2 Sheets—Sheet 1.

SCHROCK & FISCHER.

Clock.

No. 4,791. Patented Oct. 3, 1846.

Fig. 2.

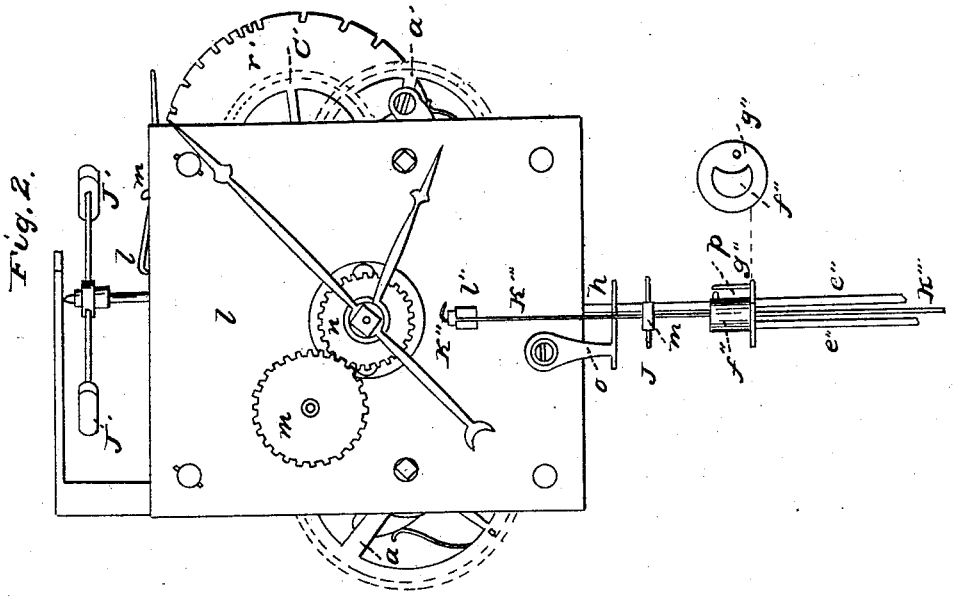
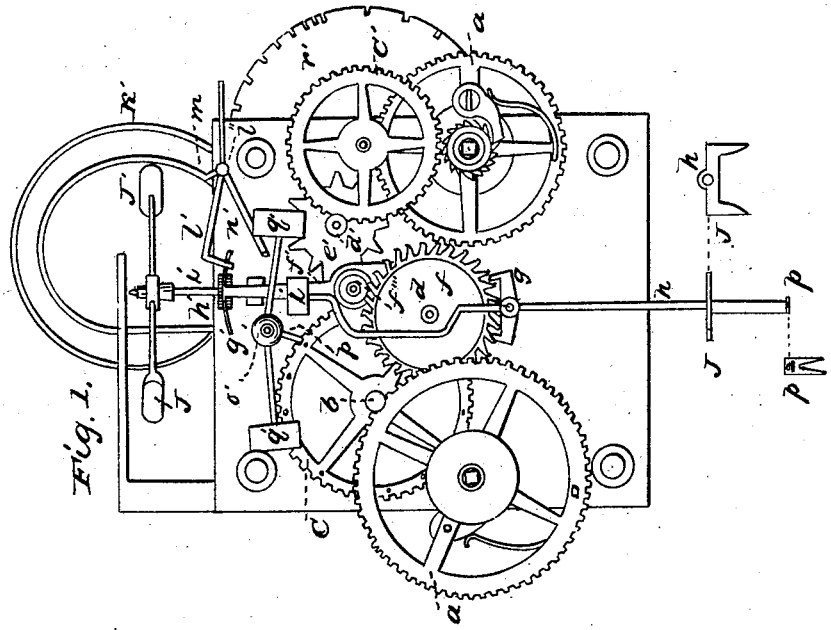


Fig. 1.



2 Sheets—Sheet 2.

SCHROCK & FISCHER.

Clock.

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Fig. 3.

