

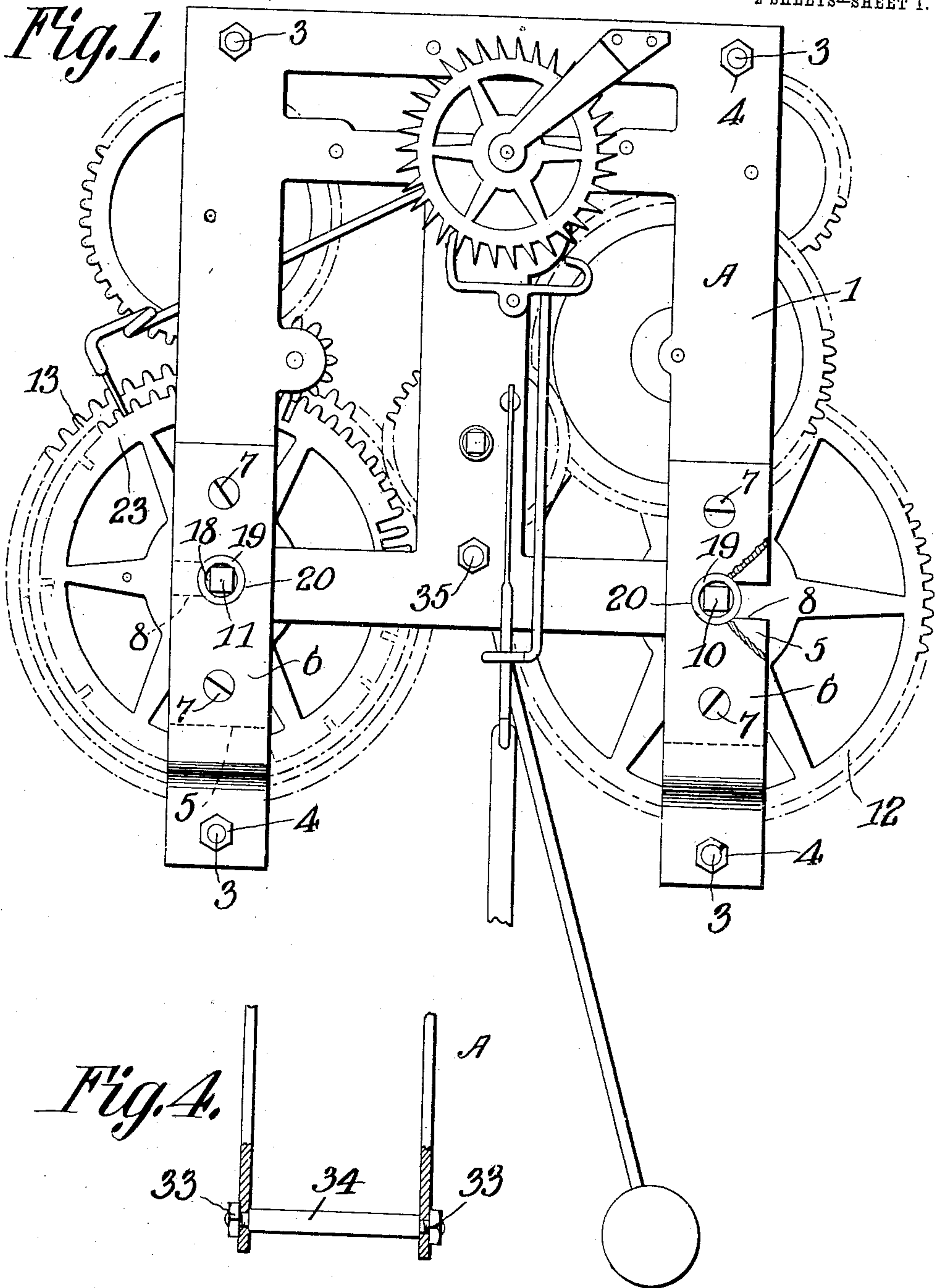
No. 862,188.

