

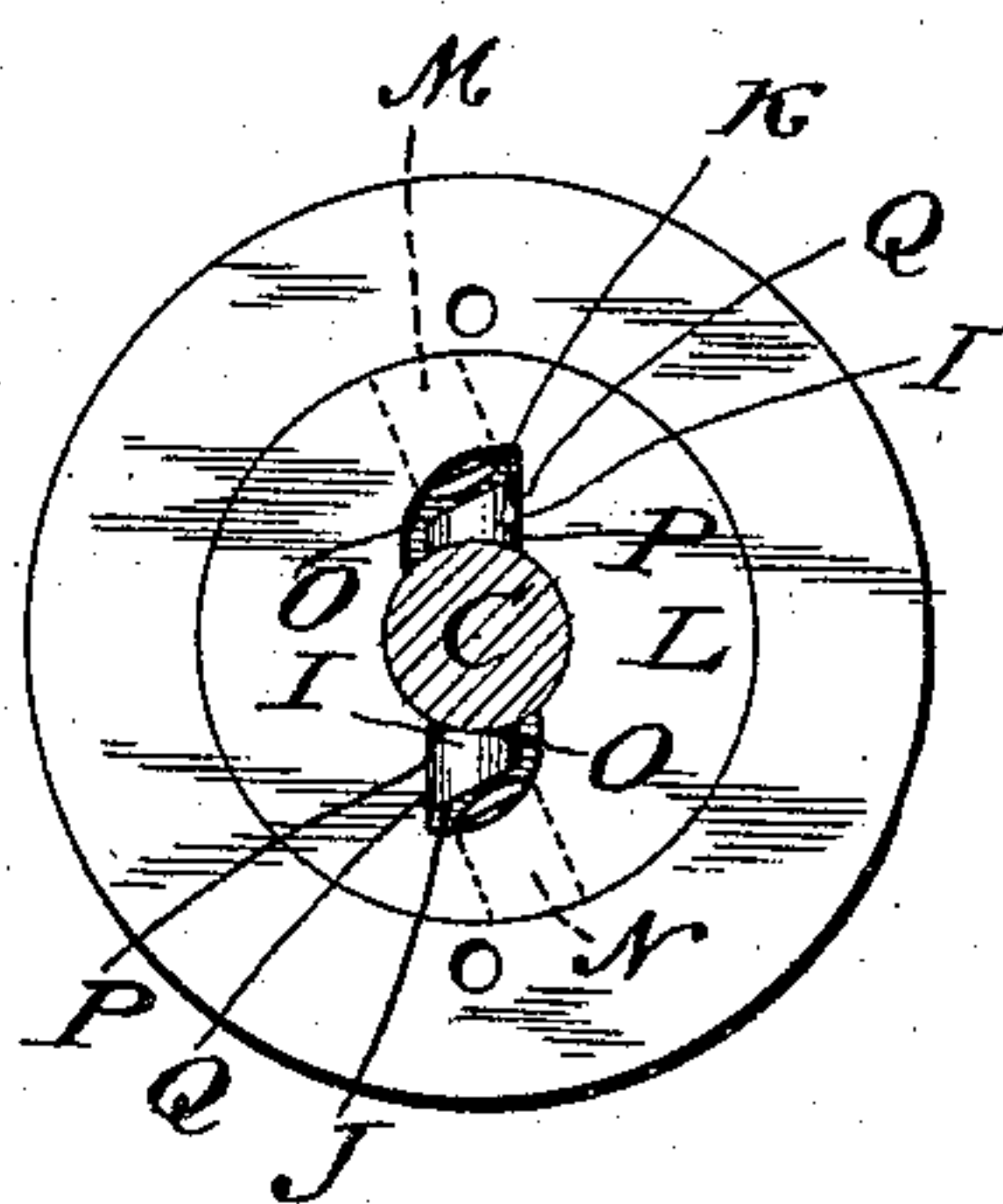
