Oct. 19, 1948. A. TELLIER 2,451,639

SETTING MEANS FOR WORLD CLOCKS

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Fig. 2.

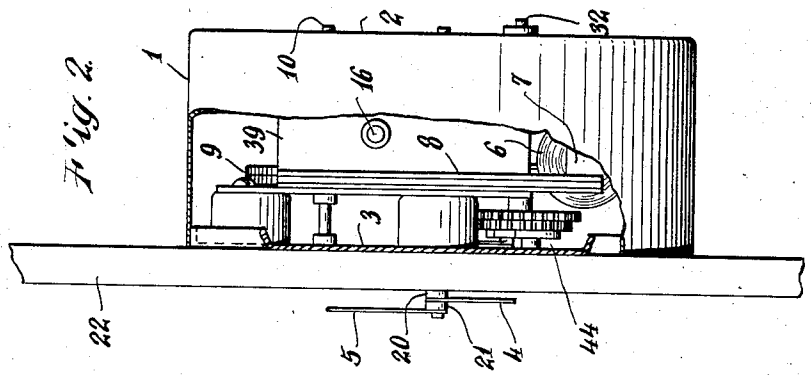
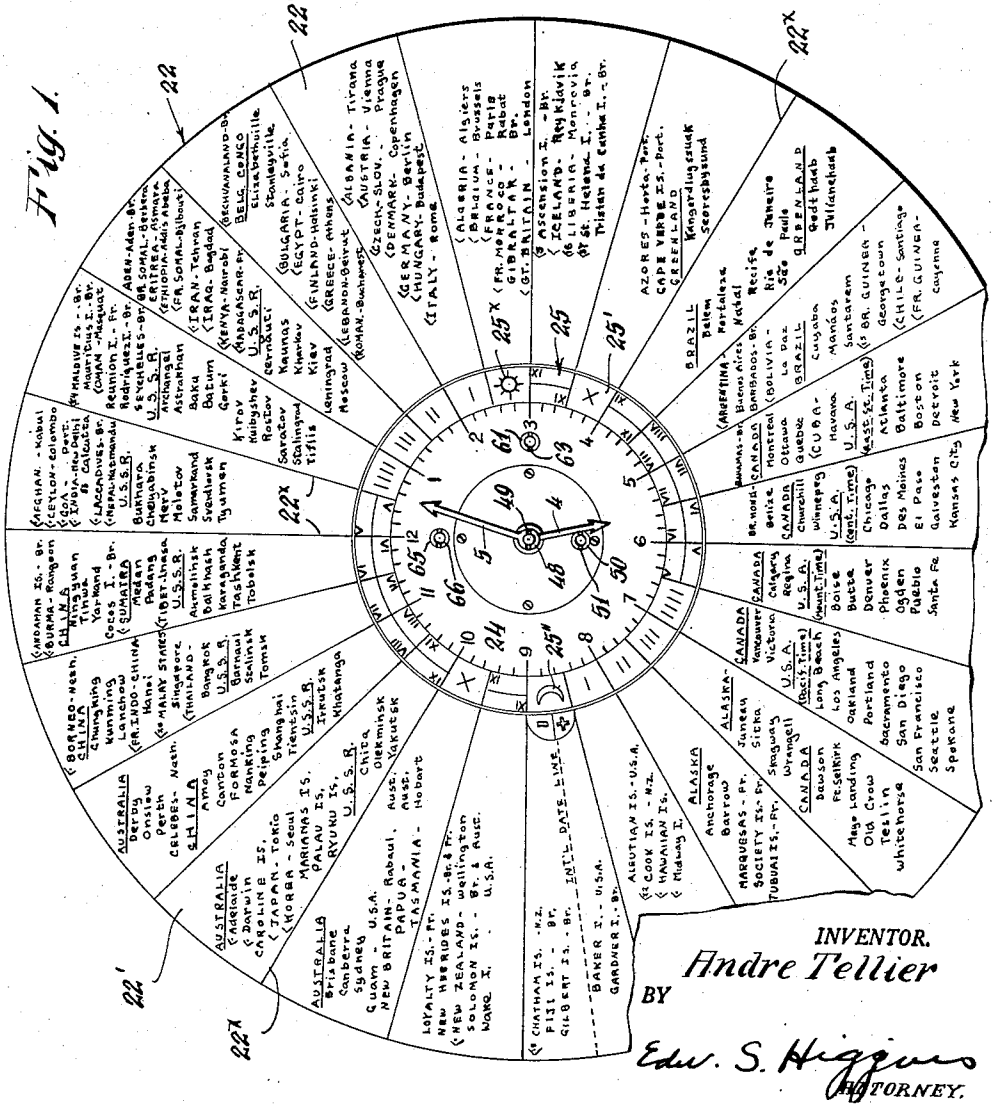


Fig. 1.



