

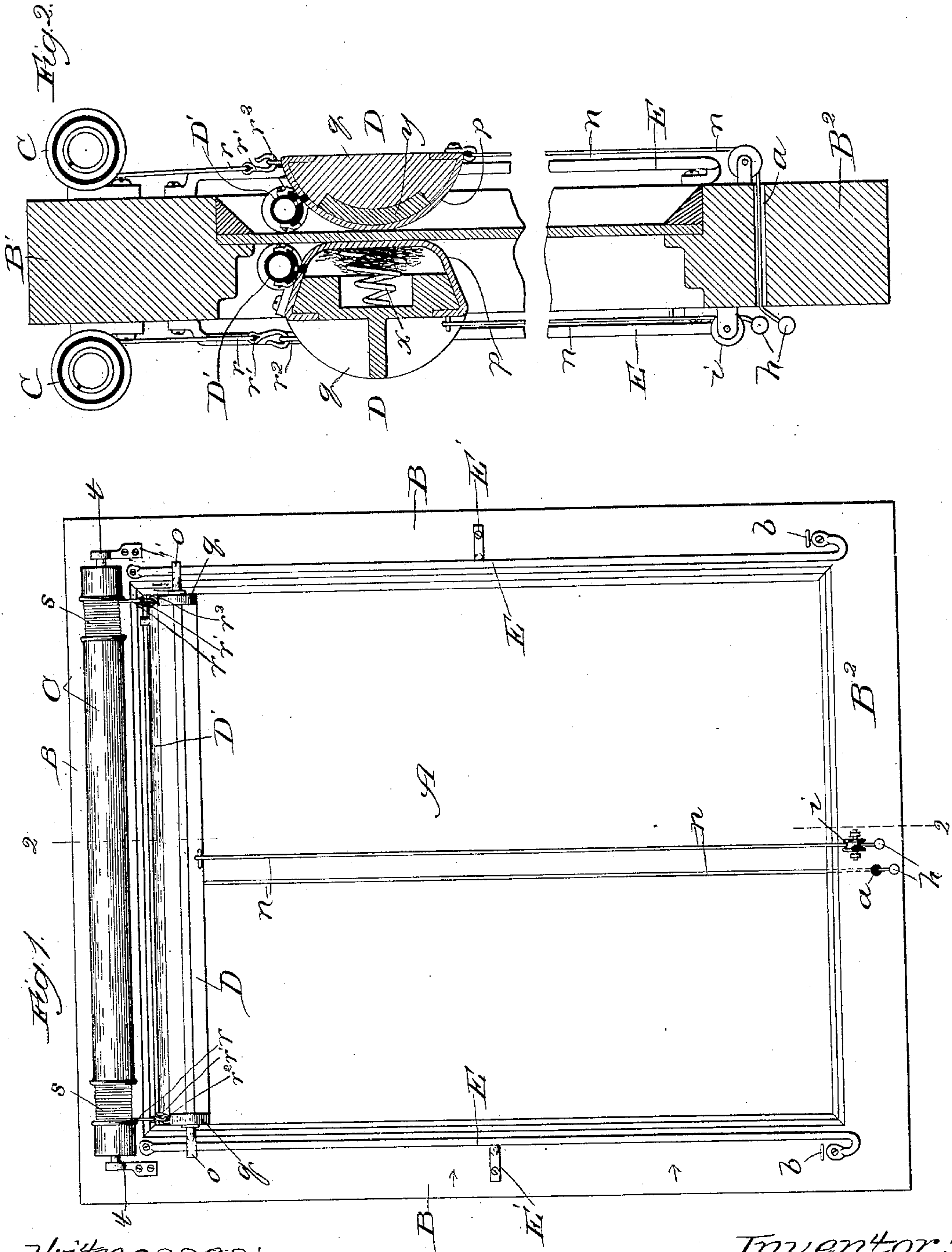
(No Model.)

2 Sheets—Sheet 1.

P. H. O'TOOLE.  
WINDOW CLEANER.

No. 427,896.

Patented May 13, 1890.



