

(No Model.)

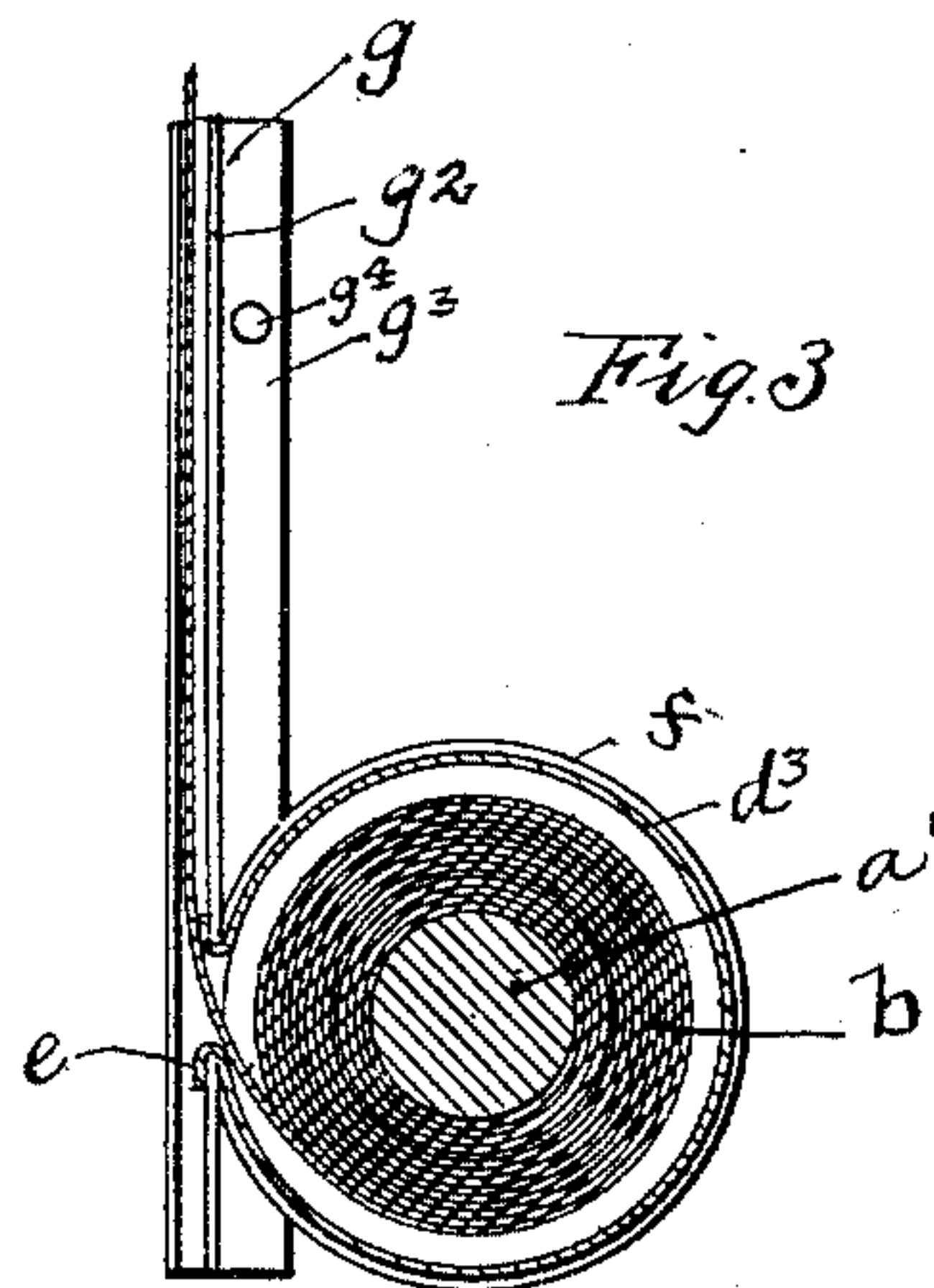
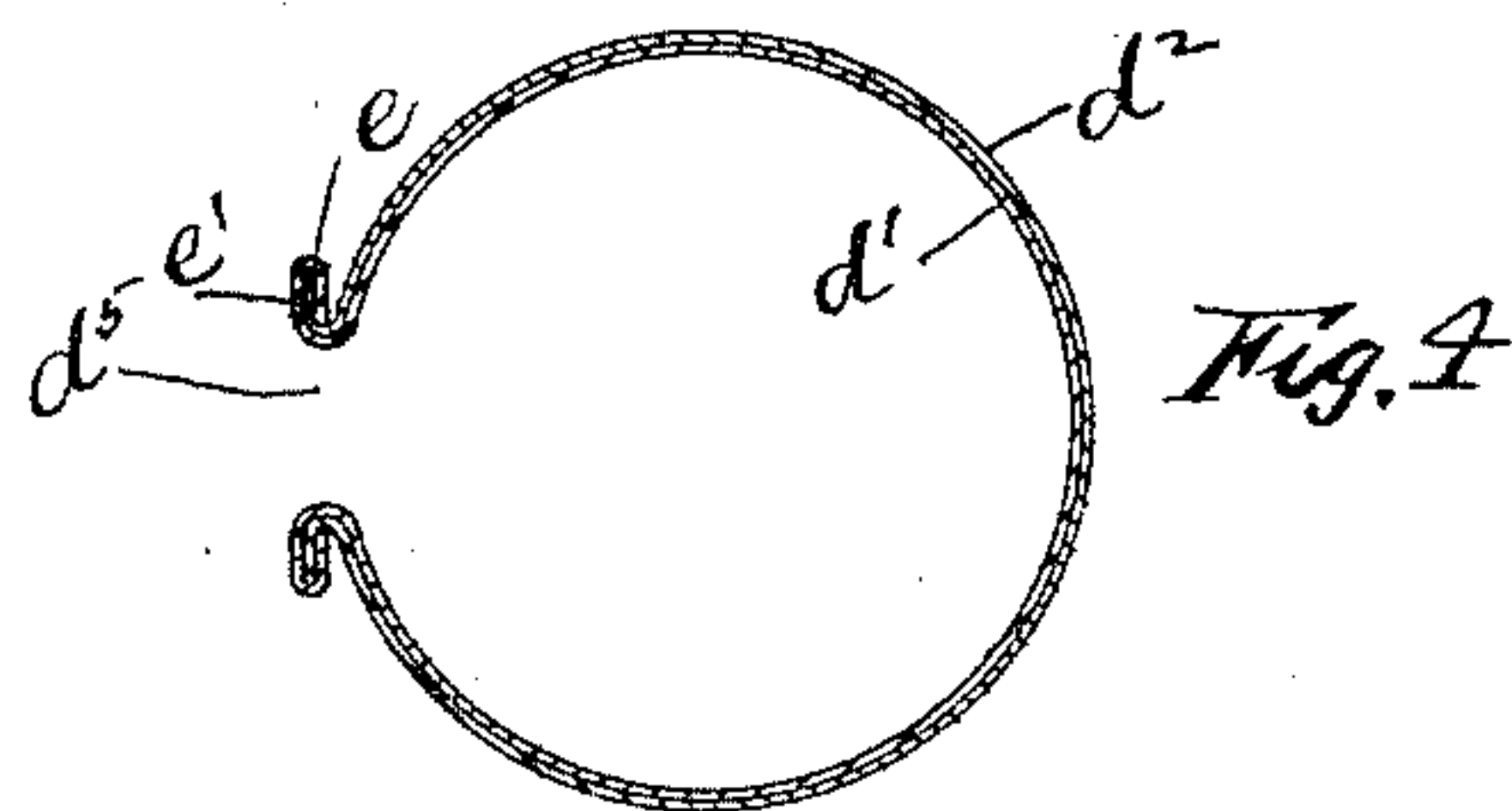
