

UNITED STATES PATENT OFFICE.

ROBERT C. ELLRICH, OF PLANTSVILLE, CONNECTICUT.

PAWL AND RATCHET.

SPECIFICATION forming part of Letters Patent No. 293,957, dated February 19, 1884.

Application filed December 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. ELLRICH, a citizen of the United States of America, residing at Plantsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Pawls and Ratchets, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in ratchets having two pawls; and it consists in the construction of the pawls and the means for operating them hereinafter set forth, and more particularly pointed out in the claims.

Each of the pawls has three flat faces, one of which comes against the ratchet, and a flat bar operates on one of the other faces to hold the pawl against the ratchet, and on the other to hold the pawl away from the ratchet. The bar operates on both pawls, and a spring holds the bar against them. The ratchet-teeth have bearing-surfaces on both sides for the pawls to operate against. When one of the pawls engages the ratchet, motion is allowed in one direction, and when it is raised and the other pawl engages the ratchet, motion is allowed in the opposite direction. When both pawls engage the ratchet, motion is allowed in neither direction.

The accompanying drawings illustrate what I consider the best means for carrying the invention into practice.

Figure 1 is a section of bed and elevation of pawls and ratchets. Fig. 2 is an edge view of the device.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the head, to which are attached the sides or plates A' A'. These parts support the working parts of the device.

B is the ratchet-wheel, whose teeth *b* are provided with edges *b'* on both sides, adapted for engaging with the pawls. The ratchet B is held between the plates A' A'.

C C are the pawls, each provided with three flat faces. The face *C'* is intended to rest upon and ride over the ratchet, and the faces *C² C³* to be borne upon by a holding-bar, when the pawl is in different positions.

D is the flat holding-bar which bears upon the pawls. It is provided with a spring, *d*,

to keep it against the pawls with sufficient force to hold them in either of their two positions. The pawls are placed upon pivots *e e*, secured in the plates A', and may be turned upon these pivots to engage or disengage the ratchet. The bar D will bear against the pawl at all times, and when the pawl is engaged with the ratchet the bar D will bear upon the face *C'*, as shown in dotted lines, Fig. 1, and hold the face *C'* against the ratchet; but when the pawl C is thrown up, disengaged from the ratchet, the bar D will bear upon the face *C³*, as shown in full lines, Fig. 1, and hold the pawl away from the ratchet. Both pawls operate in the same manner, and when the bar D is holding one in engagement it serves to hold the other out, or vice versa; or it may hold both pawls in or out of engagement at the same time. As already explained, when one pawl is engaged with the ratchet motion is allowed in one direction; when the other pawl only is engaged, motion is allowed in the opposite direction; and when both pawls are engaged the ratchet is locked and no motion is allowed. The pawls are provided with milled or roughed extensions E, by which they are taken hold of to be thrown in or out of engagement. The bar D is provided with a stud, D', surrounded by the spring *d*. Both the stud and the spring extend into an opening, *a*, in the head A.

The device for operating the pawls may be somewhat varied without departing from the spirit of my invention—as, for example, two springs may be used in place of one spring and the bar.

What I desire to claim is—

1. In a pawl-and-ratchet device, a pawl, C, having three flat faces, one of which comes against the ratchet, and one of the others is borne upon to hold the pawl in engagement, and the other to be borne upon to hold the pawl out of engagement, with the ratchet, as set forth.

2. The combination, with the ratchet, and either pawl having a means for engaging the ratchet and two flat faces, of a bar, as D, adapted to bear upon one of the faces to hold the pawl against the ratchet, and upon the other face to hold it away from the ratchet, as set forth.

3. The combination of a ratchet-wheel, B,

having teeth *b*, both sides of which are adapted to be engaged by the pawls, with two pawls, each of which has two flat faces, and means for throwing them into or out of engagement
5 with the ratchet, separately or together, and a bar, *D*, having a spring, *d*, behind it, for holding the pawls in any position in which they are placed, by bearing on one or the other of the flat faces, as herein set forth.

10 4. In a pawl-and-ratchet device, the combination, with the ratchet and means for holding the pawl in or out of engagement therewith, of

a pawl having two flat faces meeting each other at an angle, upon which the means for holding the pawl bears alternately, to keep the pawl 15 in the position in which it is set, substantially as shown and described.

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

ROBERT C. ELLRICH.

Witnesses:

GEORGE TERRY,
W. C. WARREN.