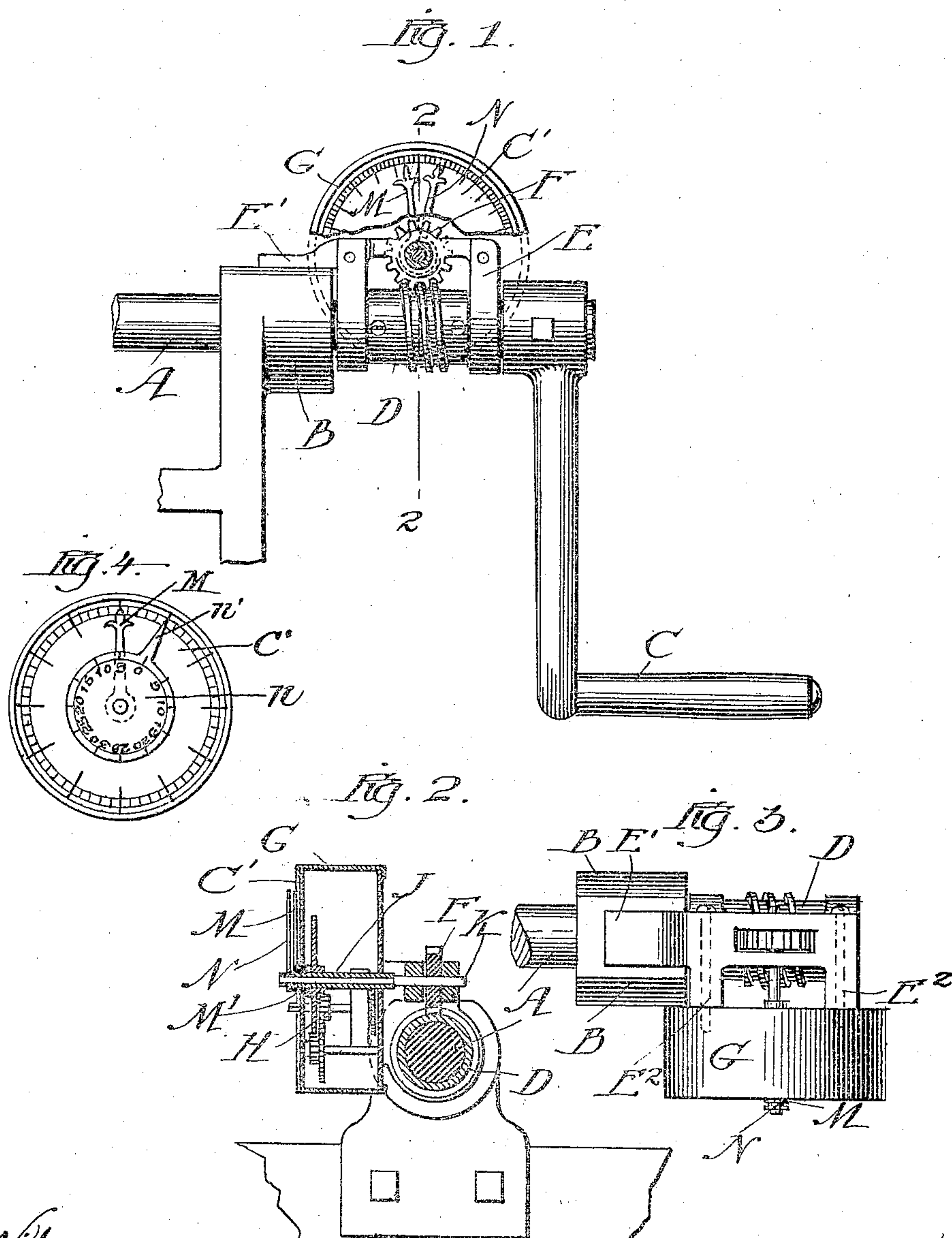


J. K. STEWART.
 SPEED TIMING DEVICE FOR CREAM SEPARATORS AND THE LIKE.
 APPLICATION FILED MAY 28, 1909.

995,199.

Patented June 13, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN K. STEWART, OF CHICAGO, ILLINOIS.

SPEED-TIMING DEVICE FOR CREAM-SEPARATORS AND THE LIKE.

995,199.

Specification of Letters Patent. Patented June 13, 1911.

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To all whom it may concern:

Be it known that I, JOHN K. STEWART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Speed-Timing Devices for Cream-Separators and the Like, of which the following is a specification, reference being had to the drawings forming a part thereof.

The purpose of this invention is to provide an improved device for enabling the operator of a device such as a cream separator, which is designed to be operated at a certain number of specified revolutions per minute, to observe the speed continuously so as to maintain the required speed.

It consists in the devices and features of construction shown and described as indicated in the claims.

In the drawings:—Figure 1 is a side elevation of the operating shaft of a cream separator and its bearing, having mounted upon it a device embodying this invention. Fig. 2 is a section at the line 2—2 on Fig. 1. Fig. 3 is a detail plan view of the same. Fig. 4 is a face view of a modified form of indicating dials and index hands.

