

(No Model.)

2 Sheets—Sheet 1.

J. COYLE.  
MATCH SAFE.

No. 536,983.

Patented Apr. 2, 1895.

Fig. 1.

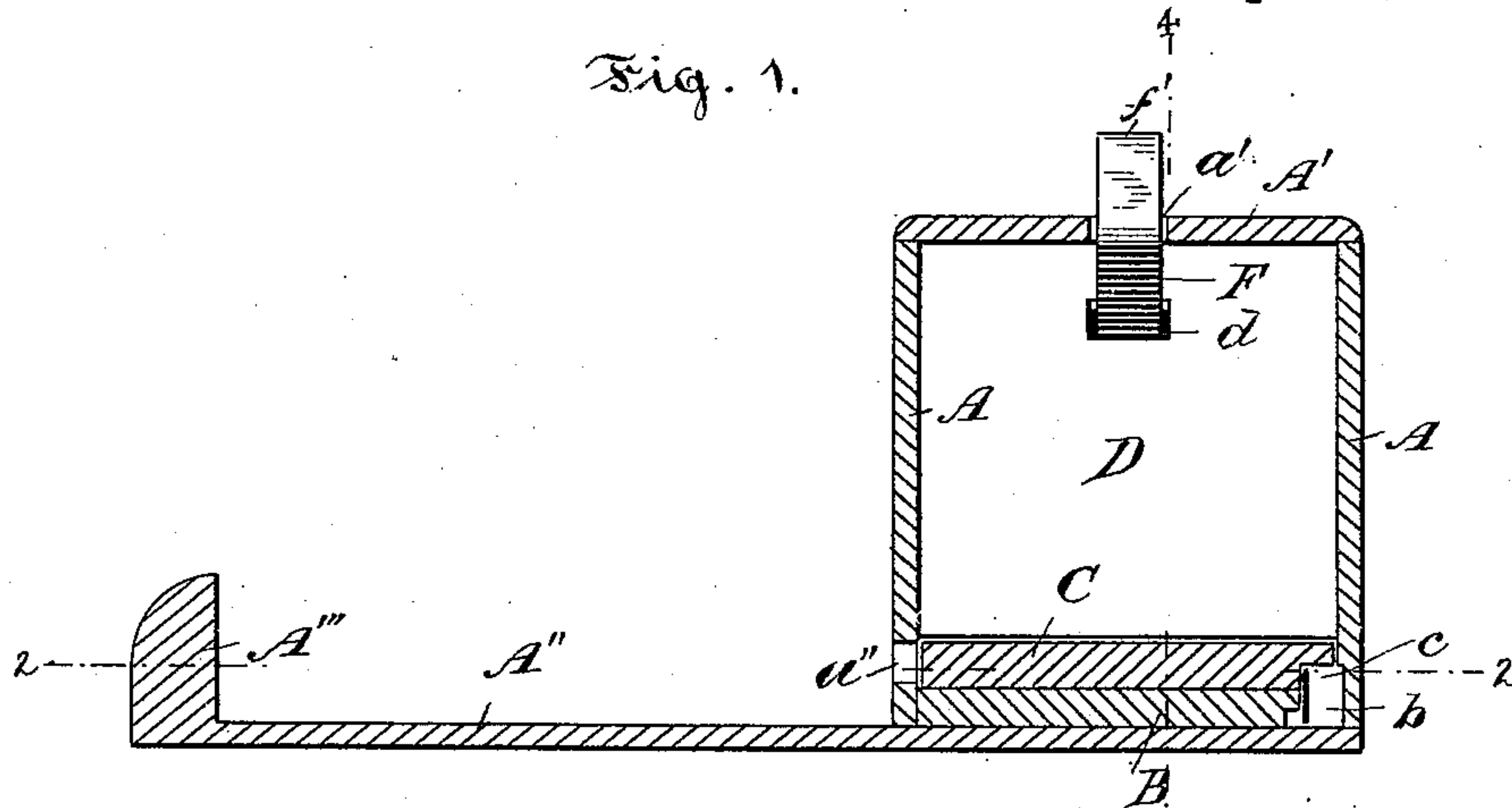


Fig. 2.