PATENTED AUG. 6, 1907.

A. C. OHL.
CLOCK.

APPLICATION FILED JULY 18, 1906.

2 SHEETS—SHEET 1.



WITNESSES:
E. J. Stewart
C. Bradway,

Addison C. Ohl, INVENTOR.
By *Chas. H. Snow & Co.*
ATTORNEYS

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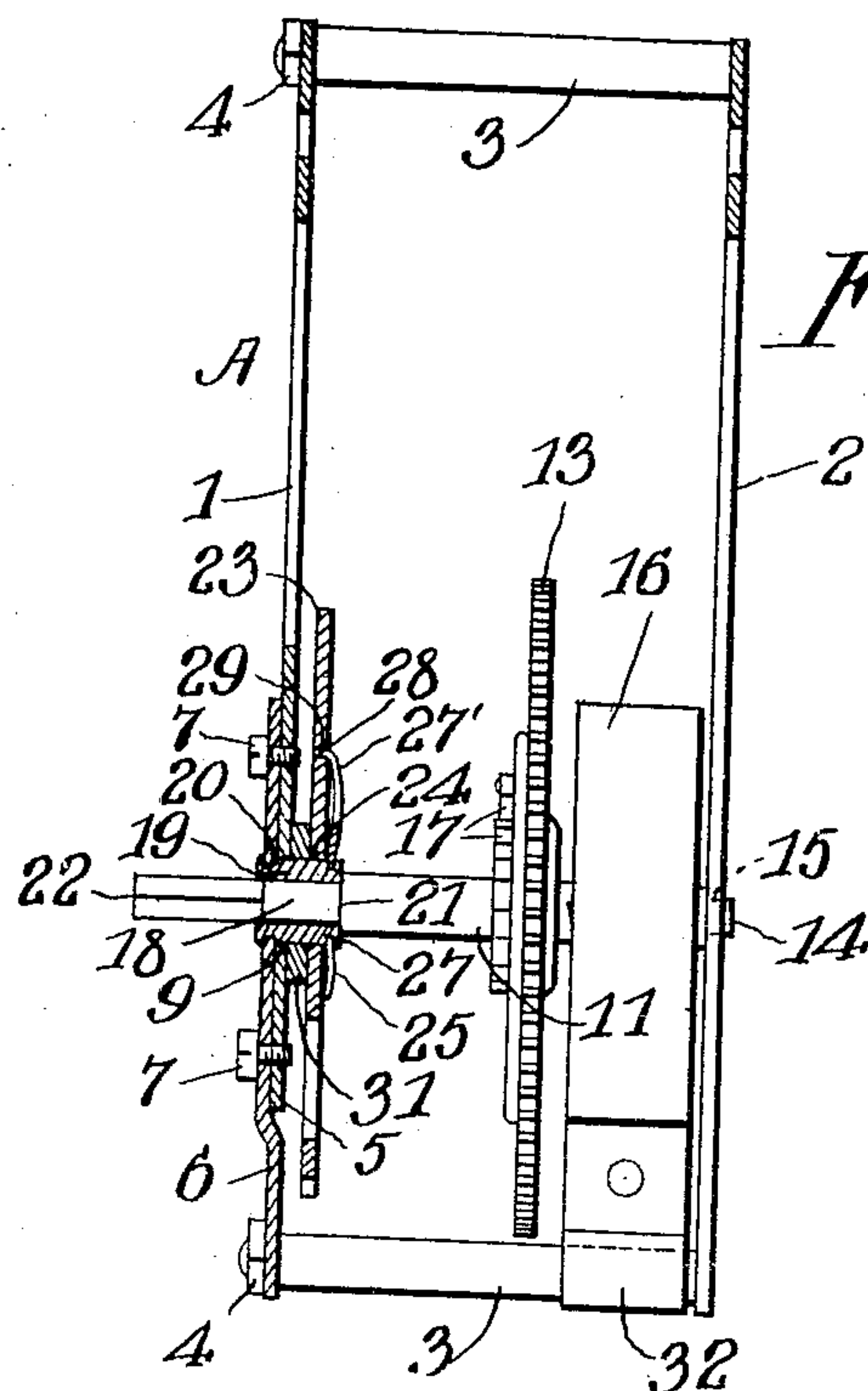


Fig. 2.

