

No. 620,203.

Patented Feb. 28, 1899.

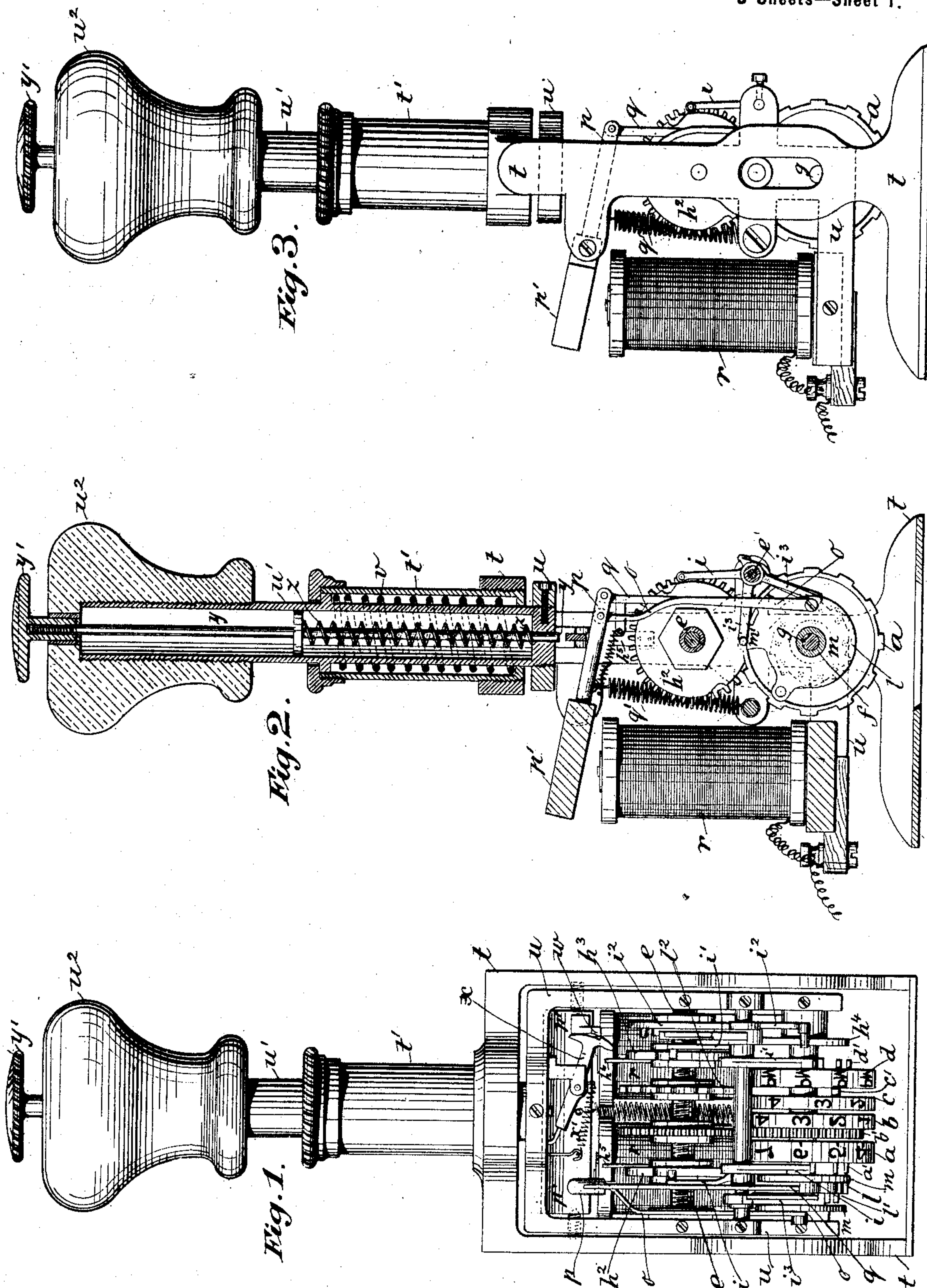
W. WHITEHEAD.

APPARATUS FOR RECORDING AND CHECKING WORKMEN'S TIME.