In the drawings, A is the operating shaft of the separator or other mechanism whose speed is to be indicated by the device of this invention.

B is a bearing for the shaft, A.

C is a crank handle by which the shaft may be rotated by hand. On the shaft, A, between the bearing and the crank there is made fast a worm sleeve, D, and on said shaft there is loosely mounted a hanger, E, stopped against rotation by the stop finger, E¹, engaging the bearing, D, such hanger having journaled in it a worm gear, F, meshing with the worm of the worm sleeve, D. On the hanger, which is suitably extended at E² for the purpose, there is mounted the case or frame, G, of a clock movement, conventionally indicated by the gear train, H, of such movement, having a minute-hand staff, J, which is hollow and co-axial with the worm gear, F, from which a spindle, K, extends through the hollow shaft, J, both said hollow shaft and spindle being extended through the dial plate, C¹, of the clock case, C, and preferably graduated for seconds and fractions of seconds, as illustrated. The clock movement may be devoid of any means for operating the hour

hand, and the dial may be clear of any hour indications. The hollow shaft, J, has an index hand, M, and the spindle, K, has an index hand, N. One of said hands, and most conveniently the hand, M, on the larger of the two shafts, is frictionally mounted on the hollow shaft,—as indicated by the sleeve hub, M¹,—so that it can be readily turned thereabout to coincide with the index hand, N, on the other shaft.

The clock movement being wound and operating to rotate the minute hand, M, the operator, upon commencing the rotation of the shaft, A, by means of the crank handle or whatever other means may be provided, will set the two hands, M and N, coincident, and so long as he gives the crank shaft, A, as many revolutions per minute as there are teeth on the worm gear, F, the two hands, M and N, will remain coincident. The device will be constructed with a worm gear, F, having as many teeth as the number of revolutions per minute suitable for the proper operation of the machine. The device being especially intended for such mechanism as cream separators, which are constructed for certain speed, there will be no necessity, so far as this device is concerned, for making the worm gear, F, interchangeable with others. Instead of marking the machine with the number of revolutions per minute at which it should be operated, the operator will be instructed merely to keep the two hands, M and N, coincident or uniformly spaced during operation, thus insuring the precise speed for which the machine is constructed. The initial setting of the two hands, M and N, coincident will be a matter of preference or convenience only, as the operator will readily bring them into coincidence in the first half minute of the operation of the shaft; or, obviously, the result of uniformity of rotation at the desired speed will be attained by maintaining their distance apart uniform by the speed given the shaft.

There may be substituted for the index hand, N, a graduated dial, *n*, which may also have a projecting finger, *n*¹, for indicating angular change of position on the dial, C¹, or which may be without such indicating finger. The dial, *n*, is preferably graduated both ways from a zero point at which the index finger, *n*¹, is located, if present, so that the departure of the zero point or hand, *n*¹, of the dial, *n*, from the

hand, M, in either direction may be read directly on said dial, n ; and by comparison of that reading with the reading of the hand, M, on the dial, C, the rate of variance of the speed from that of the hand, M, whether greater or less, may be readily computed.

I claim:—

1. A speed indicator for operating shafts comprising, in combination with the shaft to be indicated, a worm thereon, a hanger loose on the shaft; a worm gear journaled in the hanger; a chronometer movement mounted on the hanger having a minute hand, the worm gear having a spindle and an index hand on such spindle, the two hands being mounted in position to be simultaneously visible for comparison of their rotation.

2. A speed-indicating device for operating shafts comprising, in combination with the shaft to be indicated, a worm fast on the shaft; a hanger loose on the shaft; a worm gear and a chronometer movement mounted on the hanger, the minute-hand staff of the chronometer movement being co-axial with the worm gear and being hollow, the worm gear having a spindle extending through said hollow staff, said staff and spindle being each provided with an index hand and mounted in position for exposing both said hands to view during their rotation.

3. A speed indicator for operating shafts

comprising, in combination with the shaft to be indicated, a hanger loose on such shaft; a chronometer movement mounted on the hanger having a hollow hand staff and a time-indicating hand on such staff; a spindle extending through such hollow shaft and an index hand thereon, and means for rotating said spindle from the operating shaft to be indicated, said two hands being mounted in position to be simultaneously visible for comparison of their rotation.

4. A speed indicator for operating shafts comprising, in combination with the shaft to be indicated, a hanger loose on the shaft and stopped against rotation therewith; a chronometer movement mounted on the hanger comprising a hand staff and a time-indicating hand on said staff; another hand staff co-axial with said time-indicating staff, and means for rotating it from the shaft to be indicated, said two hand staffs being co-axial, and one of them being hollow and having the other extending through it, the two hands being mounted on their respective staffs in position to be simultaneously visible for comparison of their rotation.

In testimony whereof, I have hereunto set my hand, at Chicago, Illinois, this 24th day of May, 1909.

JOHN K. STEWART.

Witnesses:

J. S. ABBOTT,
M. GERTRUDE ADY.