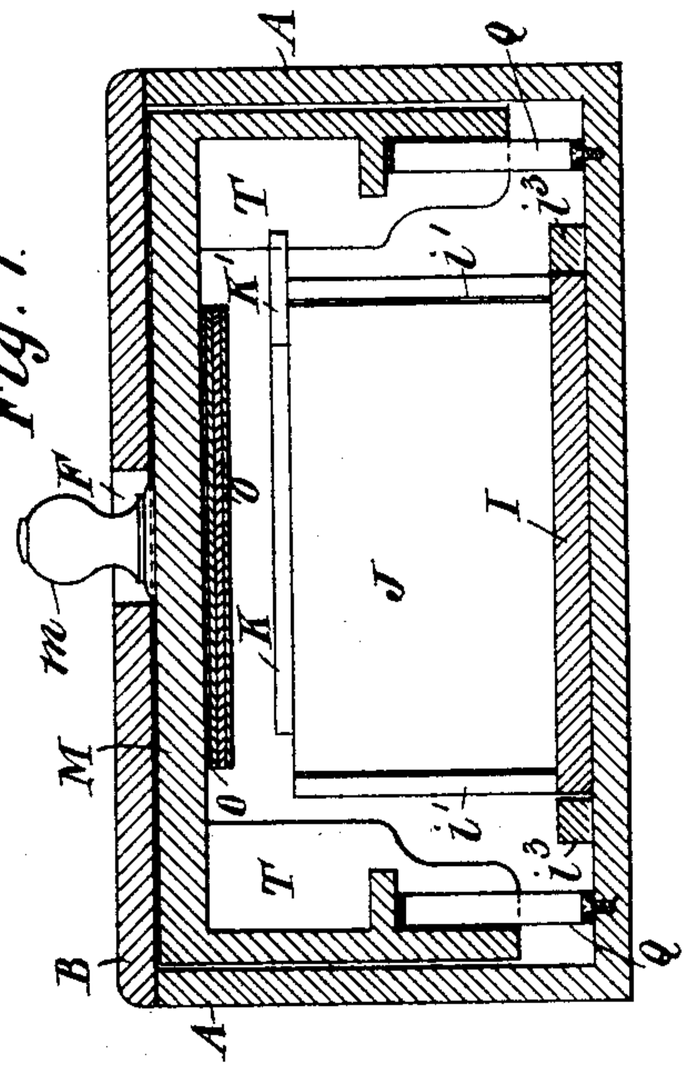


Fig. 8.