(Application filed June 30, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES
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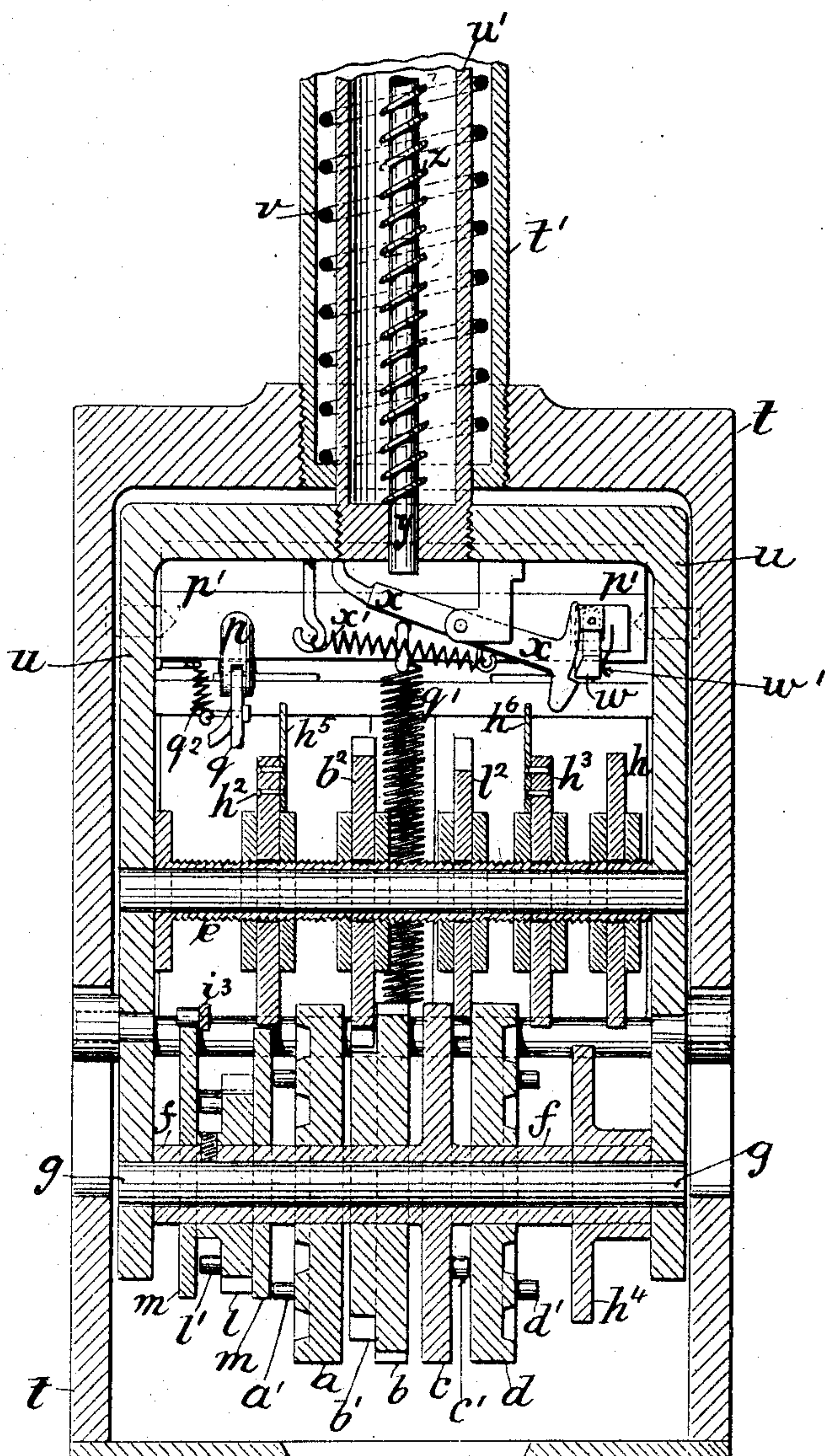
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3 Sheets—Sheet 2.