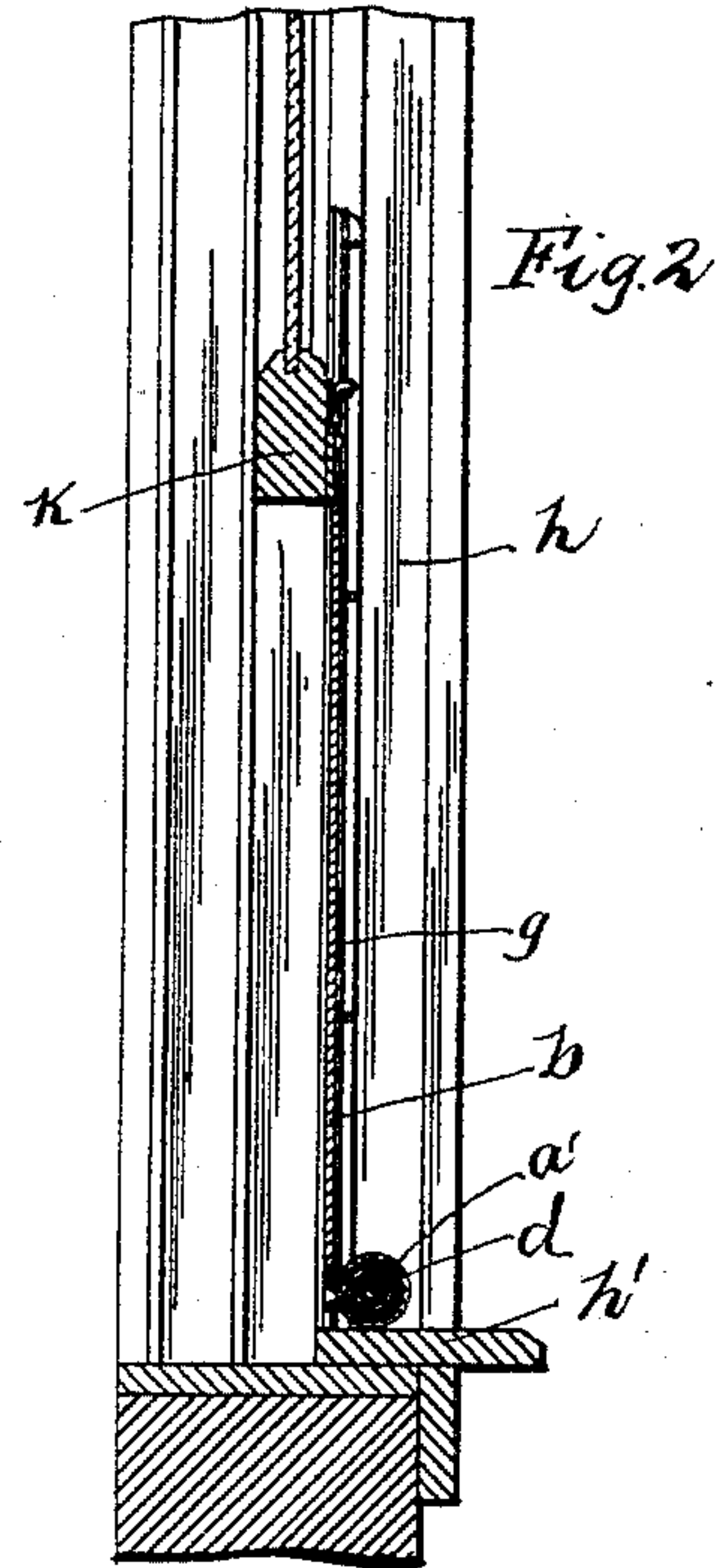
2 Sheets—Sheet 1.

