No. 819,708. PATENTED MAY 8, 1906.

A. BANNATYNE.

WHEEL FOR CLOCKS OR WATCHES.

APPLICATION FILED JUNE 29, 1901. RENEWED OCT. 10, 1905.

Fig. 1.

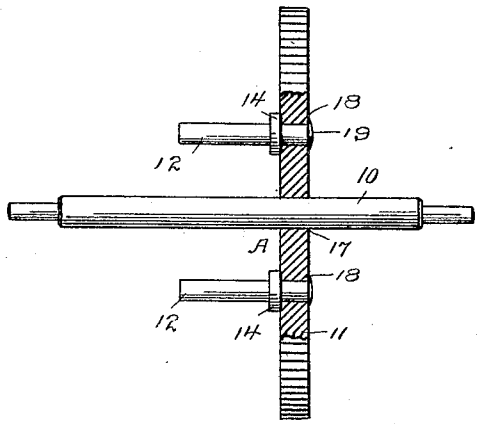

Fig. 2.

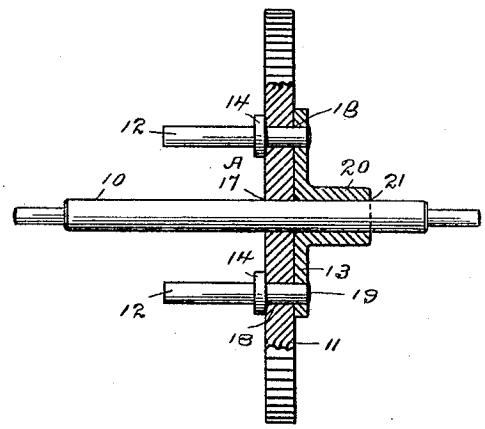

Fig. 3.

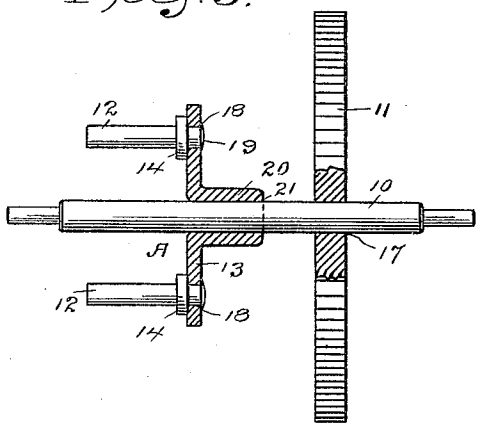

Fig. 4.

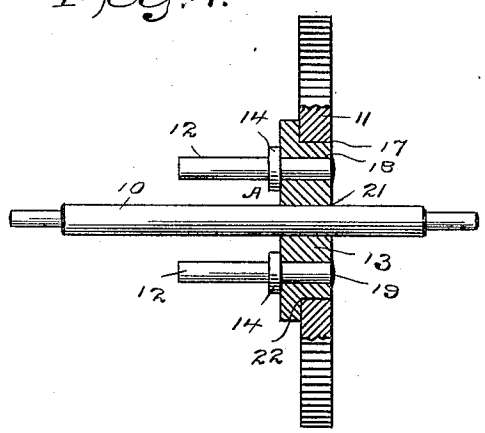

Fig. 6.

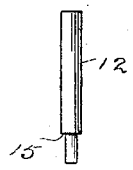

Fig. 5.

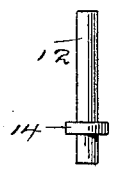

Fig. 7.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ARCHIBALD BANNATYNE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE BANNATYNE WATCH CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

WHEEL FOR CLOCKS OR WATCHES.

No. 819,708. Specification of Letters Patent. Patented May 8, 1906.

Application filed June 29, 1901. Renewed October 10, 1905. Serial No. 282,165.

To all whom it may concern:

Be it known that I, ARCHIBALD BANNATYNE, a citizen of the United States, residing at Waterbury, county of New Haven, State of Connecticut, have invented a new and useful Wheel for Clocks and Watches, of which the following is a specification.

My invention relates to the manufacture of clocks and watches, and has for its object to provide a combined wheel and pinion—that is, a wheel and pinion on the same arbor—so constructed that without any disadvantage whatever in the mode of operation the cost of production shall be perceptibly reduced, it being of course well understood that in the manufacture of low-priced clocks and watches a saving in the cost of production hardly appreciable in a single clock or watch becomes highly important in the aggregate.