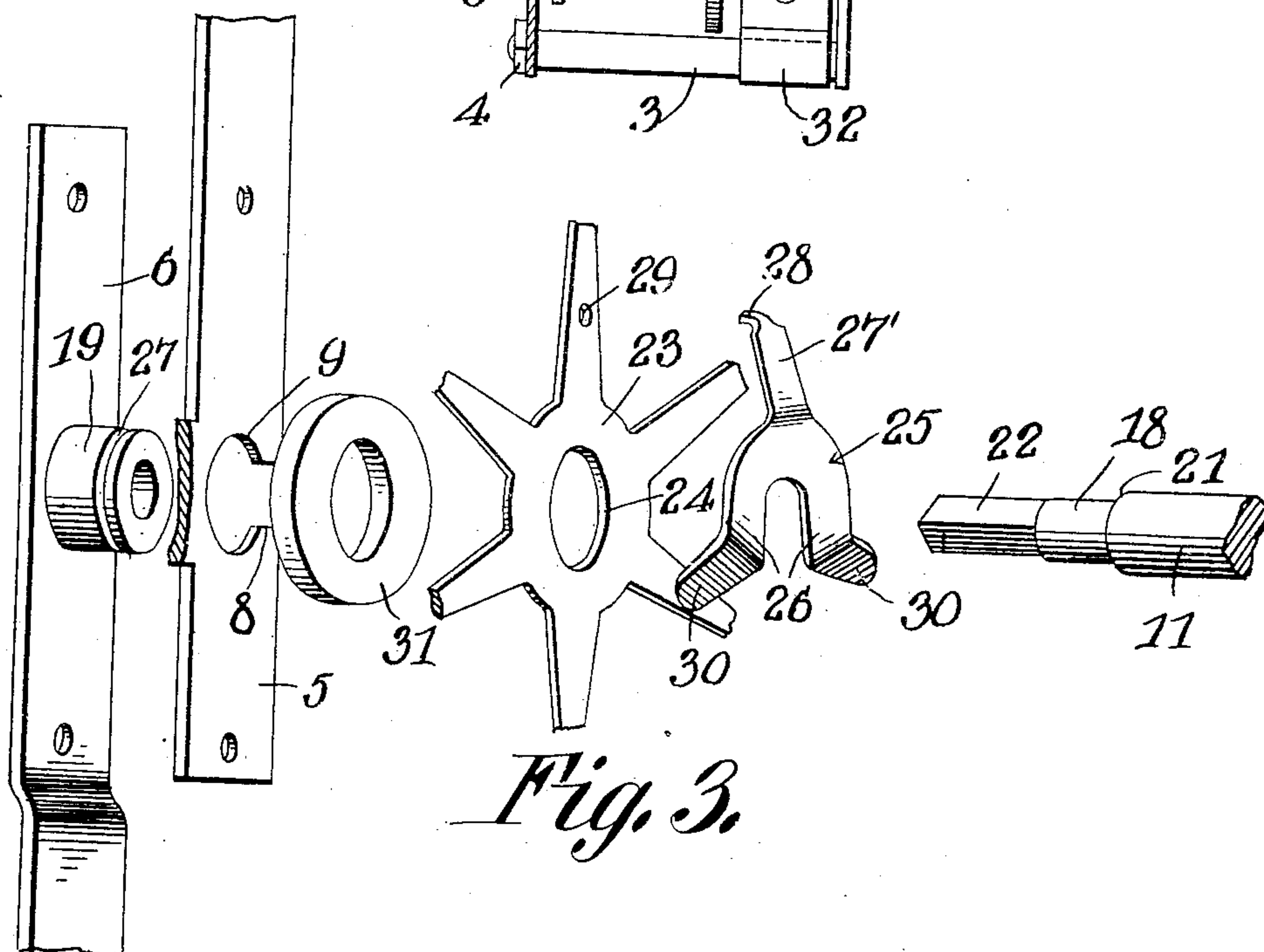


Fig. 3.

