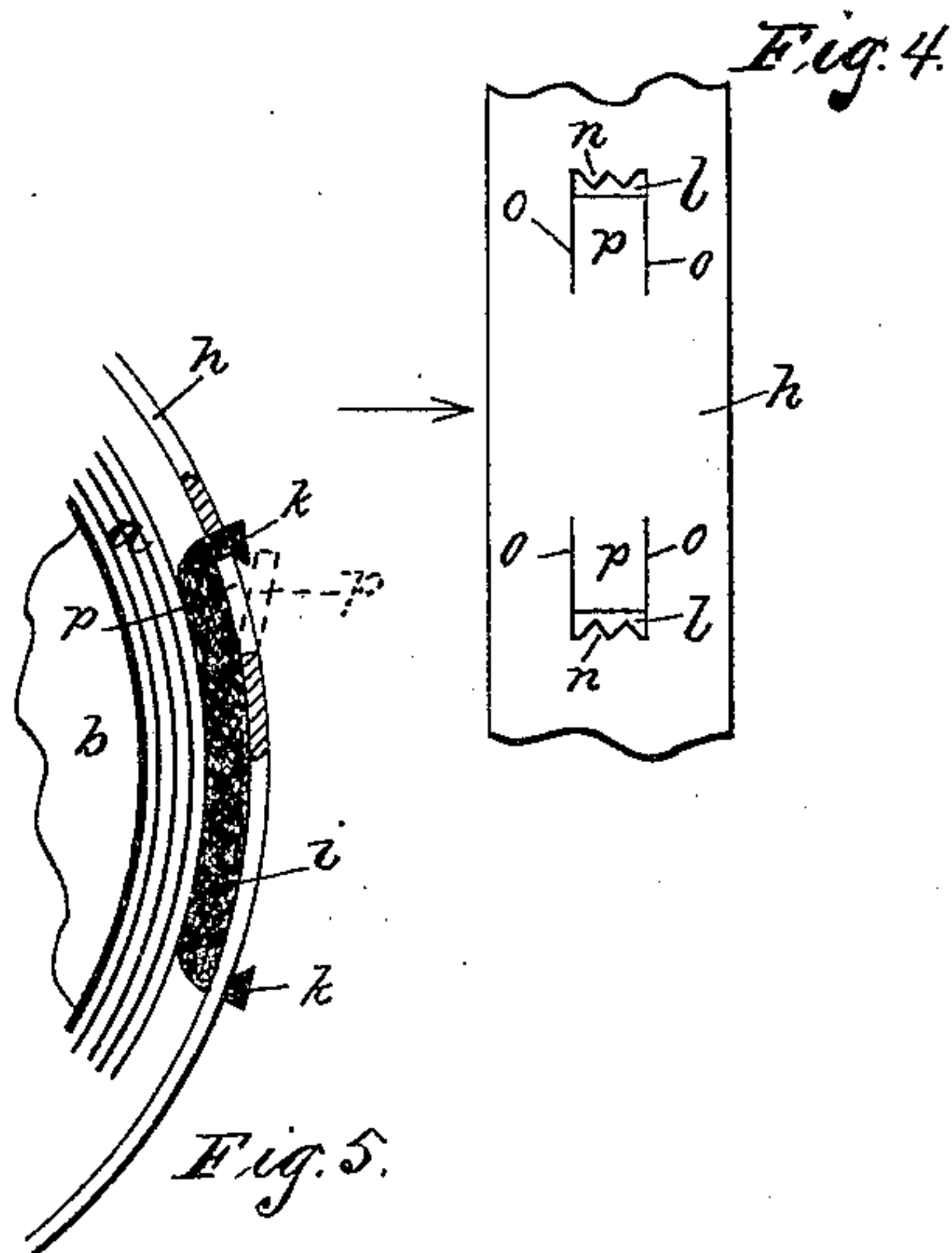