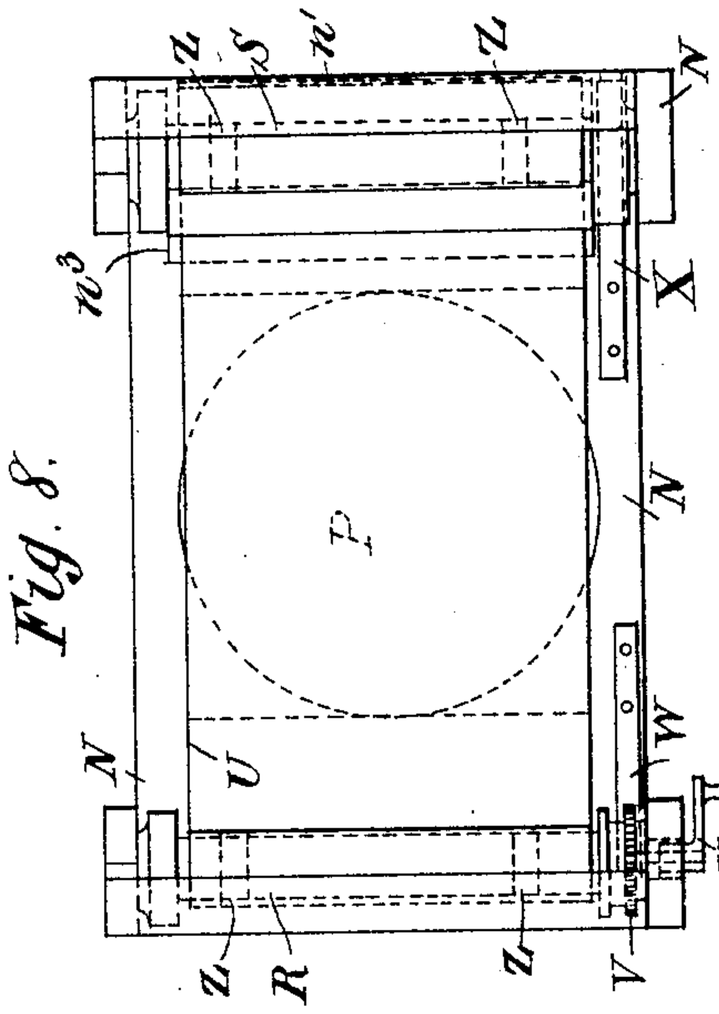


Fig. 4

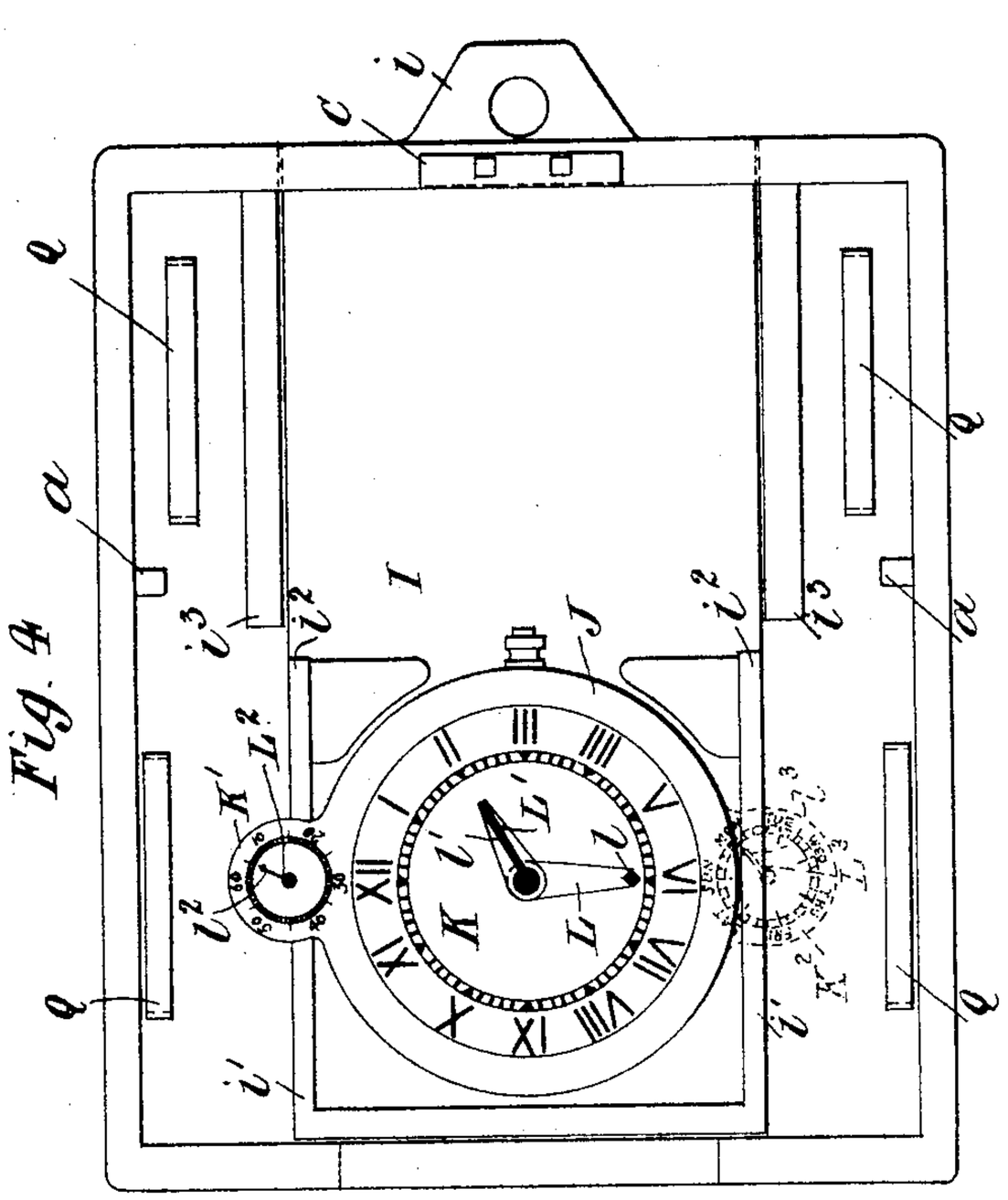
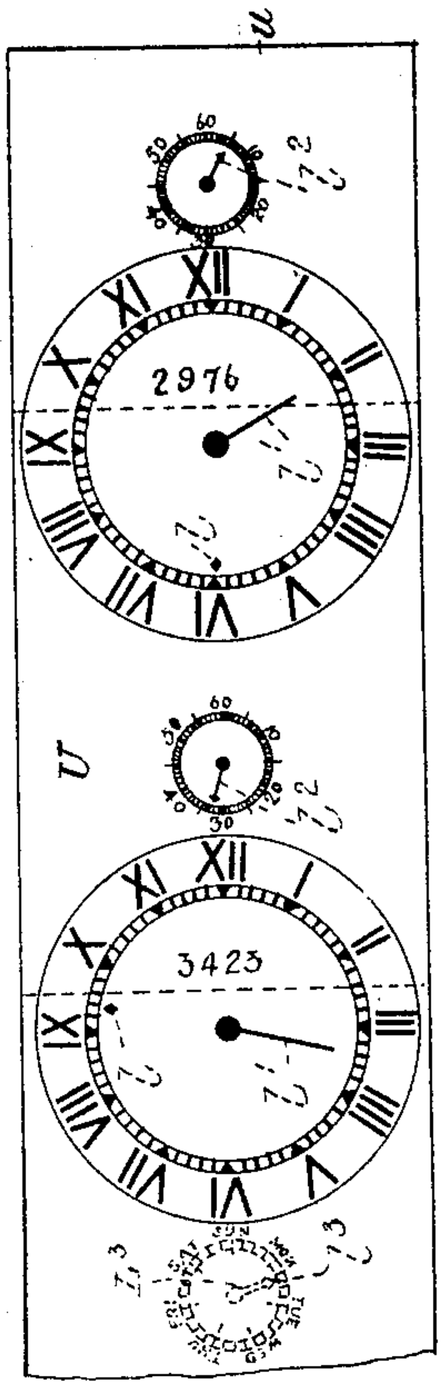


Fig. 9.



Witnesses.
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(No Model.) 4 Sheets—Sheet 3.

F. BARKER.

TIME RECORDER.

No. 589,924. Patented Sept. 14, 1897.

Fig. 13.