Witnesses:  
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Inventor:  
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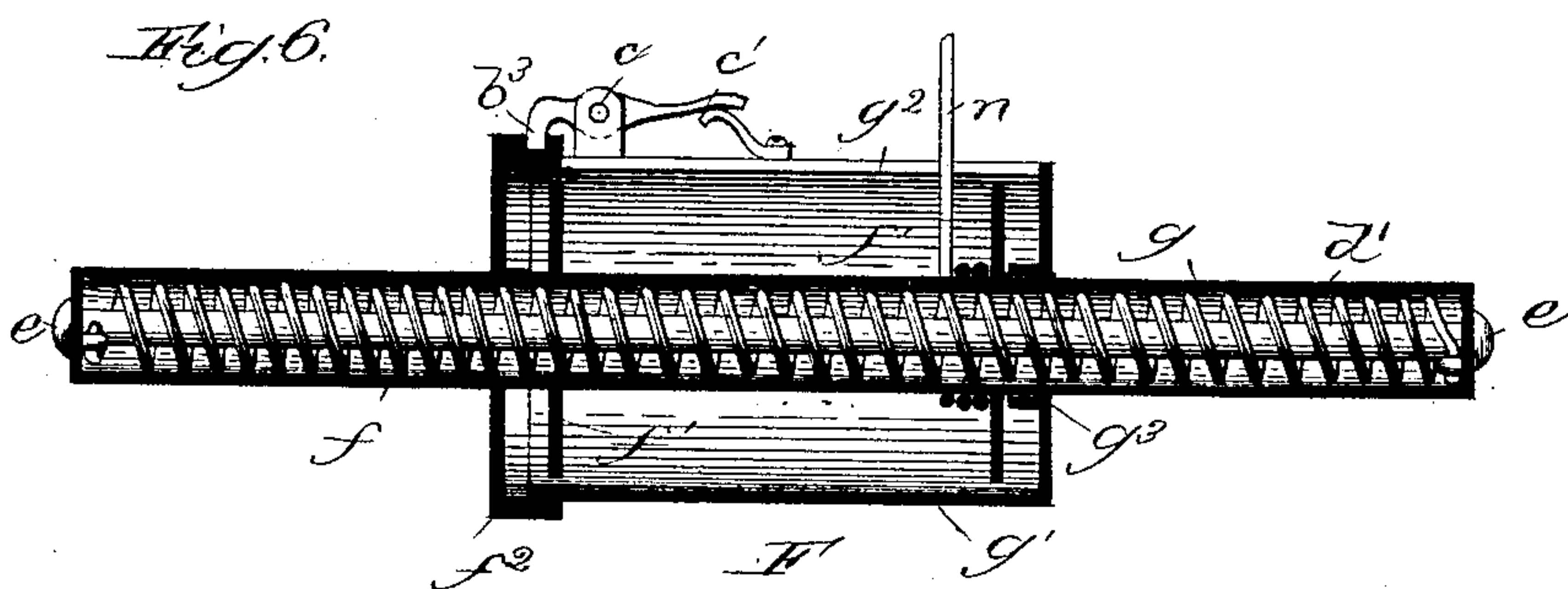
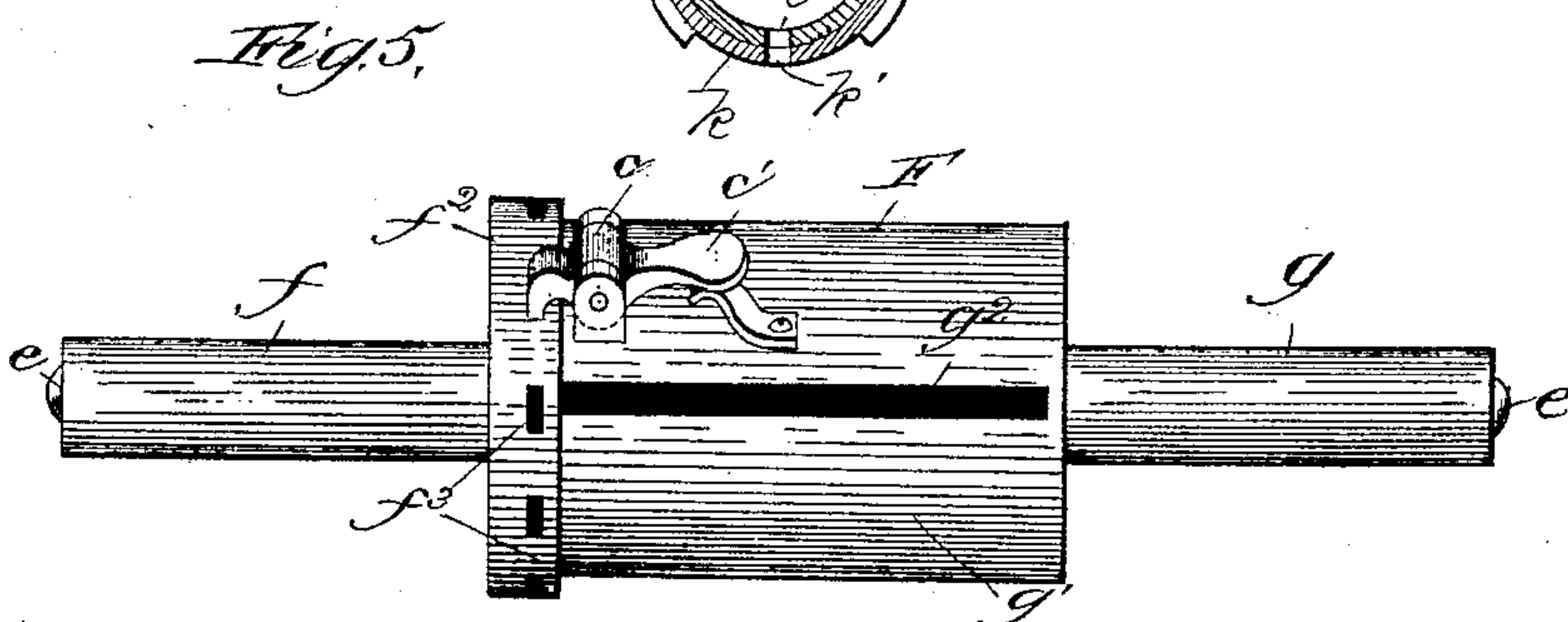
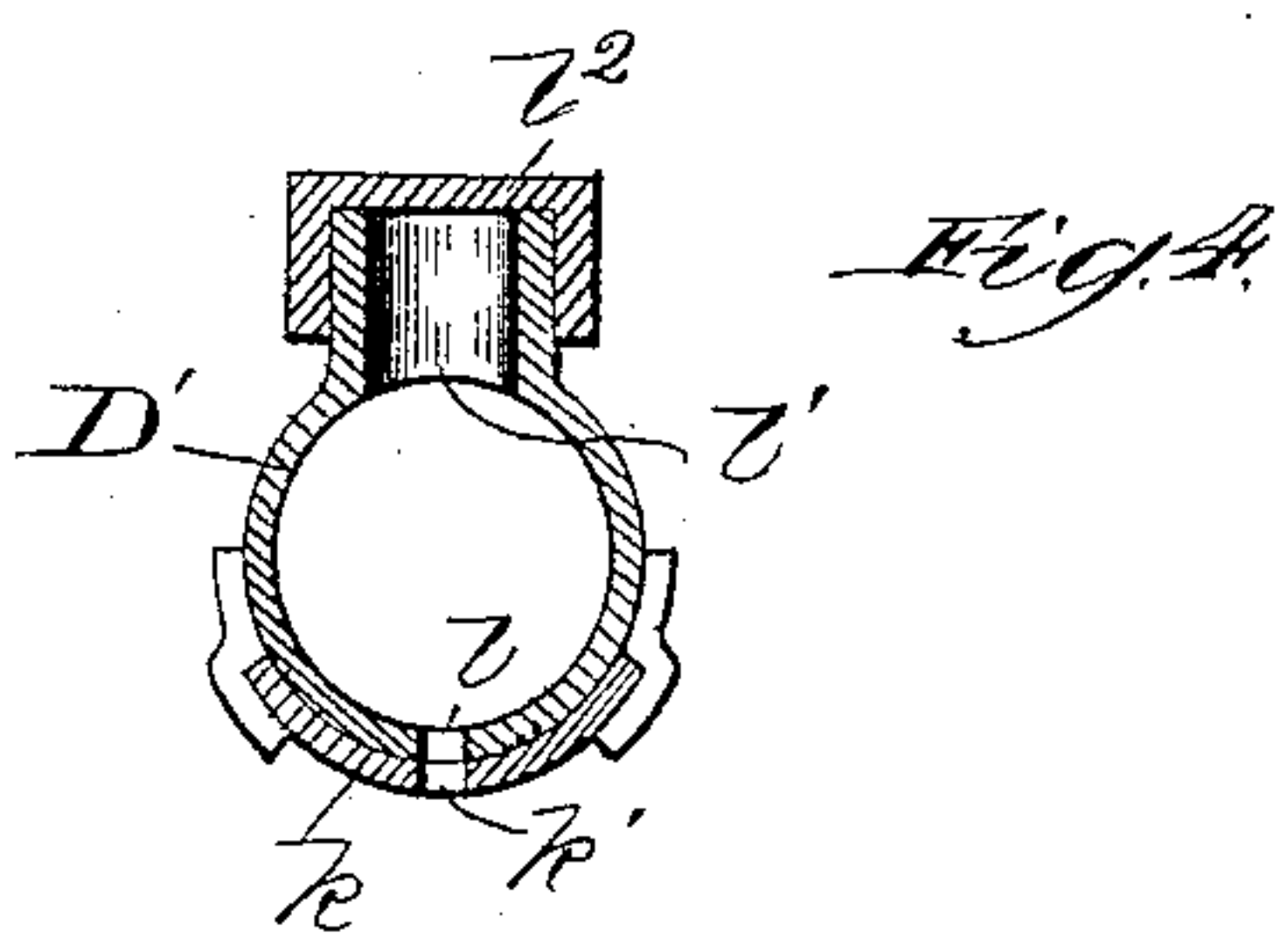