Fig. 1^x



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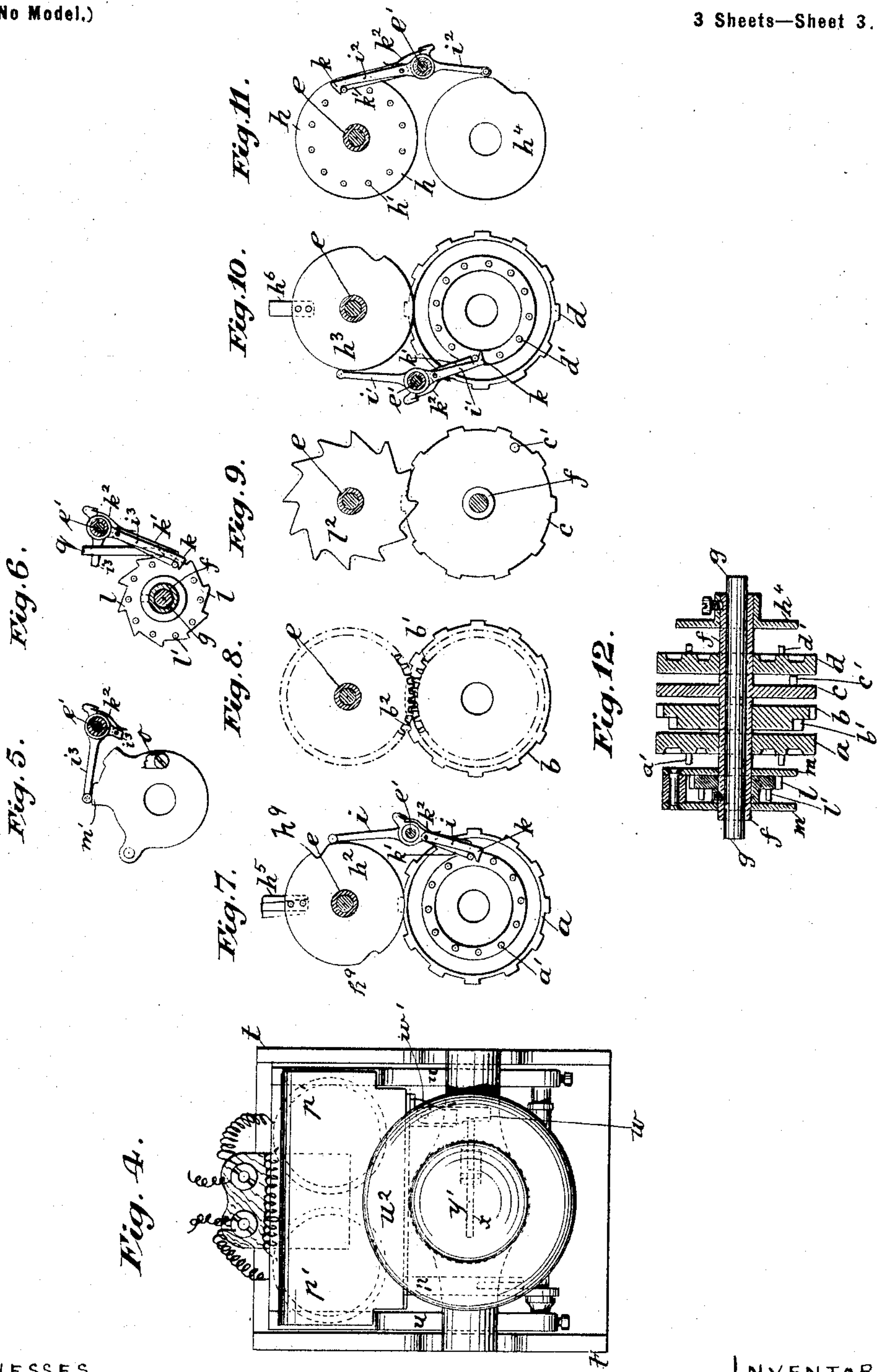
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3 Sheets—Sheet 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR RECORDING AND CHECKING WORKMEN'S TIME.

SPECIFICATION forming part of Letters Patent No. 620,203, dated February 28, 1899.

Application filed June 30, 1897. Serial No. 642,984. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WHITEHEAD, a subject of the Queen of Great Britain, residing at Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Apparatus for Recording and Checking Workmen's Time and for other Similar Purposes, of which the following is a specification.

This invention relates to improvements in that type of apparatus for recording and checking workmen's time and for other similar purposes described in specification of Letters Patent No. 550,856, dated December 3, 1895, the objects being to simplify and so arrange the respective type-wheel governing and locking device as to be thoroughly reliable, exposed to view, and easily accessible and to provide means whereby the stamping mechanism is formed into a hand time-stamp. I attain these objects by the mechanism illustrated in the accompanying two sheets of drawings, in which—

Figure 1, Sheet I, is a side view; Fig. 1^x, a central vertical section on a larger scale; Fig. 2, a sectional end view, and Fig. 3 an end view; and Fig. 4, Sheet II, a plan of my improvements carried out in the form of a hand time-stamp. Figs. 5, 6, 7, 8, 9, 10, and 11 are end views, partly in section, of the stamp-wheels; and Fig. 12 is a longitudinal section of the latter.

Similar letters refer to similar parts throughout the several views.

