

H. I. HOTCHKISS.
Automatic Cradle.

No. 219,816.

Patented Sept. 23, 1879.

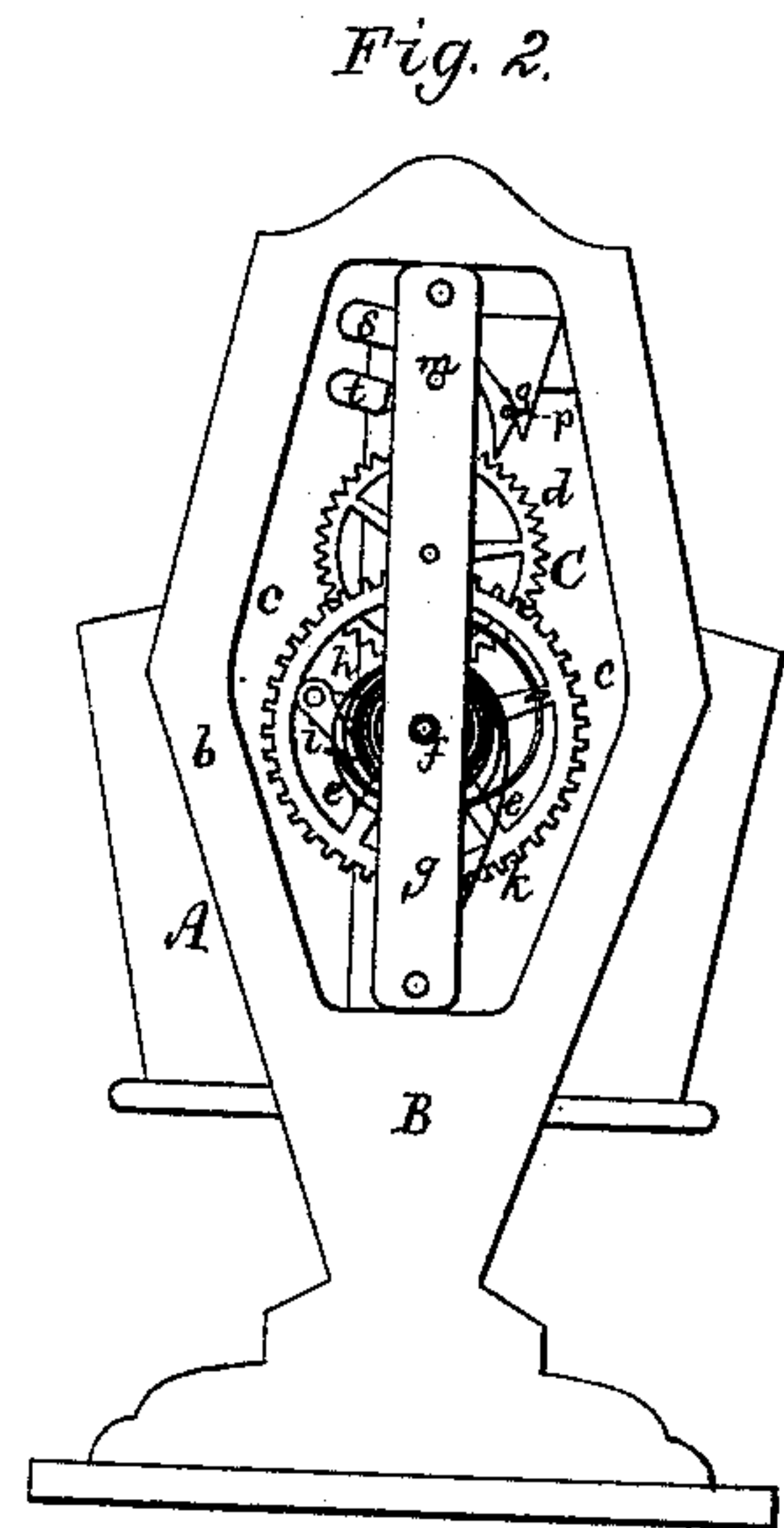
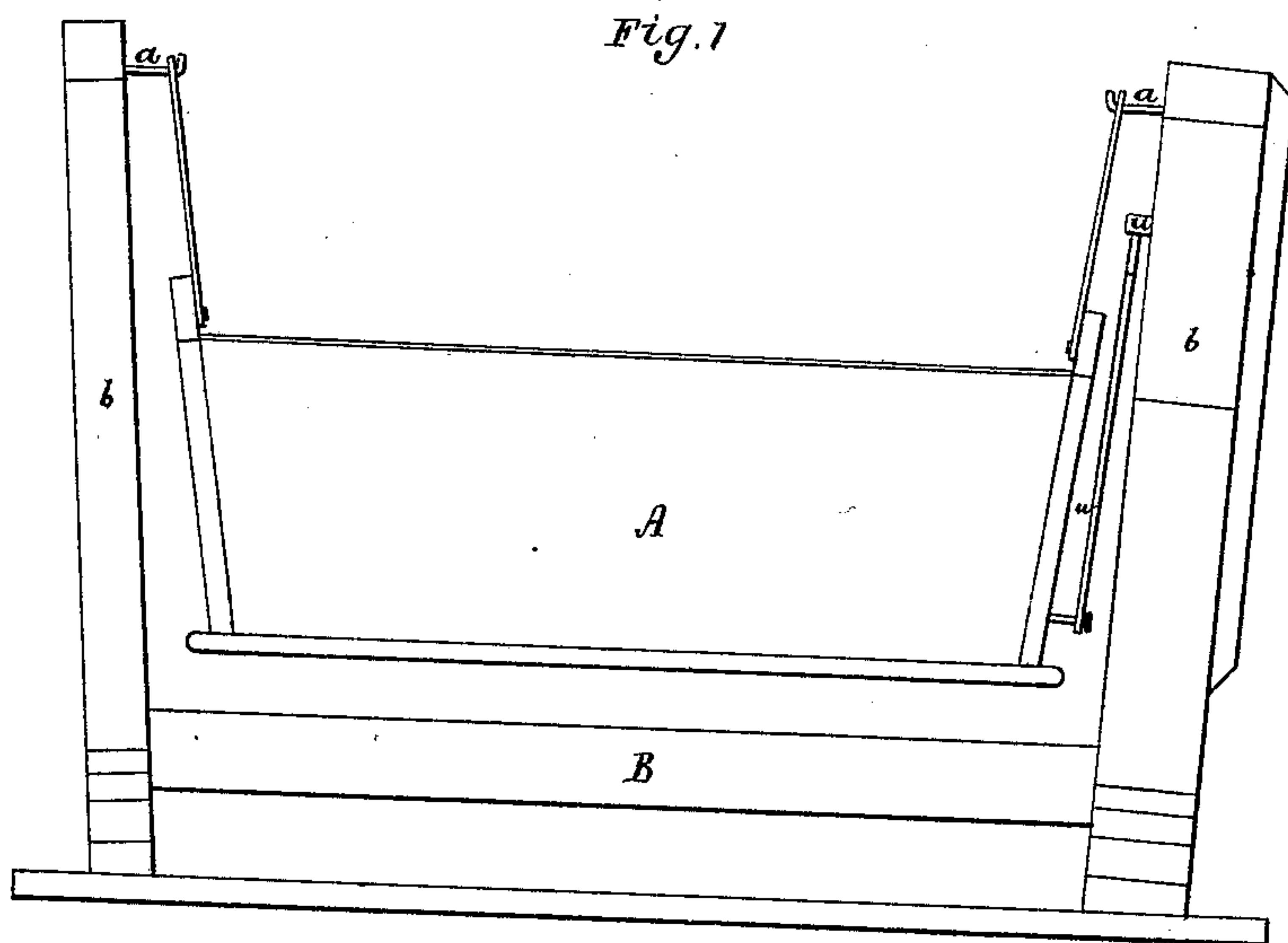


Fig. 3.