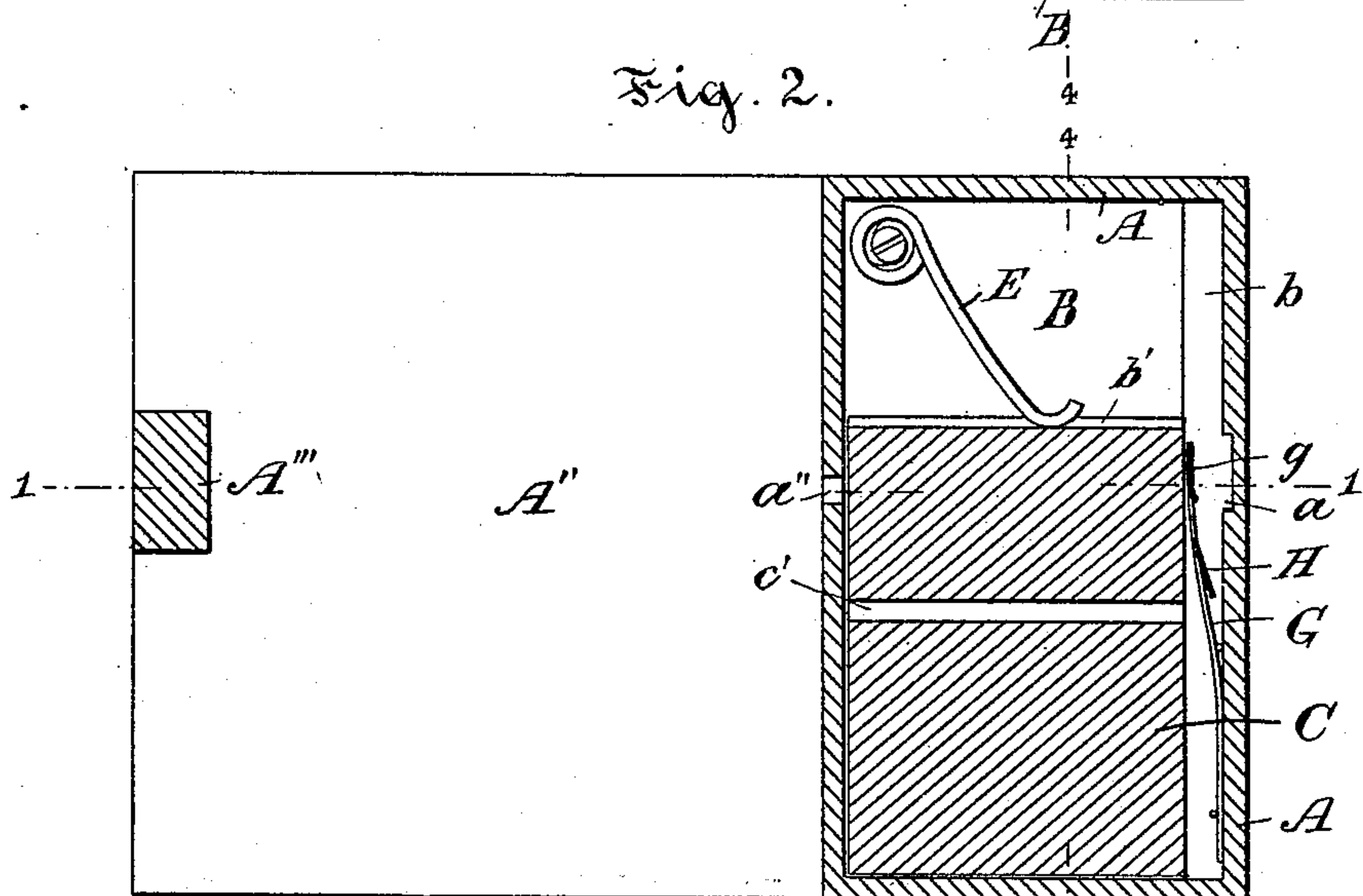