H. C. PARK, O. M. EVANS, C. E. TURNER & C. E. MORRIS.

WINDOW SCREEN.

No. 497,891.

Patented May 23, 1893.



Witnesses
H. B. Bradshaw
O. E. Bragg.

By their Attorneys

Staley and Shepherd.

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Clarence E Turner
Charles E. Morris

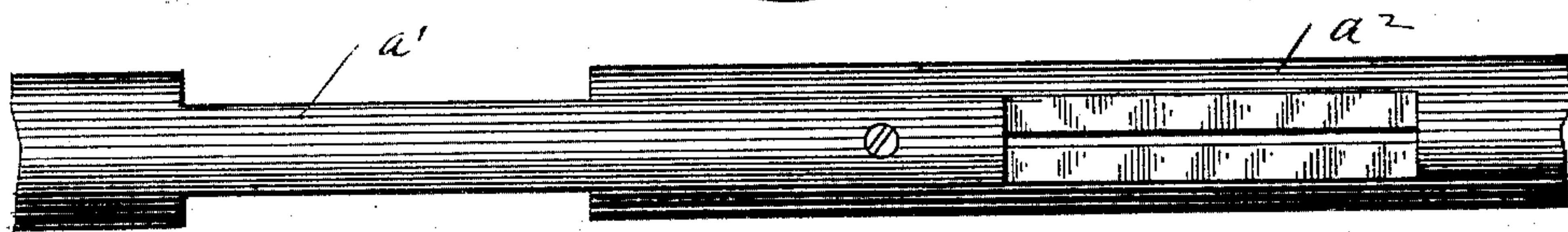
