

F. PURDY.
TIME STAMP.

APPLICATION FILED JULY 6, 1903.

917,893.

Patented Apr. 13, 1909.

2 SHEETS—SHEET 1.

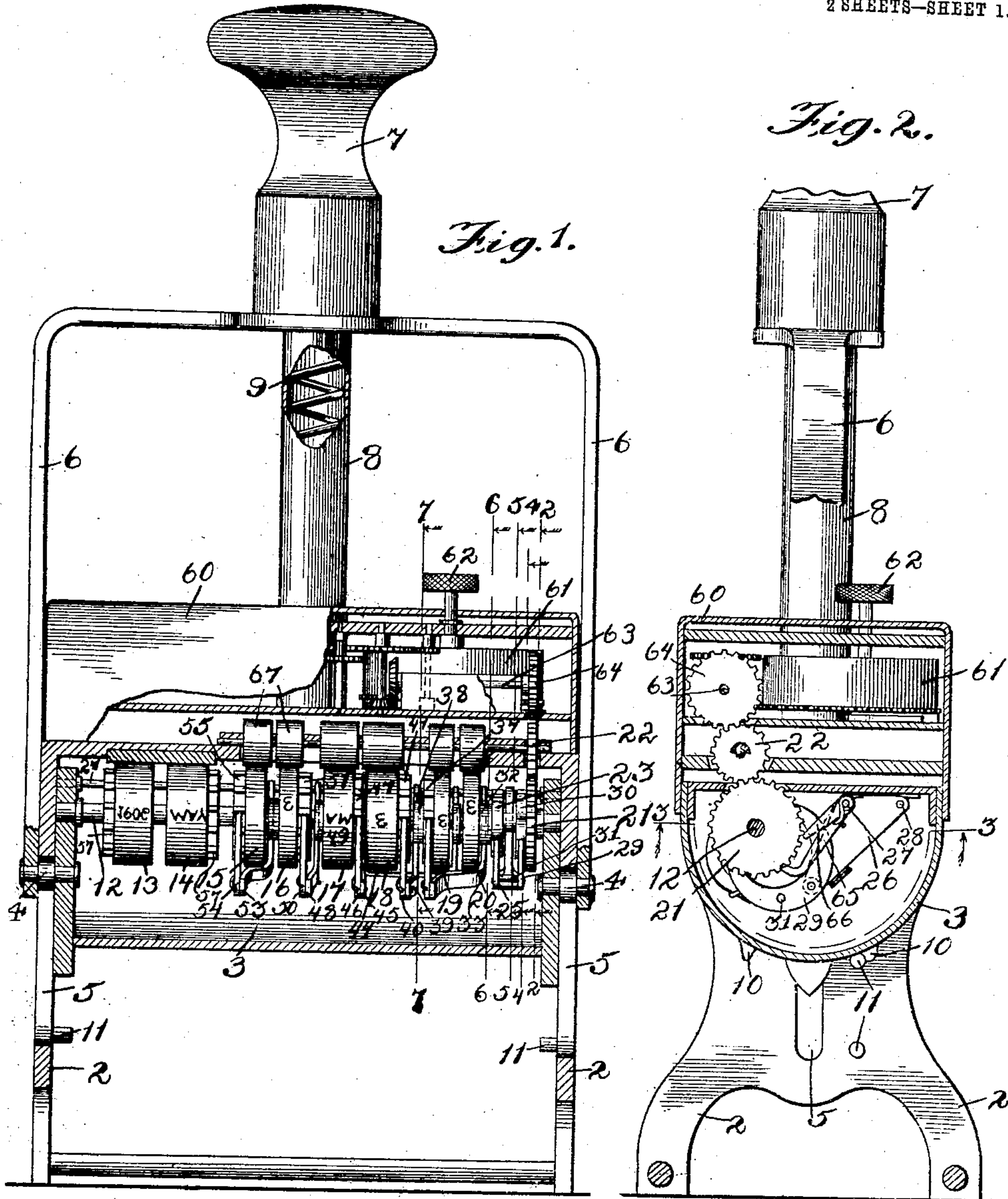
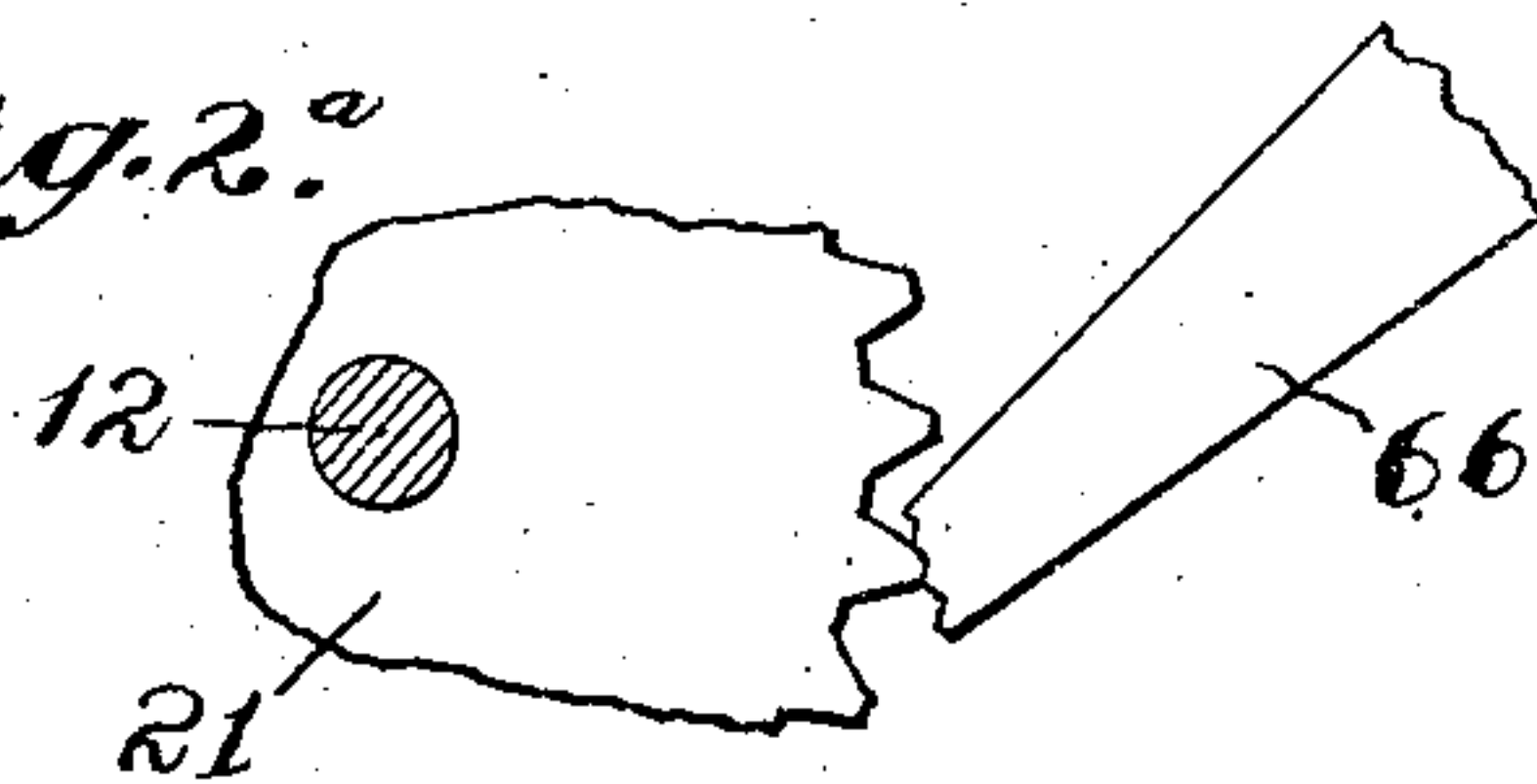