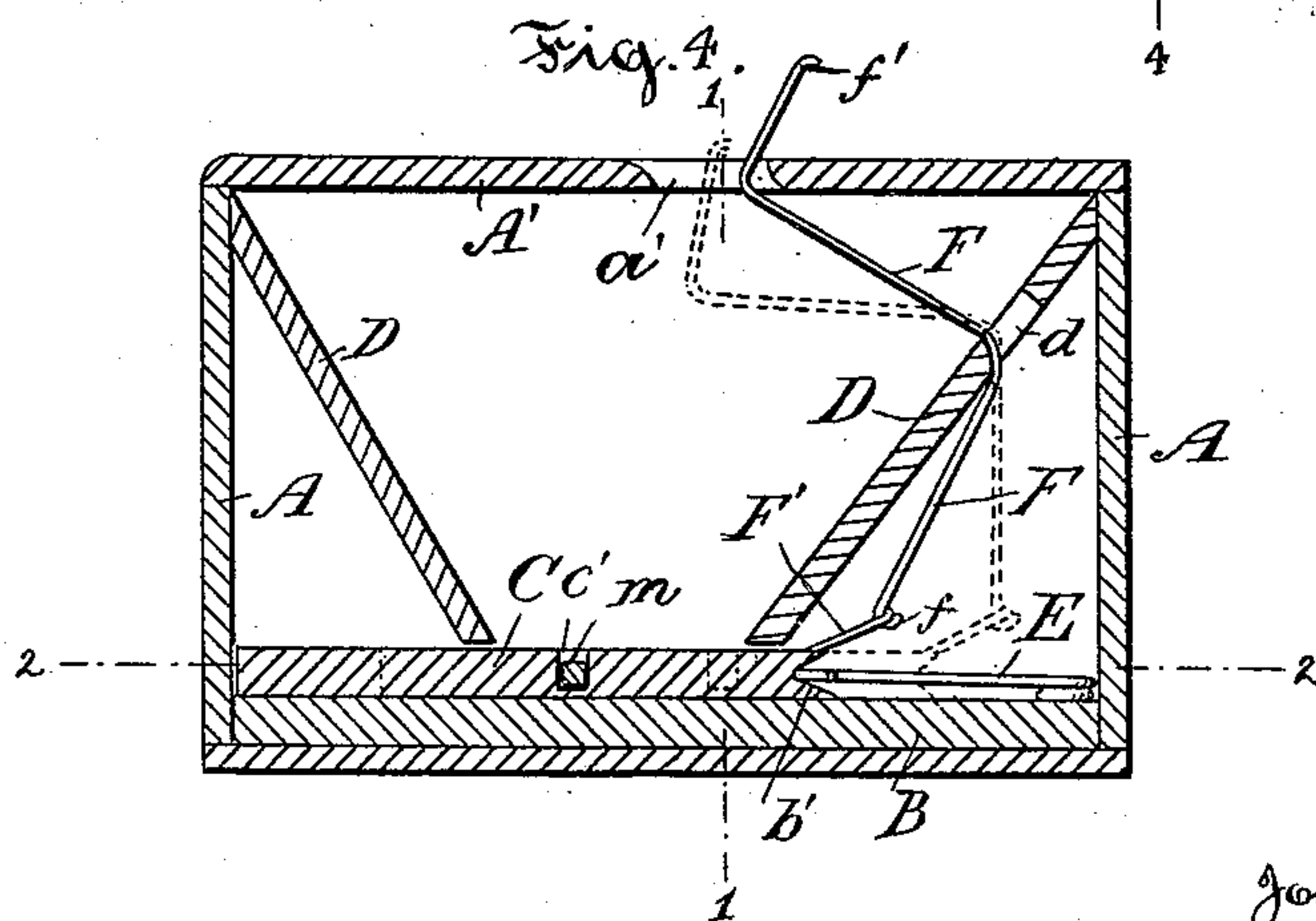