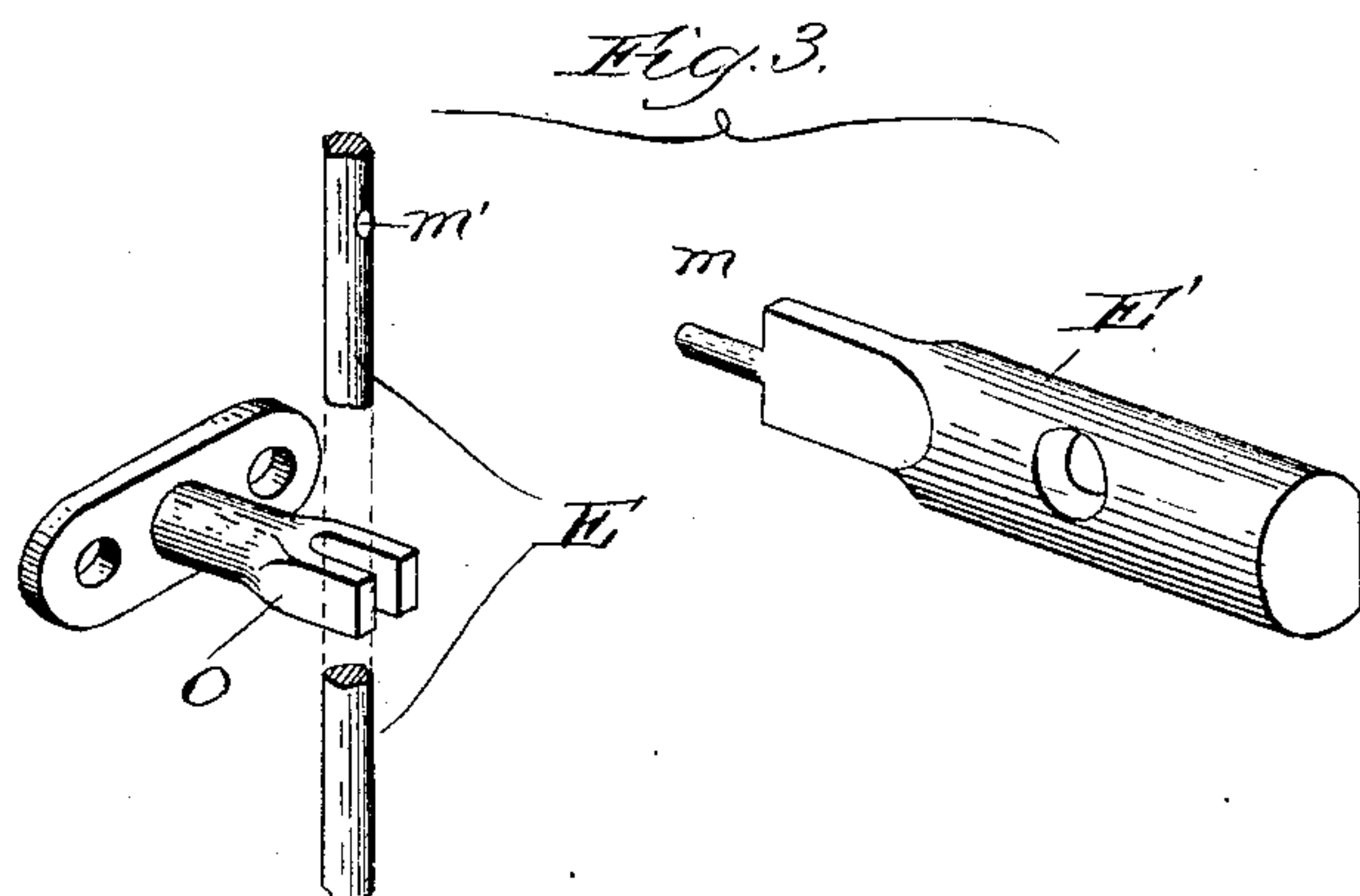
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2 Sheets—Sheet 2.