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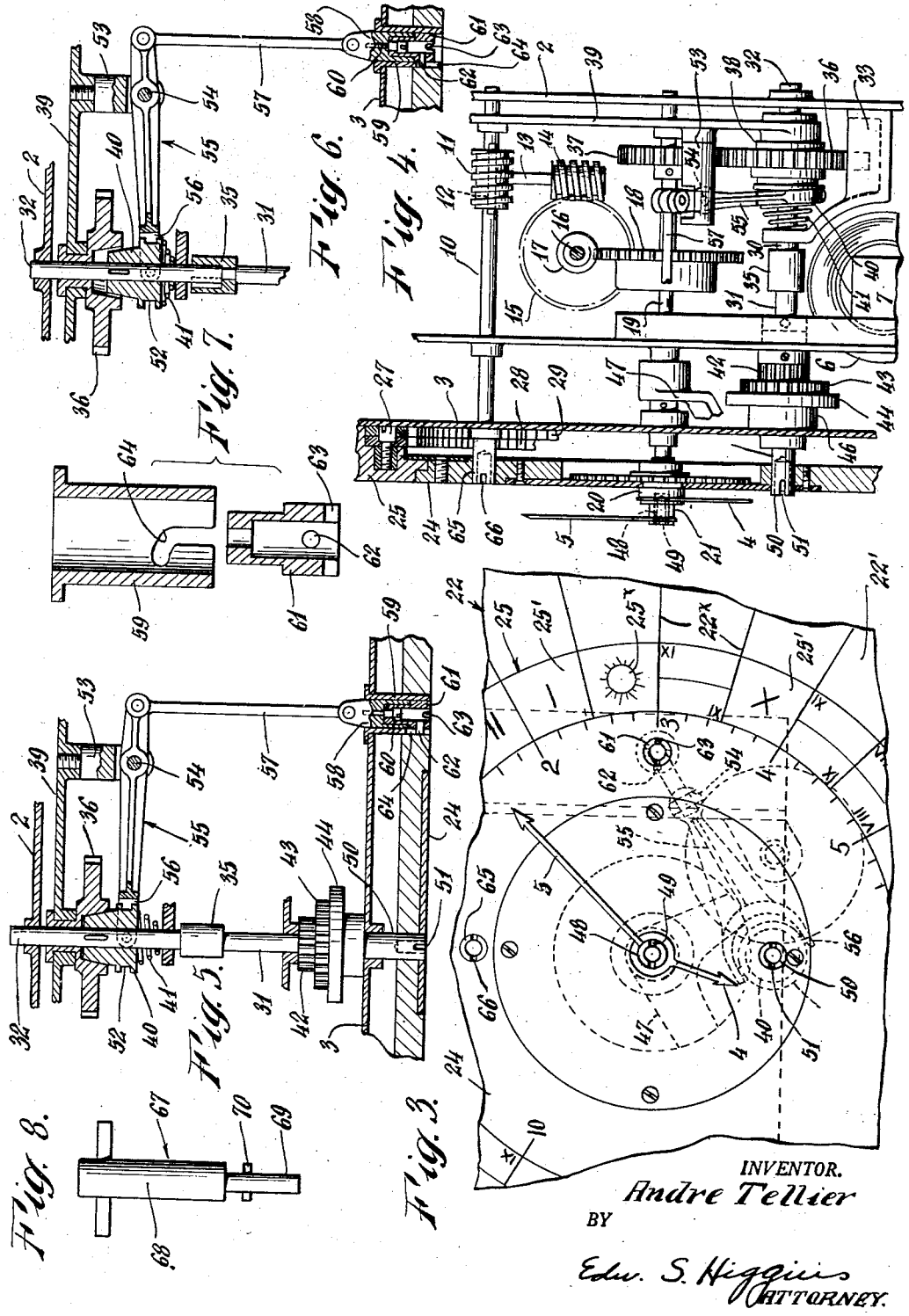


Fig. 6.

