W. K. MENNS.

SPEED INDICATING AND RECORDING DEVICE.

APPLICATION FILED APR. 16, 1913.

1,089,246.

Patented Mar. 3, 1914.

2 SHEETS—SHEET 1.

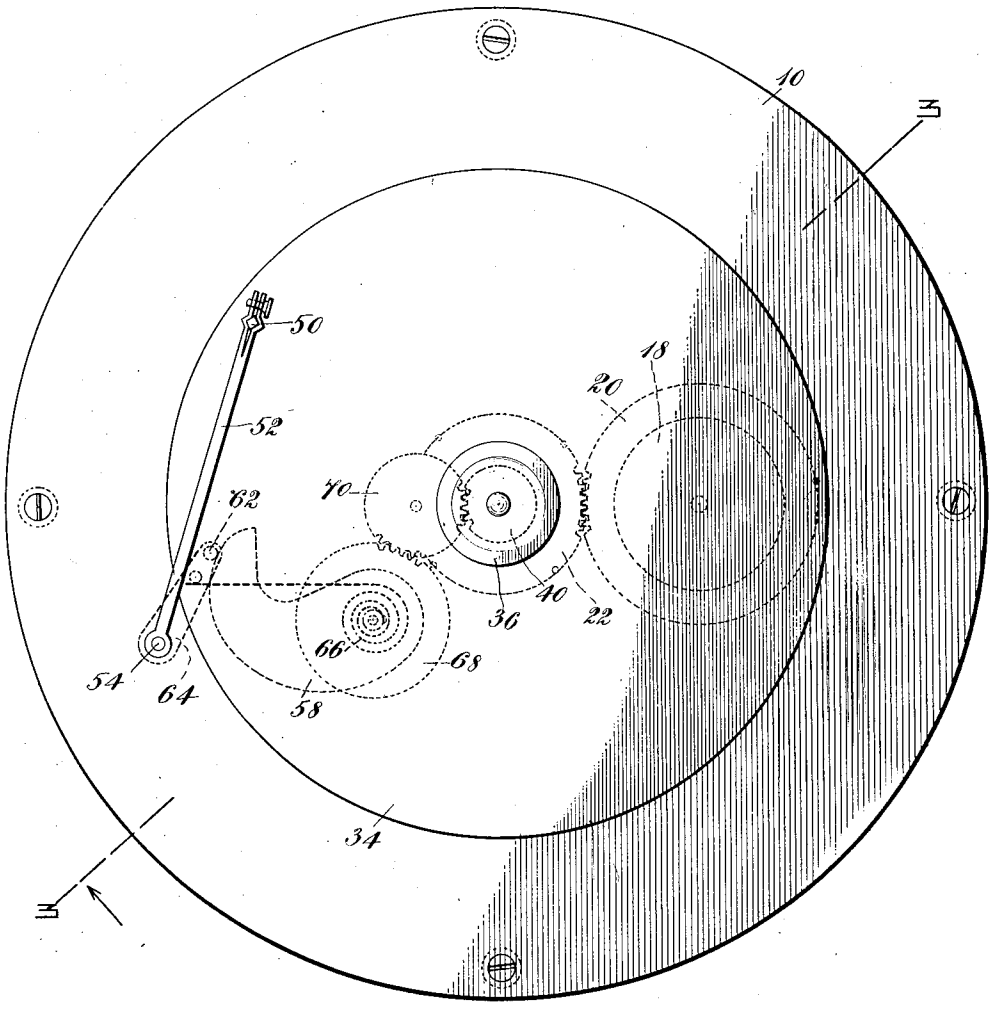

FIG. 1.

WITNESSES:

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INVENTOR:

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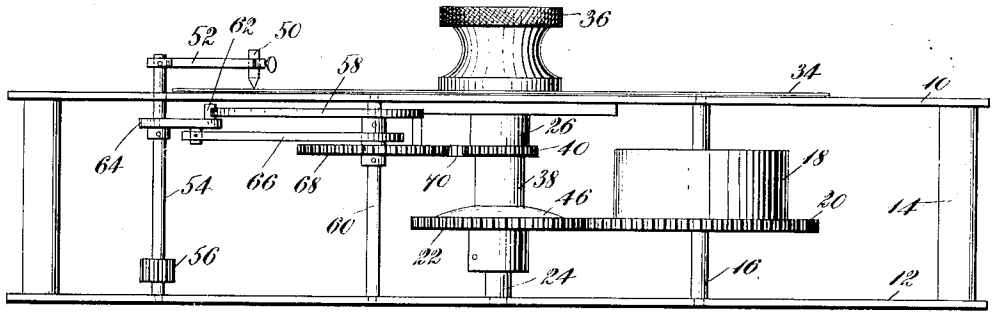

Fig. 2.