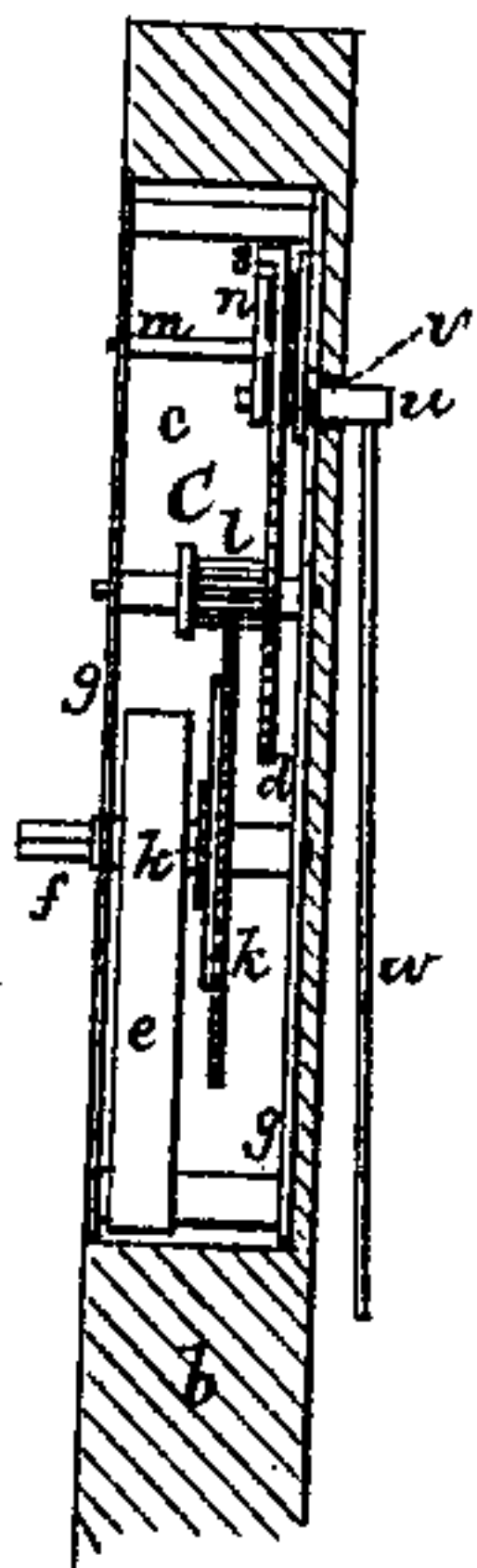


Fig 5.