Fig. 2.



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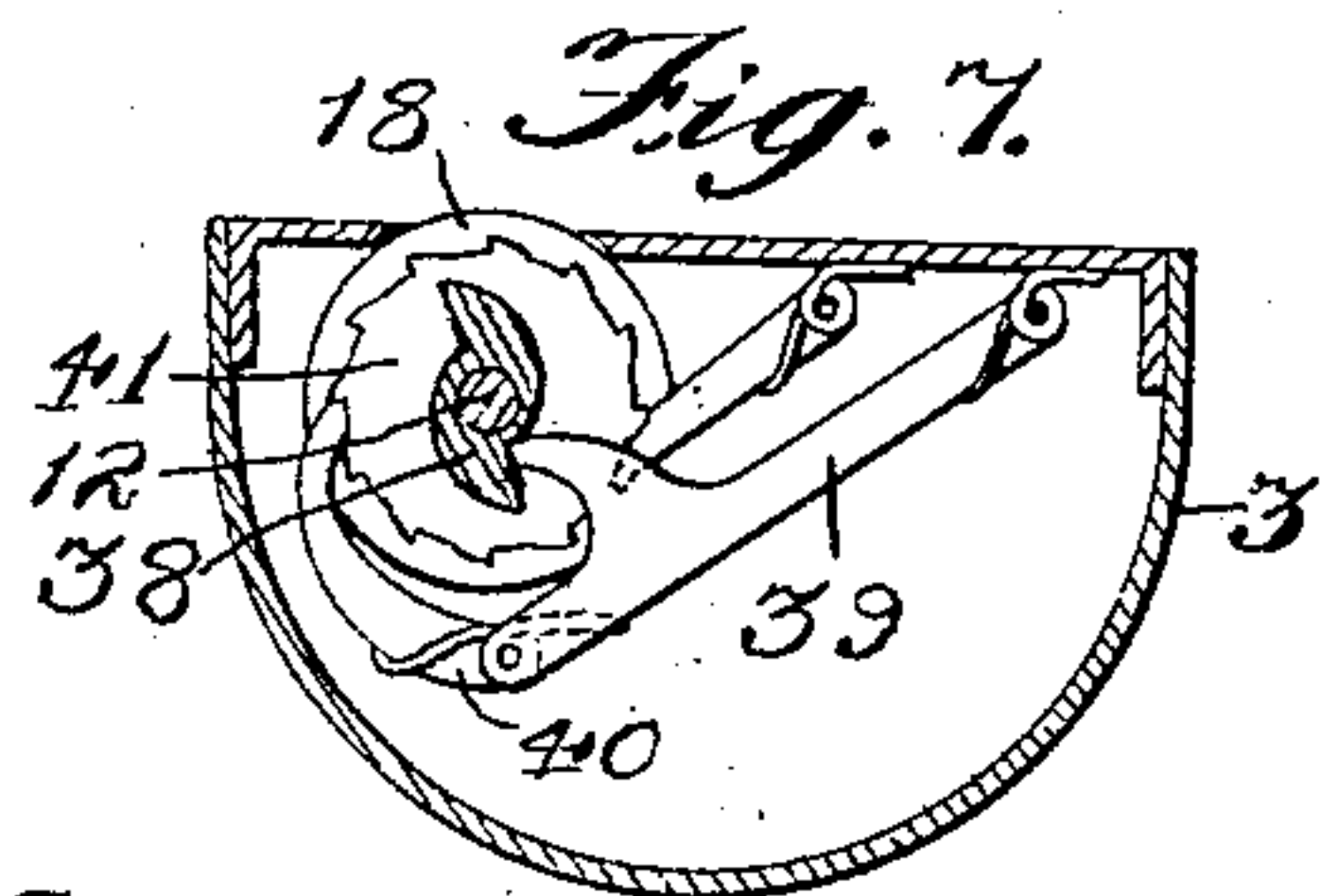
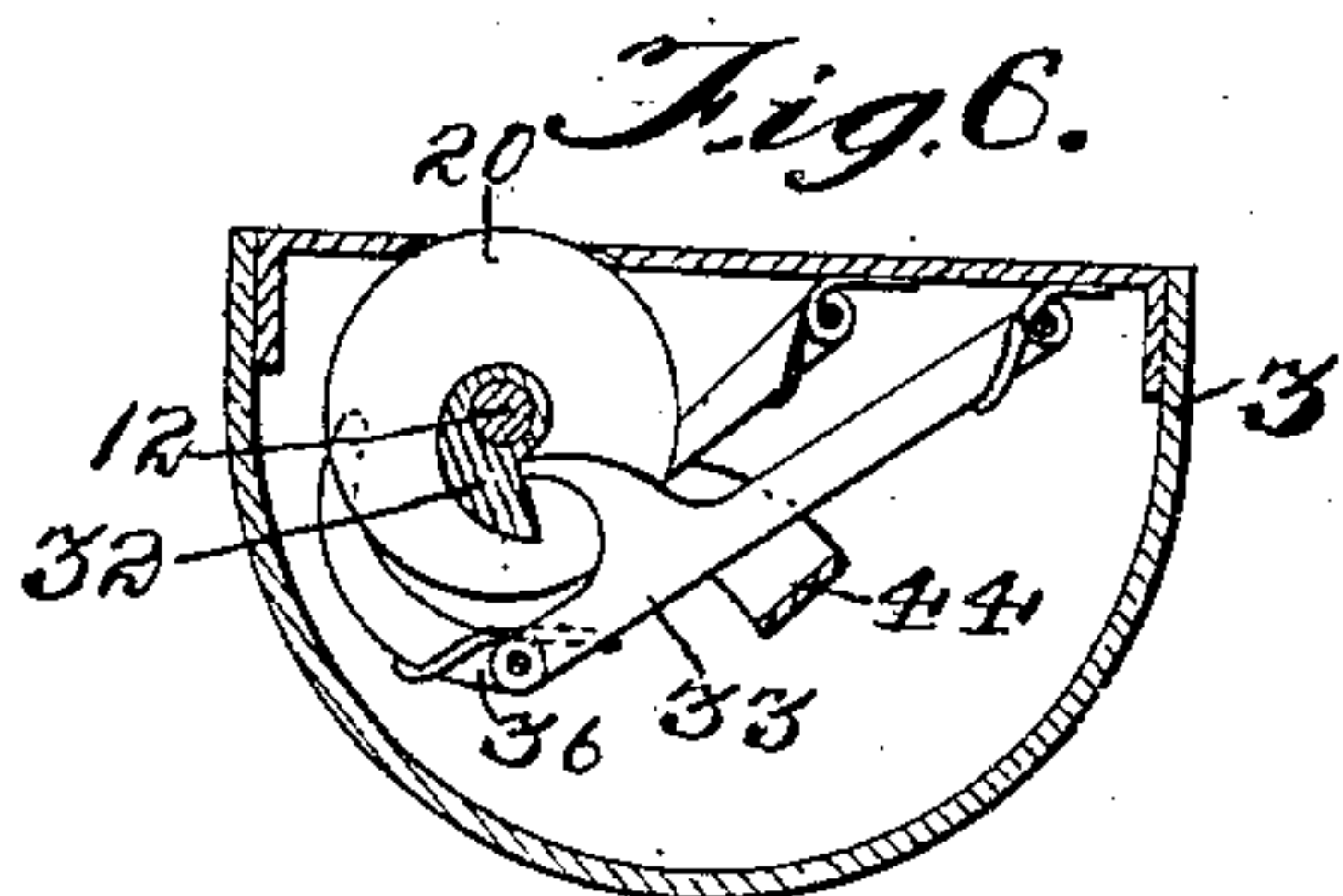