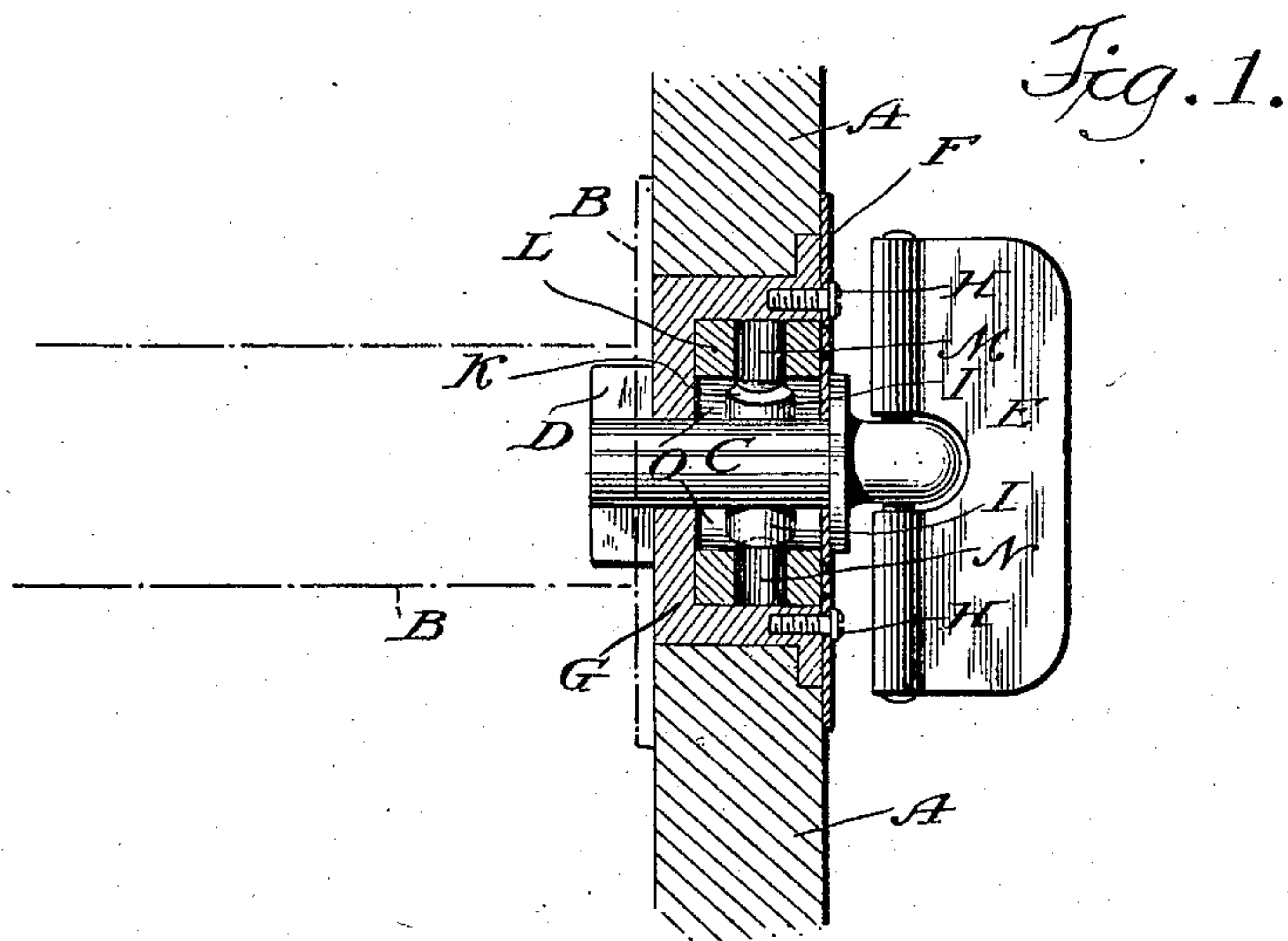
No. 842,825.

