(No Model.)

C. D. BROWN.

CLOCK STRIKING APPARATUS.

No. 517,838. Patented Apr. 10, 1894.

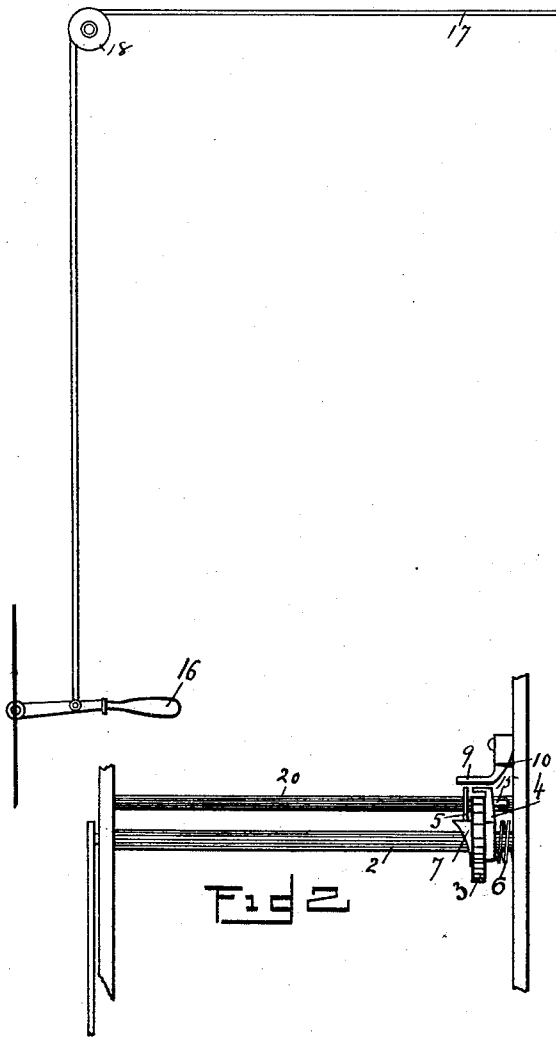

Fig 2

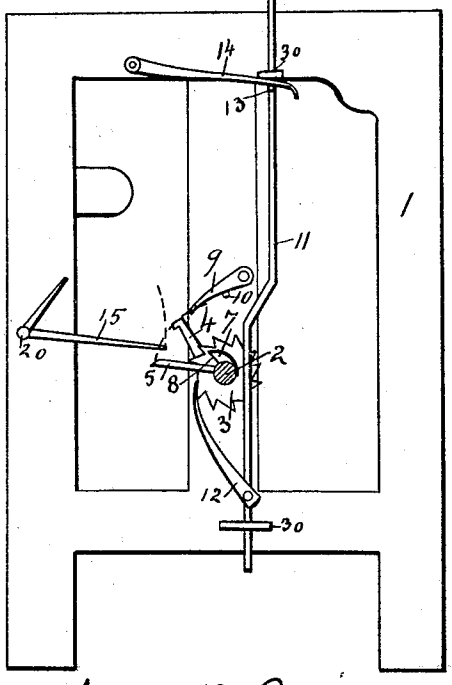

Fig 1

Charles D. Brown
INVENTOR

WITNESSES:
H. F. Brewer,
W. J. Culley

BY C. A. Snow.
ATTORNEY.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES D. BROWN, OF AMES, IOWA.

CLOCK STRIKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 517,838, dated April 10, 1894.

Application filed June 19, 1893. Serial No. 478,187. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. BROWN, of Ames, in the county of Story and State of Iowa, have invented certain useful Improvements in Clocks; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to a new and novel improvement in clocks, and is adapted to provide a means whereby a blind person can tell the time either day or night.

In the accompanying drawings, Figure 1 shows a part of the housing of the clock as ordinarily constructed, showing the essential features of my invention in position, while Fig. 2 shows a side view of Fig. 1.

Similar numerals refer to corresponding parts.

In the arrangement of my instrumentalities 1 represents the rear plate of any ordinary clock housing and 2 the main or hand shaft to which the hour and minute hand is attached. This shaft 2 is supported in the usual manner and provided with the usual teeth and gear wheels necessary in operating a clock, but in addition I have provided the mutilated ratchet wheel 3, the stop arm 4 and the pin 5. The pin 5 is of metal and may be an ordinary piece of wire which is secured within the shaft 2. The mutilated ratchet 3 and stop arm 4 are very loosely mounted upon the shaft 2, secured between the housing and the arm 4.

I have arranged an ordinary coil spring 6 as shown in Fig. 2. This spring has a tendency to always force the mutilated ratchet against the pin 5, as shown. Secured to this mutilated ratchet is a gradually extending cam 7 shown in both figures, which abruptly terminates so as to form a square shoulder 8, against and upon which the pin 5 is adapted to ride in carrying the mutilated ratchet with it. At a suitable point I have provided the housing with an ordinary gravity actuated stop 9, which is suitably pivoted and rests upon the pin 10. Supported either upon the inside or outside of the housing is preferably a vertically reciprocating arm 11, which works within suitable bearings and is provided with arm 12 slightly curved at its forward end and operating in the capacity of a pawl to actuate the mutilated ratchet 3. At a suitable point this rod 11 is provided with an extending shoulder 13, upon which the bow spring 14 secured at a suitable point is adapted to ride, and so always forces the rod 11 to remain in its lower and downward position, as will be understood by referring to Fig. 1.