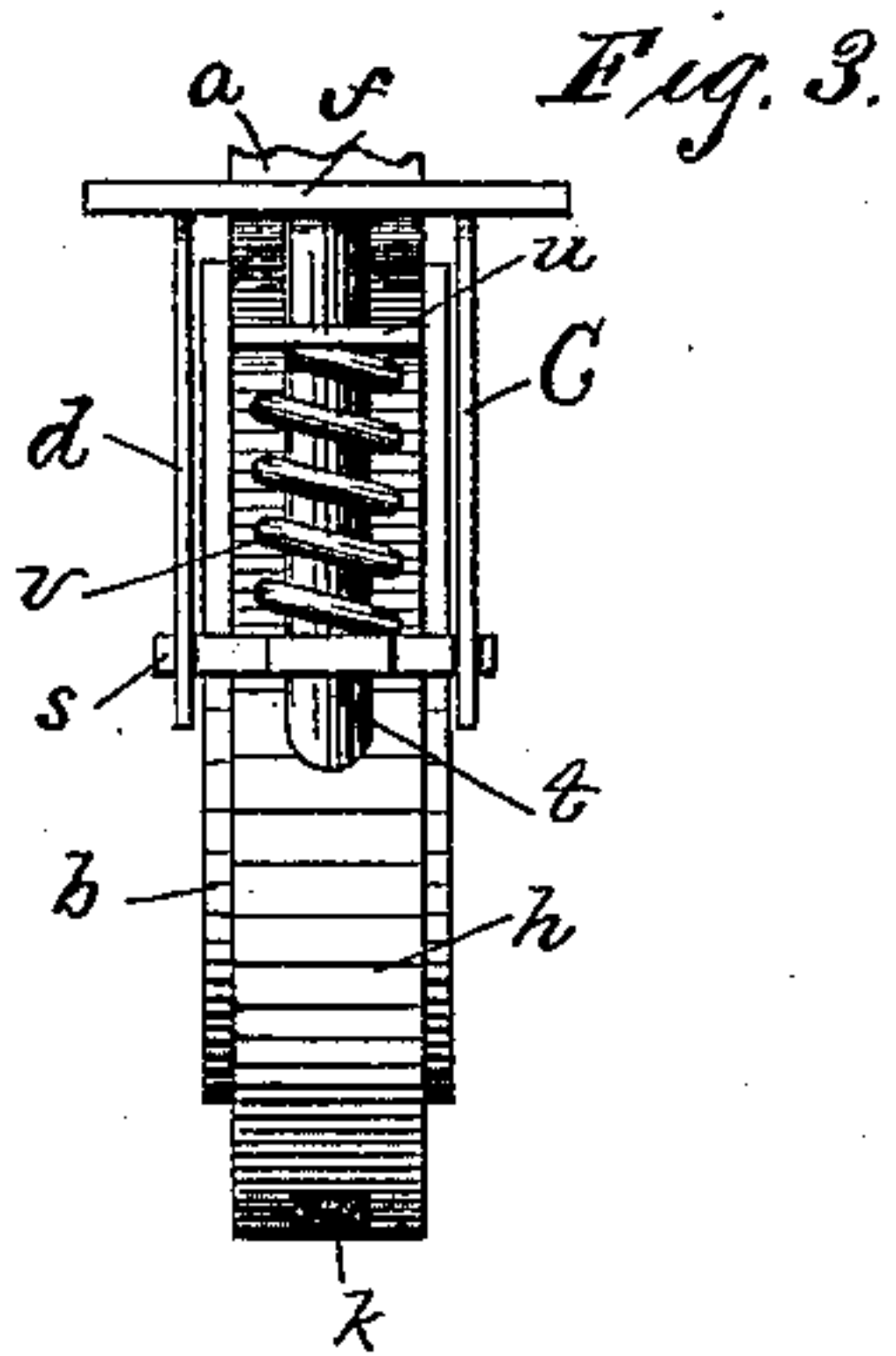
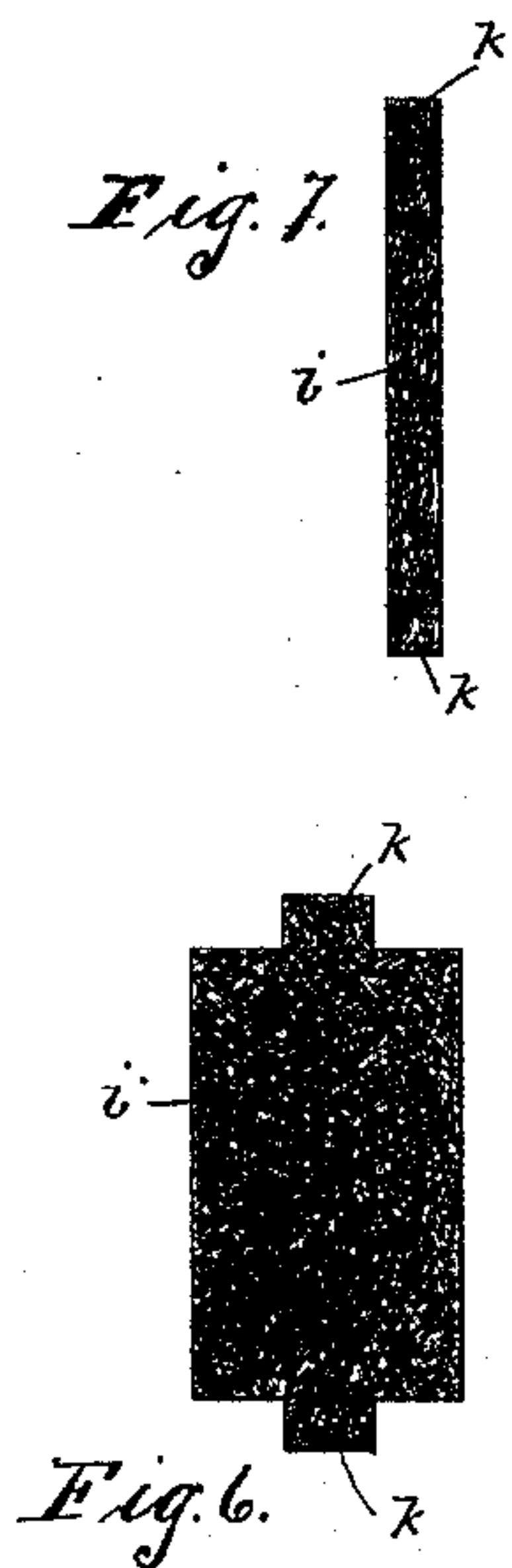