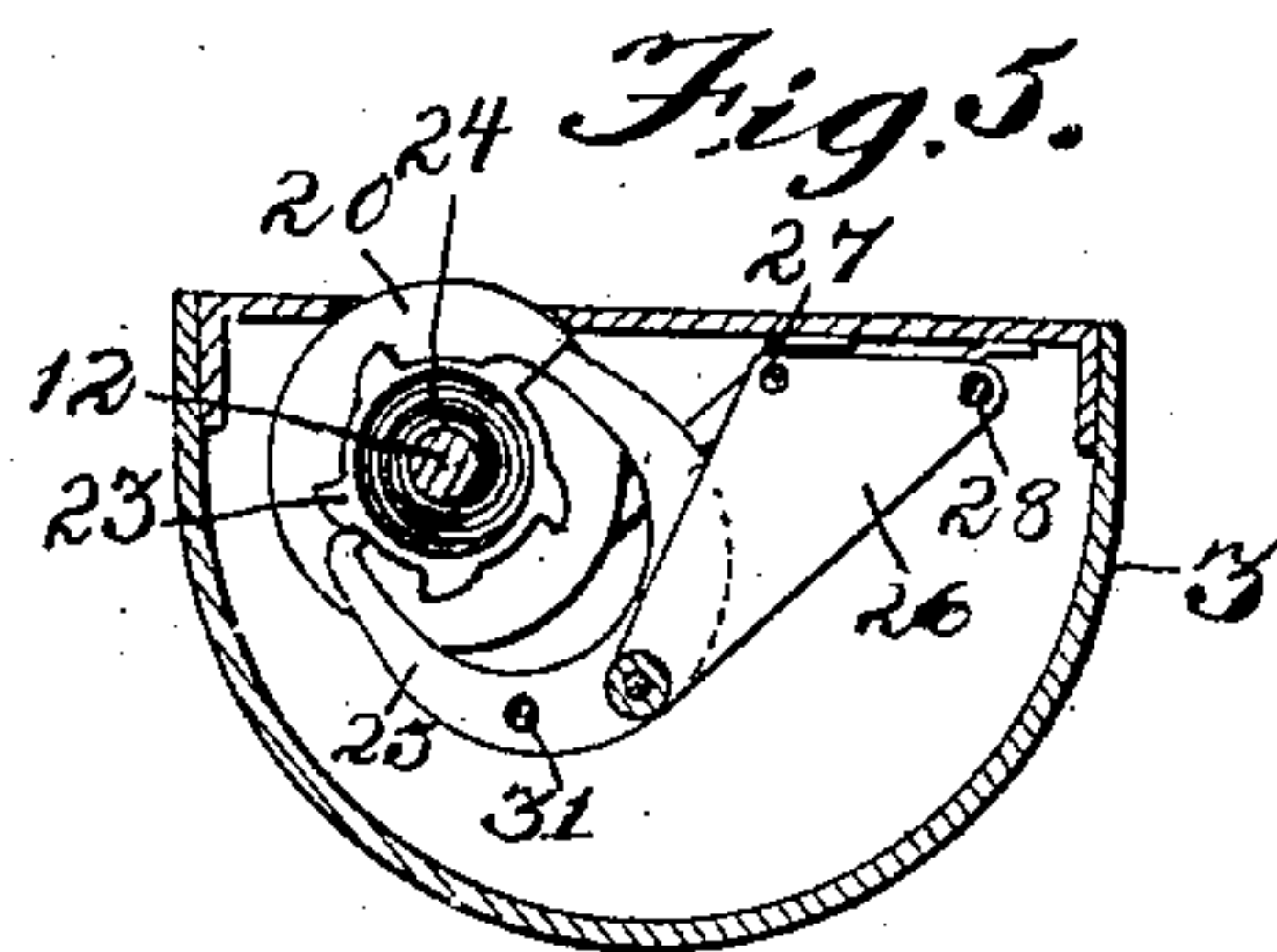
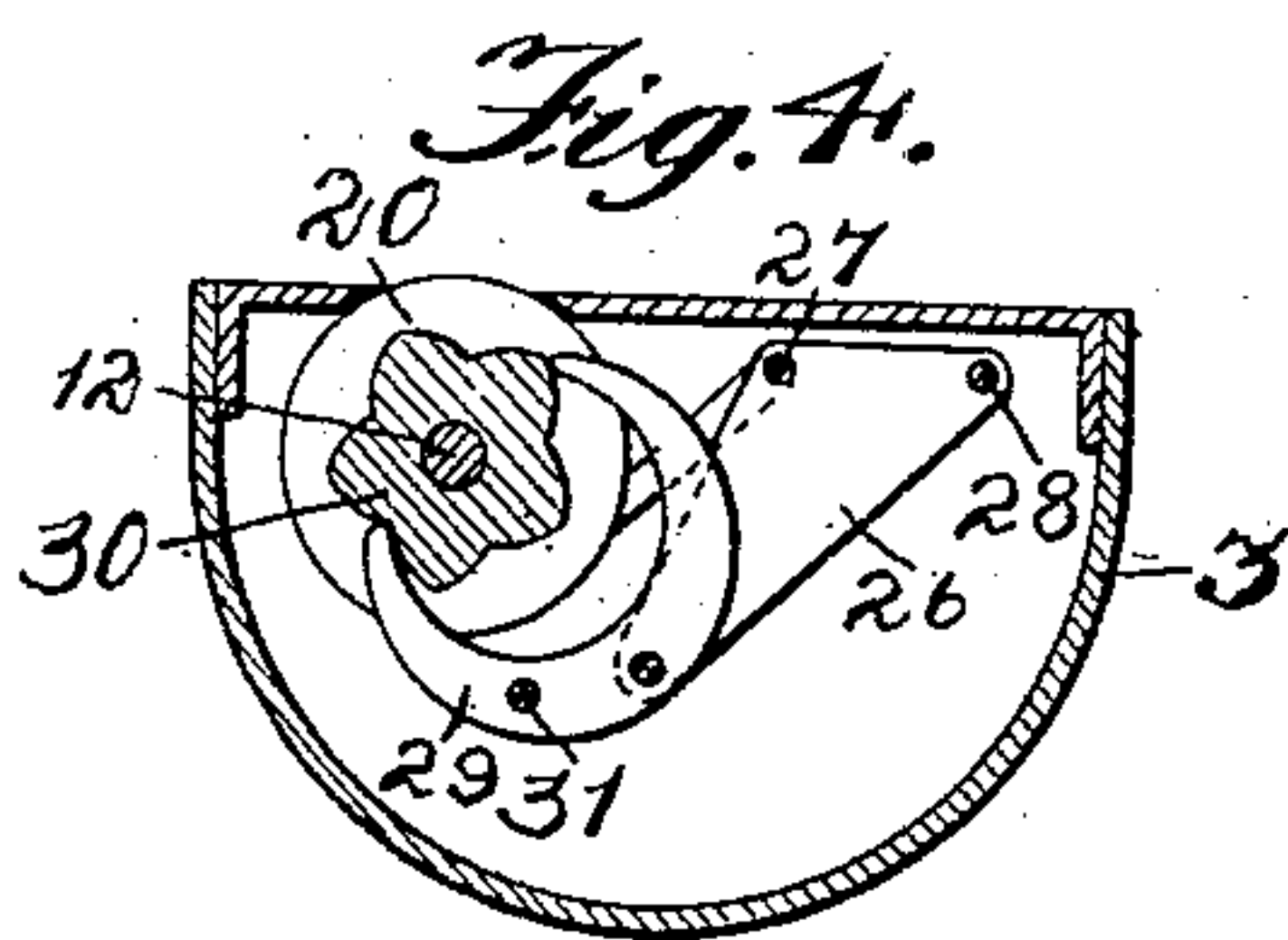