15 represents the arm actuating the striking mechanism of the clock. This arm 15 may be at any point to conform to the structural peculiarities of the clock, my device being adapted to be used in combination with any clock.

16 represents an ordinary lever, which may be secured to the wall of the same room in which the clock provided with my improvement is placed, or it may be secured in another room at a distance from the clock, and is connected to the rod 11 by the strand or wire 17.

As far as described the instrumentalities properly arranged compose my improvement.

Now if for instance any person deprived of sight should desire to know what time it would be, it would simply be necessary for him to know where to find lever 16, and grasping which it would simply be necessary to force the lever downward and count the number of downward strokes that were necessary before the clock struck the hour. It should have been mentioned that the mutilated gear has a tooth for every five minutes of an hour, so that when the operator began forcing down he would have to allow five minutes for every downward stroke. For instance, if he pressed the lever down three times and the clock then struck the hour of four, he would know that it was fifteen minutes to four. This operation of course could be gone through with at any time of the day or night, it simply being necessary for the operator to allow five minutes for every downward stroke of the lever before the clock began to peal. Now, however, the striking mechanism has been set in advance of the time mechanism. In its operation the rod 11 would rise and carry the pawl 12, which is connected to the ratchet upward, and so feed the ratchet forward. This forward feeding would be independent

of the movement of the shaft 2, as the movement of the ratchet would be away from the pin 5. This ratchet it will be remembered is provided with the extended arm 4, which as it is made to revolve will come in contact with the striking lever 15, to release the striking mechanism to strike the hour. Then as the operator would continue his downward movement, the pawl 12 would ride upon the mutilated portion of the ratchet as shown in Fig. 1, and so that the ratchet would be permitted to remain at rest, the stop 9 engaging the arm 4 and preventing any further movement of the same. Now as the shaft 2 continued to revolve independent of the ratchet, the pin 5 would gradually catch up to the arm 4 and engage the gravity actuating arm 9, and raising the same permit the escape of the arm 4, and at the same time engage the cam and so carry the ratchet forward.

It will of course be known that I could provide a tooth for every minute of the hour in place of providing one for every five minutes, so that the operator could get the time within sixty seconds.

Another feature which possesses great value in my device is that the hands of the clock can be turned backward at any moment without interfering and without detriment to the working mechanism within the clock. If, for instance, the hands should be carried in the opposite direction, the shaft would of course revolve in the opposite direction, and as the pin came in contact with the cam 7, it would gradually ride over the same without disturbing anything until it came to the shoulder, and then the ratchet of course would fly forward again until in its revolution the arm 5 for the second time over the cam, which would of course be again forced out of position. The spring 6 permits this backward movement of the mutilated ratchet, so that said ratchet could remain at one point and the shaft 2 be revolved any number of times without disturbing any of the working effects.

The device is simple, inexpensive, and is adapted to be attached to any clock; and

Having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. The combination with an ordinary clock housing, provided with a main shaft, of a pin secured to said shaft, a mutilated ratchet working upon said shaft and against said pin, and provided with an upwardly extending cam provided with the shoulder adapted to receive said pin, an extending arm secured to said ratchet, said ratchet riding loosely upon said shaft, and an arm provided with a pawl for operating said mutilated ratchet, said extending arm being adapted to operate the gong lever, all substantially as and for the purpose set forth.

2. In a clock, the combination with the hand shaft, of a pin secured to said shaft, a mutilated ratchet riding loosely upon said shaft and provided upon the pin side with an extending cam provided with an abutting shoulder, and upon the other with an extending arm adapted to engage the lever of the striking mechanism of the clock, a stop in the path of said arm and a spring actuated pawl for operating said ratchet said pin in its revolution with the main shaft being adapted to drive said mutilated ratchet and actuate said stop, all substantially as and for the purpose set forth.

3. In a clock, the combination with the hand shaft, of a pin secured within said shaft, a mutilated ratchet provided with a number of teeth representing a given number of moments of the hour, and provided with an extending cam, an extending arm secured to said mutilated ratchet adapted to actuate the striking lever of the clock, and a spring actuated rod provided with a pawl adapted to actuate the ratchet, said ratchet being adapted to be operated a given number of times and then remain inert or dead by virtue of the mutilated portion, all substantially as and for the purpose set forth.

4. In a clock the combination with a housing, the shaft 2 provided with the loosely working ratchet 3, the arm 4 secured to said ratchet, the pin 5 secured to said shaft 2, the spring 6 forcing said pawl against the pin 5, the cam 7 adapted to hold the pin 5 upon one side, the stop and pawl 12 secured to the spring actuated operating rod 11, all of said instrumentalities being arranged to operate, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES D. BROWN.

Witnesses:
S. L. LOUGHRAN,
J. B. PAXTON.