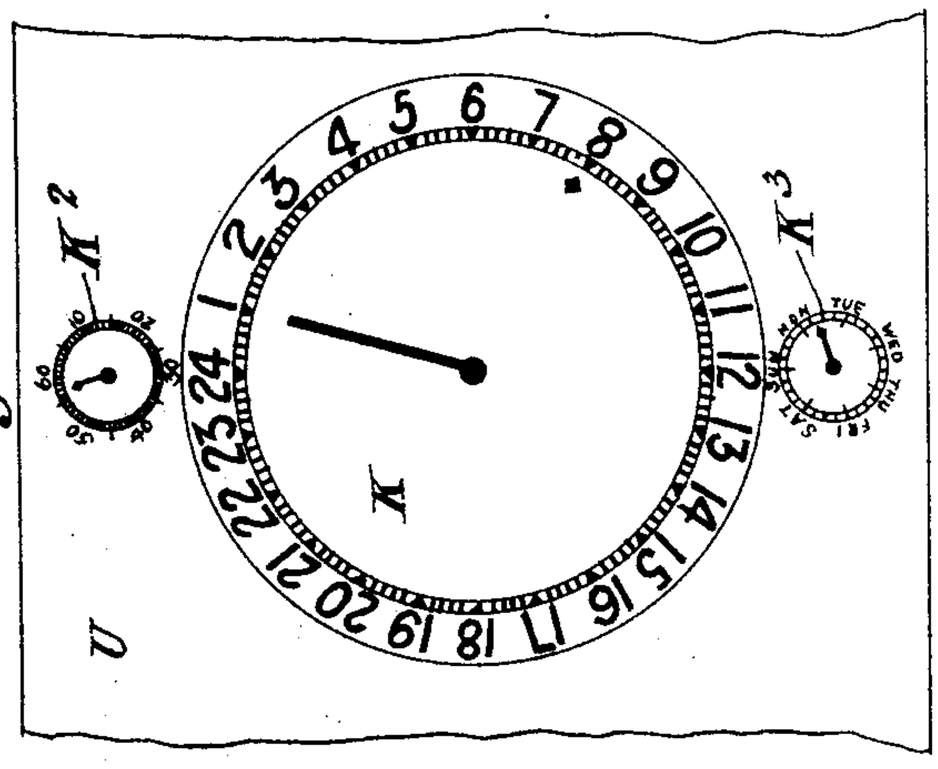


Fig. 15

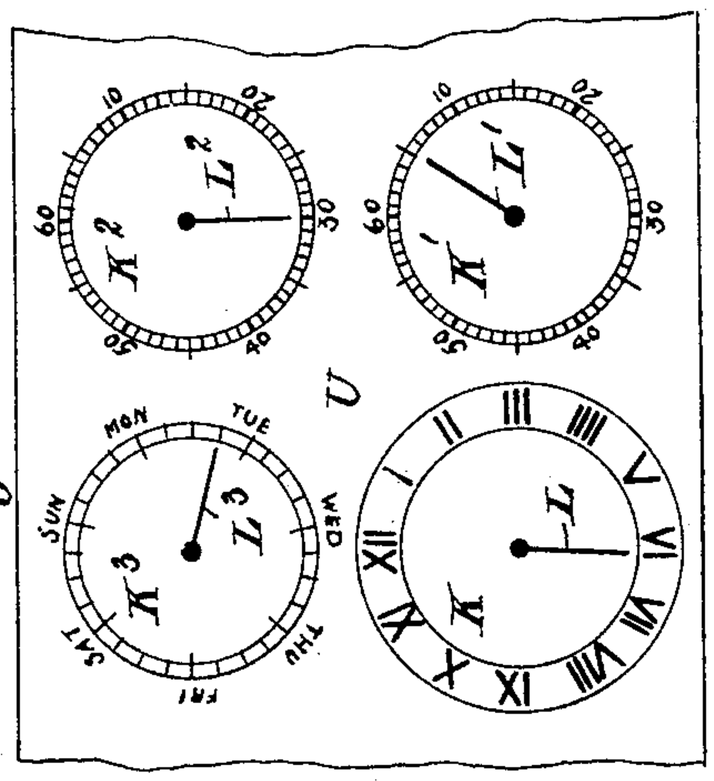


Fig. 5.

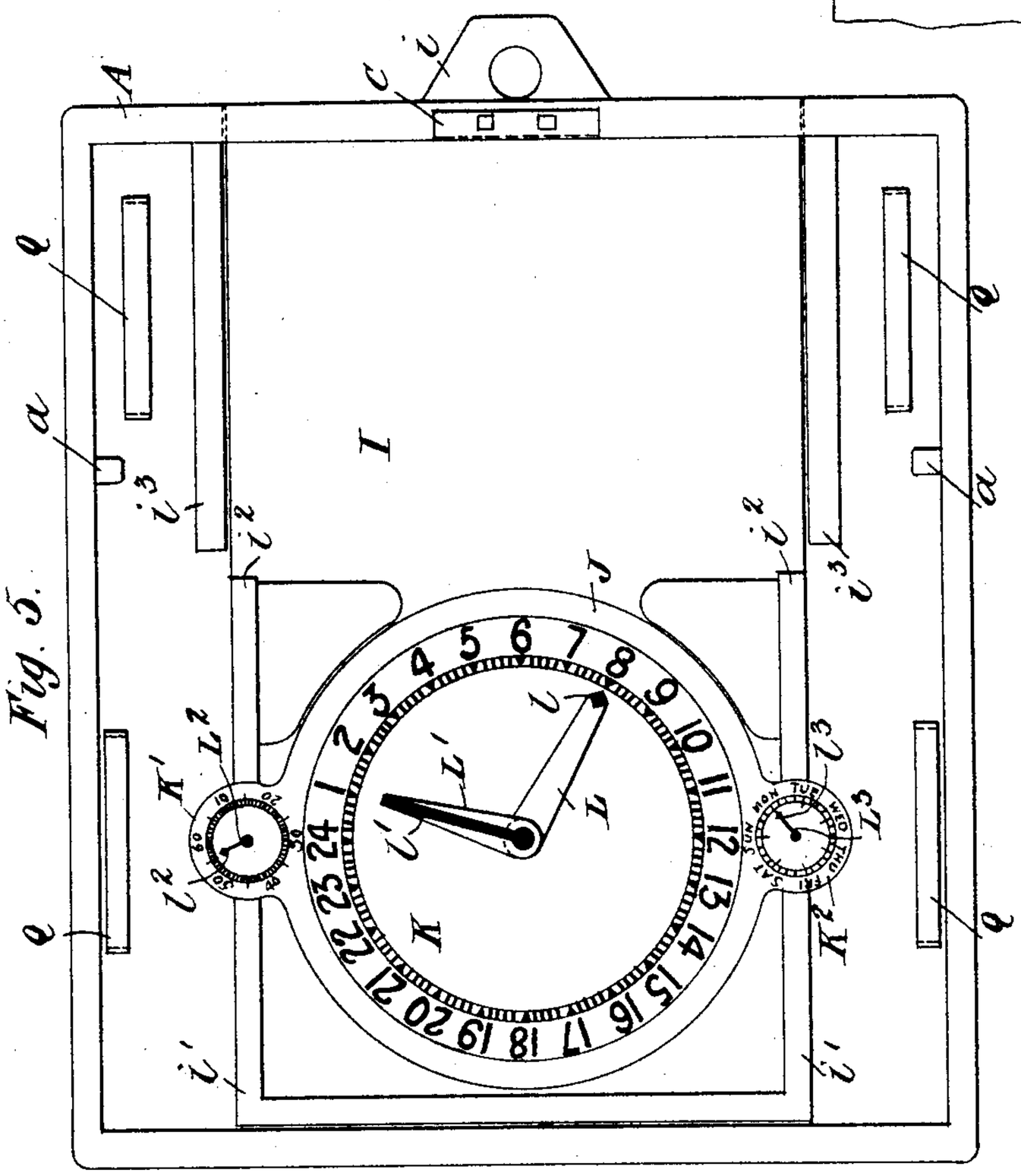
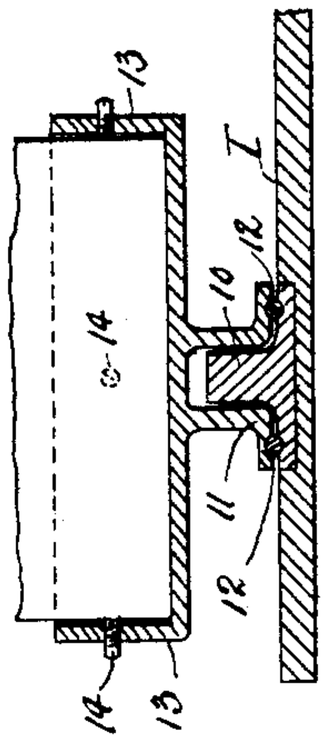


Fig. 16



Witnesses.
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(No Model.) 4 Sheets—Sheet 4.

