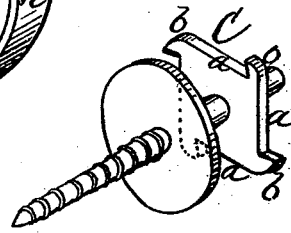
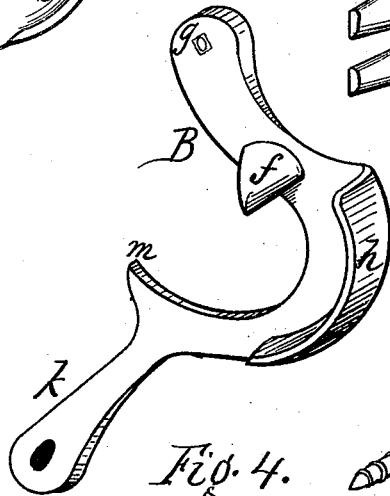
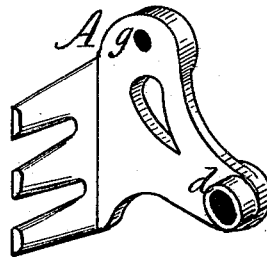
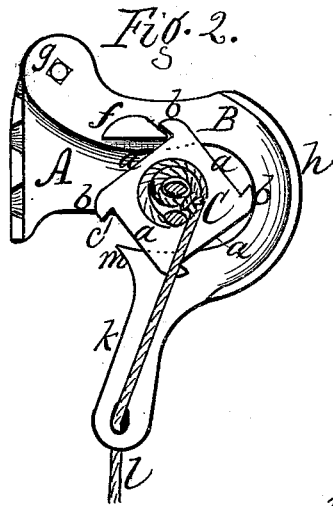
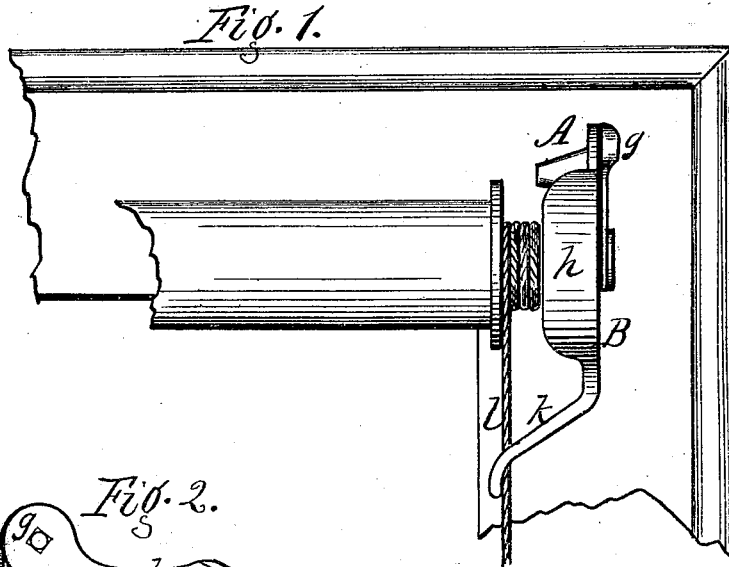


N. CAMPBELL.  
CURTAIN FIXTURES.

No. 180,109.

Patented July 25, 1876.



Witnesses.  
E. B. Scott.  
Louis D. Kahn.

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Nathan Campbell,  
per R. F. Osgood  
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# UNITED STATES PATENT OFFICE.

NATHAN CAMPBELL, OF ROCHESTER, NEW YORK.

## IMPROVEMENT IN CURTAIN-FIXTURES.

Specification forming part of Letters Patent No. **180,109**, dated July 25, 1876; application filed December 22, 1875.

*To all whom it may concern:*

Be it known that I, NATHAN CAMPBELL, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Curtain-Fixtures; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation, showing my improvement applied to a window. Fig. 2 is a side elevation of the fixture. Fig. 3 is a perspective view, showing the parts separated. Fig. 4 is a diagram, showing the operation of the ratchet and pawl.