Fig. 4.

Fig. 7.

Fig. 5.

Fig. 8.

Fig. 3.

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SETTING MEANS FOR WORLD CLOCKS

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3 Claims. (Cl. 58—43)

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This invention relates generally to clocks and more particularly to a clock which will serve not only for the purpose of telling local time but also to indicate the time at selective zones and cities throughout the world, such as the clock disclosed in my copending application, Serial Number 705,975, now Patent 2,429,853, October 28, 1947.

A primary object of the present invention is to provide a clock of this kind with means for adjusting the hands of the clock independent of the mechanism for driving the hands of the clock, and from the front face of the clock.

A further object is to provide mechanism for this purpose that is simple and inexpensive.

Other advantages of the present invention will be apparent from the description thereof to follow taken in connection with the accompanying drawings in which—

Fig. 1 is a front view of a clock embodying the invention.

Fig. 2 is a side view thereof, parts being broken away and parts shown in section.

Fig. 3 is an enlarged fragmentary front view thereof.

Fig. 4 is a side view of the parts shown in Fig. 3, parts being shown in section.

Fig. 5 is an enlarged detail sectional view showing the bell crank lever for actuating the clutch mechanism with the clutch mechanism in operative position.

Fig. 6 is a view similar to Fig. 5 but showing the clutch mechanism in inoperative position.

Fig. 7 is an enlarged disassembled sectional view of the socket for receiving a tool for actuating the bell crank lever.

Fig. 8 is a detail view of the key for adjusting the parts of the clock.

Referring to the drawings in detail, a casing 1 including a rear wall 2 and a front wall 3 supports and houses the clock mechanism for rotating the hour and minute hands 4 and 5, respectively. This mechanism is the conventional electric clock mechanism and is shown more fully and described in my aforesaid application. The mechanism includes a magnetic coil 6 which is connected to the motor (not shown). When the coil is energized, its core 7 transmits impulses to armature members 8 connected thereto which impulses are transmitted by said armature members to a laminated disc member 9 positioned between them whereby said disc member is rotated. Disc member 9 is fastened to a shaft 10 carrying a worm 11 which is operatively connected by a gear 12 to a shaft 13 disposed at right

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angles to shaft 10. Shaft 13 carries a worm 14 which meshes with a gear 15 on a shaft 16 disposed at right angles to shaft 13. Shaft 16 carries a worm 17 meshing with a gear 18 fastened to a shaft or arbor 19 for driving the hour and minute hands. The hour hand 4 is fastened to a bushing or sleeve 20 loosely mounted on the arbor 19 adjacent its outer end, and minute hand 5 is secured to a bushing 21 fastened to the outer end of the arbor.

A disc member or plate 22 is secured to the exterior of the front wall 3 of the casing by screws (not shown). Suitably fastened to the outer surface of the front wall 3 is the clock face or dial 24. Interposed between the inner periphery of the outer disc and the clock dial is a ring member 25. The disc member, ring member and clock dial are disposed in the same plane. The ring member 25 is divided into twenty-four sections 25' representing the twenty-four hours of the day and this ring member moves only one-twenty-fourth as fast as the minute hand 5 of the clock dial.

The sections of the ring member are marked to indicate the hours of the day. The hour of midday or noon is marked with the representation of the sun as indicated at 25x and the hour of midnight is marked with the representation of the moon as indicated at 25''. Reading anticlockwise from noon as viewed in Fig. 1, the sections 25' representing the hours of one o'clock p. m. to four o'clock p. m. inclusive are marked with the numerals "I," "II," "III," and "IIII," and the sections representing the hours from five o'clock p. m. to eleven o'clock p. m. inclusive are marked by the roman numerals "V" to "XI" inclusive, midnight being represented by the representation of the moon. The sections representing the hours from twelve o'clock midnight to four o'clock a. m. are marked with the numerals "I," "II," "III" and "IIII." The sections representing the hours from five o'clock a. m. to eleven o'clock a. m. are marked with roman numerals "V" to "XI" inclusive, said sections with the exception of the section representing the hour of ten o'clock a. m. and p. m. being divided into outer and inner sections by a line running across the center of said sections, with the roman numerals appearing above and below the lines in reversed positions as seen in Fig. 1. The section 25' representing the p. m. hours are also divided into outer and inner sections the same as a. m. The p. m. numerals are white on black background and the a. m. numerals are black on white background for night and day, respectively.