F. BARKER.

TIME RECORDER.

No. 589,924. Patented Sept. 14, 1897.

Fig. 10

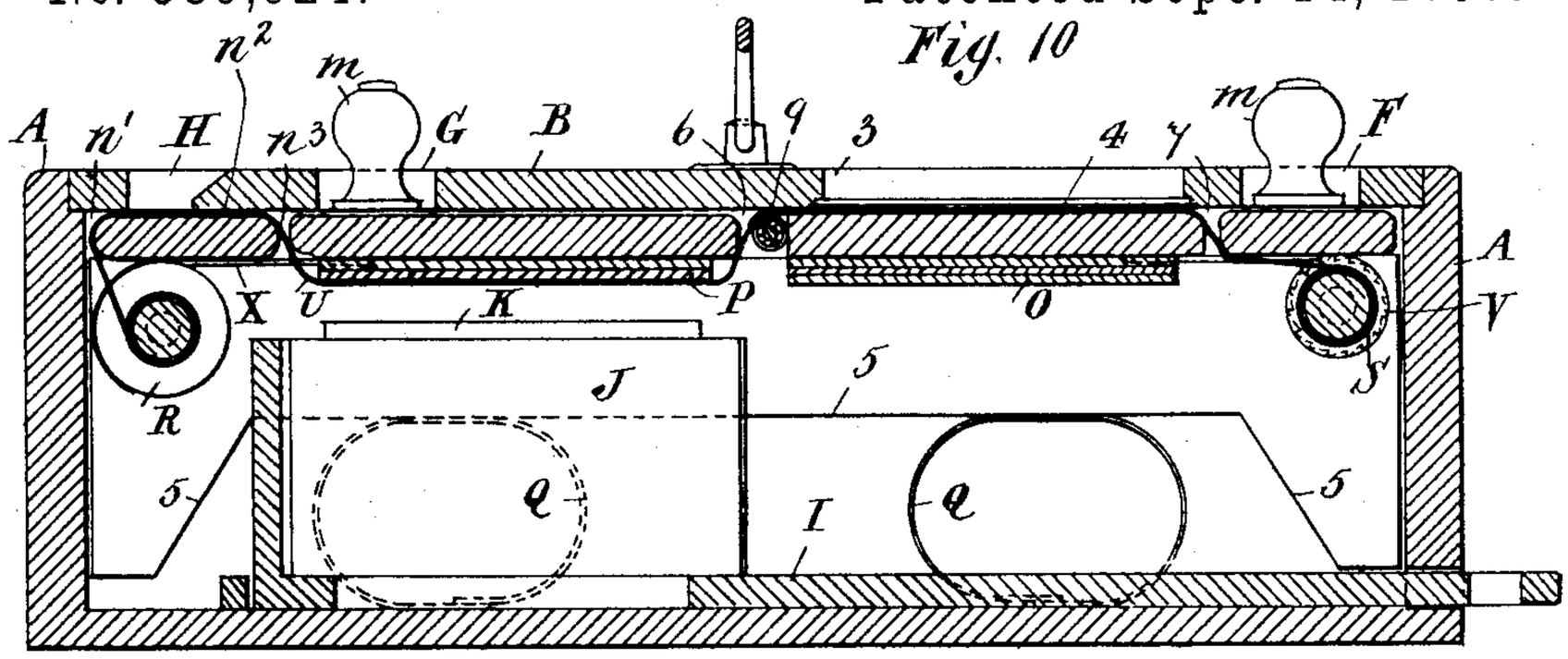


Fig. 11

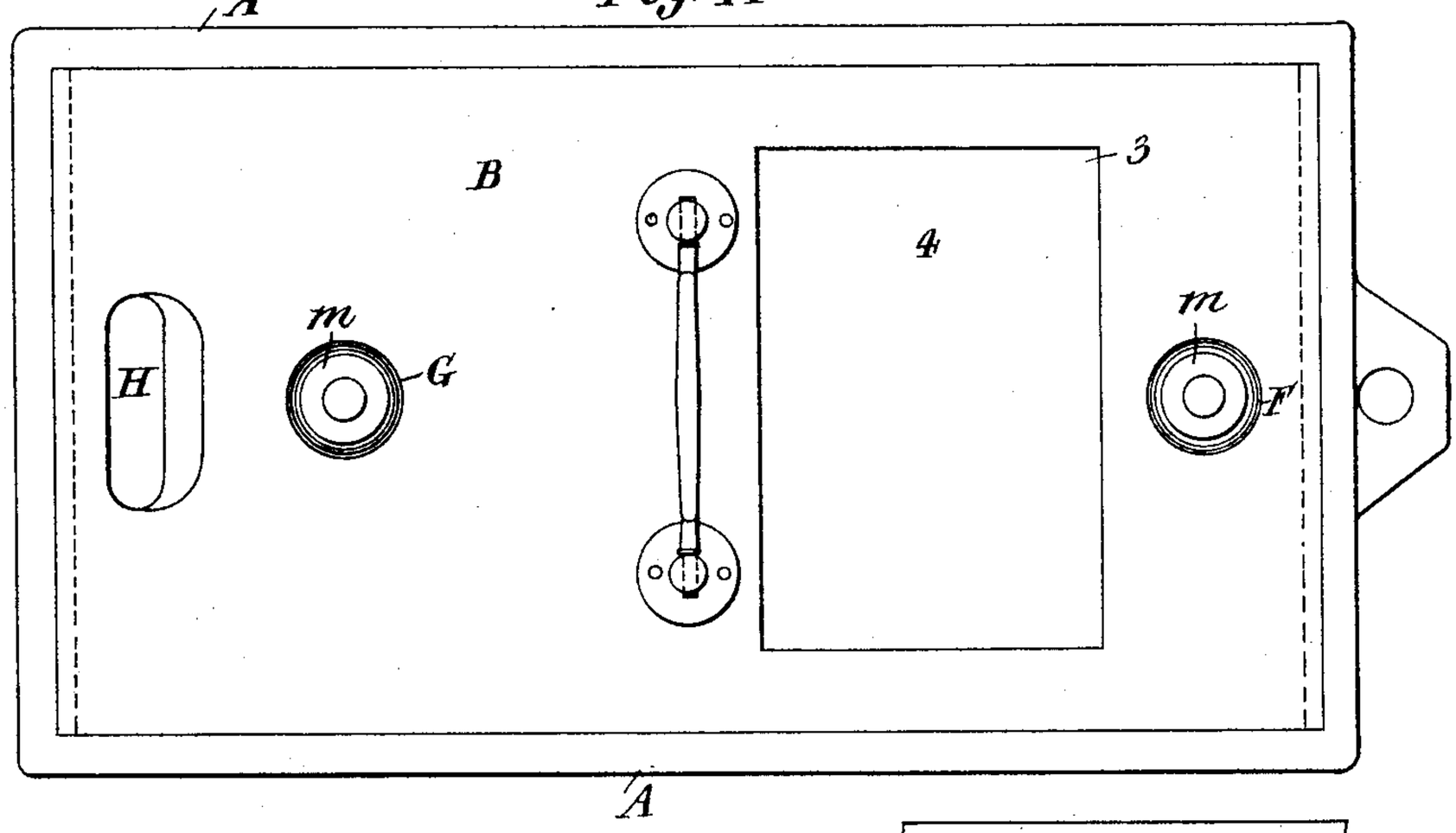
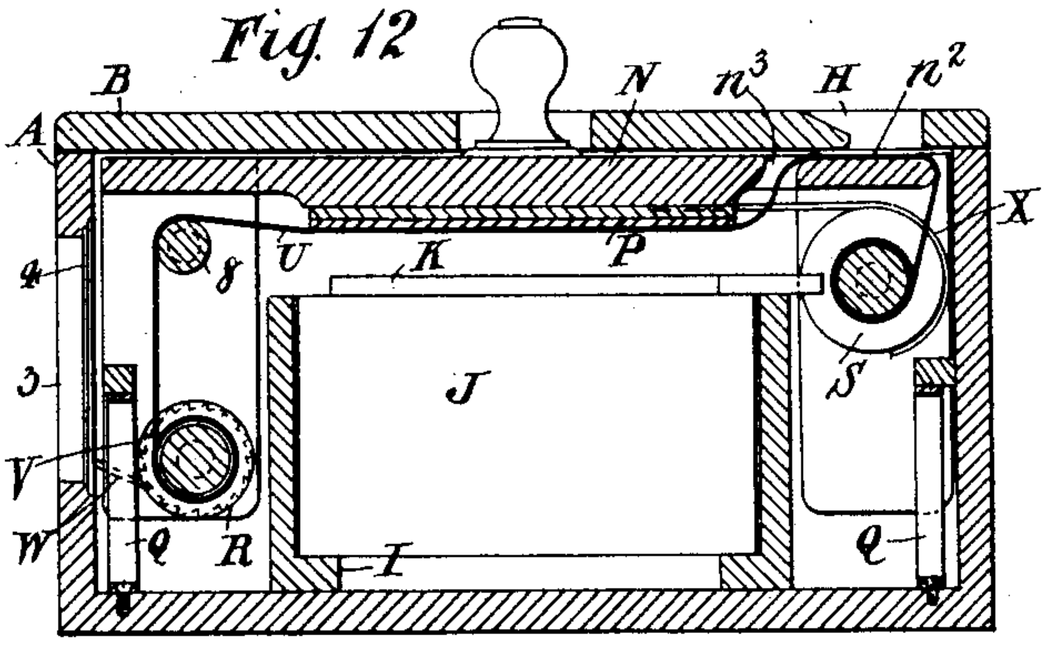


Fig. 12



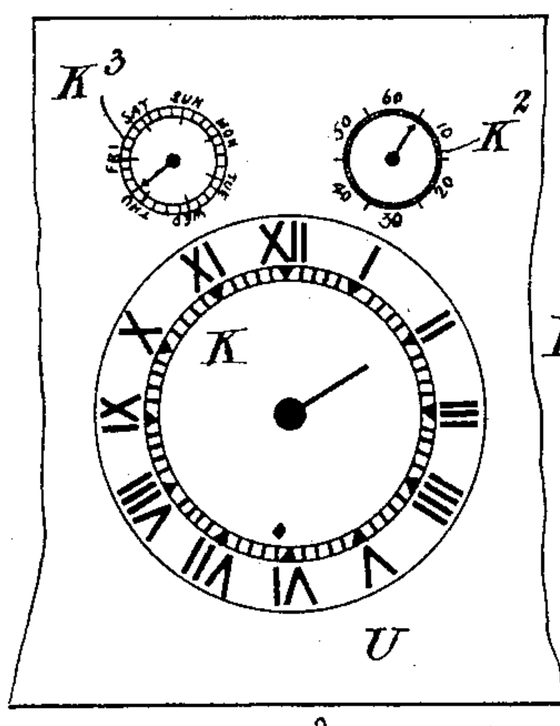


Fig. 14.

Witnesses.
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Alan Balch.

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Francis Barker
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Attorney.

UNITED STATES PATENT OFFICE.

FRANCIS BARKER, OF ILKLEY, ENGLAND.

TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 589,924, dated September 14, 1897.

Application filed September 5, 1896. Serial No. 604,960. (No model.) Patented in England June 25, 1896, No. 14,067.

To all whom it may concern:

Be it known that I, FRANCIS BARKER, a subject of the Queen of Great Britain, residing at 9 Leeds Road, Ilkley, in the county of York, England, have invented new and useful Improvements in Time-Recorders, (for which I have obtained a patent in Great Britain, No. 14,067, dated June 25, 1896,) of which the following is a specification.

