W. J. HERSCHEDE AND C. COHAN.

SPEED REGULATING DEVICE.

APPLICATION FILED JULY 2, 1917.

1,352,419. Patented Sept. 7, 1920.

Fig. 1.

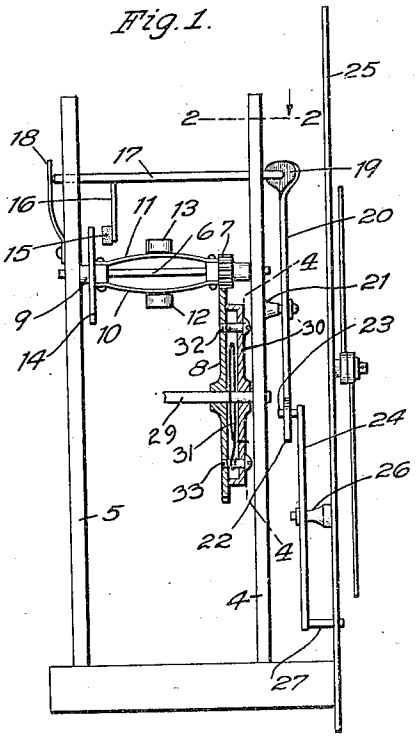


Fig. 2.

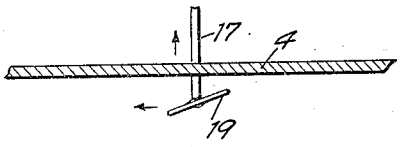


Fig. 3.

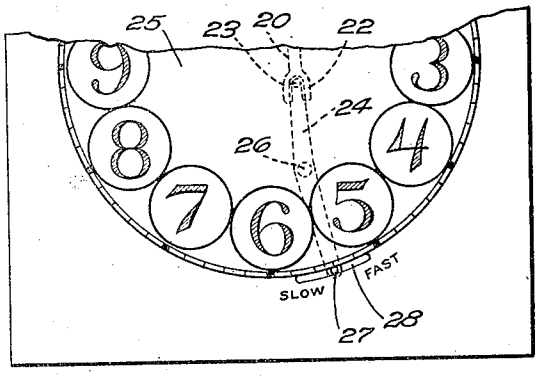
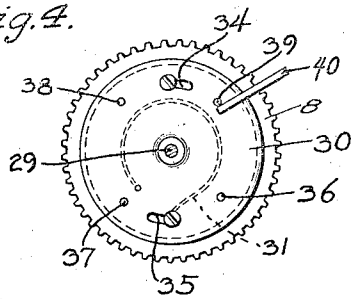


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WALTER J. HERSCHEDE AND CHARLES COHAN, OF CINCINNATI, OHIO, ASSIGNORS TO THE HERSCHEDE HALL CLOCK COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

SPEED-REGULATING DEVICE.

1,352,419. Specification of Letters Patent. Patented Sept. 7, 1920.

Application filed July 2, 1917. Serial No. 178,086.

To all whom it may concern:

Be it known that we, WALTER J. HERSCHEDE and CHARLES COHAN, citizens of the United States of America, and residents of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Speed-Regulating Devices, of which the following is a specification.

An object of our invention is to produce an improved speed regulating device for the chiming mechanisms of chime clocks, in which control thereof may be accomplished by an unskilled person, without tools and without having to dismantle any portions of the clock.

This and other objects are attained in the mechanism described in the following specification and illustrated in the accompanying drawing, in which;

Figure 1 is an end elevation of the usual plates of an ordinary clock works, certain elements of the usual chiming mechanism being mounted thereon, with a clock face and our improved mechanism incorporated therewith.

Fig. 2 is a fragmental sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmental front elevation of the clock face shown in Fig. 1, showing the position occupied by certain elements of our improved device which are connected therewith.

Fig. 4 is a fragmental sectional view taken on the line 4—4 of Fig. 1.

In the illustrated embodiment of our improved speed regulating device we have shown the front and back plates 4 and 5 respectively of a clock works to which our improved device is attached. In the position usually occupied by the ordinary fan wheel shaft of chime clock mechanisms, we have mounted a shaft 6 which carries a driving pinion 7 meshing with the usual driving mechanism, a gear 8 of which is shown. Rotatively mounted upon shaft 29 to which gear 8 is secured, is a disk 30 which is slightly recessed on its side adjacent to the gear, for the purpose of receiving a spring 31 which has one end connected with the disk and its opposite end connected with one of a pair of screws 32 and 33 which engage slots 34 and 35, for the purpose of permitting relative movement of the disk and the gear and simultaneously retaining the disk in engagement with the gear. Disk 30 carries the usual series of stop pins 36, 37, 38 and 39 which are adapted to be engaged by the stopping finger 40 of the mechanism operated from the clock mechanism to stop the chiming mechanism at the proper time. Spring 31 operates to retain disk 30 in such a position that screws 32 and 33 occupy the same relative ends of the slots.

