

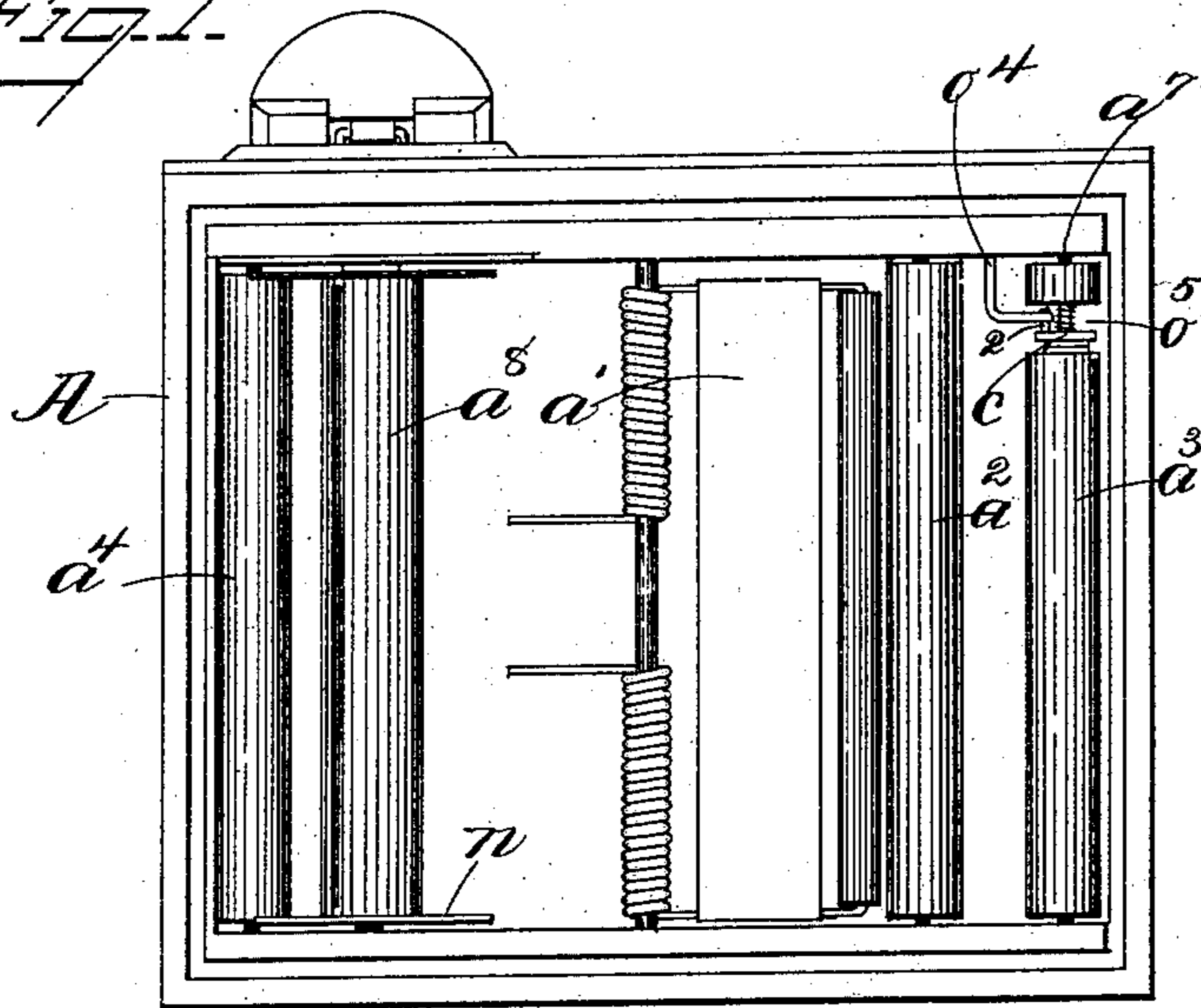
(No Model.)