This invention relates to improvements in means or apparatus for indicating and recording the time of departure or arrival of pigeons and other trained birds—say, for instance, in flying-matches or for carrying purposes and the like; but it may also, if desired, be used for other indicating and recording purposes—such as, say, for other matches or races or games.

The invention is hereinafter described and illustrated as being applicable to pigeon-flying, but I wish it to be distinctly understood that the apparatus may be used, as named above, for other indicating and recording purposes than pigeon-flying.

Hitherto it has been customary in pigeon-flying to mark either the feathers or wings of the bird with a number, or to place on or around one of its feet a piece of thin india-rubber tubing, carefully folded, to conceal in its inside a secret number, and bearing on its outside an open number and such other marks as will identify the bird. A copy of the secret number is retained in a sealed envelop until the bird has reached its destination. On the departure of the bird the outside and open number, as well as the time of departure, is recorded, and when the bird reaches its destination the india-rubber band is removed from the bird's foot, when the time of arrival and the secret number on the india-rubber band (which is then first obtained) are telegraphed to the recording-office or starting-point.

It will readily be seen that the above system is open to several apparent defects, one of which, and by no means the least important, is that reliance has to be entirely placed upon the postal officials in recording the correct time of handing in the telegrams, and also the variance of time of the different office-clocks, as well as the disadvantage of running allowances.

The object of this invention is to arrange for the time of departure or arrival being recorded on a movable or traveling strip or "tape" by the dial or dials and hands of the time-indicating mechanism—that is to say, the figures, division-lines, or other marks on the dial or dials or face or faces of the clock or other time-indicating mechanism, and the hands rotating thereon or around, are converted into type or stamps for printing on the said strip or tape the actual time of departure or arrival of—say, for instance, a homing or other pigeon used for flying or carrying purposes, and, further, to make any attempt at fraud more readily detected, and at the same time to provide means for inspecting the printed impressions without opening the casing, whereby errors may be corrected by taking fresh impressions.

In the drawings hereunto annexed, Figure 1 is a longitudinal section, Fig. 2 an end elevation, and Fig. 3 a plan looking at the top, of an indicating and recording apparatus constructed according to this invention. Figs. 4 and 5, the latter enlarged, are plans looking at the top with the lid and printing and inking frames removed; Fig. 6, a transverse section on line $z\,x$, Fig. 3; Fig. 7, a transverse section on line $y\,y$, Fig. 3; Fig. 8, a plan looking on the under side of the printing-frame; Fig. 9, a plan of the strip or tape upon which the records are stamped or printed. Fig. 10 is a longitudinal section of the casing, showing the pads attached to framing whereby both pads are capable of being depressed simultaneously instead of separately and independently, and means for inspecting the printed impressions without opening the casing; Fig. 11, a plan looking at the top of Fig. 10; Fig. 12, a transverse section of the casing, with the frames carrying the pads capable of being operated separately and independently, and also with means for inspecting the printed impressions without opening the casing. Figs. 13, 14, and 15 are impressions of dials arranged in three different ways for indicating and recording, respectively, by a twenty-four-hours dial, a twelve-hours dial

with days and seconds dials, and on four separate dials for days, hours, minutes, and seconds; Fig. 16, a part sectional elevation of means for mounting the time-keeping mechanism.

Like parts in all the views are marked with similar letters or figures of reference.

I will first describe my invention with reference to Figs. 1 to 9 of the accompanying drawings, in which—

A is a box or casing, hereinafter termed a "casing," made of any suitable shape (rectangular in the drawings) and material, such as wood, and it is provided with a hinged or jointed lid or cover B, hereinafter termed a "lid." The lid B may be securely fastened in position by any convenient means—such as, for example, by a lock C and a sealing device D jointed at one end to the outside of the casing A and passed over the keyhole and secured at the other end by sealing-wax at E, in which is made or formed an impression of the club or other seal. Access to the interior of the casing by any unauthorized person or persons is thereby prevented. The lid B is perforated or provided with any desired number—preferably, but not necessarily so, three—of openings, slits, or holes F G H, hereinafter termed "openings," of any required size and shape, for purposes to be hereinafter described.

Within the casing A is mounted on a slide I, by any suitable means, such as hereinafter described, and fixed between the projecting pieces i', a clock or other time-indicating mechanism, hereinafter termed and included in the term "clock" J, having one or more faces or dials constructed as hereinafter described. The slide I is arranged to work between suitable guides i^3. One end of the slide is made to pass through the casing to its outside, as shown at Figs. 1 to 4.

The face or dial K of the clock is preferably, though not necessarily so, arranged in a horizontal position. In the drawings two dials K K′ are shown at Fig. 4, and three dials K K′ K² are shown at Fig. 5. The dial K is for indicating hours and minutes, dial K′ for indicating the seconds, and the third dial K² for indicating the days of the week. The dial K² may also have, say, four or more division-lines for each day for indicating at what portion of the day the impression was taken, when a twelve-hours dial is used; but when preferred the number of dials may be increased or diminished and their position altered—that is to say, the dials K′ K² may both be placed above or below or at the side of dial K, or separate dials for indicating the seconds, minutes, hours, and days may be employed and arranged in any suitable or convenient position or positions. The marking, lettering, numbering, and the like of the dials may also be varied as circumstances or occasion require.

The figures (Roman lettering or numerals) and division-lines of the dials K and K′ and dial K² or the whole of the dial itself and the hands L L′ L² L³ of the clock may be formed of any suitable material—say, for example, of metal or india-rubber, or metal armed with a facing of india-rubber to form a type or stamp for printing purposes. In the drawings the figures—say, for example, "I" to "XII," as at K, Fig. 4, or "1" to "24," as at K, Fig. 5, or "10" to "60," as at K′, Figs. 4 and 5, and the division-lines of all the dials K K′ K²—are represented as being formed of india-rubber mounted and secured by cement or other suitable means upon a suitable metal disk. The hands L L′ L² L³ are, as shown in the drawings, made of metal, respectively armed with facings l l' l^2 l^3 of india-rubber for printing purposes. The said hands are preferably, but not necessarily so, mounted upon spindles provided with square ends and operated by clock mechanism of ordinary construction and in the usual manner.

The hour-hand L and minute-hand L′ are arranged, as shown, to clear each other.