P. H. O'TOOLE.  
WINDOW CLEANER.

No. 427,896.

Patented May 13, 1890.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

PATRICK H. O'TOOLE, OF CHICAGO, ILLINOIS.

## WINDOW-CLEANER.

SPECIFICATION forming part of Letters Patent No. 427,896, dated May 13, 1890.

Application filed July 29, 1889. Serial No. 319,031. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK H. O'TOOLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Window-Cleaners, of which the following is a specification.

My invention has for its object the provision of a window-cleaning attachment for large windows, to render the cleaning and polishing of the latter in a thorough manner easy and quick without the use of water, or, if employed at all, water in greater quantity than would be necessary to merely loosen the substance of which the pane is to be cleaned.

To this end my invention consists in an attachment movable in vertical guides at opposite edges of the window and provided with a scrubbing-surface to bear normally against the window-pane and operative to clean the latter as it is moved over its surface.

My invention further consists in the general construction of the attachment, and also in details of construction and combination of parts hereinafter set forth and claimed.

In the drawings, Figure 1 is a view in elevation of a window provided with my window-cleaning attachment; Fig. 2, an enlarged broken section taken on the line 2 2 of Fig. 1 and viewed in the direction of the arrows; Fig. 3, a broken perspective view of details; Fig. 4, a view in cross-section of a detail; and Figs. 5 and 6, a view in elevation and a view in section, respectively, of a detail.

A, is a window-pane; B B, the sides or stiles of the window-frame; B', the upper window-rail, and B<sup>2</sup> the lower window-rail. On the upper window-rail and journaled in brackets *t t* is a spring-operated roller C, extending the full width of the window-pane and formed toward opposite ends with spools *s*. Wound upon the spools *s*, to unwind therefrom against the resilience of the spring-roller C, are cords *r*, carrying at their free ends hooks *r'*.