N. CRANE.  
PHOTOGRAPHIC ROLL HOLDER.

No. 549,232.

Patented Nov. 5, 1895.

Fig. 1



*Fig. 2.*

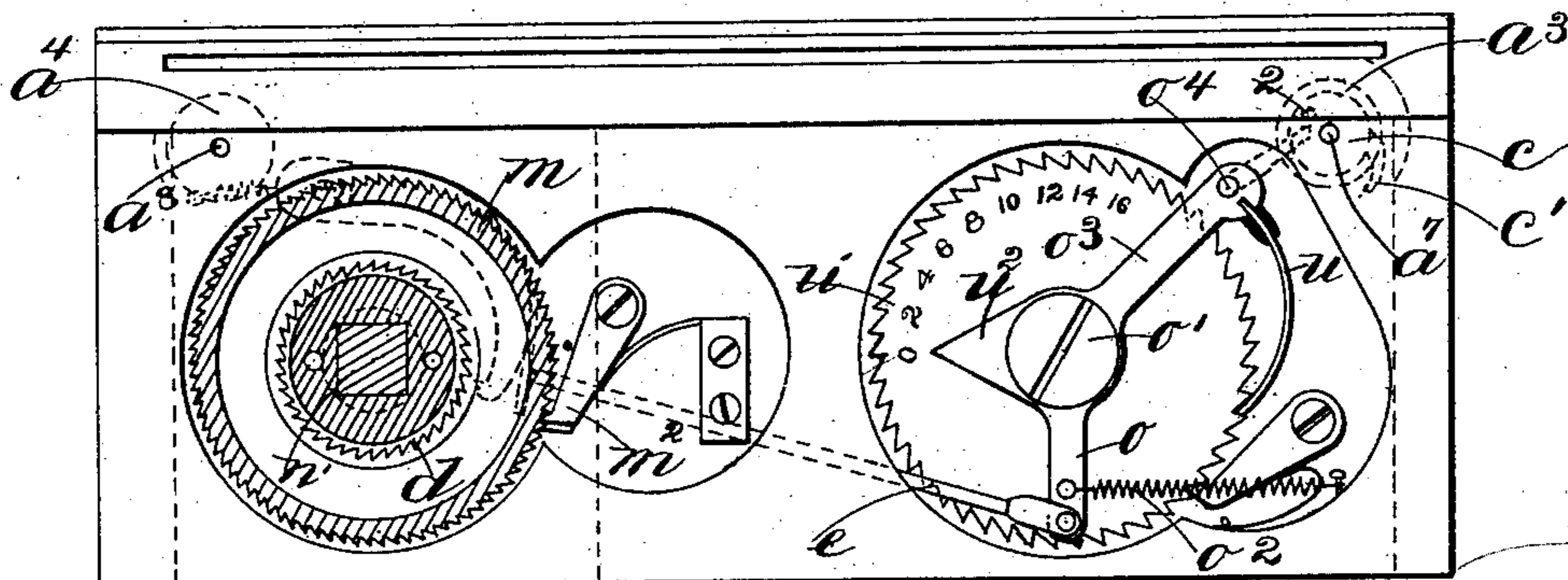


Fig 3