Within the casing A are also mounted two frames M and N, (or only one may be employed, if desired,) of suitable construction and capable of being operated independently. The frames M and N are kept in position by the projections a a, fixed to the inside of the casing A, and which act as guides. The frame M is for inking purposes and the frame N for printing purposes. Each frame is armed on its upper surface with a knob or handle, (marked m and n.) The knobs m and n are arranged to pass respectively through the hereinbefore-mentioned openings F and G in the lid B of the casing. To the under surface of frame M is fixed a pad O and to the under surface of frame N a pad P, of any suitable material—such as felt, woven fabric, or the like. The pad O is saturated with anilin-ink and used for inking the face of the dials K K′ K² and hands L L′ L² L³, and the other pad P is used for printing purposes. The said two frames M N are mounted, respectively, upon any suitable arrangement of springs Q. In the drawings these springs are in the form of a piece of flat steel bent into a circle with its ends secured to the inside of the casing A; but any other form of springs—such as, for example, helical springs—may be used. The under surface of the ends of each of the frames M N are shown to rest upon the upper portions of the springs Q. When the frames are in their normal positions, the springs keep them clear of the dials. The frame N is also provided on its under side with a pair of rollers R S, (with or without flanges,) suitably attached thereto by brackets, which form bearings T. The rollers R S are for receiving a roll of transparent or other paper U or its equivalent, of any suitable width and length, to form a strip or tape, which may or may not have lines or other printed matter provided on its surface. From experiments I have made I find that if the strip or tape is made about three and a

half inches in width satisfactory results will be obtained. One or both of the rollers R or S is or are provided with ratchet or other notched wheels V and pawls W or brakes X, or it or their equivalents, for preventing them rotating except when intermittently operated by hand by means of a key or handle or lever, all of which are hereinafter termed and included in the term "key" Y, which is passed from the outside through a perforation or slot in the casing and engages with the end of one of the rollers; or the rollers R S may be intermittently operated by the time-indicating mechanism. The ends *u* of the strip or tape are secured to the rollers R S by any suitable means—such as gumming or pasting them thereto, or by clips Z, of any suitable construction, or it or their equivalents. In the drawings the roller R is the only one armed with a ratchet-wheel V, with which engages a spring-pawl W, while a spring-brake X is provided and works on one of the flanges or surface of the roller S for retarding its rotation. The strip or tape U passes from rollers S over the end n' and face n^2 of its supporting-frame N and then through an aperture n^3 in the frame to its under side to permit of it being passed between the pad P on the frame N and the printing-surface of the clock face or dial K K′ K² before reaching and being secured to the second roller R by means of a piece of gummed paper or clip Z. The third opening H in the lid B of the casing A is provided immediately over the frame at the point n^2, where the traveling strip or tape U passes over the upper surface n^2 of its supporting-frame, to permit of any number or other matter (with which, say, for example, the pigeon has been marked in any ordinary or suitable manner) being written or stamped on the strip or tape previous to being passed over the dials K K′ K² of the clock J for recording purposes.

Suitable stop or stops i^2 (fixed to the slide) may be provided for preventing the slide I being drawn too far, and a fastening or fastenings 1, fixed to the outside of casing A, is or are provided for securing it in position during the recording operation. A handle or handles 2 may also be provided for carrying purposes.

The action of the apparatus is as follows: The hands L L′ L² L³ of the clock J are first set or regulated to the correct time of the day. The end of the strip or tape U having been passed over end n', surface n^2, and aperture n^3 of frame N is then made fast to the roller R. The frames M and N having been placed in the casing A the lid is locked in position and sealed at E. The slide I, upon which the clock J is mounted, is now drawn outward under the frame M, carrying the inking-pad O, which is, by the handle *m* passing through opening F in the lid B, depressed onto the face or dials K K′ K² for inking the type which forms the time-indicating portions of the dial or face of the clock. After the dials K K′ K² have been inked the slide I is returned to its normal position under the printing-pad P and secured in position by the fastening 1. When the pigeon is liberated or arrives, the name of the owner of the pigeon is first written through opening H upon the strip or tape U, and afterward either the outer number on liberation or inner number on arrival, as the case may be, on the india-rubber ring that is placed upon the bird's foot. The strip or tape U is by means of a key Y (or its equivalent) being passed from the outside through a perforation or slot in the casing A and made to engage with the end of the rolls then caused to travel the required distance until the written matter is about over the center of dial K. As soon as the pigeon is liberated or arrives the outer or inner number is written down upon the strip or tape U through opening H, and the strip or tape U is then made to travel the required distance by means of key Y. The handle *n*, which passes through opening G and projects above the lid B, is then depressed, by which the springs Q are compressed and the frame N is caused to descend onto the dials K K′ K². Simultaneously therewith the printing-pad P is made to press the strip or tape U onto the face of the clock, which, owing to the dials K K′ K² forming the type, prints a complete impression of their figures and division-lines, as well as the position of its hands L L′ L² L³, as shown at Fig. 9, onto the strip or tape U, thereby recording the exact time—that is, day, hour, minute, and second—of the depression onto the said tape or strip, and consequently the exact time of liberation or arrival of the pigeon. As soon as pressure is withdrawn from the handle *n* (or *m*) the springs Q return the frame N (or M) to its normal position clear of the dials K K′ K².

For example, say, a pigeon having a secret number, say 3,423, arrived at its destination on, say, a Monday at the ninth hour, seventeenth minute, and thirty-second second, the secret number would appear on the face of the strip or tape U and the record of the day, hour, minute, and second is printed on the back of the strip or tape U, which, owing to the latter being transparent, the complete record will appear, as shown in the printed impressions of the dials of Fig. 9, which are similar to copies of impressions actually taken by apparatus constructed according to this invention.