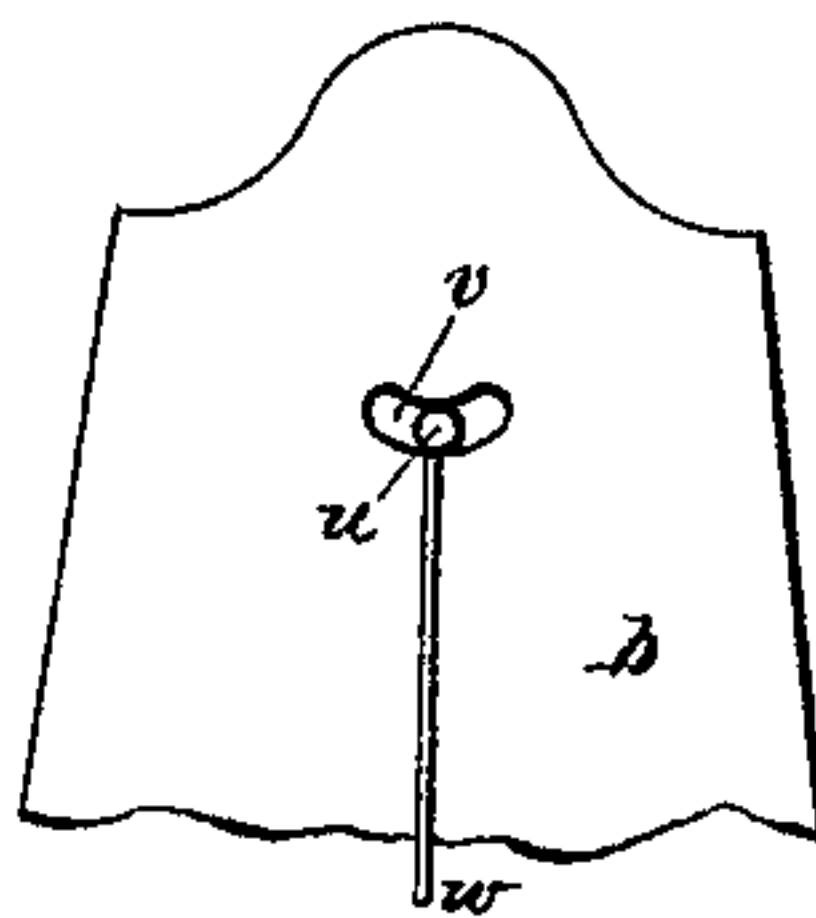
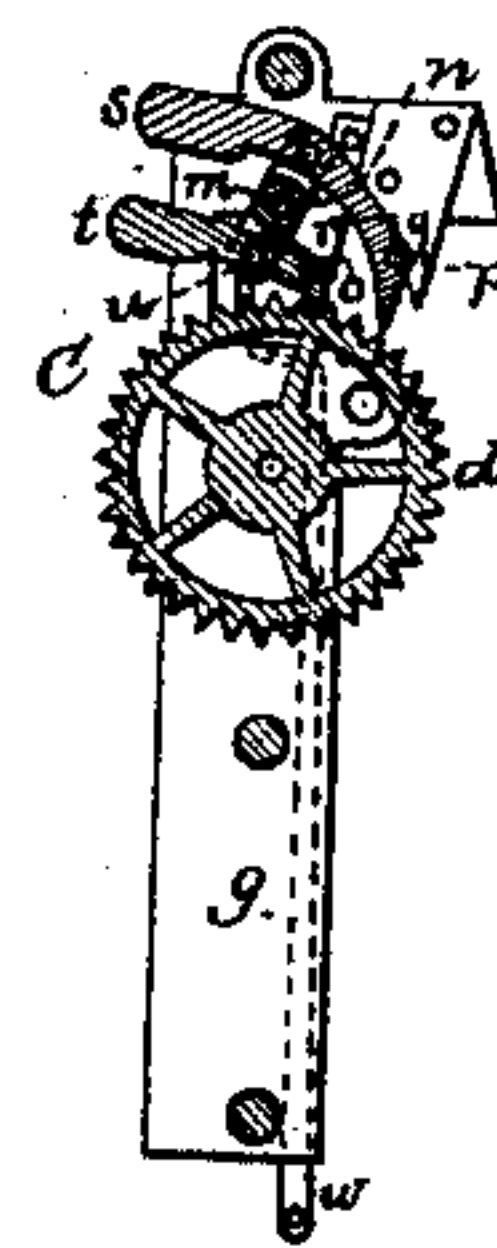


Fig. 4.



Witnesses
S. N. Piper
W. H. Lund

Inventor.
Henry I. Hotchkiss.
by attorney.
R. H. Eddy

UNITED STATES PATENT OFFICE.

HENRY I. HOTCHKISS, OF BERLIN FALLS, NEW HAMPSHIRE.

IMPROVEMENT IN AUTOMATIC CRADLES.

Specification forming part of Letters Patent No. **219,816**, dated September 23, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, HENRY I. HOTCHKISS, of Berlin Falls, of the county of Coos and State of New Hampshire, have invented a new and useful Improvement in Automatic Cradles; and do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a side elevation, and Fig. 2 an end view, of an automatic cradle and its supporting-frame having my improved mechanism for moving the said cradle, the nature of my invention being defined in the claim hereinafter made. Fig. 5 is an inside and elevation of the post *b*, provided with the slot *v*.