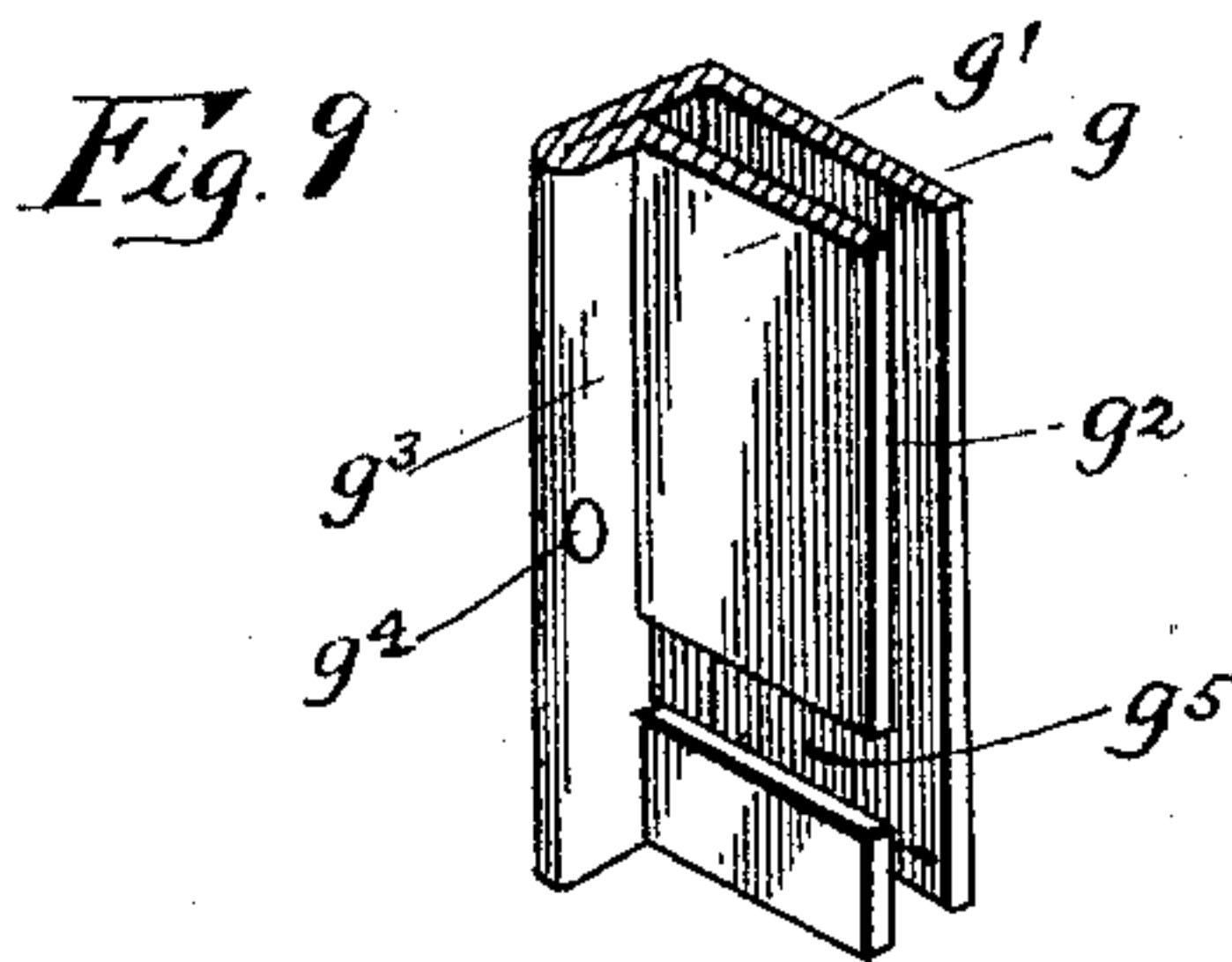
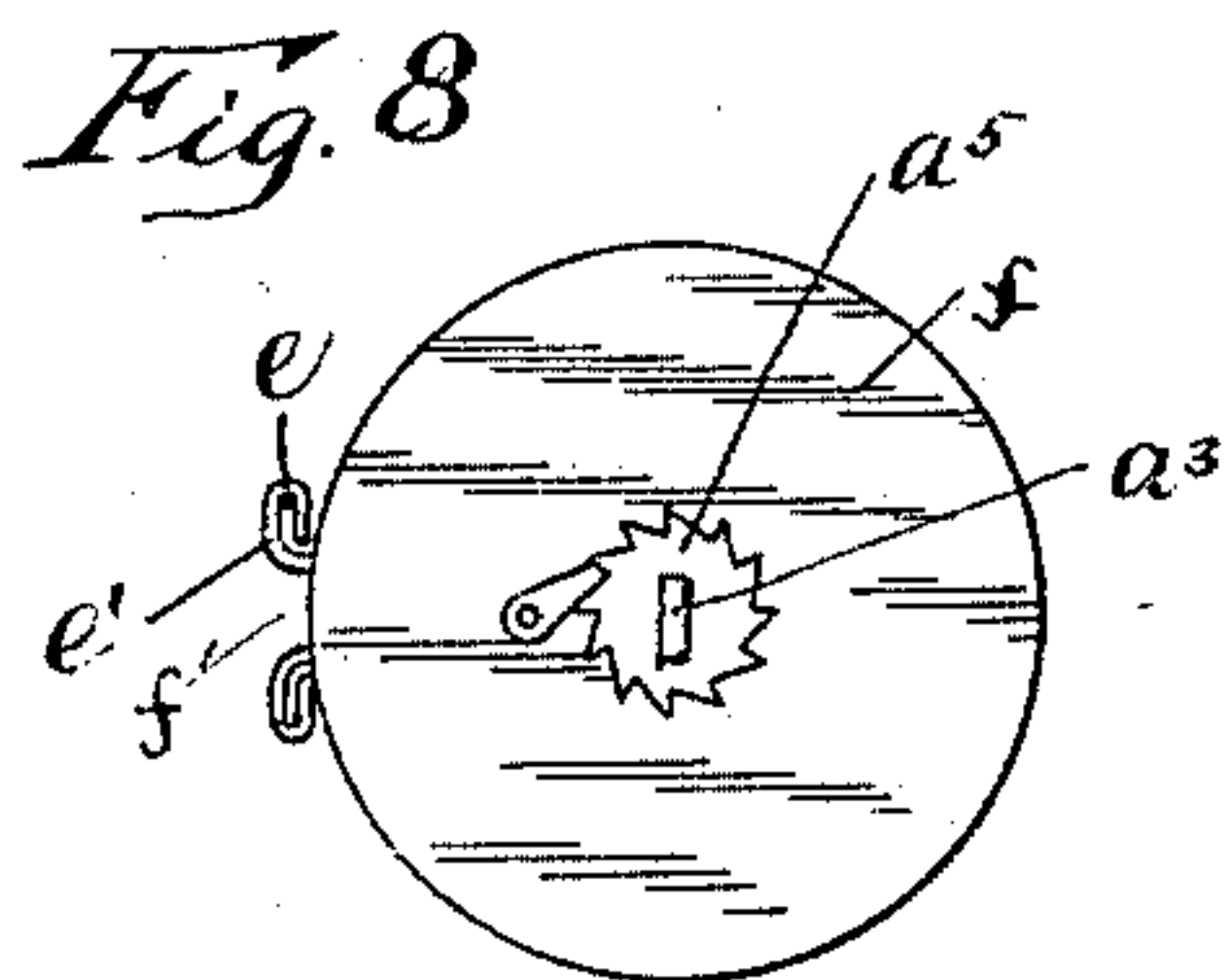
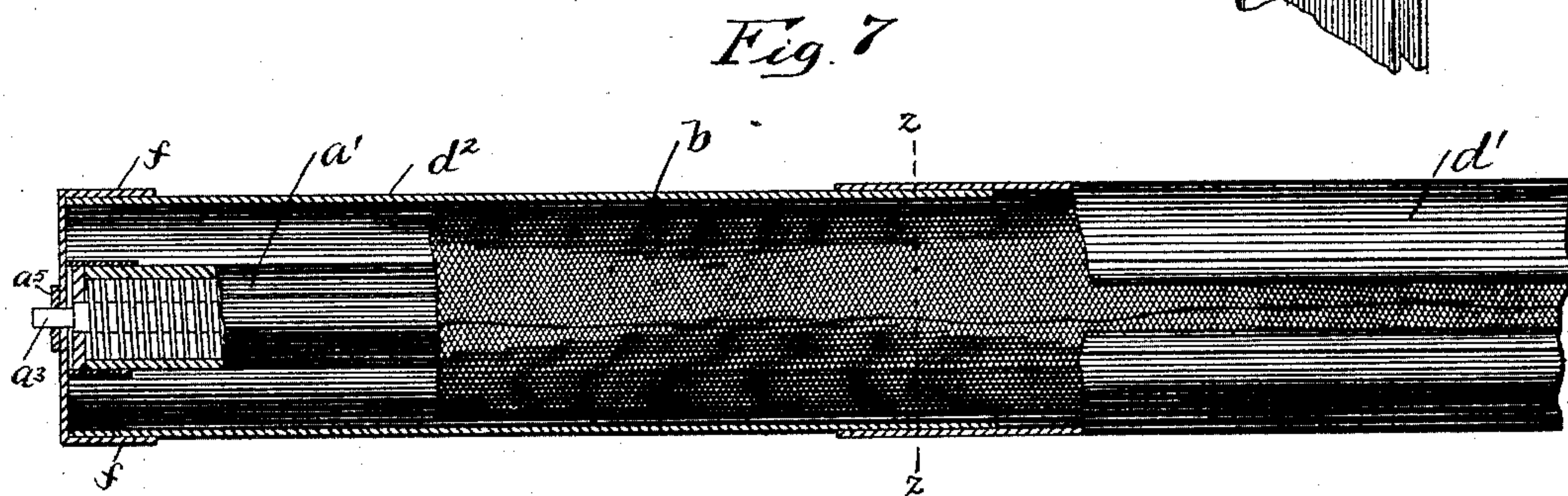
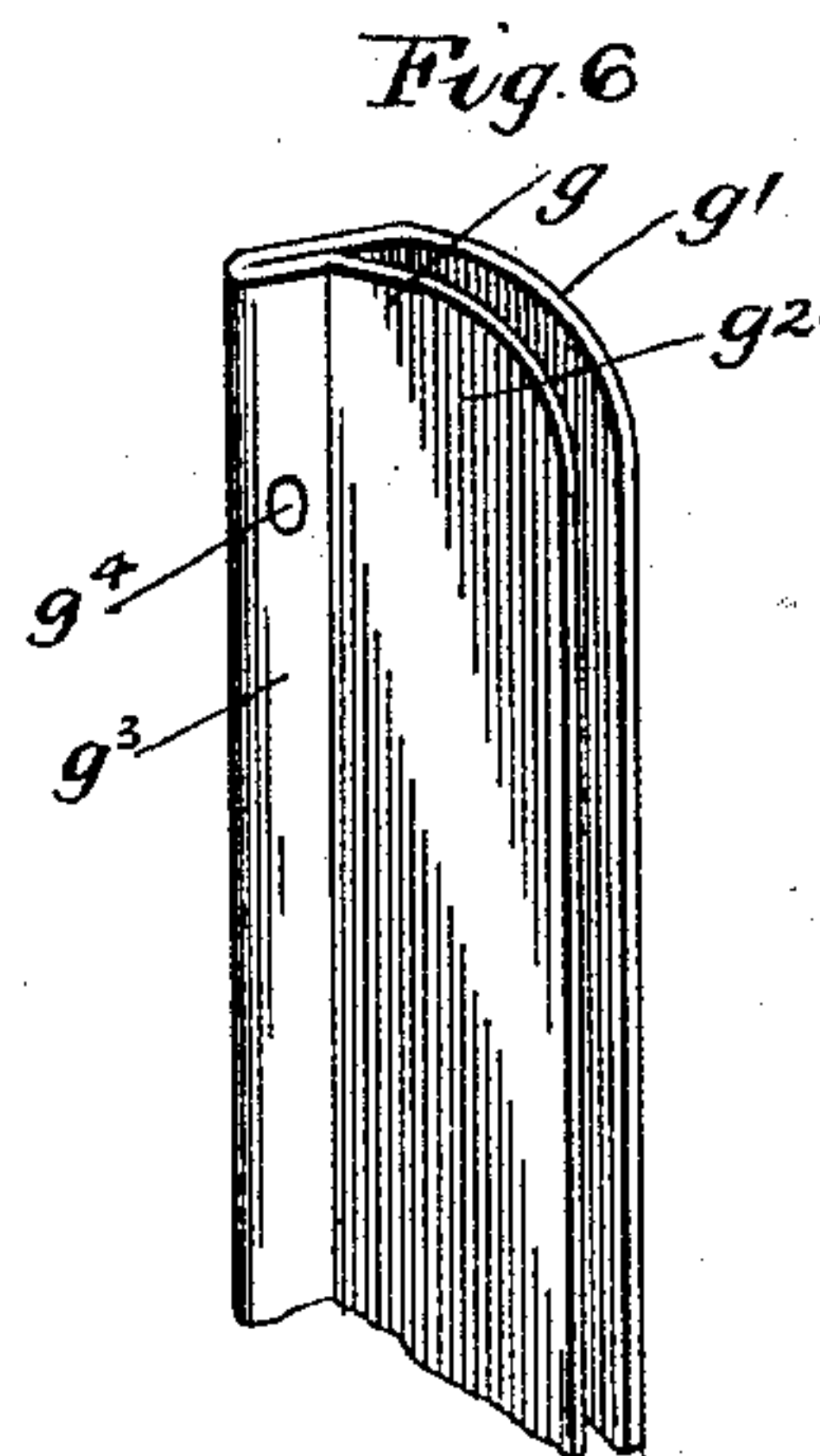