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UNITED STATES PATENT OFFICE.

ADDISON C. OHL, OF NEW LONDON, OHIO.

CLOCK.

No. 862,188.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed July 18, 1906. Serial No. 326,772.

To all whom it may concern:

Be it known that I, ADDISON C. OHL, a citizen of the United States, residing at New London, in the county of Huron and State of Ohio, have invented a new and useful Clock, of which the following is a specification.

This invention relates to a clock mechanism, and it relates more particularly to improvements whereby the spring carrying arbor or arbors can be speedily and conveniently removed and replaced for repair, inspection, cleaning, and other purposes, without disarranging the remaining parts of the clock-works.

The invention has for one of its objects to provide a simple and inexpensive mounting for the spring carrying arbor or arbors by which the latter can be easily and expeditiously removed or replaced.

A further object of the invention is the employment of a novel means for removably mounting the striking wheel of the clock mechanism on the removable bearing for the spring carrying arbor of the striking train of gears.

With these objects in view, and others, the invention comprises the various novel features of construction and arrangement of parts as will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a front view of a clock mechanism of the striking type. Fig. 2 is a vertical section of the clock mechanism with the parts unnecessary for an understanding of the invention removed. Fig. 3 is a perspective view of the parts of the mounting for the striking wheel and the spring carrying arbor, the parts being disassembled and arranged in their operative order. Fig. 4 is a detail view of a modified form of spacing post to which the clock spring is attached.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, A designates the framework of the clock mechanism, the same comprising front and rear plates 1 and 2, respectively, and spacing posts 3 arranged at the corners of the plates. The spacing posts are riveted, or otherwise suitably secured, to the rear plate, and the top plate is held on the front ends of the posts by the nuts 4. The front and rear plates may be of any approved construction, except that the legs 5 of the front plate extend somewhat short of the lower end of the frame, and extension plates or supplemental members 6 are employed for supporting the lower end of the front plate to the lower spacing posts 3. The extension plates 6 are secured to the front plate 1 by the screws 7. As shown in Fig. 1, the legs 5 of the front plate are each provided with a slot 8 extending inwardly

from the outer edge of the leg, and the inner ends of the slots are enlarged at 9, as shown more clearly in Fig. 3. The slots 8 receive the front ends of the arbors 10 and 11 of the first wheels 12 and 13 of the clock and striking trains of gears, respectively. The rear ends of the arbors 10 and 11 are each provided with a pivot 14, as shown in Fig. 2, that engages in a bearing 15 in the rear plate 2. Each arbor has attached thereto the inner end of a coiled spring 16, Fig. 2, the outer end of the spring being formed, as usual, into an eye, so as to slip over the adjacent spacing post 3. The first wheel 13 of the striking train of gears is connected with its respective arbor by a pawl and ratchet wheel mechanism 17, whereby the main spring can be wound. Obviously, the first gear wheel 12 of the clock train is provided with an equivalent ratchet mechanism for permitting the spring thereof to be wound.