Fig. 3.



Witnesses:

Chas. Raley.

W. Moffet.

Joseph Coyle  
Inventor

By A. Harvey  
his Attorney.

(No Model.)

2 Sheets—Sheet 2.

J. COYLE.  
MATCH SAFE.

No. 536,983.

Patented Apr. 2, 1895.

Fig. 3.

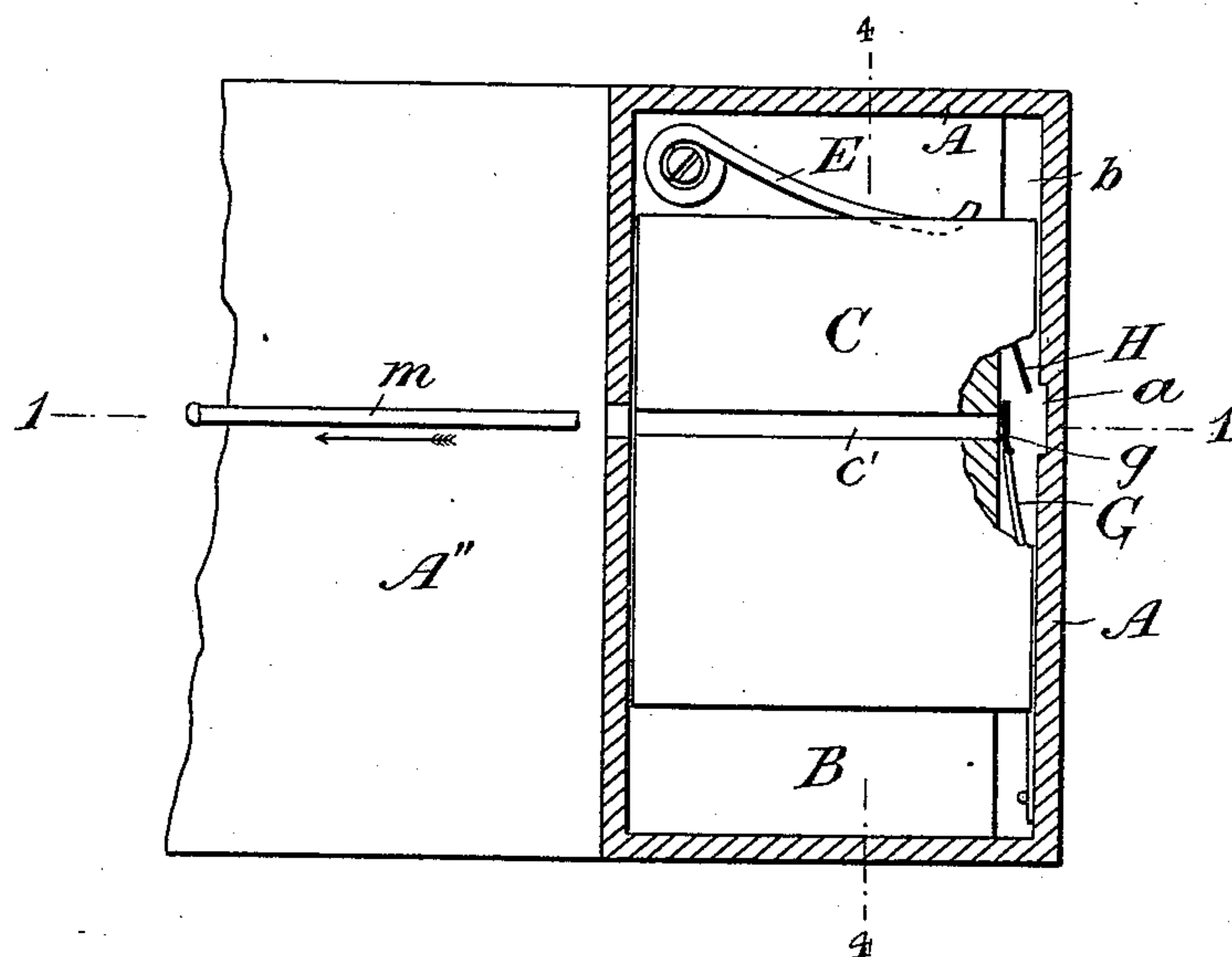


Fig. 5.