Disc member 22 is divided into twenty-four sections or segments 22' by radial lines 22x in line with the sections 25' and form continuations thereof. The segments bear the names or initials of the countries, principal cities and islands of the world located in the same time belt or zone, for example, "U. S. S. R.," "Kiev" etc. The segments bear only a portion of such names as it is believed that this is sufficient for illustration purposes.

The mechanism for rotating the ring member 25 at the calculated speed is fully disclosed in my aforesaid copending application and only a part of same is shown herein including an internal gear member disposed between the ring member 25 and the front wall 3 of the casing and is fastened by bolts 27. This gear member comprises an outer ring member with teeth 28 on its inner periphery and an inner ring member with teeth 29 on its inner periphery. A shaft 30 is journaled in the walls of the casing parallel to the arbor 19 and is divided into a front shaft section 31 rotatably mounted in the front wall 3 and a rear shaft section 32 slidably and rotatably mounted in the rear wall of the casing and in the wall of a bracket 33 secured to the rear wall. The inner end of the shaft section 32 has a keyway coacting with a key on a coupling member 35 fastened on front section 31 whereby the sections 31 and 32 are connected for rotation in unison. Loose on shaft section 32 is a gear 36 meshing with gear 37 on shaft 19. Gear 36 has a wedge-shaped socket portion 38 supported by a U-shaped plate or support 39 secured in the casing. Fastened to the shaft section 32 adjacent the gear 36 is a clutch member 40 movable into and out of engagement with said socket portion whereby said gear 36 is made fast and loose respectively on said shaft section 32. A coil spring 41 urges the clutch member 40 into engagement with the socket portion 38. A pinion or gear 42 is fastened to the front shaft section 31 adjacent the front of said shaft section, and loosely mounted on said shaft section in front of the gear 42 is a gear 43 having an elongated hub portion extending toward the outer end of the shaft section. Fastened to the front face of the gear 43 is a large cam member 44 and in front of said cam member 44 is another smaller cam member 46 fastened to the larger cam member. The gear 43 and the cam members rotate in unison loosely around the shaft section 31 inside the casing. The cam members are adapted to actuate a lever 47 which is operatively connected to the internal gear member for moving said gear member only one-twenty-fourth as fast as the minute hand 5.

The present invention is concerned with mechanism for adjusting the hands of the clock and the other shafts from the front of the clock independently of the mechanism for moving said hands and shafts. For this purpose, the bushing members 20 and 21 supporting the hour and minute hands respectively are formed with an aligned socket portion 48 having opposed slots 49 on its outer edge.

The front shaft section 31 of shaft 30 has a socket portion 50 extending through the clock face 24 which socket has opposed slots 51 in its outer edge. The clutch member 40 is formed with an annular groove 52 and a bracket 53 on the plate 39 adjacent the rear wall 2 of the casing has a bifurcated end portion for supporting a pin 54 and pivotally mounted on this pin is a lever member 55 having a bifurcated end 56 engaging the grooved portion of the clutch member 40. The other end of the lever member is pivotally connected to one end of a rod member 57 which extends to the front wall of the casing. The other end of rod 57 has a socket portion 58 which slides in a sleeve member 59 supported in aligned openings in the front wall of the casing and the clock face. Secured in the socket portion 58 of the rod by a bolt 60 is a bushing member 61. The bushing member carries a protruding pin 62 and has opposed slots 63 formed in its outer edge. The sleeve member 59 is formed with a bayonet slot 64 adapted to receive the pin 62 and hold the socket portion and bushing member in inward position.

Shaft 10 has a tubular extension 65 similar to the tubular extension 50 of front section 31 of shaft 30 extending through the clock face and provided with opposed slots 66.