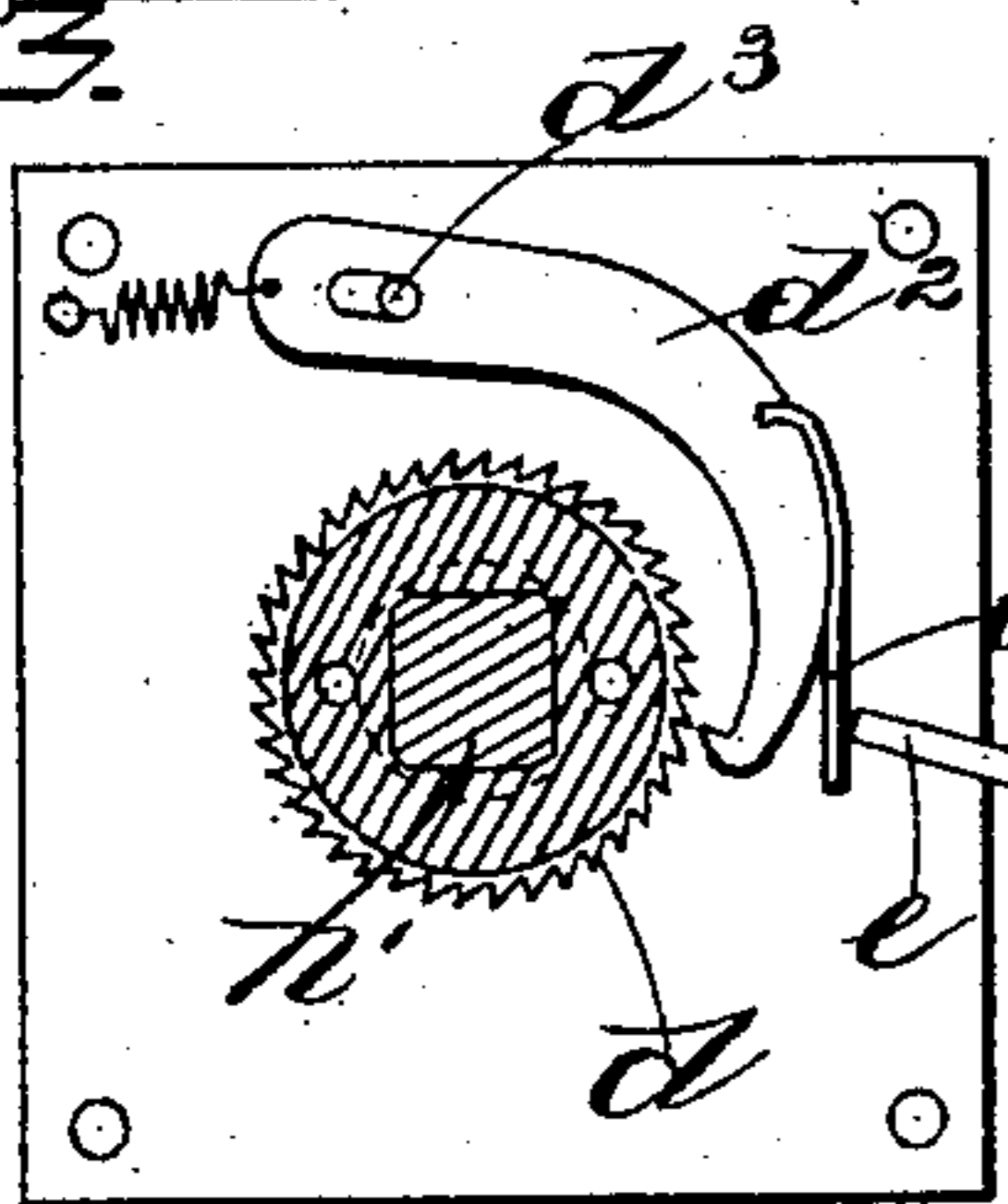
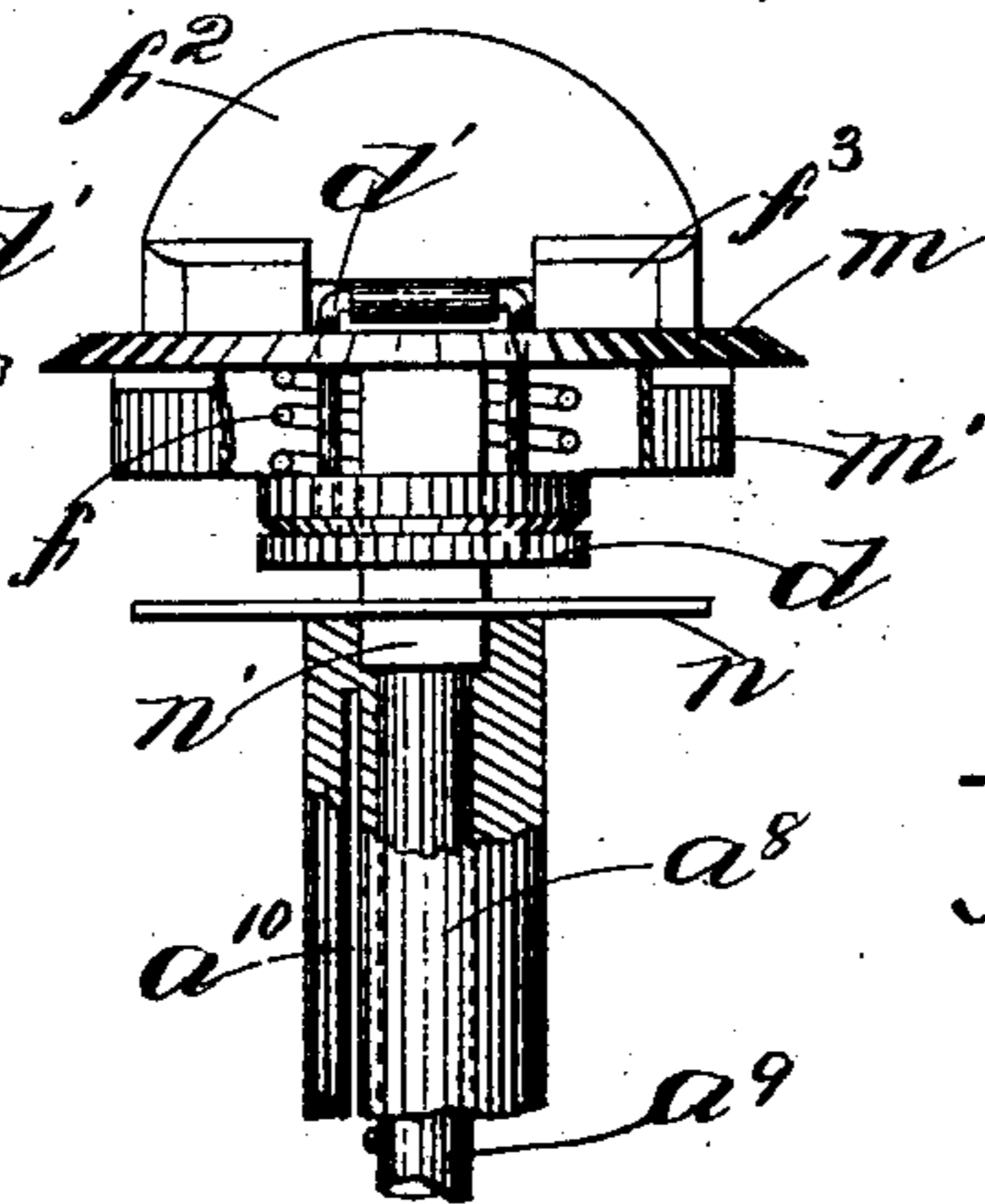