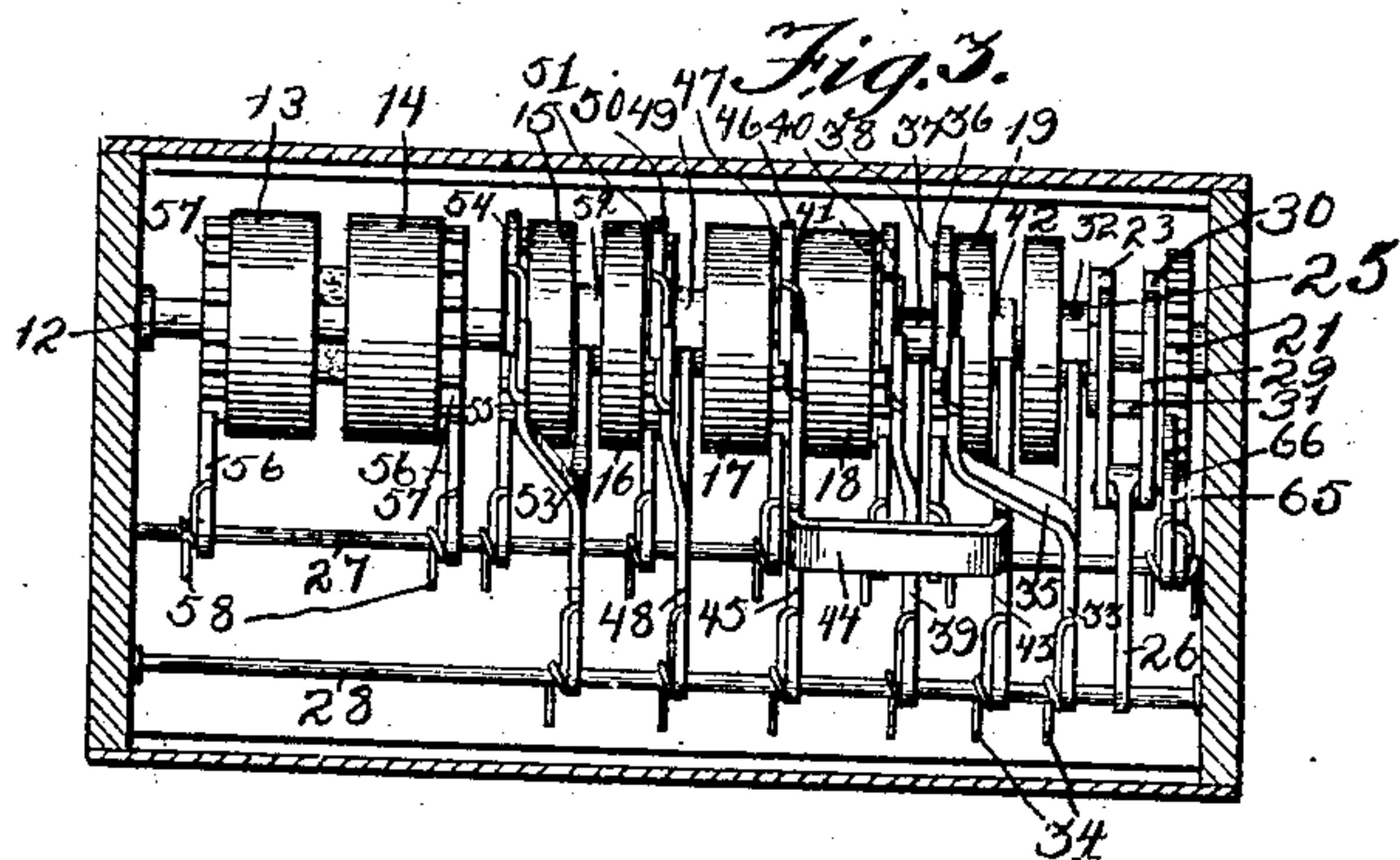
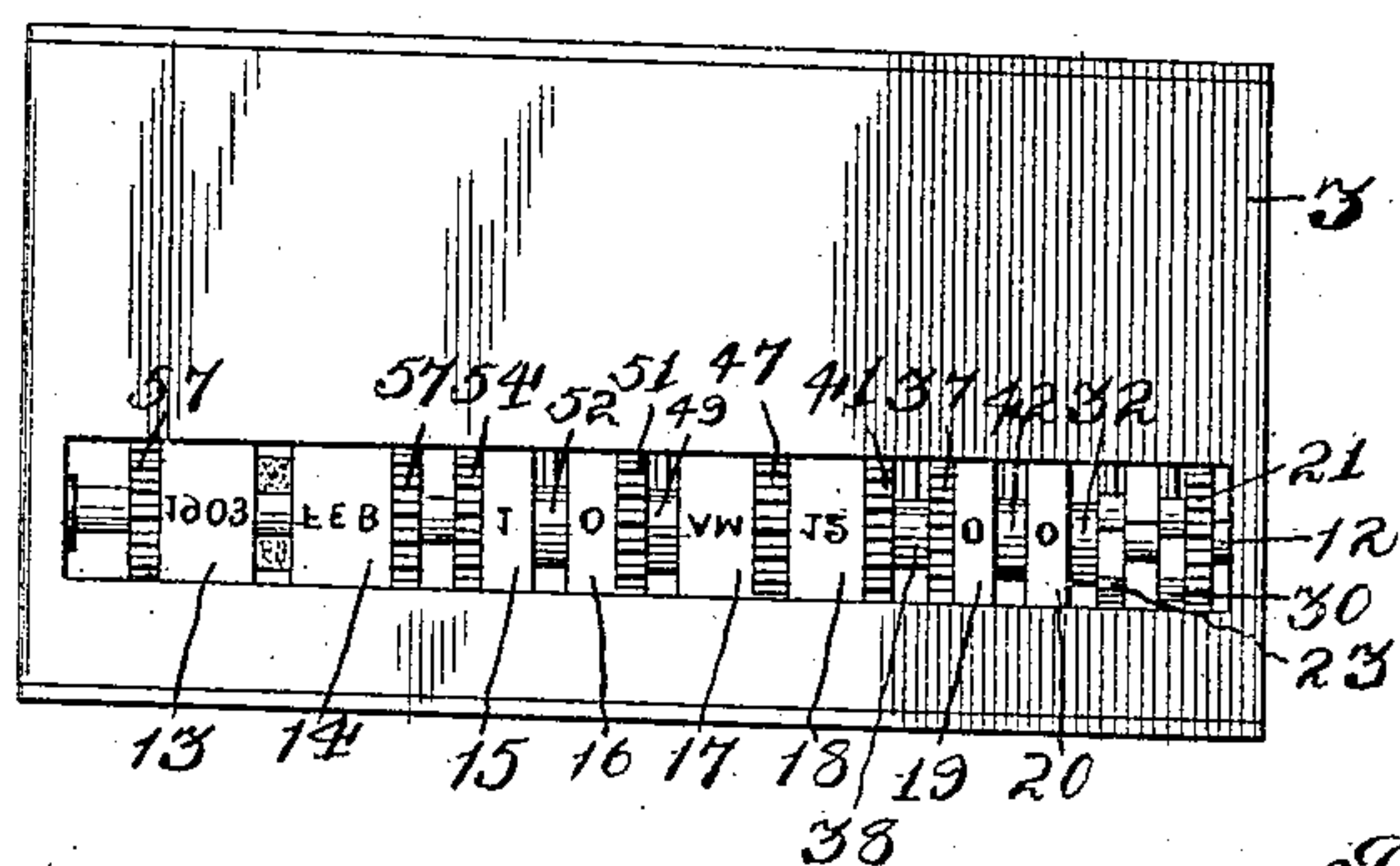


Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK PURDY, OF CHICAGO, ILLINOIS.

TIME-STAMP.

No. 917,893.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed July 6, 1903. Serial No. 164,410.

To all whom it may concern:

Be it known that I, FREDERICK PURDY, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Time-Stamped, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention pertains particularly to stamping devices designed for printing time. In those devices of this character employing type wheels for making the impression, it is essential in nearly all instances to have the type wheels remain stationary for certain periods during which the characters or symbols carried by the different wheels are in position for making an impression. Therefore, the type wheels must only be revolved intermittently, and the movement of the wheels from one position to another to change the characters to be impressed should be effected rapidly, in order to avoid the possibility of making an impression while the wheels are being revolved. The most efficient way of effecting the desired intermittent movement of the type wheels which has heretofore been attempted, has been by the employment of a chronometer or a clock mechanism which controls an electromagnet for operating suitable mechanism to rotate type wheels at the desired intervals. It has been found impractical to arrange the chronometer or clock mechanism, the electromagnet and the impression mechanism all in the same structure, owing to the necessary increase in the size and weight of the device to such an extent as to make it cumbersome and difficult to handle. So therefore, only the magnet is arranged in the same structure with the impression mechanism while the chronometer or clock mechanism is placed in a separate structure and connected with the electromagnet by cords, which comprise parts of the circuit for said magnet. These cords necessarily limit the movement of the stamping device about the chronometer, and furthermore the circuit arrangements for said magnet are likely to become deranged by pulling the cords in placing the stamping device in first one position and then another to make impressions.

The present invention therefore has for one of its objects, to arrange all the elements of a stamping device having type wheels in a

single structure which is simple and compact. This is accomplished primarily in the preferred embodiment of my invention by mechanically connecting the motor or clock work directly with the mechanism for operating the type wheels. The other features of construction by which the end in view is attained, will be hereinafter described.

Another object of the present invention is to intermittently actuate the type wheels from a driving element which revolves continuously.

A still further object of the invention is to detachably connect the mechanism for operating the type wheels with the chronometer or motor mechanism so that the latter may remain stationary while the former is moved to make an impression.

All of these and other objects of the present invention are accomplished in the preferred embodiment of my invention by the features of construction which are hereinafter described.

For the purpose of revealing my invention, I have worked out one form thereof, which is shown in the accompanying drawings in which—

Figure 1, is an elevation of my improved device with parts thereof shown in sections. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is a sectional view looking in the direction of the arrows on the line 3—3 of Fig. 2. Figs. 4, 5, 6 and 7 are sectional views taken on the lines 4—4, 5—5, 6—6, and 7—7 respectively, viewing the construction in the direction of the arrows, and Fig. 8 is a face view of the impression mechanism and its casing.

Like reference characters designate similar and corresponding parts throughout the figures of the drawings.

In the construction shown in the drawings, the stationary frame for supporting the device has upright standards or legs 2 between which is mounted a movable casing or frame 3. The movable casing preferably has fixed thereto pins 4 which project through slots 5 in the legs of the stationary frame and vertically guide the movable frame in its movement. The outer ends of said pins are connected by strips 6 with a handle 7, and into said handle extends a tube 8, which is fixed upon the stationary frame and slidable within said handle. Inclosed within said tube and handle is a coil spring 9, which normally presses the handle upwardly and re-

tains the movable frame at the upper limit of its movement. The movable frame is free to turn upon the pins which vertically guide the same, and projections 10 upon said movable frame are arranged to engage pins 11 upon the stationary frame in such a manner as to cause said movable frame to make a half revolution in being depressed from its upper or normal position to its lower or printing position. Therefore, it will be observed, that when the movable frame is depressed to make an impression upon the surface below the same, the printing face of the impression device, which is normally at the top of the movable frame, will be brought into engagement with the surface it is desired to stamp. The construction of the movable frame and its operation will be readily understood by those familiar with this art, as it is the one commonly employed in stamping devices of the reversible type.

The type wheels which impress the time in making a stamping, and the mechanism which operates the same, are situated in the movable frame, while the motor mechanism or clock which operates said impression mechanism through suitable intervening mechanical connections is arranged upon the stationary frame.