PATENTED JAN. 29, 1907.

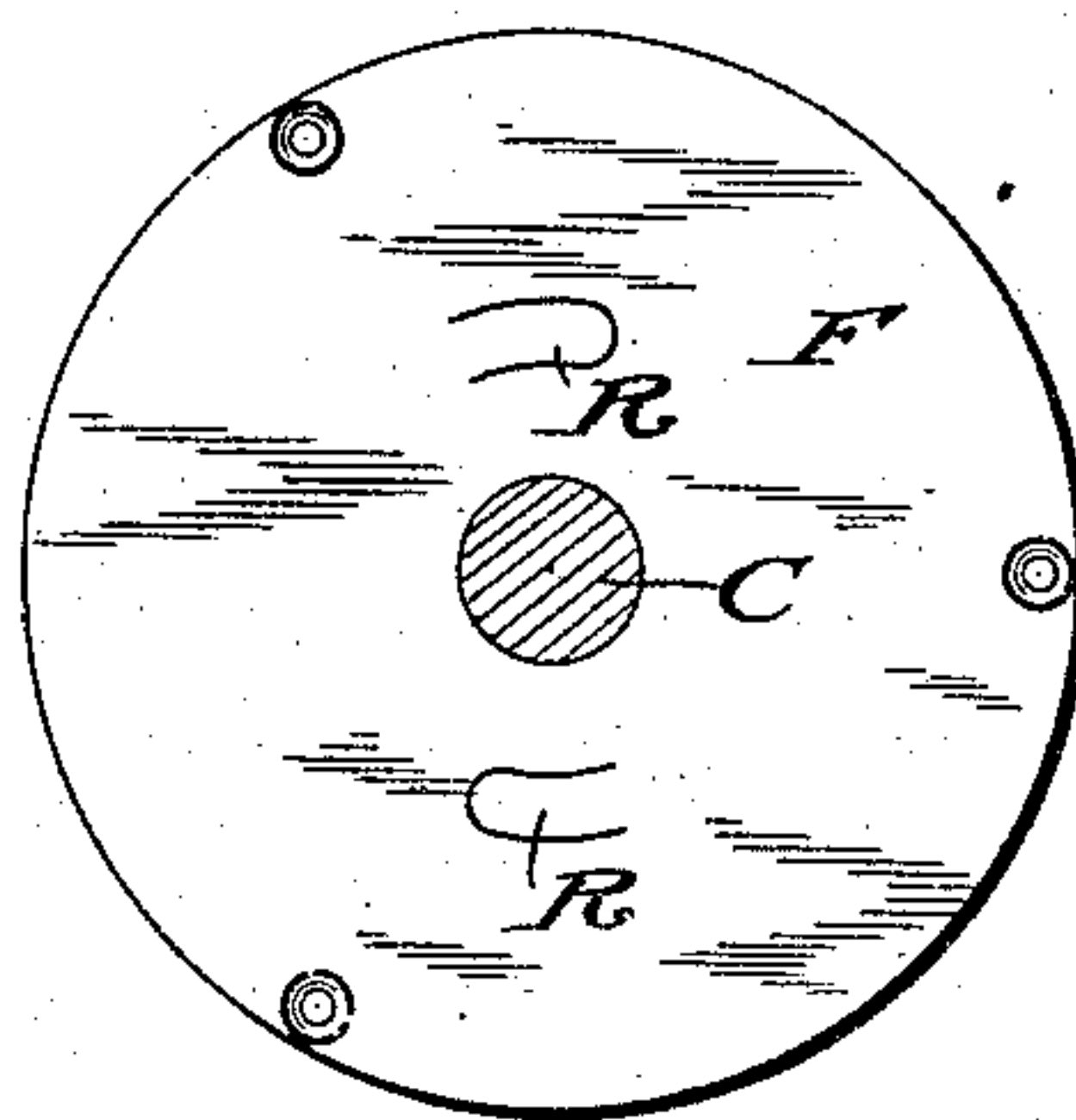
C. BORNMANN.

WINDING KEY FOR FILM CAMERAS AND ROLL HOLDERS.

APPLICATION FILED SEPT. 1, 1906.



*Fig. 2.*



*Fig. 3.*

WITNESSES

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# UNITED STATES PATENT OFFICE.

CARL BORNMAN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE  
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## WINDING-KEY FOR FILM-CAMERAS AND ROLL-HOLDERS.

No. 842,825.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed September 1, 1906. Serial No. 332,895.