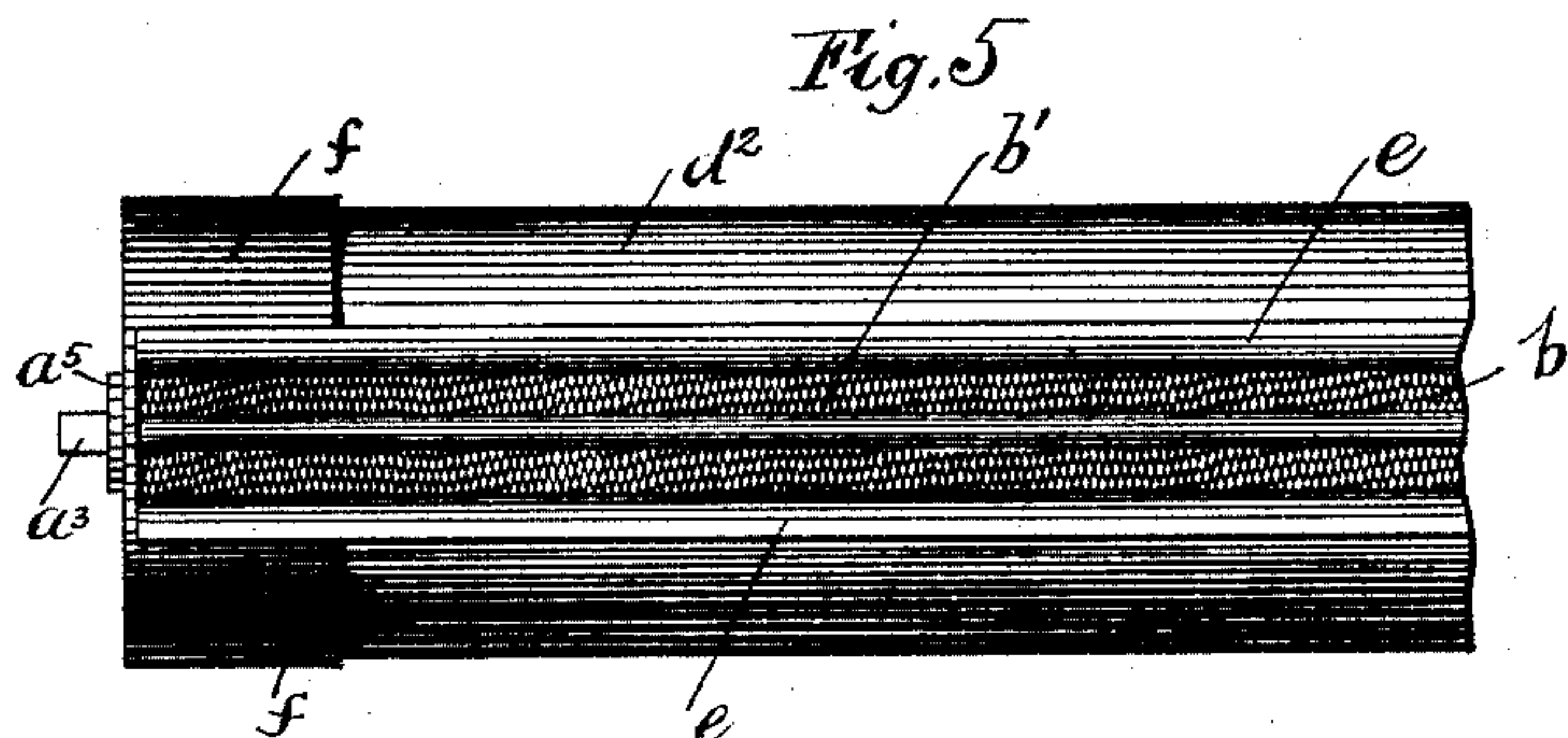
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2 Sheets—Sheet 2.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