Referring first particularly to the impression mechanism, the shaft 12 upon which is mounted a plurality of type wheels is journaled in the end of the movable frame. The type wheel 13 prints the year, while the type wheel 14 prints the month. As the month and year printed by said wheels do not have to be changed at frequent intervals, these wheels are made to be revolved by hand when it is necessary. In stamping the day of the month, the forenoon or afternoon of the day, the hour of the forenoon or afternoon, and the minute of the hour, the type wheel 15 prints the tens figure of the day of the month; the type wheel 16 prints the units figure of the day of the month; the type wheel 17 prints the forenoon or afternoon of the day; the type wheel 18 prints the hour of the forenoon or afternoon; the type wheel 19 prints the tens figure of the minute; and the type wheel 20 prints the units figure of the minute. All of these type wheels are loosely mounted upon the shaft whereby they are relatively movable to one another. At one end of the shaft is fixed thereto a gear wheel 21, which meshes with a gear wheel 22, journaled upon the stationary frame. Fixed to the type wheel 20, which prints the units figure of the minute, is an escapement wheel 23, having a circular opening therein, which is concentric with the shaft. Within said opening is coiled a band spring 24, which has one end fastened to said escapement wheel and the other end secured to the shaft. The escapement wheel has inter-acting therewith an escapement lever 25,

which is pivoted to a bracket 26, supported from two rods 27 and 28 which are arranged parallel with the shaft 12 and have their extremities fixed in the ends of the movable frame. A second lever 29 is also pivoted to the bracket 26. This second lever preferably has two ends which embrace a cam wheel 30 and engage the same at substantially diametrically opposite points. The escapement lever and the cam lever are fixed to each other preferably by a pin 31. The cam wheel is fixed upon the shaft, and when it is turned thereby it will move the cam lever in engagement therewith back and forth which in turn will oscillate the escapement lever.

In the operation of so much of the impression mechanism as has been described, the shaft 12 will be rotated continuously in one direction from the clock mechanism in a manner to be later set out, and in so doing it will wind the spring 24 and keep the same constantly under tension. The escapement wheel and the type wheel connected with said spring, will be held against rotation by the escapement lever. As the shaft turns it also revolves the cam wheel, which will move the cam lever and the escapement lever back and forth. The successive oscillations of the escapement lever will permit the escapement wheel to turn under the tension of the spring step by step.

It will be noted that in the construction of the impression mechanism as thus far disclosed, the shaft 12 will be rotated continuously while the type wheel 20 will only move intermittently, owing to the action of the escapement lever. As before explained it is necessary that the type wheels of the printing mechanism move only intermittently, for the reason that the type will only print when the wheels are in a definite position known as the printing position.

Fastened to the type wheel 20 so as to rotate therewith, is a cam 32 upon the periphery of which rests one end of an arm 33. A spring 34, causes said arm to follow the contour of said cam, when the latter revolves. A branch 35 of the arm 33 reaches across the type wheel 19 and carries at its end a pawl 36 which engages the teeth of a ratchet wheel 37, fixed to the type wheel 19. The type wheel 19 is freely movable upon the shaft 12, and is for printing the tens figure of the minute of the hour. A spring normally presses the pawl 36 against the teeth of its ratchet. When the cam 32 is revolved by the type wheel 20, it moves the arm 33 outwardly from the shaft to draw the pawl 36 back until it engages the preceding tooth of the ratchet, and then it quickly permits the spring 34 to force the arm inwardly whereby the pawl turns the ratchet wheel 37 and its type wheel 19 one position. It will therefore be observed that as the cam 32 moves

the arm 33 back and forth, once during every turn of the type wheel 20, the type wheel 19 will be moved one position during every turn of the type wheel 20. Fixed to the type wheel 19 is a cam 38 on which rides the free end of a pivoted arm 39. A pawl 40 is carried by said arm and engages the ratchet wheel 41, fastened to the wheel 18 which prints the hour of the forenoon or afternoon as before pointed out. In the present construction, the cam 38 is of such form as to move the arm 39 back and forth twice during each revolution of the type wheel 19, and therefore the type wheel 18 will be turned two positions during every revolution of the type wheel 19. The type wheel 17 which prints the forenoon or afternoon, or the a. m. or p. m., is operated from a second cam 42 fastened to the type wheel 19. An arm 43 pivoted at one end, engages said cam and is connected by a strip 44 with a pivoted arm 45, which at its free end carries a pawl 46 engaging the ratchet wheel 47, fastened to the type wheel 17.

The type wheel 16 for printing the units figure of the day of the month is operated by a pivoted arm 48, which at its free end bears upon a cam 49 fastened to a type wheel 17 and carries a pawl 50, engaging the teeth of the ratchet wheel 51, fastened to the type wheel 16. Also fastened to said type wheel 16 is a cam wheel 52, on which rides the free end of a pivoted arm 53. A branch of said arm carries a pawl 54, which acts upon a ratchet wheel 55 to turn the type wheel 15 from the cam wheel 52.

The type wheels 13 and 14, as before specified, are adjusted by hand, to their proper position, and are held in place by pawls 56, 56, which are pressed by springs 58, 59 against ratchet wheels 57, 57, fixed to said type wheels.

The several arms which have just been described, all act to transmit movement from one type wheel to another through the cams and pawl and ratchet mechanism in a manner similar to the arm 33, the operation of which has been fully described. All of the arms, as do also the ratchets carried thereby, have springs which retain them in their proper places like the springs used in connection with the arm 33 and the pawl carried thereby. The different movements of the several type wheels in the present device are regulated by the operating mechanism so that the proper type or characters upon said wheels will be brought into the printing position at the desired time.

In other devices falling within the scope of my invention the mechanism for actuating the type wheels from clock mechanism may be widely varied and many changes in the particular construction of the operating mechanism which I have worked out merely for the purpose of disclosing my invention

will suggest themselves to mechanics and those skilled in the art. Moreover, the number of type wheels which are utilized may be adjusted to suit the circumstance and the character of the indicia adapted to be impressed thereby may be other than that set forth.

In Fig. 8 is shown the face of the impression mechanism with the type which it is desired to impress in printing position. When it is time for any wheel to be turned to bring another type thereon into position for stamping, the movement of said wheel will be almost instantaneous.

The motor mechanism for operating the impression mechanism is arranged upon the stationary frame within a casing 60, and in the present instance, it comprises an ordinary clock mechanism, which has a spring 61 provided with a stem 62 for winding the same. The clock mechanism is geared to a shaft 63. A gear 64 is carried by said shaft and meshed with the gear 22, which imparts movement to the gear 21, from the clock train.