Referring to the figures, in which the invention is shown as embodied in a hand-stamp, *t* represents a frame similar to that of an ordinary date or hand stamp, having a boss *t'*, in which is vertically guided the stem *u'* of the inner frame *u*, in which are carried the stamping parts hereinafter described. The inner frame is held normally raised by means of a helical spring *v*, located within the boss *t'* and bearing against shoulders carried, respectively, by the stem *u'* and boss *t'*.

The stamping mechanism comprises the hour and minutes tens type-wheels *a* and *b*, respectively, which are rotatably mounted on the type-wheel sleeve *f*, journaled on a shaft *g*, carried by the inner frame, a minutes units type-wheel *c*, rigidly connected with said sleeve, and an "A. M." and "P. M." type-wheel

also rotatably mounted on the sleeve *f*. Movement is imparted to the loose type-wheels from the minutes units-wheel *c* through intermediate mechanism hereinafter to be described, and in order to give to the minutes units-wheel its proper movement I prefer to employ the electric mechanism shown. This comprises a magnet *r*, through the coils of which a current is caused to pass once each minute by a suitable circuit making and breaking clock. (Not shown.) An armature *p'* is pivoted in the frame *t* and provided with a rearwardly-extending arm *p*, which is connected by a link or rod *o* to one of a pair of disks *m m*, connected together and rotatably mounted on the sleeve *f*. Between these disks and rigidly mounted on the sleeve *f* is a ratchet-wheel *l*, having ten ratchet-teeth and having a corresponding number of laterally-projecting pins *l'*. The ratchet-wheel is normally held stationary by means of a bell-crank pawl-lever *i*³, pivoted on a suitable shaft *e'*, carried in the frame *u* and having one end rounded or bowl-shaped and adapted to ride upon a cam *m'*, formed on or carried by the disks *m*, and thereby normally hold its other end in engagement with one of the pins *l'*, as shown more clearly in Figs. 5 and 6. The said other end is for this purpose preferably formed, as shown in detail in Fig. 6, with a hooked end *k*, designed to hook over one of the pins and provided with a pivoted finger *k'*, pressed upon by a spring *k*². To the end of the arm *p* is connected a suitable pawl-rod *q*, which is adapted to ride over the teeth of the ratchet-wheel on its upward movement and to engage a tooth to turn the wheel one step on its downward movement. The pawl *q* is retained in contact with the ratchet *l* by a coiled spring *q*², one end of which is attached to an arm formed on the pawl and the other end to a suitable part of the frame *u*.

When the magnet is energized by the passage of the electric current, the armature is drawn down, causing the disks *m m* to be rotated until the bowl portion of the pawl *i*³ drops off the cam *m'*, thus withdrawing the other end from engagement with the pins *l'* to release the ratchet-wheel, and simultaneously the pawl-rod *q* is raised to engage a fresh tooth of the ratchet-wheel. On the magnet being

demagnetized the spring q' at once restores the armature to its normal position, as shown in Figs. 2 and 3, causing the pawl-rod to push the ratchet-wheel one step and the disks $m m$ to normal position, so that the bowl-shaped end of the pawl rides upon the cam m' , throwing the other end into engagement with the next succeeding pin and preventing the ratchet-wheel moving more than one step.

10 The spring-finger h' permits the ratchet-wheel to be pushed one complete step while the cam is restoring the bell-crank lever to locking position, the finger snapping into position as soon as the movement is completed.

15 By this means, once each minute, the sleeve f , and with it the minutes units-wheel c , is moved one step.

The minutes units-wheel c carries a pin c' , adapted to engage once on each complete rotation with one of the teeth of a toothed wheel l^2 , mounted rigidly on the governing-sleeve e , journaled on a transverse rod or shaft similar to the shaft g . A gear-wheel b^2 is also rigidly carried on the governing-shaft, which engages a gear b' of the same number of teeth, rigidly connected to the minutes tens-wheels b , and as the wheel l^2 has twelve teeth the minutes tens-wheel will be moved one-twelfth of a complete rotation on each complete rotation of the minutes units-wheels. The minutes tens-wheel is provided with two sets of tens type-faces, so that two minutes tens series can be printed on one complete rotation of the minutes tens-wheel. The minutes tens-wheel has blank faces which serve to allow the hour-wheel to come into operation at the completion of each hour. A disk h^2 is also rigidly connected with the governing-sleeve and is provided with two oppositely-located projections or teeth h^5 , which are adapted to engage with a series of twelve teeth or pins on the hour type-wheel a , so that at each semirotation of the governing-sleeve the hour type-wheel is moved one step to bring the type-face for the next hour in printing position. The disks and wheels on the sleeve e are secured thereto by screw-threading the periphery of the latter and nuts screwed thereon against each side of the said disks and wheels, as shown in Fig. 1^x.