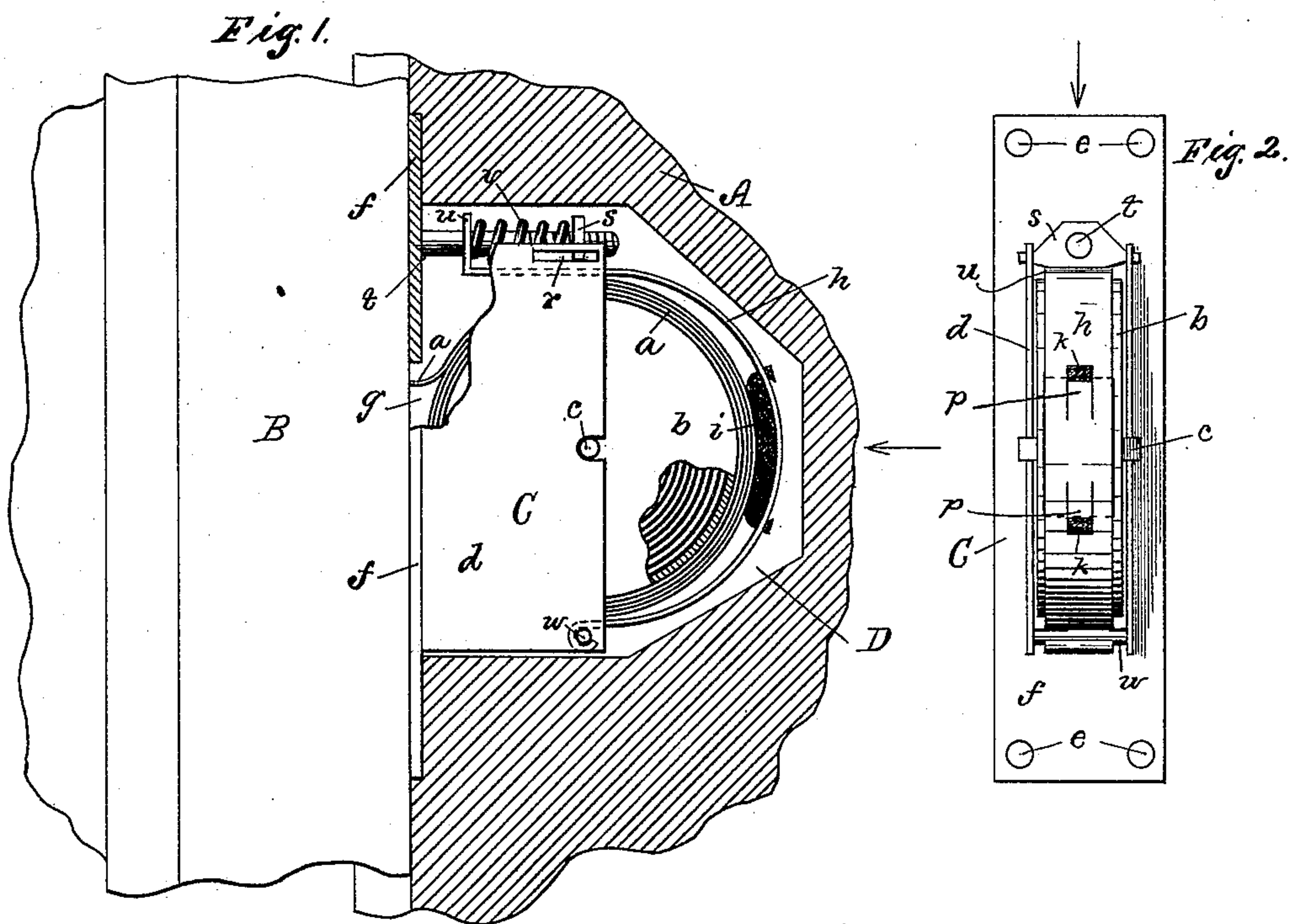