For adjusting the parts of the clock, a key member 67 illustrated in Fig. 8 is provided. This key has a cylindrical handle portion 68 and a reduced cylindrical portion 69 on said handle and a cross pin 70. For adjusting the hands of the clock, the cylindrical extension 69 is inserted into the socket portion 48 with the cross pin 70 positioned in the opposed slots 49. By turning the key member the bushing members 20 and 21 and shaft are turned thereby turning the hands for necessary adjustment.

To adjust the ring member 25, the clutch member 40 must be moved out of engagement with the socket portion 38 of gear 36. This is done by inserting the key member into the bushing member 61 with its cross pin in the opposed slots 63 of said bushing member. The bushing member is pushed inwardly by the key member which moves the rod member 57 inwardly thereby rocking the lever member 55 on its pivot pin 54 which will move its bifurcated end 56 outwardly carrying the clutch member 40 along with it away from the gear 36 thereby disconnecting said members. When the bushing member 61 is moved inwardly its pin 62 will move into the bayonet slot and thus hold the lever 55 in rocked position. When the clutch member is thus disconnected, the key member may be inserted into the slotted tubular extension 50 on shaft section 32 and the shaft turned as desired.

For adjusting shaft 10, the key member is inserted into the tubular extension 65 on said shaft and the extension turned for turning the shaft.

I claim:

1. A clock comprising hour and minute hands, mechanism for automatically moving said hands, including an operating arbor mounting the hour hand, a stationary dial plate positioned behind the hands and having a local time-indicating dial shown thereon, a ring member positioned around the outer periphery of said dial plate and operatively connected to the operating arbor of the hour hand for rotation thereby in calculated speed therewith, a stationary disc member positioned around the outer periphery of said ring member, said ring member and disc member having correlated and coindicative indicia displayed thereon indicating the time at various global zones and in coordinated and calculated proportionate time indications in relation to the time indicated on the local time-indicating dial of the clock and mechanism for manually moving said hands independently of said automatic mechanism for adjusting the same including a pivoted lever adapted to move the connection between the ring mem-

ber and operating arbor to inoperative position, said dial plate having a socket portion and adapted to receive a tool for moving said lever about its pivot.

2. A clock comprising hour and minute hands, mechanism for automatically moving said hands, including an operating arbor mounting the hour hand, a stationary dial plate positioned behind the hands and having a local time-indicating dial shown thereon, a ring member positioned around the outer periphery of said dial plate and movable thereabout, an internal gear fixed to said ring member, means of connection between said internal gear and the operating arbor of the hour hand including a gear member, whereby said ring member rotates in calculated speed with the hour hand, a stationary disc member positioned around the outer periphery of said ring member, said ring member and disc member having correlated and coindicative indicia displayed thereon indicating the time at various global zones and in coordinated and calculated proportionate time indications in relation to the time indicated on the local time-indicating dial of the clock, a gear on the arbor operatively connected to the first named gear for rotating the latter and means operable from the front of the dial plate for making the connection between said gears ineffective.

3. A clock comprising hour and minute hands, mechanism for automatically moving said hands including an operating arbor mounting the hour hand, a stationary dial plate positioned behind the hands and having a local time-indicating dial shown thereon, a ring member positioned around the outer periphery of said dial plate and moveable therearound, an internal gear fixed to said ring member, means of connection between said internal gear member and the operating arbor including a shaft and clutch slidable lengthwise thereon, a gear loosely mounted on said shaft in mesh with a gear on said arbor and connected to said clutch, a stationary disc member positioned around the outer periphery of said ring member, said ring member and disc member having correlated and coindicative indicia displayed thereon indicating the time at various global zones and in coordinated and calculated proportionate time indications in relation to the time indicated on the local time-indicating dial of the clock, a pivoted lever operatively connected to said clutch and adapted to move the same out of engagement with the gear on said shaft and means operable from the front of the dial plate for moving said pivoted lever including a socket in the dial plate, a rod having a socket portion at one end thereof extending into the socket in the dial plate and adapted to receive a tool and having its other end connected to said pivoted lever whereby the rod may be moved lengthwise by a tool.

ANDRE TELLIER.

REFERENCES CITED

The following references are of record in the file of this patent:

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2,429,853	Tellier	Oct. 28, 1947