Upon shaft 6 we mount reciprocally a sleeve 9 which is connected with pinion 7 by means of leaf springs 10 and 11 to which are connected weights 12 and 13 which are adapted to act as governor weights during the rotation of shaft 6. Sleeve 9 carries a disk 14 adapted to be brought into engagement with a cushion 15 mounted on the end of an arm 16 extending from a shaft 17 reciprocally mounted in the plates of the clock works. Shaft 17 at one end engages a spring 18 which normally retains the opposite end of the shaft in engagement with an inclined plate 19 formed on a lever 20 pivoted on stud 21 extending from the front face of the front plate 4 of the clock works. The lower end of lever 20 is forked as disclosed at 22 in Fig. 3, for engagement therewith of a pin 23 located in the upper end of an adjusting lever 24 pivotally mounted on the clock face 25 by means of a stud 26. The lower end of lever 24 is provided with a pin 27 which engages a slot 28, see Fig. 3, formed in the clock face beneath the dial thereof. One end of slot 28 is marked "Slow" and the opposite end of slot 28 is marked "Fast" as indicated in Fig. 3. The pivot pins of each of the levers 20 and 24 are made such that they are fairly tight so as to hold plate 19 in any of its adjusted positions.

In the operation of our improved device it is but necessary to move pin 27 toward the position indicated by "Slow" in order to move plate 19 to cause it to move shaft 17 toward the rear as indicated by arrows in Fig. 2, in order to bring cushion 15 toward risk 14. When cushion 15 touches disk 14 the friction restrains the action of weights 12 and 13 and prevents rapid rotation of shaft 6 and disk 14. Thus the chiming mechanism connected with pinion 7 is caused to operate slowly. By moving pin 27 in the opposite direction toward "Fast," plate 19 is moved so as to permit spring 18

to move shaft 17 toward the front in a direction opposite to the arrows in Fig. 2 and to withdraw cushion 15 from disk 14 so that the disk may move toward the front until it engages with the cushion and thereby permits weights 12 and 13 to flex springs 10 and 11 to a greater extent. The chiming mechanism connected with pinion 7 is thus permitted to operate faster.

The action of disk 30 each time the finger 40 enters into engagement with pins 36 to 39 inclusive, is to stop the rotation of the disk and to permit spring 31 to yield as the inertia of movement of the weights 12 and 13 continues to cause rotation of pinion 7 and gear 8. As the momentum of rotation is absorbed by spring 31 the mechanism is brought to a stop without shock. This is of particular value for the reason that it saves the sensitive leaf springs 10 and 11 from becoming twisted or broken and otherwise damaging the mechanism. As soon as the rotation of the governor has been stopped, spring 31 in resuming its normal condition, causes slight reverse rotation of shaft 6, pinion 7, the governor, and the driving mechanism represented by gear 8.

Having thus described our invention, what we claim is;

A speed regulating device comprising a chime mechanism, a shaft rotatively mounted adjacent to the chime mechanism, a pinion mounted on the shaft and connected with the chime mechanism, adapted to rotate the shaft during operation of the mechanism, a device mounted on the shaft and responsive to the centrifugal force of rotation thereof, a second shaft reciprocally mounted adjacent to said shaft, a friction cushion mounted on the second shaft and adapted to be engaged by the centrifugal device during operation thereof, a spring engaging one end of the second mentioned shaft and adapted to retain the second mentioned shaft in a position such that the cushion permits of maximum speed of rotation of the centrifugal device, an inclined plate adapted to engage the opposite end of the second mentioned shaft and to be moved to different positions to reciprocate the second mentioned shaft against the tension of the spring, and means accessible from the front of the clock adapted to move the inclined plate to its different positions.

In testimony whereof, we have hereunto subscribed our names this 30 day of June, 1917.

WALTER J. HERSCHEDE.
CHARLES COHAN.

Witnesses:
WALTER F. MURRAY,
W. THORNTON BOGERT.