In Figs. 2 and 3, the main spring arbor of the striking side of the clock is illustrated. It is to be understood, however, that the main spring arbor 10 of the clock train is similarly constructed. The arbors are thus each provided with a shouldered or reduced portion 18 which is journaled in a bearing or bushing 19. The bearings are shouldered at their front ends and fit in openings 20 in the plates 6, and the ends are riveted down on the front surface of the plate 6, so as to be securely held in place and these bushings are bored to form bearings for the journal portions of their respective arbors and are provided with journals on the exterior thereof. The inner ends of the bearing 19 engage the shoulders 21 of the arbors, so as to prevent axial movement of the latter. The diameter of the bearings 19 is such that they fit in the enlargements 9 of the slots 8 and they are held in the enlargements by the screws 7 which hold the plates 6 in position and the walls of the plate 1 at each side of the reduced portions of the slots 8. With such an arrangement, the arbors can be removed in a simple and convenient manner by simply removing the screw 7 and the nuts 4, thereby permitting the extension plate 6 to be taken out by a forward movement over the squared ends 22 of the arbors. In the case of the arbor 10, it then remains to lift its pivot 14 from the socket 15 in the rear plate and impart a lateral movement to the arbor so as to carry the upper end thereof out of the slot 8. After the arbor has been moved to a sufficient extent to enable the wheel to be free from the frame A, the arbor is drawn forwardly, so as to disengage the eye of its main spring from the post 3.

On the arbor 11 is the usual striking gear wheel 23 provided with a central opening 24 that fits over the bearing 19 for the arbor 11 and is rotatably mounted thereon. The striking wheel is held from displace-

ment on the bearing 19 by a retaining device embodying in the present instance a spring washer. This washer comprises a bifurcated body of spring sheet metal, said body being designated by 25. The bifurcations 26 thereof straddle the journal 19 on which the counting or striking wheel is mounted, and engage in a peripheral groove 27, Figs. 2 and 3, in which the bifurcations revolve with the striking wheel, the spring washer being provided with a tongue 27' having a laterally bent tip 28 that engages in an opening or depression 29 in one of the spokes of the striking wheel. The ends of the bifurcations 26 flare outwardly and bend to one side of the plane of the body 25, as does also the tongue 27'. By this arrangement, the outer ends of the flaring portions 30 and tongue 27' of the spring washer bear against the adjacent side of the striking wheel, at one side of the bearing, the tip or projection 28 at the opposite side thereof being pressed into the aperture 29 in the striking wheel, the projections serving as a lock to prevent disengagement of the bifurcations from the groove of the bushing. In other words, the tension of the arms or flaring portions 30 and tongue 27', when the spring washer is in place, operates to hold the parts in permanent operative relation. Intermediate the striking wheel and adjacent leg 5 of the front plate 1 is a washer 31 that is loosely assembled on the bearing 19.

In removing the arbor 11, it is first necessary to spring the tip 28 of the spring washer or retaining means out of the opening 29 of the striking wheel and then withdraw the spring washer from the groove 27 of the journal. After this is done, the arbor 11, with the parts assembled thereon, is then taken out in the same manner described in connection with the arbor 10 of the clock train of gears. When the plate 6, with the bushing 19 thereof, is taken off, the striking wheel and washer will, of course, remain on the arbor 11, and these can be removed with the latter or independently thereof, after the arbor has been disengaged from the socket in the back plate 2 and swung outwardly a sufficient distance to remove the striking wheel out of line with the frame A. In the lateral and outward movement of the arbors, the lower spacing posts 3 are the centers about which they swing, since the springs are attached to such posts. In reassembling the parts, the striking wheel is first placed on the arbor 11 and then the washer 31. The eye 32 of the main spring is next slipped over its respective post 3, and the arbor 11 with its assembled parts thereon is swung inwardly so that its upper end moves into the left hand slot 8, Fig. 1, to such a distance as to enable the pivot 14 to be seated in its socket 15 in the rear plate 2. The next step is to secure the extension plate 6 to the front plate 1 by the screws 7 and nut 4, after which the washer 31 and striking wheel 23 are moved successively into place on the bearing 19 and are held in position by the insertion of the spring washer or retaining means 25. It will thus be seen that either of the arbors can be readily removed and replaced with a minimum of labor and without any necessity of disturbing the other portions of the clockwork.