With this end in view I have devised a wheel and pinion for clocks and watches comprising, broadly, an arbor, a wheel staked or driven thereon, and a "lantern-pinion," so called, consisting simply of a series of pins riveted into a suitable base, which may be the wheel itself or a collet staked upon the arbor, the other end of the pins being unsupported.

In the accompanying drawings, forming part of this specification, Figures 1, 2, 3, and 4 are views illustrating variant forms in which I have carried my invention into effect, and Fig. 5 is a side elevation of one of the pins which comprise the leaves of the pinion.

10 denotes an arbor, 11 a wheel, 12 pinion-leaves, and 13 a collet, that may or may not be used and may be of variant forms. It is an essential feature of my invention that the pins comprising the pinion-leaves be riveted into a base, as A, which may be a wheel or a collet. In the construction of the pins for pinion-leaves, as illustrated in Fig. 5, a collar 14 is formed by upsetting endwise the wire from which the pin is formed, leaving the diameter of the wire or pin equal on both sides of the collar. One side of this collar when the parts are assembled forms a shoulder which rests against the wheel or collet, into which the pin is driven without incurring the expense of reducing one end of the pin to form such shoulder.

In Fig. 1 I have illustrated the simplest form in which I have carried my invention into effect. In this form the wheel comprises the base and in addition to a central hole 17 to receive the arbor is provided with a series of holes 18 to receive the pins, comprising the pinion-leaves, the centers of holes 18 being of course equidistant from center to center and the center of each hole 18 being equidistant from the center of hole 17. The pins fit closely in holes 18 and are driven in until collars 14 rest firmly against the wheels. When seated in the wheel, these pins, which comprise the pinion-leaves, project slightly through the wheel, so as to provide sufficient metal for heading down, as at 19. These headings of the pinion-leaves, in connection with the collars, lock the leaves firmly in place, so that it is practically impossible to spring them or to vary their position to the slightest extent under the ordinary conditions of use.

In the form illustrated in Fig. 2 a collet is shown as used in connection with the wheel, corresponding holes 18 being made through both wheel and collet, the inner ends of the pins being made long enough to pass through both the wheel and the collet and the heads 19 being formed against the collet instead of against the wheel, as in the other form. The collar 14 bears against the wheel, as in Fig. 1. I have shown the collet as provided with a sleeve 20, formed integral therewith, both collet and sleeve and the hole 21 through them being blanked out and formed from sheet metal, as by a single operation of a double-acting punch.

In the form illustrated in Fig. 3 the collet and sleeve are made in the same manner as in Fig. 2; but the collet in this form comprises the base, is provided with holes 18, and is placed on the opposite side of the wheel, and the pins comprising the pinion-leaves are riveted therein instead of into the wheel.

In the form illustrated in Fig. 4 the collet again comprises the base and is shown as made of thicker metal and provided with a shoulder 22. In this form the collet is staked upon the arbor, and the central hole 17 in the wheel is made large enough to receive the collet closely, the wheel being locked in position by being driven upon the collet and against shoulder 22. The holes 18 are made in the collet, and the pins forming the pinion-leaves are riveted therein instead of into the wheel.

Having thus described my invention, I claim—

1. A wheel of the character described comprising an arbor, a wheel and collet on the arbor, and a series of pins extending through both wheel and collet, each pin having one end headed down and having an integral shoulder, the wheel and collet being secured together between the shoulders and the headed-down ends of the pins, the other ends of the pins being free.

2. A wheel of the character described comprising an arbor, a wheel carried thereby, a collet bearing against the wheel and having a sleeve engaging the arbor, said wheel and collet having a series of holes extending through them whose centers are equidistant from each other and from the center of the arbor and pins having collars adapted to bear against the wheel, the inner ends of said pins being headed down upon the outer face of the collet.

3. A wheel of the character described, comprising an arbor, a pin-base carried thereby and having a series of holes equidistant from each other and from the arbor, and a series of pins having integral collars bearing against one side of the said pin-base and extending through said holes and having their ends riveted or headed down against the side of the said base opposite to that against which the shoulders bear, the diameter of the pins being equal on both sides of the collars.

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

ARCHIBALD BANNATYNE.

Witnesses:
CHAUNCEY H. WHITE,
A. M. WOOSTER.