50 The hour type-wheel a is preferably normally locked against movement by a bell-crank lever i similar to the lever i^3 , before referred to, which is mounted on the shaft e' and which has a rounded or bowl-shaped end adapted to rest upon the periphery of the disk h^2 , the teeth h^5 being connected to the side of the disk, so as to leave an unobstructed path for said bowl-shaped end. At the proper points in the periphery of the disk are located two depressed portions h^9 , which are so arranged that simultaneously with the contacting of one of the projections h^5 with a pin a' of the hour type-wheel the bowl-shaped end of the lever i drops into the depression, thereby removing its other end from engagement with the pin a' . The "A. M." and "P. M." type-wheel d is rotated in a similar manner

one step on each complete rotation of the governing-sleeve by means of the disk h^3 , rigidly carried by the sleeve e and having a projection or tooth h^6 , adapted to engage the pins d' , carried by the type-wheel, and a similar locking-lever i' is employed, having its bowl-shaped end riding on the periphery of the disk and adapted to drop into the depression therein at the proper moment to remove its other end from engagement with the pins d' .

The "A. M." and "P. M." wheel is moved every two hours, owing to its periphery being divided into twelve—namely, six "A. M.'s" and six "P. M.'s"—so as to provide for turning it every two hours, and thus complete a revolution in twenty-four hours—*i. e.*, the six "A. M.'s" and six "P. M.'s" occupying each twelve hours.

In order to hold the governing-sleeve e against movement except when operated by the pin c' , a disk h is fixed thereon having twelve laterally-projecting pins h' , which are normally engaged by still another bell-crank lever similar to those before referred to, the bowl-shaped end of which rides upon the periphery of a disk h^4 , carried by the sleeve f and having a depression into which the bowl-shaped end drops at the proper time to remove the hooked end from engagement with the teeth h' .

It will thus be seen that the type-wheels are rotated to bring the proper characters in printing position at the proper times and that simple and effective mechanism is provided for holding them against movement, except when positively operated by the armature.

The frame u is depressed to perform the printing operation by a suitable handle u^2 .

To provide for locking the whole of the stamping mechanism in position in the event of the current passing while the stamp is in use, I hinge laterally to the armature p' an arm w , under the influence of a spring w' and adapted to be engaged by a catch-lever x , also under the influence of a spring x' and operated by means of a rod y , which passes through the stem w' and is furnished with a button y' at its upper end. This rod is supported by means of a coiled spring z , employed inside the said stem, and when the stamp is not in use remains raised. When the operator grips the knob of the stamp, he depresses the rod $y y'$, the lower end of which then moves the catch-lever x in position to lock the hinged arm w , and thus keeps the armature p' down upon its magnet r until the grip on the stamp is released by the operator, when the type-wheels are free to move again.

Date-wheels or other devices for stamping dates or names may be added to the time type-wheels used if deemed necessary, which may be moved by hand or mechanically, as may be found most convenient.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The sleeve, f having secured thereto a ratchet-wheel l with pins l' on one side and a

cam-disk *m* loosely mounted thereon, a rod *o* adapted to oscillate said cam-disk, a clock adapted to control the movement of said rod *o*, in combination with a double-ended locking-lever *i*³, which cam-disk, is adapted to cause the pawl end of the lever *i*³ to engage one of the said pins and lock the ratchet-wheel *l* in position each time it has received a partial turn and to release the same when required, all substantially as set forth.

2. The sleeve *f*, having secured at one end a cam-disk *h*⁴, in combination with a double-ended locking-lever *i*², a hollow governing-shaft *e*, a disk *h* secured upon said hollow governing-shaft having pins *h'* on one side, the said cam-disk being adapted to cause the pawl end of the said lever to engage one of the said pins and lock the said hollow governing-shaft in position each time it has received a partial

turn and to release the same when required, all substantially as set forth.

3. The hour and A. M., P. M., type-wheels *a* and *d* having each at one side pins *a'*, *d'* in combination with double-ended locking-levers *i* and *i'*, a hollow governing-shaft *e*, cam-disks *h*² and *h*³ respectively secured upon said governing-shaft, adapted to cause the pawl ends of the said levers to engage one of the said pins and lock the respective type-wheels *a*, *d* in position each time they have received a partial turn and to release the same when required, all substantially as set forth.

In testimony whereof I have affixed my signature in the presence of two witnesses.

WILLIAM WHITEHEAD.

Witnesses:

ALFRED BOSSHARDT,
STANLEY E. BRAMALL.