

(No Model.)

G. E. HART.

MANUFACTURE OF COMBINED PINIONS AND RATCHETS.

No. 338,961.

Patented Mar. 30, 1886.

Fig. 1.

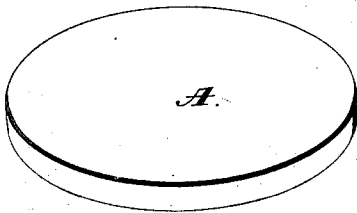


Fig. 2.

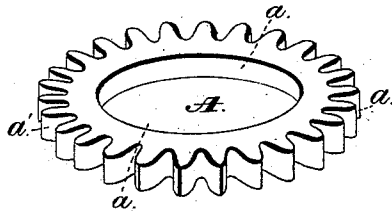


Fig. 3.

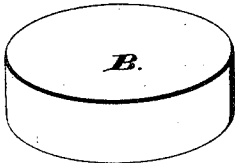


Fig. 4.

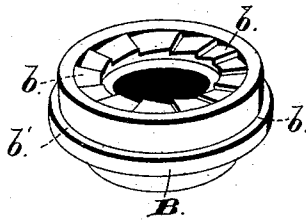


Fig. 5.

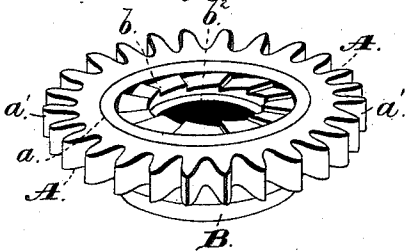
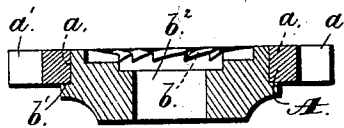


Fig. 6.



Witnesses:  
Jas. C. Hutchinson.  
Henry L. Hazarde

Inventor.  
G. E. Hart, by  
Crindle and Russell, his Attys

# UNITED STATES PATENT OFFICE.

GEORGE E. HART, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE  
WATERBURY WATCH COMPANY, OF SAME PLACE.

## MANUFACTURE OF COMBINED PINION AND RATCHET.

SPECIFICATION forming part of Letters Patent No. 338,961, dated March 30, 1886.

Application filed July 30, 1885. Serial No. 173,054. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. HART, of Waterbury, in the county of New Haven, and in the State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Combined Winding Pinion and Ratchet; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the blank used for my winding pinion or wheel. Fig. 2 is a like view of the same after completion. Figs. 3 and 4 are respectively perspective views of the ratchet and hub-blank and of the completed ratchet and hub. Fig. 5 is a like view from the outer or front side of said pinion and ratchet combined, and Fig. 6 is a central section of the same upon an axial line.

Letters of like name and kind indicate similar parts in each of the figures.

My invention has for its object the ready production of a wheel or pinion having ratchet or other teeth sunk below the plane of its face, to which end said invention consists in the method employed, substantially as and for the purpose hereinafter specified.

In carrying my invention into practice a disk of metal, A, having a suitable diameter and thickness, is provided with a central opening,  $a$ , that equals or is slightly larger in diameter than the ratchet, and has cut on its periphery gear-teeth  $a'$ , of usual form and number. A second (considerably thicker) disk, B, is placed between suitable dies, and subjected to pressure until its faces are caused to conform thereto, and its front face is provided with a concentric row of ratchet-teeth,  $b$ , and its rear face has the hub shape shown in Figs. 4 and 6. By the same, or by any usual means, the periphery of said ratchet-section is provided with a rabbet,  $b'$ , which

corresponds in diameter and depth to the diameter of the opening  $a$  and the thickness of the wheel or pinion section A, and enables said ratchet-section to be inserted within said opening, when said parts will present the appearance shown in Figs. 5 and 6, said ratchet-teeth being flush with or slightly below the front face of said pinion-section. If desired, said section B may be given its form by any other means than dies. An axial opening,  $b^2$ , is now, or, if desired, at any previous stage, provided within the ratchet-section B, after which the parts thus constructed are permanently secured together by any usual means—such as a close-pressed fit, dowel-pins, screws, solder, &c.—when the combined pinion and ratchet presents precisely the same appearance, and is for all practical purposes the same as though made from one piece, while more readily constructed and more perfect in construction than would be practicable by means heretofore employed.

Having thus fully set forth the nature and merits of my invention, what I claim is—

The hereinbefore-described method of constructing a winding pinion and ratchet, which consists in forming a plain, peripherally-toothed ring by any usual means, in forming by means of dies a hub with ratchet-teeth within and a rabbet around one end, and finally combining said parts by fitting said pinion over or upon and securing it to the rabbeted end of said hub, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of July, 1885.

GEORGE E. HART.

Witnesses:

CHARLES P. CHAPMAN,  
GEO. E. TERRY.