(No Model.)

J. McARTHUR.
SASH BALANCE.

No. 429,941.

Patented June 10, 1890.



Attest:
M. L. McDermott,
M. D. Phillips.

Inventor:
James McArthur,
By E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

JAMES MCARTHUR, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE
PULLMAN SASH BALANCE COMPANY, OF SAME PLACE.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 429,941, dated June 10, 1890.

Application filed January 12, 1889. Renewed April 28, 1890. Serial No. 349,722. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCARTHUR, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Sash-Balances, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of my invention is to produce a new and improved sash-balance, it being an improvement upon the sash-balance shown and described in my Patent No. 354,162, of date December 14, 1886, and also upon that shown and set forth in pending application Serial No. 287,359, the invention being hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of my improved sash-balance, shown in place in the window-casing, parts being broken away and vertically sectioned; Fig. 2, a view of the device seen as indicated by arrow in Fig. 1; Fig. 3, a view of the same seen as indicated by arrow in Fig. 2; Fig. 4, a view of a portion of the brake, drawn to show the openings therein; and Fig. 5, a view of part of the brake with associated parts, seen as indicated by arrow in Fig. 4, a part of the brake being longitudinally sectioned. Figs. 6 and 7 show a plan and edge view of the brake-pad, Figs. 4 to 7, inclusive, being drawn to a larger scale than the first three figures.

Referring to the parts, A is the casing of a window, B the sash, and C the sash-balance inserted in a cavity D in the casing. This sash-balance comprises an actuating spring-drum *b* of common construction, upon which the suspending-band *a* is coiled, said drum being held upon a non-rotating shaft *c*, resting in the edges of the frame *d*. The frame *d* is secured to a rectangular plate *f*, by means of which the whole device is secured to the casing by ordinary wood-screws passing through holes *e*. This plate is formed with an opening *g*, through which the suspending-band passes to connect with the sash B, as shown.

h is a brake-strap for the suspending-band, it being a metal strap, which is in some re-

spects similar to the "friction-strap" or brake shown in my patent above named and designated by the reference-letter *i*. I have found when the metal strap bears directly upon the metal-suspending band, as shown in my said patent, the action between the contiguous surfaces of said brake and band is harsh and results in a too rapid wearing away of the parts. In my present invention I seek to avoid this objection by introducing between the brake-strap and the suspending-band a pad *i* of some yielding material—as, for instance, a body of felt or other fibrous material. This pad I generally make in the form shown in Figs. 6 and 7, and secure it to the brake by passing the projecting ends *k k* up through orifices *l l*, formed in the brake-strap. While this improved brake acts effectually to retard and check the motion of the sash, particularly as the latter is thrown upward, it very much reduces the wear of the parts, while acting more smoothly and without noise.