*To all whom it may concern:*

Be it known that I, CARL BORNMAN, a citizen of the United States, and a resident in the city and county of New Haven, State of Connecticut, have invented a new and useful Improvement in Winding-Keys for Film-Cameras and Roll-Holders, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 illustrates a sectional view of the invention, shown partly in elevation. Fig. 2 illustrates an endwise view of the invention, the spindle of the key being cross-sectioned just inside of the exterior confining-plate and it and the thumb-piece of the key being removed. Fig. 3 illustrates a plan view of the exterior confining-plate.

The purpose of the invention is to provide a winding-key which shall be free from ratchets and pawls and pawl-actuating springs, simple and inexpensive in construction, and reliable in operation, thus correcting certain defects in winding-keys as now made.

A represents the side of a camera-box or roll-holder, as the case may be; B, the spool; C, the spindle of the winding-key, provided with the usual transverse bar D or its equivalent; E, the thumb-piece for the key; F, the exterior confining-plate, which is attached to a casing G, set into the part A by screws H or other suitable means. These parts are or may be similar to the like parts as now frequently used. The novel features are as follows: I represents a metallic pin, fastened in a hole drilled through the spindle, the ends of the pin being beveled in reverse directions, as seen at J and K. L represents a bushing fitted within the casing G, so as to turn easily therein. This bushing is hollow and has two holes bored in it, within which easily slide two pins M and N, the inner ends whereof project inwardly into two cavities O O, made in the interior wall of the hollow bushing. These cavities have each one wall P P, which is substantially radial to the axis of the bushing against which the square laterally-projecting surfaces Q Q of the pin I may engage. The confining-plate F has two short springs R R cut out from it.

The operation is as follows: When the parts are assembled, the springs R R press upon the opposed surface of the bushing and act as a brake thereon, retarding its revolution. Upon winding the key to advance the film

the surfaces Q Q of the pin I, which project from the sides of the spindle and rest in the cavities O O of the bushing, engage with the substantially radial sides P P of the cavities and compel the bushing to rotate with the spindle and spool. Thus the film is advanced in the usual manner. Upon the completion of the forward winding the operator merely releases the winding-key, whereupon the tension of the film tends to unwind the spool, and consequently the key; but the friction of the springs R R of the confining-plate retards the backward movement of the bushing, thus immediately bringing the beveled sides of the projecting ends of the pin I against the inwardly-projecting ends J K of the loose pins M N, whereby they are made to slide radially through the holes in the bushing in which they rest and press against the inner wall of the casing G with sufficient force to lock the winding-key, and consequently the spool with which it is engaged, by the transverse bar D in its then position, thus preventing backward movement or turning. Upon again turning the thumb-piece E forwardly the beveled surfaces of the pin I leave the pins M and N and its square surfaces again come immediately in contact with the radial surfaces P P of the bushing, whereby the film is again advanced and the operation thus repeated.

It will be obvious to those who are familiar with such matters that the special embodiment of my invention illustrated in the drawings is one form only in which the invention may be employed. I do not, therefore, limit myself to the illustrated construction, except as the scope of the claims requires.

I claim—

1. A winding-key embodying a rotary spindle, a bushing, movable parts carried by the bushing, an outer casing, and projections from the spindle which, when it is turned in one direction, engage with the bushing and compel it to turn in the same direction, but when turned in the reverse direction engage the movable parts carried by the bushing forcing them against the outer casing, thus locking the parts against such reverse movement.

2. A winding-key embodying a rotary spindle, a bushing and an outer casing, movable devices carried by the bushing and

means interposed between the spindle and the bushing which, when the spindle is rotated in one direction, engage with the bushing and when in the reverse direction with  
5 the movable parts, forcing them against the casing.

3. A winding-key embodying a rotary spindle, a bushing and an outer casing, movable devices carried by the bushing and  
10 means interposed between the spindle and the bushing which, when the spindle is rotated in one direction, engage with the bush-

ing and when in the reverse direction with the movable parts, forcing them against the casing, and means to initially retard the re- 15  
verse movement of the bushing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL BORNMANN.

Witnesses:

R. W. SMITH,  
F. J. MATHEIU.