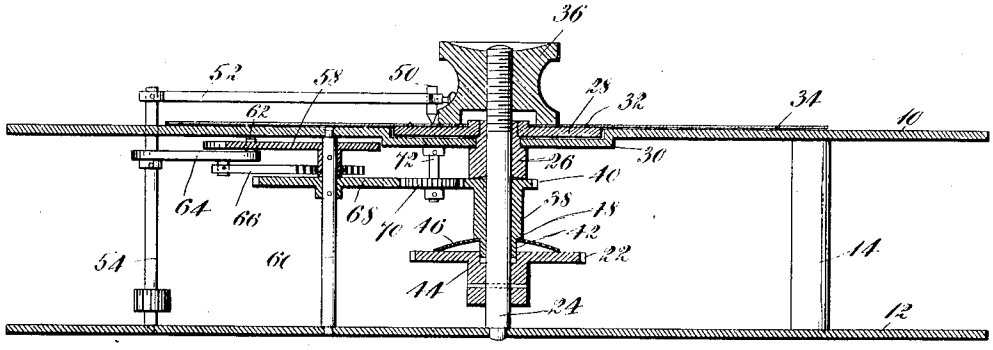

Fig. 3.

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UNITED STATES PATENT OFFICE.

WALTER K. MENNS, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO CHELSEA CLOCK COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SPEED INDICATING AND RECORDING DEVICE.

1,089,246. Specification of Letters Patent. Patented Mar. 3, 1914.

Application filed April 16, 1913. Serial No. 761,606.

To all whom it may concern:

Be it known that I, WALTER K. MENNS, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Speed Indicating and Recording Devices, of which the following is a specification.

This invention relates to an improvement in speed indicating and recording devices, and more particularly in the mechanism for producing the record.

In some forms of speed indicating and recording devices employed on motor vehicles, the record sheet is allowed to remain in place for more than a day, usually several days or a week. In these devices the marking implement produces a spiral mark extending from the outer portion of the record-receiving sheet toward the center thereof. When the record sheet is removed, it is necessary to turn back the marker manually, which consumes time and is an objectionable feature.

Accordingly, the object of this invention is to overcome the objections noted above, and to provide a construction whereby the marker will be returned automatically to its initial or starting position, when the record sheet is removed from the indicator.

The invention will be readily understood from an inspection of the accompanying drawings, in which—

Figure 1 is a plan view of an illustrative embodiment of the invention, Fig. 2 is a side elevation of the same, and Fig. 3 is a vertical section taken on the line 3—3 in Fig. 1.

The device may be applied to any well known form of clock mechanism, the details of which need not be shown, and in its present embodiment comprises a front plate 10, and a rear plate 12 spaced from but connected to the front plate by a series of posts 14. A driving arbor 16 is journaled in the plates 10 and 12, upon which is mounted a spring drum 18 and a gear 20. The gear 20 meshes with a gear 22, which is fast on a center arbor 24. The arbor 24 is journaled at one end in the rear plate 12, and its other end is rotatable within a sleeve 26, which is rotatable in the front plate 10. A disk 28 is driven upon the sleeve 26 against a shoulder, so that the disk can be rotated and not cramped against the depressed portion 30 of the front plate 10. The front face of the disk 28 is provided with a series of pin points 32, for engagement with a record-receiving sheet 34. The upper end of the arbor 24 is screw-threaded and provided with a thumb nut 36, for clamping the record sheet in place. A sleeve 38 is loosely mounted on the arbor 24, and is provided on one end with a gear 40. The sleeve 38 is reduced at 42 and enters a recess 44 in the hub of the gear 22, said reduced portion being surrounded by a spring plate 46, which bears against the face of the gear 22 and also against a shoulder 48 on the sleeve 38. When the nut 36 is screwed onto the arbor 24, the record sheet 34 is clamped against the disk 28, and the gear 22 is drawn by the arbor against the sleeve 38 to clamp the latter against the sleeve 26. Thus the record sheet 34 and the gear 40 are in driving relation with the center arbor 24.

A marking implement 50 is mounted at the free end of an arm 52, affixed to an arbor 54 journaled to rotate in the plates 10 and 12. A gear 56 is affixed to the arbor 54, and is adapted to be driven from mechanism on the motor vehicle for indicating the speed, said mechanism forming no part of the present invention, and is therefore not shown.