The form of the pad (it being rectangular, with the end projections *k k*) and the manner of fastening it to the brake-strap *h* are believed to be novel. The orifices *l l* in the brake-strap are formed by cutting out two portions of the latter, leaving teeth *n* on one side of each of the orifices, the teeth being on the sides of said orifices farthest from or opposite each other. In addition to these orifices the brake is cut inward from each of the orifices by slits *o* made upon parallel longitudinal lines, separating in part from the strap two longitudinal flaps or tongues *p p*, having their free ends next the respective orifices. The length of these orifices, taken laterally or across the brake-strap, is equal to the width of the projecting ends *k k* of the pad; but the width of the orifices, taken longitudinally with the brake-strap, is considerably less than the thickness of the pad, so that in order to force the ends of the pad outward through the respective orifices the tongues *p p* have to be pressed outward, as indicated by dotted lines in Fig. 5. When the ends of the pad are fully through the orifices, the tongues are allowed to spring back to their places, which serve to crowd the parts

of the pad firmly against the teeth *n*, as shown, which secures the pad at each end firmly in place.

I have further improved the sash-balance
5 by forming slots or guides *r r* in the opposite sides of the frame to receive and guide the ends of the nut *s* when moved by the adjusting-screw *t*. This adjusting-screw is fitted to turn freely in the plate *f* and pierces the outwardly-turned end *u* of the brake-strap *h*, there being a spiral spring *v* on the screw between the nut *s* and the part *u* of the brake-strap. The object of the screw, the nut, and the spring is to adjust or regulate the pressure of the pad of the brake upon the band,
15 and I find this a more desirable construction of this adjusting device for the tension upon the suspending-band than that shown in my patent above cited.

Besides the uses of the pad above set forth its elasticity serves, instead of the spring referred to by the reference-letter *r* in my patent above mentioned, to hold the end *u* of the brake-strap against the spring *v* and allows
25 me to dispense with said spring *r*; and as I now construct the device the nut *s* is effectually guided by the slots *r r* in its movements when the screw *t* is turned. The nut being thus held and guided serves to steady and
30 hold the point of the screw, which latter has no support as heretofore constructed and shown in my patent numbered above.

The brake-strap *h* is preferably made of steel or other metal, and is held immovably
35 at one end upon a pin *w* passing through the sides of the frame, similar to the manner in which the corresponding part is held in my patent aforesaid.

In this application it is not my intention to claim anything claimed in my pending application, Serial No. 287,359, ordered to issue October 25, 1888, the matters therein claimed being here disclaimed.

What I claim as my invention is—

1. In a sash-balance brake, a brake-strap 45 bent around the drum and resting at one end on a rigid pin or bearing at one side of the drum and held adjustably at the opposite side of the drum against a spring and provided with a pad held rigidly on the concave side 50 of the brake-strap to press against the suspending-band for the sash, substantially as shown and described.

2. In a sash-balance, a frame formed with opposing slots or guides at one end thereof, 55 in combination with a brake-strap held on a rest at the opposite end of the frame, an adjusting-screw piercing the end of the brake-strap near said slots or guides, a spring on the screw, and an adjusting-nut on the screw 60 formed with extended parts resting in said respective slots or guides in the frame, substantially as shown.

3. An actuating-drum of a sash-balance and a suspending-band for the sash, in combination with a brake for the suspending-band 65 formed with openings and tongues adjacent to said openings, and a pad to bear upon said suspending-band, having projecting ends held in said respective openings in said brake 70 and pressed by said tongues, substantially as shown and described.

JAMES MCARTHUR.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.