In depressing the movable frame to make an impression, the teeth of the gear 21 are withdrawn from the teeth of the gear 22, and therefore while said gears are disconnected, the gear 21 loses the movement of the clock mechanism. In order to overcome this lost movement in the impression mechanism, the teeth of the gears are preferably beveled so that when the teeth of the gears 21 and 22 are again brought into contact, said beveled surfaces of the teeth of said gears will act as cams and move the gear 21 until it has synchronized the impression mechanism with the clock mechanism. By providing this synchronizing device it is made possible to disconnect the impression mechanism from the clock mechanism while making impression and to hold the type in contact with the surface being stamped for a limited period, without destroying the correctness of the time which may be recorded by the instrument thereafter. Furthermore there will be no danger of the type wheels rotating while an impression is being made, since the impression mechanism is disconnected from the clock mechanism when the former is depressed.

The shaft 12 is held against rotating when it is disconnected from the clock mechanism by spring pressed pawls 66 and 65, which are arranged to alternately engage the teeth of the ratchet wheel 21. These pawls are arranged in this manner in order to lessen the backlash of the shaft which may be caused by the spring fastened thereto on disconnecting the shaft from the clock mechanism. In other forms of my invention it may be found more practical to employ a different braking device for the shaft 12, which will positively permit no movement whatsoever of the shaft

12 under the action of the spring and absolutely hold said shaft against rotation when it is disconnected from its operating mechanism.

5 Upon the stationary frame are mounted a plurality of inking wheels 67 which are composed of some absorbent material for containing ink. A separate inking wheel is preferably provided for each type wheel.
10 These wheels are all loosely mounted on suitable journals so that they may revolve with their respective type wheels and thereby not interfere with the movement thereof. The type wheels 13 and 14 in this construction are preferably inked by a pad which is preferably supported by the stationary frame.

In the time stamp which I have described, the parts are compactly assembled into a comparatively small structure. The instrument being small and light, can readily be conveyed from one place to another, as it is desired, for making impressions. Furthermore, the device is efficient in use and over-comes the many disadvantages which have been characteristic of the devices which in the past have been constructed.

This invention contemplates accomplishing the result which I seek by any structural arrangement of the type wheels with respect to the clock or motor. If desired, the clock may be mounted directly on the same frame with the impression mechanism, so as to be movable therewith. Such a construction, I have made the subject matter of a separate application, but the same falls within the pervue of the claims of this case. The movable frame need not be reversible, and in line of the inking wheels, other inking devices may be employed.

There are many ways in which the impression can be effected, other than by printing, and the same are fully contemplated by this invention. In certain instances it may be preferable to cut or emboss the surface which it is desired to stamp, and the characters upon the type wheels can be readily formed to make such an impression.

50 Throughout this specification, I have referred to instances in which the construction shown and described, may be changed without departing from the spirit of my invention. It is manifest that many other such modifications of the structure disclosed, may be devised, and I therefore do not wish to limit the invention further than is hereinafter particularly specified in the claims.

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

1. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously

running motor carried by said stationary frame, a movable frame, stationarily mounted impression mechanism carried by said movable frame and time driven impression parts consisting of a plurality of type wheels also carried by said movable frame, suitable means driven by said motor for varying the character of the impression adapted to be made by said type wheels, and a stationary inking pad for inking the face of said stationarily mounted impression mechanism, said pad having suitably supported revoluble disks associated therewith for inking the peripheries of said type wheels.

2. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame adapted to reciprocate between the legs of said stationary frame, a plurality of type wheels carried by said movable frame, and means driven by said motor for varying the character of the impression adapted to be made by said type wheels, said movable frame being reversible when the stamp is actuated to make an impression to bring the peripheries of said type wheels into contact with the surface to be impressed.

3. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame adapted to reciprocate between the legs of said stationary frame, a plurality of type wheels carried by said movable frame, means driven by said motor for varying the character of the impression adapted to be made by said type wheels, said movable frame being reversible when the stamp is actuated to make an impression to bring the peripheries of said type wheels into contact with the surface to be impressed, and suitably supported revoluble disks for inking the peripheries of said type wheels.

4. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame, a plurality of type wheels carried by said movable frame, said type wheels being adapted to be relatively and intermittently driven by said motor, and separable therefrom when the stamp is actuated to make an impression.

5. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame, a plurality of type wheels

carried by said movable frame adapted to be relatively and intermittently driven by said motor, said type wheels being adapted to be disconnected from said motor when the stamp is actuated to make an impression, and means for slightly rotating said type wheels after each impression to compensate for the movement of said motor while the type wheels are disconnected therefrom.

6. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame, a plurality of type wheels carried by said movable frame adapted to be relatively and intermittently driven by said motor, said type wheels being adapted to be disconnected from said motor when the stamp is actuated to make an impression, and a plurality of pivoted wheels adapted to slightly rotate said type wheels after each impression to compensate for the movement of said motor while the type wheels are disconnected therefrom.

7. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a continuously running motor carried by said stationary frame, a movable frame, a shaft carried by said movable frame and normally continuously

operated by said motor, a plurality of type wheels loosely mounted upon said shaft, and means associated with said type wheels for causing said continuously driven shaft to relatively and intermittently rotate said type wheels.

8. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a yoke, a reversible tumbler carried by said yoke, a plurality of type wheels carried by said tumbler, and a continuously running motor carried by said stationary frame for relatively and intermittently rotating said type wheels.

9. In a portable time stamp, the combination with a relatively stationary frame having gage parts or legs adapted to engage the surface to be stamped, of a yoke, a reversible tumbler carried by said yoke, a plurality of type wheels carried by said tumbler, and a plurality of suitably supported revoluble disks for inking the peripheries of said type wheels.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK PURDY.

Witnesses:

EDWIN B. H. TOWER, Jr.,
M. R. ROCHFORD.