Fig 4.



WITNESSES.

Charles T. Crocker.  
F. H. Davis

INVENTOR  
Newton Crane  
By B. J. Hayes  
att'y

# UNITED STATES PATENT OFFICE.

NEWTON CRANE, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO DARIUS L. GOFF, OF PAWTUCKET, RHODE ISLAND.

## PHOTOGRAPHIC ROLL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 549,232, dated November 5, 1895.

Application filed February 20, 1895. Serial No. 539,046. (No model.)

*To all whom it may concern:*

Be it known that I, NEWTON CRANE, of Newton, county of Middlesex, and State of Massachusetts, have invented an Improvement in Roll-Film Holders for Photographic Cameras, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention relates to roll-film holders for photographic cameras, and has for its object to improve and simplify the construction of the same in several particulars; and the invention consists in certain improvements relating to the means employed for stopping the film when a sufficient amount has been moved along for a new exposure; also, in certain improvements in the means employed for operating the indicating device by which the number of exposures is visually indicated.

Figure 1 shows a rear side view of the roll-film holder for photographic cameras embodying this invention, the back plate and film being removed; Fig. 2, a top view of the roll-holder, and Figs. 3 and 4 details of my improved stopping device for the winding-roll.

The box A, of rectangular or other shape, the spring-clamp  $a'$  contained therein and adapted to bear upon the roll of film, the idle-rolls  $a^2$   $a^3$   $a^4$ , and the winding-roll  $a^8$  are all substantially as usual in roll-films holders, except that the winding-roll is herein shown made as a spool, having heads or end pieces  $n$ , and one, or it may be both, ends of the spool are formed with square sockets to receive square formations  $n'$  on the spindle or shaft  $a^9$ , said spindle or shaft being secured to the interior of the cap  $m$ , which is provided with a ratchet-toothed rim  $m'$ , adapted to be engaged by a pawl  $m^2$  to prevent retrograde motion of the winding-roll.

A toothed wheel—such, for instance, as a ratchet-wheel  $d$ —is secured to a bale or yoke  $d'$ , the arms of which pass freely through holes in the cap  $m$ , and the crown of said yoke or bale is loosely connected to a finger-piece  $f^2$ , provided at each side with rectangular formations or cams  $f^3$ , bearing upon the outer face of the cap  $m$ , so that as the finger-piece is turned down upon the cap the yoke  $d'$  will

be drawn up, moving the toothed wheel  $d$  along the square portion  $n'$  of the shaft  $a^9$ . A spring  $f$  is interposed between the interior of the cap and the wheel  $d$ , the tendency of which is to press the wheel inwardly toward the winding-spool  $a^8$ .

A detent  $d^2$  is supported by the frame on a pin  $d^3$ , the hooked end of which is adapted to be moved into engagement with the ratchet-toothed wheel  $d$ , and said hooked end has secured to it a spring  $d'$ , which forms a yielding abutment, against which a rod or shaft  $e$  (see dotted lines, Fig. 8,) strikes, said rod or shaft having its bearings in the walls of the box, and connected at its opposite end with an arm  $o$ , which is mounted upon the pivot-pin  $o'$ , a spring  $o^2$  being provided to normally withdraw the arm  $e$ .

An arm  $o^3$  projects at an angle from and is connected with the arm  $o$ , having at its outer end a bent pin  $o^4$ , which projects into the interior of the box alongside of the roll  $a^3$  and enters a groove or cut-away portion  $o^5$  of said roll.

On the shaft  $a^7$  of the roll  $a^3$  at the cut-away portion is a disk  $c$ , having projecting from one side of it a pin 2, which is adapted to be brought into engagement with the pin  $o^4$  and subsequently move the arm  $o^3$ , pushing the rod  $e$  into engagement with the yielding end piece  $d'$ , and moving the detent  $d^2$  into engagement with the ratchet-wheel and thereby preventing further rotation of the winding-roll. The disk  $c$  has also projecting from its periphery a finger  $c'$ , which enters one or another perforation or hole previously made in a flexible strip, which may be and preferably is the sensitized film.

The operation of the apparatus herein described is as follows: The film, which is used as the perforated flexible strip to operate the stopping mechanism for the winding-roll, and also to operate the indicating-wheel, is carried over the guide-rolls  $a^3$   $a^4$  and passed through a slot  $a^{10}$  cut in the spindle of the spool  $a^8$ , and then said spool is revolved by the finger-piece  $p^2$ , and as soon as a sufficient amount has been wound for a new exposure the finger  $c'$  will enter one of the perforations in the strip and further movement of the film-strip will operate to turn the disk  $c$ , carrying the pin