With reference to Figs. 10 to 16 of the accompanying drawings, at Figs. 10 and 11 the casing A is provided with a lid B let into a recess on its upper edge, and it is provided with the recording-opening H, opening F and G, through which handles *m n* pass, and an additional opening 3 in which is inserted and fixed by any suitable means a pane or piece of glass 4 for inspecting the printed impressions. The two pads O and P are mounted upon the under side of one frame, which is

marked 5, so that both pads can be depressed simultaneously, although only one pad is used at a time. By depressing both pads simultaneously the inspection-opening 3 may be provided in the lid B of the casing. The frame 5 rests upon springs Q and is armed on its upper surface with knobs or handles *m n* for depressing purposes, which pass through the openings F G and project above the lid B. In the frame 5 are provided openings n^3, 6, and 7, through which the tape or strip U passes from roller R to roller S, (both of which are constructed, as hereinbefore described, and mounted on the under side of frame 5,) as follows: From roller R the tape or strip U passes over end n' and top n^2 of frame 5 below opening H, then through opening n^3 and under pad P, afterward up through opening 6 and over roller 9, covered with blotting-paper or other absorbent material, (for removing any surplus ink or moisture from the printed impression,) and then over top of the frame above the inking-pad O, so that any impression printed upon the tape or strip U may be inspected through the opening 3 and pane of glass 4, whereby errors can be corrected by taking a fresh impression. Then the tape or strip is made to pass down through opening 7, and from thence to be wound on roller S. The clock J, armed with dials K, as hereinafter referred to, is mounted upon the slide I and alternately brought under the inking-pad O and printing-pad P, as described in the aforesaid specification. When, however, it is desired to employ the two frames M and N, hereinbefore described, armed respectively with the pads O and P, so that they may be depressed separately and independently, then the opening 3, glazed with a pane of glass 4, may be made in the side of the casing A, in which case the roller R requires to be mounted lower in the frame N than hitherto, and the tape or strip U conducted over an additional roller 8, all as shown at Fig. 12 of the drawings hereunto annexed.

For more accurately recording the time of arrival or despatch of, say, the pigeons, the dials of the time-recording mechanism may be arranged to print impressions, as shown at Figs. 13, 14, and 15 of the drawings hereunto annexed, in which K may be either a twelve or twenty-four hours dial, marked, if desired, with any desired number of divisional parts between each hour; K′, the minutes-dial; K^2, the seconds-dial, and K^3 the dial for indicating the days of the week. This latter dial may be marked with any desired number of divisional marks between each day for indicating the portion of the day when the impression was taken. The number of dials may be increased or diminished, as well as their position to each other, and markings varied or altered as circumstances require.

Figs. 13, 14, and 15 are examples of a variety of ways in which the dials may be arranged in regard to each other and the marking varied; but I do not limit myself to these, as other arrangements may be readily employed in carrying my invention into practice.

At Fig. 13 a twenty-four-hours dial K, marked with the numerals, is shown, with a seconds-dial K^2 above it and a days-dial K^3 below it. This impression represents the record as being taken at the eighth hour, fifth minute, and fifty-seventh second on a Monday morning.

At Fig. 14 a twelve-hours dial K (marked with Roman letters) is shown, having the seconds-dial K^2 and days-dial K^3 both arranged above it. This impression represents the cord as being taken at the sixth hour, tenth minute, and fifth second on a Thursday morning.

At Fig. 15 four separate dials K K′ K^2 K^3 for the hours, minutes, seconds, and days are shown, in which four hands L L′ L^2 L^3, all operated by the time-recording mechanism, are employed. This impression represents the record as being taken at the sixth hour, fifth minute, and thirtieth second of a Monday afternoon.

The time-keeping mechanism hereinbefore described may be mounted by any suitable arrangement of bearing or one or more pivots 10 for keeping it in a line with the level of the strip or tape U, regardless of the position or angle at which the casing A is held or placed. This will also have a tendency to prevent the time-keeping mechanism from being tampered with.

At Fig. 16 an arrangement for mounting the time-keeping mechanism is shown in which the pivot 10 is fixed to slide I. On the pivot 10 is mounted a flanged boss 11, which may or may not rest and work upon the balls 12, which form a rolling bearing. The upper part of the flanged boss 11 may be armed with a cup 13, into which the time-keeping mechanism is placed and retained by any fixing device, such as the set-screws 14, or the boss 11, with or without a flange, may be fixed to or provided on the base of the time-keeping mechanism.

When the whole of one owner's pigeons have reached their destination and the day and times of their arrival duly recorded, the sealed and locked casing is forwarded to the club secretary or other duly authorized person to be opened, examined, and registered on the general list.

If desired, it may be arranged that any impression of the dials taken on the strip or tape—that is, without the number on the bird's foot—is not considered valid, and therefore will not be considered by the person opening the casing.

By the herein-described means provision is made for inspecting the records taken from the time mechanism and also recording the time of arrival in races or matches that occupy one, two, or more days to complete; also tampering with the records is prevented, the correct day and time of departure or arrival accurately recorded by a printed impression

taken of and from the face of the clock, which shows the exact positions of the hands thereof at the time the impression is taken, and the expense and delay in sending telegrams is obviated.

It will be readily understood that, if required, facsimiles of the dials K K′ K^2 K^3 may be printed upon the strip or tape U prior to the said strip or tape being mounted or wound upon the rollers R and S. When this is done, provision need only be made for taking an impression from the hands L L′ L^2 L^3 of the clock J. Also that when a twelve-hours dial K is used and, say, the pigeon-flying match can be completed within that period, then the third dial K^2 or K^3 may be, if so desired, dispensed with. An inking-roller may also be used in place of the inking-pad and made to be passed over the face of the dials, but I prefer using an inking-pad, as described and shown.

The intermittent traverse of the strip or tape U may be regulated by any other equivalent mechanism than those described, such as by lever or levers and pawls.

One or more sets of clocks J, slides I, inking and printing frames M and N or 5 may be mounted in a single casing A.

I am aware that clock mechanism of ordinary construction with a traveling tape and registering-pins have been used for recording purposes. I therefore do not claim the use of such mechanism broadly; but

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

The combination of the inclosing case having a lid provided with apertures and a glazed opening as described, a sliding frame slotted on the top and mounted upon springs within said inclosing case capable of being depressed from the outside thereof as described, said sliding frame being armed on its under surface with an inking-pad and a printing-pad capable of being used separately but depressed simultaneously, and rollers for receiving a traveling strip on which the records are printed, said traveling strip being arranged to pass above and below the top of the sliding frame as described for recording and inspection purposes, and to be operated by a key from the outside of the inclosing case; clock mechanism mounted axially upon a slide within the inclosing case below the inking and printing pads whereby the recording mechanism may be brought under the said pads, said clock mechanism being provided with dials as described for indicating and printing on the said traveling strip the day, hour, minute, and second the record is taken; the lock and seal on the inclosing casing, all arranged in the manner described and illustrated and for the purposes set forth.

In testimony whereof I have hereunto signed my name to this specification in presence of two subscribing witnesses.

FRANCIS BARKER.

Witnesses:
ADAM CLARK HART,
ALAN BALCH.