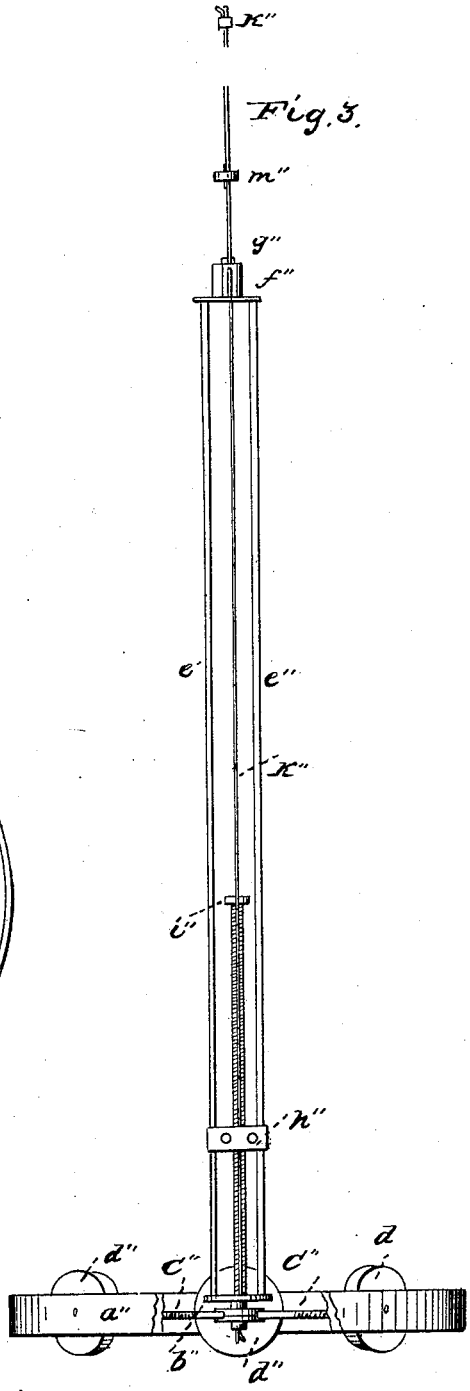
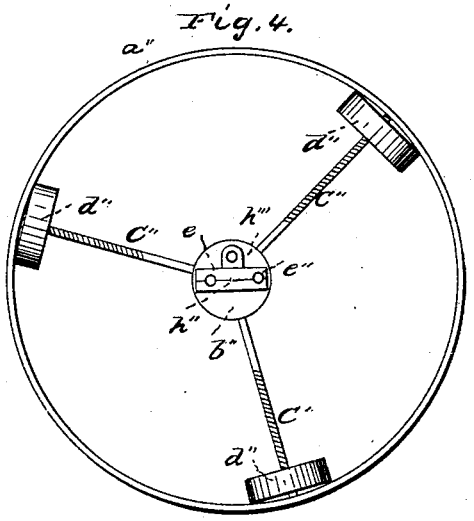


Fig. 4.



UNITED STATES PATENT OFFICE.

JOHN M. SHROCK, OF MILLERSBURG, OHIO, AND JOHN G. FISCHER, OF QUINCY, ILLINOIS.

CLOCK.

Specification of Letters Patent No. 4,791, dated October 3, 1846.

To all whom it may concern:

Be it known that we, JOHN M. SHROCK, of Millersburg, in the county of Holmes and State of Ohio, and JOHN G. FISCHER, of Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Clocks, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a geometrical front view of the exterior of the clock, the face thereof being removed; Fig. 2, a front view of the interior works; Fig. 3, an elevation of the pendulum, and Fig. 4, a plan of the same.

The same letters indicate like parts in all the figures.

The following description of our invention we shall render in three parts; 1st the time keeping part; 2nd the pendulum; 3d the striking part.

The time keeping part consists of the main-wheel (*a*) of 144 teeth on one side of the clock, and which is furnished in the usual manner with a click-spring, click and ratchet wheel, and on its arbor is the barrel, around which winds the cord to which the weight is attached. This wheel meshes into a pinion (*b*) of 10 leaves on the arbor of the second wheel (*c*) which has 120 teeth, and works in a ten leaf pinion (not seen on drawing) on the center or index arbor (*d*). On the back of said second wheel there are 15 lift-pins, by means of which the striking part is connected with the time part. On the pinion and arbor (*d*) in which the second wheel meshes is the scape wheel (*e*) furnished with a dish formed plate (*f*) called the convex friction spring which serves in the usual way as is well known to clockmakers to prevent the derangement of the striking part during the process of moving the hands. Somewhat below and a little on one side is an arbor which carries the anchor (*g*), which is what is known by the name of a dead-beat detached anchor. To the same arbor is attached the bob (*h*), and in opposition to the bob, and on the upper side of said arbor there is a counter balance (*i*), to keep the bob from falling back of its own accord. On the lower extremity of the bob there is a hook-fork (*j*) for the purpose of throwing the bob out of the way of the upper collet of the pendulum hereafter described. On the second wheel arbor, in front of the front plate (*l*), there is a wheel (*m*) of 60 teeth, which moves the hour wheel (*n*) of 48 teeth. Attached to the front plate (*l*) by means of a screw is the bob guard (*o*) which prevents the bob from swinging out too far. On the lower extremity of the bob, bending forward at a right angle is the crotch (*p*) from which extends upward the above named hook-fork (*j*).