Instead of having the lower spacing posts 3 rigidly secured to the rear plate 2, there may be certain cases in which it is preferable to removably attach the posts

to the rear plate. For this purpose, posts constructed as shown in Fig. 4 may be employed, in which both ends are reduced and threaded, so as to receive nuts 33 for holding the extension and rear plates 6 and 2 and the post 34 rigidly together.

With the construction shown, it will be noted that the extension plates 6 are independently removable and that they can be both removed at the same time. In order that the remaining operating parts of the clock mechanism will not be disarranged when the extension plates are removed, the lower end of the main plate 1 is held in fixed relation with the rear plate 2 by means of a central spacing post 35, Fig. 1.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the apparatus shown is merely illustrative, and that various changes may be made, when desired, as are within the scope of the invention.

What is claimed is:—

1. In a clock movement, the combination with a pair of supporting plates, one of them being provided with an enlarged opening having a slot leading thereto from one edge of the plate, and a spring arbor having one end journaled in one of the plates and having a portion adapted to enter the said slot and rest in the enlarged opening, of a supplemental plate having a bushing attached thereto and adapted to engage in the enlarged opening, the bushing providing a bearing for the adjacent portion of the arbor and having a cylindrical exterior forming a journal, a wheel mounted to turn on the said journal, and a device interposed between one of the plates and the bushing for retaining the latter within the said opening and for preventing axial disengagement of the said wheel relatively to the bushing.
2. In a clock movement, the combination with a pair of plates, one of the latter being provided with an opening and a reduced slot leading therefrom to one of the edges of the plate, and an arbor journaled in one of the plates and having a portion adapted to enter the said slot and rest in the said opening, of a supplemental plate having a bushing attached thereto and forming a bearing for the arbor, the walls of the said opening coöperating with the bushing to support the latter in operative position, the outer surface of the bushing being cylindrical to form a journal and having a peripheral groove, a wheel mounted on the journal of the bushing at the inner side of the adjacent plate, and a retaining device having portions coöperating with the wheel and the peripheral groove of the bushing to prevent relative axial movement of the latter and the wheel.
3. In a clock movement, the combination with a pair of supporting plates, one of the latter having an opening therein, and a reduced slot leading from said opening to one of its edges, and an arbor journaled in one of the plates and having a portion adapted to enter the said opening through the reduced slot, of a supplemental plate having a cylindrical bushing thereon fitting the said opening and coöperating with the arbor as a bearing, the inner end of the bushing being provided with a circumferential groove, a wheel mounted to turn on the journal portion of the bushing having an aperture arranged eccentrically of the arbor, and a member having portions adapted to engage in the groove at opposite sides of the casing, said portions being provided with laterally offset spring arms arranged to bear against the adjacent side of the wheel at one side of the bushing, and a locking projection arranged on said member opposite to the spring arms thereof and coöperating with the said eccentrically arranged aperture of said wheel to prevent disengagement of said member relatively of the said bushing.
4. A clock frame embodying a pair of coöperatively ar-

5 ranged supporting plates, posts connecting the plates, a
supplementary plate adapted to cooperate with one of the
plates of the pair and having means for securing it to one
of the posts, a bushing permanently attached to the sup-
plemental plate and having a journal portion on its exte-
rior and an interior bearing surface, an arbor having one
end journaled in one of the plates of the pair and having
its opposite end journaled in the bushing, a train actuat-
ing wheel mounted on the arbor, a counting wheel mount-
10 ed to turn on the journal portion of the bushing, and

means cooperating with the arbor for retaining it in co-
operative relation with its respective supporting plate and
serving to prevent axial movement of the counting wheel.

In testimony that I claim the foregoing as my own, I
have hereto affixed my signature in the presence of two 15
witnesses.

ADDISON C. OHL.

Witnesses:

F. W. CLINESMITH,

GEO. E. PROSSER.