HOWARD C. PARK, OLIVER M. EVANS, CLARENCE E. TURNER, AND CHARLES E. MORRIS, OF COLUMBUS, OHIO.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 497,891, dated May 23, 1893.

Application filed November 7, 1892. Serial No. 451,148. (No model.)

To all whom it may concern:

Be it known that we, HOWARD C. PARK, OLIVER M. EVANS, CLARENCE E. TURNER, and CHARLES E. MORRIS, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Window-Screens, of which the following is a specification.

Our invention relates to that class of window screens wherein a flexible screen is adapted to wind upon and be unwound from a spring actuated roller through the movement of the window-sash. Our invention however, has particular relation to the improvement of the screen shown in Letters Patent No. 418,126, dated December 24, 1889.

The objects of our invention are to provide a screen of the above class of superior construction and arrangement of parts which will greatly facilitate the operation of the same; to provide superior means for supporting the roller casing within a window-way and in so doing obviate the necessity of forming a direct connection between said roller casing and the window frame-work; to provide improved guide-strips; to provide improved means for increasing the tension of the roller spring; to construct the screen of a durable and flexible material and to produce other improvements which will be more specifically pointed out hereinafter. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is an inner face view of a window-frame having our improved screen therein, the lower sash being partly raised. Fig. 2 is a vertical sectional view on line xx of Fig. 1. Fig. 3 is an enlarged sectional view of the roller and case and a portion of one of the guide-strips as viewed on line yy of Fig. 1 and shown removed from the window-frame. Fig. 4 is a sectional view of the roller casing taken on line zz of Fig. 7. Fig. 5 is a view in elevation of a portion of the roller casing. Fig. 6 is a view in perspective of a portion of one of the side strips. Fig. 7 is a partial longitudinal section and elevation of the roller casing showing the screen and roller therein.

Fig. 8 is an end view of one of the roller casing caps. Fig. 9 is a view in perspective of the lower end of one of the guide strips, and Fig. 10 is a view in elevation of a telescoping roller.

Similar letters refer to similar parts throughout the several views.

a represents a roller which as prescribed for said former patent above mentioned is spring-actuated or provided with an internal spring in one end thereof. As shown in Fig. 9 of the drawings, we form this roller of two telescoping or jointedly connected sections $a^1 a^2$ said sections being adapted to close together or to be drawn outward in the usual or any well-known manner to increase or decrease the length thereof.

a^3 represents the squared pin which as is usual projects from the end of the roller and is connected with said internal spring, the base of said pin being provided with a ratchet-disk, (indicated at a^5). The roller thus formed has secured thereto in any desirable manner the inner end of a flexible wire screen such as is indicated at b . In producing this screen we employ fine wire sufficiently annealed or tempered to decrease its brittleness and increase its flexibility to such extent as to admit of its being readily wound or unwound without injury thereto. The outer and otherwise free end of this screen, is as shown in the drawings provided with a transverse binding of thin sheet metal, (indicated at b') and through said binding we form at desired intervals openings b^2 substantially of the inverted key-hole shape, shown.