D is the cleaner, comprising a strip of wood or metal *o*, cushioned on its face, where it is covered, preferably, with chamois-skin or other absorbent material *p*.

In Fig. 2 two ways of rendering the scrubbing-surface of the cleaner yielding are shown. In the cleaner to the left, or on the inner side of the window-pane, the face is cushioned or

rendered yielding by a series of spiral springs *x*, while that on the opposite side is provided with a cushion formed of soft material *y*, as rubber or felt. Toward opposite ends of the cleaner D are eyes *r<sup>2</sup>*, by means of which it may be attached to the hooks *r'* and suspended upon the cords *r*. Projecting from opposite extremities of the cleaner are bifurcated attachments *o*, arranged to receive between their forks, and slide upon, vertical guide-rods E on opposite sides of the window. The guide-rods E extend the full length of the window-pane, and toward their lower extremities are flanged outward to permit the attachments *o* on the ends of the cleaner to be readily slipped upon or removed from the guide-rods, which latter, as shown, are secured at their ends to the window-frame. When the cleaner D is suspended upon the hooks *r'*, the resilient quality of the spring-roller C operates to maintain the cleaner at the top of the window.

A cord or chain *n*, secured to the cleaner, hangs to the bottom of the window and affords a medium by means of which the cleaner may be drawn down against the resistance of the spring-roller.

The guides E are of stiff material and operate to maintain the cleaner at all times and with required pressure against the window-pane. To steady the guide-rods and prevent the pressure which the cleaner should exert upon the window-pane from forcing out the guide-rods at their centers, I provide braces E', preferably of the shape shown in Fig. 3, and having reduced extensions *m*, which are secured to the window-stiles about midway of the lengths of the guide-rods and extend with their parts *m* into perforations *m'* in the guide-rods, thereby operating to steady the latter without interfering with the movement past them of the attachments *o*.

On the upper side of the cleaner and secured thereto to move with it, is a liquid-receptacle D' in the form of a hollow tube, extending substantially the full length of the cleaner and provided on its under side with a line of perforations *l*, and a sliding valve *k*, extending and sliding longitudinally of the receptacle and held against the under side of the latter by guides, (see Fig. 4,) is provided with perforations *k'*, corresponding in rela-



tive position with those of the tube  $D'$ , and they are capable of being moved into or out of coincidence with the latter perforations to increase, reduce, or shut off entirely the escape of liquid from the tube by sliding the valve. On its upper side the tube is provided with a filling-opening  $l'$ , which may be closed with a cap  $l^2$ .

The operation of my improved window-cleaner is as follows: The receptacle  $D'$  is filled with liquid, preferably of a highly-volatile nature—such as gasoline—and the cleaner  $D$  caused to move up and down over the surface of the window-pane, the downward movement being effected by drawing upon the cord or chain  $n$  and the upward movement by the resilience of the spring-roller  $C$ . The rubbing quickly removes the substances adhering to the glass, and the operation may be kept up until the surface is thoroughly polished, which may be effectively accomplished in a comparatively short time. That the downward pull upon the cleaner to lower it may always be in a direction substantially parallel with the surface of the window-pane and not away from the latter to decrease the pressure against it of the cleaner, I provide a pulley  $i$  upon the lower window-rail, under which the cord or chain  $n$  is caused to travel, and from which it may be drawn by the operator in a more or less nearly horizontal direction.