The cradle *A* is suspended in the frame *B*, so as to be capable of vibrating or swinging therein like a pendulum, the sustaining-pivots being shown at *a a* as projecting from the inner sides of the posts *b b* of the said frame.

Within a chamber, *c*, in one of the said posts is the clock-work mechanism for effecting the vibrations of the cradle, such mechanism being shown at *C* as furnished, as usual, with an escapement-wheel, *d*.

My invention relates to that part of the escapement which is over the said wheel, and operates with it, and is connected with the cradle, and also to the mode of combining such escapement mechanism with the cradle, such being effected by a rigid arm and by a connecting-rod projecting down therefrom and pivoted to the cradle.

Fig. 3 is a front view, and Fig. 4 a vertical section, of the escapement-wheel and the remainder of the escapement mechanism, together with the aforesaid rigid arm and rod extending down therefrom.

The main or driving spring of the clock-work is shown at *e*, its winding-arbor at *f*, its supporting-frame at *g*, its holding ratchet-wheel at *h*, the catch-pawl at *i*, and the driving-gear at *k*. This gear has the said pawl pivoted to it, and, besides, the gear engages with a pinion, *l*, fixed on the arbor of the escapement-wheel, all of which is a common and well-known clock mechanism.

Over the escapement-wheel is a rock-shaft, *m*, which extends through the middle of a le-

ver, *n*, fastened to such shaft. To the arms of such lever there are pivoted two lever-pawls, arranged to operate with the teeth of the escape-wheel. These pawls are weighted, so as to press them away from the wheel, and to cause studs *o p*, extending from the pawls, to be borne against stationary cams *q r*, by which the studs, during the vibrating movements of the lever, are alternately forced into engagement with the escape-wheel, the overbalance-weights *s t* of the pawls answering, during such vibration, to raise their pawls out of action with the escape-wheel.

From the lower arm of the lever a rigid arm, *u*, projects through a slot, *v*, in the post, and has fixed to it a rod, *w*, that extends down from it and is pivoted at its lower end to the next adjacent end of the cradle.

The slot *v*, with the rigid arm, constitutes means of preventing the teeth of the escape-wheel from being injured or broken away by the pawls, or the pawls being injured, should a person swing the cradle in one direction too far, for, with the rigid arm and the slot, the cradle, on being swung in such direction far enough, causes the arm to bring up against the end of the slot, whereby the longer pawl is estopped from advancing or being carried so far forward as to cause its stud *p* to be carried beyond the lower end of and to catch on the front edge of the cam *g*, whereby breakage of or serious injury to the escapement would be likely to take place during the next swing of the cradle.

An advantage results from having the arm *u* for connecting the rod *w* to the escapement-lever rather than by extending the shaft of such lever and directly connecting the rod to the extension.

On winding up the mainspring and swinging the cradle the lever will be vibrated so as to impart movements to both its pawls. The escape-wheel, acted on by force of the spring, will co-operate with the pawls and their levers, studs, and cams, and with the rigid arm and connection-rod, in keeping up or continuing the vibrations of the cradle until the force of the spring has become spent.

I do not herein claim a cradle provided with clock-work mechanism for vibrating it; nor do I claim an escapement therefor consisting of

a duplex toothed escapement-wheel, a rock-shaft, lever, and two pawls, as constructed, arranged, and applied in manner as shown in the United States Patent No. 20,284, as I have an escapement-wheel with but a single range or row of teeth, and the pawls of my escapement mechanism are arranged over and to operate therewith.

Furthermore, the escapement-lever is not connected by its shaft to the connection-rod applied to the cradle by a rigid arm extending, as described, from the lower arm of the lever, the lever being moved by such arm and rod.

What I claim in the automatic cradle is as follows, viz:

The combination of the rigid arm and post *b*, provided with the slot *v*, with the rod *w*, applied to the pendulous cradle *A*, and with the escapement-lever, its overbalanced pawls, and their studs and cams, arranged to operate substantially as set forth.

HENRY I. HOTCHKISS.

Witnesses:

H. M. BEAVER,
S. D. BILLINGS.