The gradual inward movement of the marker is controlled by a snail cam 58 fast on an arbor 60, journaled in the plates 10 and 12. A cam roller 62 engages the cam 58, and is mounted on the upper side of an arm 64 affixed to the arbor 54. A spiral spring 66 is affixed at one end to the arbor 60 and at its other end to the under side of the arm 64. This spring keeps the cam roller 62 in engagement with the snail cam 58. A gear 68 is fast on the arbor 60, and meshes with an idler gear 70 on a stud shaft 72 carried by the front plate 10, and this idler also meshes with the gear 40.

The operation of the device is as follows: When the nut 36 is screwed down tightly, the record sheet 34 is clamped against the disk 28, and the sleeve 38 is clamped between the gear 22 and the sleeve 26, the plate 46 being flattened somewhat to allow the parts to be clamped together. Thus the sleeve 38 is in driving relation with the gear 22, and the latter is driven by the gear 20 on the spring drum 18. The rotation of the gear 40 in a clock-wise direction causes a corresponding rotation of the gear 68 through the idler 70, and winds up the spiral spring

66, thereby holding the cam roller 62 tightly against the snail cam 58 and causing said snail to rotate slowly. The slow rotation of said snail causes a gradual movement of the marker 50 toward the center of the record sheet, thereby producing a spiral mark as the sheet is rotated.

When it is desired to replace the record sheet with a new sheet, the thumb nut 36 is unscrewed and removed from the arbor 24. This releases the clamping pressure on the parts which are carried by the arbor and the resilient plate 46 causes a relative endwise movement of the gear 22 and the sleeve 38, so that the latter is released and is free to rotate on said arbor. The spiral spring 66 being now wound up immediately unwinds, since the sleeve 38 and gear 40, and the idler 70 and gear 68 are no longer in driving relation with the center arbor 24. The unwinding of the spring 66 rotates the arbor 60 counter-clockwise and with it the snail cam 58, thereby automatically moving the arm 64 and marker arm 52 outward to their initial position, so that the marker is in position to commence a new record when a new sheet is clamped onto the disk 28.

What I claim is:—

1. In a speed indicating and recording device, the combination of a rotary record-receiving sheet, means for holding said sheet to cause it to be rotated, a marker, and means for controlling the movement of said marker to produce a spiral mark extending from the outer portion of said sheet toward the center thereof, said marker being automatically returned to its initial position when said sheet is released, substantially as described.

2. In a speed indicating and recording device, the combination of a center arbor, means for rotating said arbor, a record-receiving sheet, means for clamping said sheet in driving position on said arbor, a marker, and means for moving said marker from the outer portion of said sheet toward the center thereof when the sheet is clamped on the arbor, said marker being arranged to be automatically returned to its initial position when said sheet is unclamped from said arbor, substantially as described.

3. In a speed indicating and recording device, the combination of a center arbor, means for rotating said arbor, a record-receiving sheet, a gear rotatably mounted on said arbor, means for clamping said record-receiving sheet on said arbor and for clamping said gear in driving relation with said arbor, a marker, means driven by said gear for moving said marker from the outer portion toward the center of said sheet while the latter is clamped in driving position, said means being arranged to automatically return said marker to its initial position when said gear is released, substantially as described.

4. In a speed indicating and recording device, the combination of a center arbor, a gear loosely mounted on said arbor, means for placing said gear in driving relation with said arbor, a marker, a cam, a spring arranged to hold the marker in driving relation with said cam and to automatically return said marker to its initial position when said gear is freed from driving relation with said arbor, substantially as described.

5. In a speed indicating and recording device, the combination of a center arbor, a disk loosely mounted on said arbor, a gear fast on said arbor, a sleeve loosely mounted on said arbor between said gear and disk, a spring surrounding said arbor between said sleeve and gear and tending normally to separate them, means for clamping said disk and sleeve in driving relation with said gear, a cam, driving connections between said sleeve and cam, a marker, and a spring adapted to be wound up during the rotation of said cam in one direction and arranged to keep said marker under the control of said cam to move said marker toward the center of said disk, said last mentioned spring and cam being arranged to automatically return said marker to its initial position when said sleeve is freed from driving engagement with said gear, substantially as described.

6. In a speed indicating and recording device, the combination of a support for a record-sheet, an arbor, means for rotating said arbor, means for placing said support in driving relation with said arbor, a marker, and means for causing said marker to move toward said arbor when said support is in driving relation with the latter, and automatically returning said marker to its initial position when said support is released from driving relation with said arbor, substantially as described.

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

WALTER K. MENNS.

Witnesses:

CHAS. F. HOWE,

EDITH M. CABOT.