My improvement relates to curtain-fixtures in which a ratchet and pawl-lever are used to control the running down of the curtain by the drawing of a cord which releases the pawl from the ratchet.

The invention consists in the peculiar construction of the ratchet and lever, as hereinafter described.

A represents the bracket or fixture, which is attached to the casing to support the parts. B is the lever, and C is the ratchet. The ratchet is of peculiar shape, being in the form of a square, with four right-angled sides, *a a a a*, with projections at the corners, which form the ratchet-teeth *b b b b*. These teeth, on the inner edge, are hooked or notched under, as shown at *c c c c*. The ratchet is attached to the end of the curtain-roller, and its journal rests in the bearing *d* of the bracket, as usual.

Heretofore, so far as I am aware, the ratchet has been made in the ordinary form of a ratchet-wheel, with rounded or curved edges, over which the pawl *f* has to ride in the running down of the curtain. Under rapid motion of the curtain in running down, the point of the pawl, in striking on the edge to stop the motion, runs so high that it is frequently thrown over or past the ratchet-tooth, and fails to engage, thus causing "jumping" and uncertain engagement of the pawl with the tooth. This effect is aggravated by the form of the tooth itself, which is usually square on the edge, or struck toward the center of the ratchet. The action of the ordinary ratchet in use for

this purpose is so irregular and uncertain from this cause that much difficulty has been experienced, and the motion of the curtain must necessarily be very slow to prevent jumping.

By the construction of the ratchet of the form I have above described these difficulties are obviated; for at the moment of engagement the pawl strikes low upon the square edge *a*, and rides downward under the weight of the lever till the center of the edge is reached, when it commences to ride upward again, under the leverage of the ratchet in moving forward. At the end of its movement it strikes under the hook at *c*, and is held firmly in engagement without possibility of slipping over, as a lock is thereby produced which requires a reverse or backward movement of the ratchet to release it. This action of the ratchet and pawl is illustrated most clearly in Fig. 4, in which the edge of the pawl is shown as commencing to rise upon the square edge of the ratchet as the latter revolves.

By the means above described the roller can be let down rapidly, and the pawl will be sure of its engagement with the ratchet. This form of the ratchet is easily drawn in molding, by making the division in the flask angularly from one corner to the other, and removing the cast with one tooth upward.

The lever B is attached to the bracket between its foot and the roller-bearing, either by a riveted or a loose joint, as shown at *g*. The pawl *f* is cast upon its inner side, being made sharp-edged on the working side, so as to strike fully into and under the notches *c* of the ratchet. The outer portion of the lever is carried beyond the ratchet C, and has a shield, *h*, which houses the ratchet, and the lower end is then turned inward and downward, forming the arm *k*, through which passes the cord *l*. The inner side of the lever also has a projection, *m*, forming a stop, which, in the outward movement of the lever, strikes the bearing *d* of the bracket, and prevents the lever being thrown out too far.

The lever thus constructed has its pivot-joint between the foot of the bracket, and the roller-bearing is carried outside of and beyond the ratchet, and its arm *k* is also carried

down outside, instead of between the ratchet and foot of the bracket, as has heretofore been done. This allows free action of the lever, also an easy disconnection at any time; and, furthermore, the extension outward gives the necessary counter-weight to keep the lever in place without adding metal for the purpose. The stem *m* also serves an important purpose as a stop.

I am aware that levers having a shield are known; such is shown in an application for a patent which I now have pending; but in such cases the arm of the lever passes between the ratchet-bearing and foot of the bracket, and not outside, as I have above described and such are not elongated, and have no stop *m*.

Having thus described my invention, I do not claim, broadly; either a ratchet or lever; but

What I claim as new is—

1. The ratchet C, constructed with four plain sides, *a a a a*, and hooked teeth *b b b b*, in combination with the lever B, operating in the manner and for the purpose specified.

2. The elongated lever B, constructed with the pawl *f* and stop *m*, either with or without the shield *h*, and extending outside of and around the ratchet C, in combination with a bracket having bearing *d*, in the manner and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

N. CAMPBELL.

Witnesses:

R. F. OSGOOD,  
E. B. SCOTT.