As the spring of the roller  $C$  is necessarily one possessing considerable resistance, the power required to draw the cleaner down is such as to make direct handling of the cord or chain  $n$  by the operator in a measure inconvenient, owing to the tendency of the cord to hurt his hands. In Figs. 1 and 2 I show rings  $h$  upon the free ends of the cords or chains  $n$ , which afford handles for the operator to grasp. As the employment of rings  $h$  or like handles, which are capable of holding the cord or chain  $n$  only at the end of the latter, make it necessary for the operator to move away from the window in drawing down the cleaner and toward the window while the cleaner rises, I prefer to employ the handle  $F$ , (shown in Figs. 5 and 6,) which is especially designed to overcome this objection. It comprises a sleeve  $g$ , carrying in fixed relation with it a housing  $g'$ , provided with a slot  $g^2$ , and arranged within the housing to afford a socket  $g^3$ , into which fits loosely an end of a sleeve  $f$ . The sleeve  $f$  projects beyond the housing, being provided within the latter with disks  $f'f'$ , which afford between them a spool, and provided adjacent to the free end of the housing  $g'$ , to overlap the end of the latter, as shown, with a flanged disk  $f^2$ . The sleeves are held together in loose relation by a pin  $e$ , which extends longitudinally and centrally through the sleeves, as shown, and surrounding the pin is a spiral spring  $d$ , secured at opposite ends, respectively, to the sleeves  $g$  and  $f$ , at the inner extremities of the latter. The outer periphery of the disk  $f^2$  is provided with

notches  $f^3$  and the housing  $g'$  with a spring-dog  $c$  to engage the said notches and having the thumb-lever  $c'$ . The sleeves  $g$  and  $f$  are turned in opposite directions to wind up the spring  $d$ , turning in the contrary direction by the resilience of the spring being prevented by engagement of the dog  $c$  with the notches  $f^3$ . The end of the cord or chain  $n$  is then passed through the slot  $g^2$  and secured upon the spool between the disks  $f'$ . In the working of my improvement the cleaner  $D$  is moved up and down over comparatively narrow limits at a time, so that when the lower part of the window is reached the space above has been gone over a little at a time and thoroughly polished. When the handle  $F$  is employed, as the cleaner is drawn down from one extent of surface to another the cord or chain  $n$  is held and allowed to wind upon the spool of the handle. In this way the cord or chain may be shortened as desired and the operator remain in one place. The spring of the handle  $F$  is weak as compared with that of the roller  $C$ , so that when it is desired to have the cleaner ascend pressure upon the thumb-lever  $c'$  to release the dog  $c$  from the notches  $f^3$  will enable the spring-roller  $C$  to draw up the cleaner and at the same time unwind the cord or chain  $n$  from the handle  $F$ .

When not in use, the cleaner  $D$  may be drawn down to the base of the window, detached from the hooks  $r'$ , and removed from the guide-rods, the hooks  $r'$  being fastened to eyes  $b$  in the window-stiles to prevent them from being drawn up out of reach by the roller  $C$ .

As shown in the figures, my window-cleaners may be adjusted upon both sides of a window, and by causing the cord or chain  $n$  to extend through a hole  $a$  in the lower rail of the sash both cleaners may be operated from the same side of the window.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a window, of vertical guides at opposite edges of the window, a cleaner  $D$ , extending across the window in contact with the window-pane and movable in the guides, and a liquid-receptacle  $D'$ , above and in fixed relation with the cleaner and having an outlet leading to the cleaner, substantially as and for the purpose set forth.

2. The combination, with a window, of vertical guides at opposite edges of the window, a cleaner  $D$ , extending across the window in contact with the window-pane and movable in the guides, and spring mechanism connecting the cleaner with the upper side of the window-frame and operating to draw the cleaner in an upward direction, whereby when it is moved by hand in the downward direction it will be returned by the action of the spring, substantially as and for the purpose set forth.

3. In a cleaning attachment for windows, the combination of a spring-actuated roller  $C$ , extending across the top of the window,

5 cords *r*, wound upon the roller C toward opposite ends of the latter to unwind therefrom against the resistance of the spring, a cleaner D, extending across the surface of the glass and suspended upon the cords, and guides at opposite sides of the glass operating to hold the cleaner in contact with the surface of the glass, whereby when the cleaner is drawn down by hand it will be returned by the ac-

tion of the spring-roller, and a rubbing effect is produced by the cleaner upon the glass by movement of the cleaner in either direction, substantially as described.

PATRICK H. O'TOOLE.

In presence of—

J. W. DYRENFORTH,  
M. J. FROST.