We inclose the roller above described and the wound portion of the screen thereon with a substantially tubular casing d preferably of sheet metal or tin, said casing being formed in three telescoping sections d^1, d^2 and d^3 , the central section d^1 being adapted to fit and slide within the end-sections d^2, d^3 . In the casing thus formed we produce throughout the length thereof, a slotted opening (indicated at d^5), said opening being continuous throughout the several sections thereof. The outer sections $d^2 d^3$ have the edges of their slotted opening bent outward to form lips e ,

while the edges of the slotted opening of the central section are provided with similar lips which are doubled under resulting in the formation of a guide-way e' within which the lips e of the end sections may slide. As shown in Fig. 7 of the drawings, we may however, cause the middle section to slide over the ends of the outer sections of the casing.

Each end of the roller casing is provided with a cap f which fits over the outer end of the cover-section and which is provided with a slotted opening f' , the edges of which are overlapped by the end portions of the lips e . In one of these cap ends is formed a bearing opening for the usual rounded and fixed roller pin and in the remaining cap a rounded opening for the reception of the roller pin a^3 and its ratchet disk a^5 .

g represents the guide-strips which are adapted as hereinafter described to be supported at opposite points in the inner sides of the window frame adjacent to the sash. In forming our improved guide-strip, we produce from a piece of sheet metal or other suitable substance a channel strip, said strip being so bent as to form a vertical channel or guide-way g' between two parallel outwardly projecting lips g^2 . The base or rear side of each of these strips is extended laterally to form an attaching flange, such as is shown at g^3 , said attaching flange being provided with suitable tack openings g^4 . The lower end of each of the guide-strips has as shown in the drawings, its outer lip or wing g^2 provided with a transverse slotted opening g^5 . These guide-strips are secured to the inner side of the vertical portions of a window-frame h , the lower ends thereof being adjacent to the upper side of the sill h' . In forming this connection, we employ suitable tacks or screws which pass through the attaching flange openings g^4 and enter the window-frame.

The method of attaching our improved casing to the window frame or seat consists in pressing the out-turned edges or lips e of the outer ends of the outer sections toward each other and inserting said lip portions within the slotted openings g^5 of the side strips and then allowing said strip portions to spring outward into engagement with the rear side of said side strip plate. In this manner it will be seen that a connection will be formed between the side strips and roller casing which will prevent any tendency of said casing to rotate or to work out of its place and at the same time to form a connection which will obviate the necessity of fastening the casing to the window sill or frame. The roller casing having thus been secured in its place in the window, the outer bound end of the screen is secured to the lower cross-piece k of the lower sash by hooking the eyes or openings b^2 over the suitable projections on said window sash. This connection having been made, it is obvious that the raising of the window sash must result in the screen

following said sash or being drawn upward therewith. This taking up of the screen must result as will readily be seen in completely closing the opening formed by raising the window. In the upward movement of said screen thus produced it will be seen that the lateral edges of the screen will be inclosed within the channels of the side strips g , thus providing against any outlet or opening for the entrance of flies at the side of the screen.

In order to facilitate the operation of tightening or increasing the tension of the spring of the roller and retaining the same under tension, we pivot on the outer side or end of that cap f through which passes the squared roller pin a^3 , a pawl m , said pawl being adapted to engage with the teeth of the ratchet disk a^5 in such manner as to prevent the backward rotation of the pin a^3 . The means of tightening said spring consist in fitting a suitable key over the projecting pin a^3 and turning the same until the spring is placed under tension in the usual manner.

It is evident that our improved roller casing may be adjusted to any desired length by telescoping the sections thereof to a greater or less degree, thus admitting of the use of said roller casing in windows of varying widths. The construction of our improved guide-strips is such as to provide a simple and effective means of retaining the edges of the screen in proper alignment and the method herein described of securing the roller casing in connection with said side-strips is such as to admit of this attachment being readily and safely made.

As shown in said former patent hereinbefore mentioned, it is evident that our improved screen might be adapted for use in connection with the upper sash, by placing the roller and its casing upon the upper portion of said window-frame and securing the outer end of the screen to said upper sash.

In the class of window screens to which our invention belongs, a cloth or thread netting has been ordinarily employed in the construction of the screen, but practical use has demonstrated that such material will not withstand the effects of rain or dampness, and that screens so formed are not durable, but by the use of screens formed as hereinbefore described of fine annealed wire it will be seen that a durable and reliable screen is provided which can be readily rolled or unrolled without difficulty and without injury thereto.

It will be observed that our improved screen is of a simple and reliable construction and can be produced at a reasonable cost of manufacture.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In a window screen, the combination with a spring actuated and adjustable roller as described, a wire screen wound thereon and secured thereto, a casing for said roller said

casing formed as described of telescoping sections, communicating slotted openings throughout said case sections and edge lips as described thereon, caps *f* fitting on said
5 case sections, and slotted openings in said caps, the edges of which engage as described with said case section lips, of the guide strips *g* having channeled and flanged portions as described, openings *g*⁵ in each of said guide
10 strips with which the edge lips of the case

sections are adapted to engage, substantially as and for the purpose specified.

HOWARD C. PARK.
OLIVER M. EVANS.
CLARENCE E. TURNER.
CHARLES E. MORRIS.

In presence of—

C. C. SHEPHERD,
E. E. BRAGG.