2 into engagement with the bent pin  $o^4$  and thereby turning the arm  $o^3$  and consequently pushing the rod  $e$  against the detent  $t^2$  and throwing it into engagement with the toothed wheel on the winding-roll. As the detent  $d^2$  is thus moved into engagement with the ratchet toothed wheel, it is drawn forward a short distance consequent to the employment of the slot for the pin  $d^3$ , and such movement is sufficient to enable the pin 2 to pass by the bent pin or detent  $o^4$ , and as soon as said detent  $d^2$  has been thus moved to the end of the slot further rotation of the winding-roll is prevented. As soon as the pin 2 passes by the detent  $o^4$  the spring  $o^2$  withdraws the rod  $e$ , restoring it and the connected parts to their normal position. To disengage the detent  $d^2$  from the ratchet-toothed wheel the finger-piece  $f^2$  is turned down upon the cap  $m$ , thereby withdrawing the yoke  $d'$  and ratchet-wheel attached to it. A pawl  $u$  is attached to the arm  $o^3$ , which engages a ratchet-toothed indicating-wheel  $u$  and advances it step by step as the arm  $o^3$  is moved, and to the hub of the arm  $o^3$  a pointed projection  $u^2$  is secured, which co-operating with suitable numbers engraved or otherwise marked on the indicating-wheel will indicate the number of exposures.

The construction herein shown and described may be used as an entirety, or, if desired, the indicating-wheel alone may be operated, and in such case the rod  $e$  and stopping mechanism for the winding-roll will be omitted.

I claim—

1. In a roll film holder for photographic cameras, a winding roll, toothed wheel thereon, detent adapted to be moved into engagement with said toothed wheel, and thereby prevent rotation of the roll, rod  $e$  for moving said detent connected with an arm  $o$ , arm  $o^3$  carrying a bent pin  $o^4$ , adapted to be engaged and moved by a pin on the disk  $c$ , having a finger  $c'$  adapted to enter one or another perforation in the film.

2. In a roll film holder for photographic cameras, a winding roll, toothed wheel thereon, detent adapted to be moved into engage-

ment with said toothed wheel, and thereby prevent rotation of the roll, a spring thereon, a rod, and means for moving said rod against said spring, which is controlled by the movement of the film.

3. In a roll film holder, a winding roll, ratchet wheel  $d$ , detent adapted to be moved by the film to engage and hold said ratchet wheel, yoke  $d'$  to which said ratchet wheel is attached, finger piece  $f^2$  connected with said yoke having cam  $f^3$ , and the cap  $m$  to which the winding roll spindle is attached, and which affords bearings for the yoke.

4. In a roll film holder, roll  $a^3$ , finger  $c'$  frictionally connected therewith, indicating wheel, pawl for advancing it step by step, and pawl-carrying arm moved by said finger  $c'$ , substantially as described.

5. In a roll film holder, the combination of a film roll, and a winding roll, an indicating wheel having ratchet teeth, a pawl cooperating therewith, a spring-controlled pawl carrying arm having a projection as  $o^4$ , a roll  $a^3$  over which the film passes, a finger  $c'$  frictionally connected with said roll and adapted to enter holes made in said film at regular intervals, and to be moved at such time with said film, said finger engaging the projection  $o^4$  and thereby moving the indicating wheel step by step, substantially as described.

6. In a roll film holder, the combination of a film roll and a winding roll, indicating wheel  $u'$  having ratchet teeth, pawl  $u$ , pawl-carrying arm  $o^3$ , spring  $o^2$ , bent arm  $o^4$ , and roll  $a^3$  over which the film passes, disk  $c$  frictionally connected therewith having a finger  $c'$  adapted to enter holes made in said film at regular intervals, and to be moved at such time with said film, said finger engaging the projection  $o^4$  and thereby advancing the indicating wheel step by step, substantially as described.

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

NEWTON CRANE.

Witnesses:

B. J. NOYES,  
FLORENCE H. DAVIS.