The rotary balance pendulum consists of the balance rim (*a''*) and the center collet (*b''*) which are connected together by three wires (*c''*) with screw threads on which the regulating balls (*d''*) move. By advancing said balls toward the center, the speed of the clock increases, and vice versa toward the rim. From the aforesaid center-collet rise two upright pendulum wires (*e''*), on the upper ends of which is placed another collet (*f''*). This collet consists of a circular plate, on the top of which there is a short cylinder of about half the diameter of the plate, and one fourth of which cylinder (opposite to where the impulse pin (*g''*) is placed) is longitudinally cut out in a quarto-circular manner so as to allow the crotch (*p*) to pass when acted upon by the said impulse pin. The two upright pendulum wires are embraced by the slide (*h''*), which is made of two pieces and held together by means of two small screws. This slide has on one side a small flange (*h'''*) through which passes an upright thumb screw (*i''*) which moves it up and down, the lower extremity of said screw passes through the plate forming part of the center collet (*b''*) below which it has a knob or head; this screw serves to regulate the speed of the clock by shortening the spring (*k'''*). By raising the slide, the speed is accelerated, and by lowering it retarded. To the upper extremity of the pendulum-spring (*k'''*) is attached a collet (*k''*), by means of a key, and by this collet the pendulum is suspended to the stud (*l''*); said spring (*k''*) passes freely through the center of cylinder (*f''*) and thence down to the collet (*b''*) where it is attached, thus giving free play for torsion to the spring. In line with the hook fork (*j*) above mentioned, and attached to the pendulum wire is placed the "bob-catcher" (*m''*) the form of which

resembles a heart, and which, at intervals of one minute each, catches the bob by means of the hook fork (j) till the impulse pin (g'') is brought into the fork (p) and causes the bob to oscillate once a minute; consequently the minute hand moves the distance of the space marked on the face of the clock at once, instead of its gradual motion as in other clocks.

The striking part consists of its main wheel (a') of 96 teeth, which is furnished with click, click spring, ratchet, &c., similar to the main wheel of the time part, opposite to which it is located. It works into a pinion of 12 leaves, which is on the same arbor with the second wheel (c') of 72 teeth, which latter works again into a 10 leaf pinion (d') on the same shaft or arbor with the third or 'scape wheel (e'). This wheel has 13 teeth and is acted upon by a recoil anchor (f') placed on an arbor (f''') somewhat above and to one side of the center arbor (d). On this arbor (f''') is an oscillating rack (g') extending upward having 13 teeth working into a 16 leaf pinion (h') on a vertical arbor (i'). On this arbor somewhat above the last named pinion are placed two hammers (j') which oscillate horizontally, and thus alternately striking a bell (k') designate the time. Near the upper edge of the back part of the frame and on the opposite side to the time work, there is an arbor (i'') to which are fastened the rack-detent-wire (l'), the count-wheel detent wire (m'), and the discharge wire (n'). Another arbor (o') is placed nearly on a line above the center arbor (d) somewhat to the left of it and near the top of the clock. To this arbor is fastened one extremity of the lift-wire (p'), the other extremity of which being acted upon by the lift pins on the second wheel (c), by means of which the time part and striking part are connected together and vibrate the discharge balance (q') which is also attached to the arbor (o'); the arms of this balance are bent downward so as to keep the weight below the center of the arbor, for the purpose of keeping them on a level or balance when at rest. By this arrangement it will be obvious that when the lift wire (p') is acted on by the pin on the second wheel (c) it causes the discharge balance to vibrate and lift the discharge wire (n') and detent wire (l') which puts the striking part into operation. Back of the back plate of the clock, and on the same arbor with the second wheel (c'), is placed the count wheel (r') which has three divisions, so as to revolve only once in 36 hours.

What we claim as our invention and desire to secure by Letters Patent is,

1. In the time keeping part, first, the lift pins (15, more or less) on the second wheel (c), by which the striking part is connected with the time part; second, the counter balance (i), to keep the bob (h) from falling back of its own accord; third the hook-fork (j), by means of which and the bob catcher (m''), the bob (h) is thrown out of the way of the upper collet (f'') of the pendulum; and sixth, the manner or means by which the power is communicated from the bob (h) to the pendulum to give it motion, by the employment of the impulse pin (g') and crotch (p').

2. We claim, in the pendulum, constructing the weight in the manner described and the manner of regulating.

3. And we claim, in the striking part, first, the oscillating rack (g) of 13 teeth (more or less) extending upward and working into a pinion of 16 leaves (more or less) on a vertical arbor (i) with two hammers (j') to which it gives an oscillating motion, so as alternately to strike a bell to indicate the hour; and second, the balance (q') which discharges the detent wire (n') in due time.

JOHN M. SHROCK.
JOHN G. FISCHER.

Witnesses for Shrock:
RUBEN ANSEL,
SAMUEL HUFFORD.

Witnesses for Fischer:
DAVID REBEN,
HENRY REGSLER.