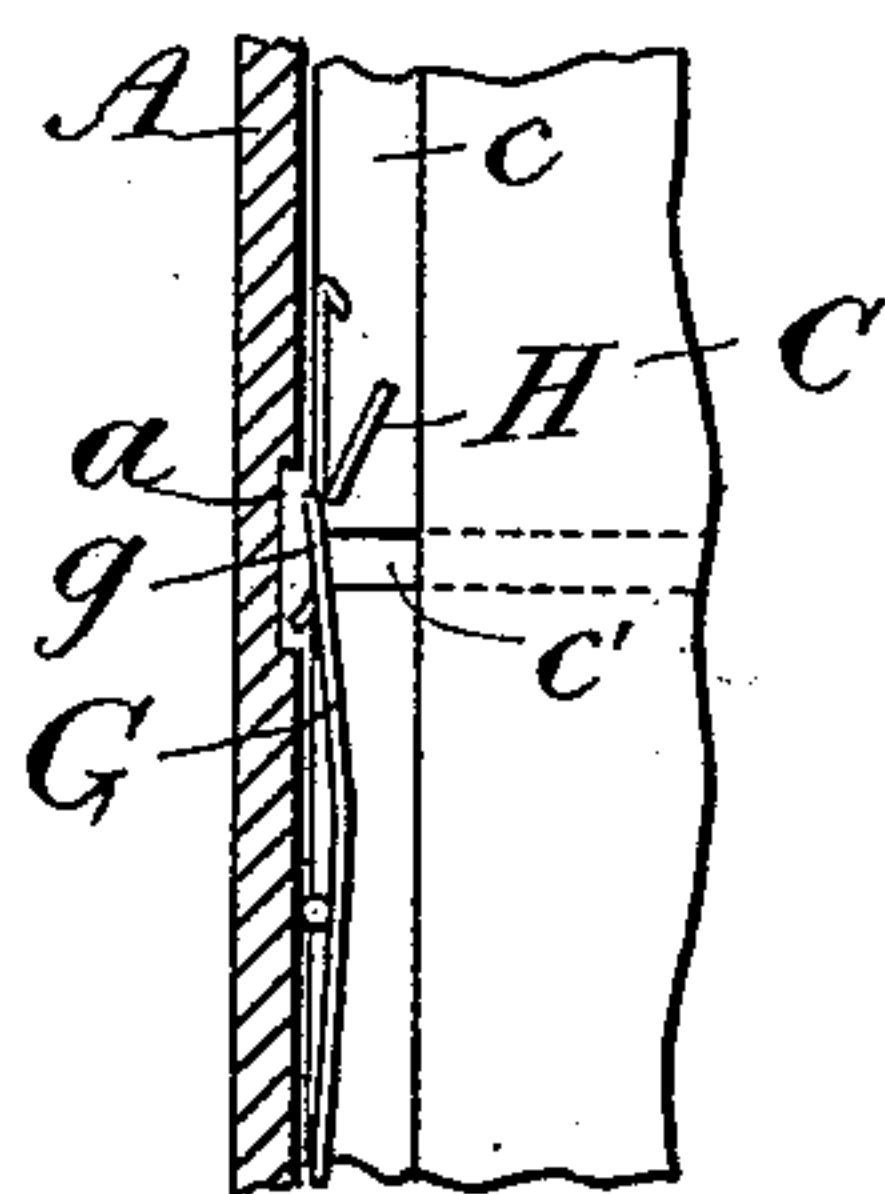


Fig. 7.

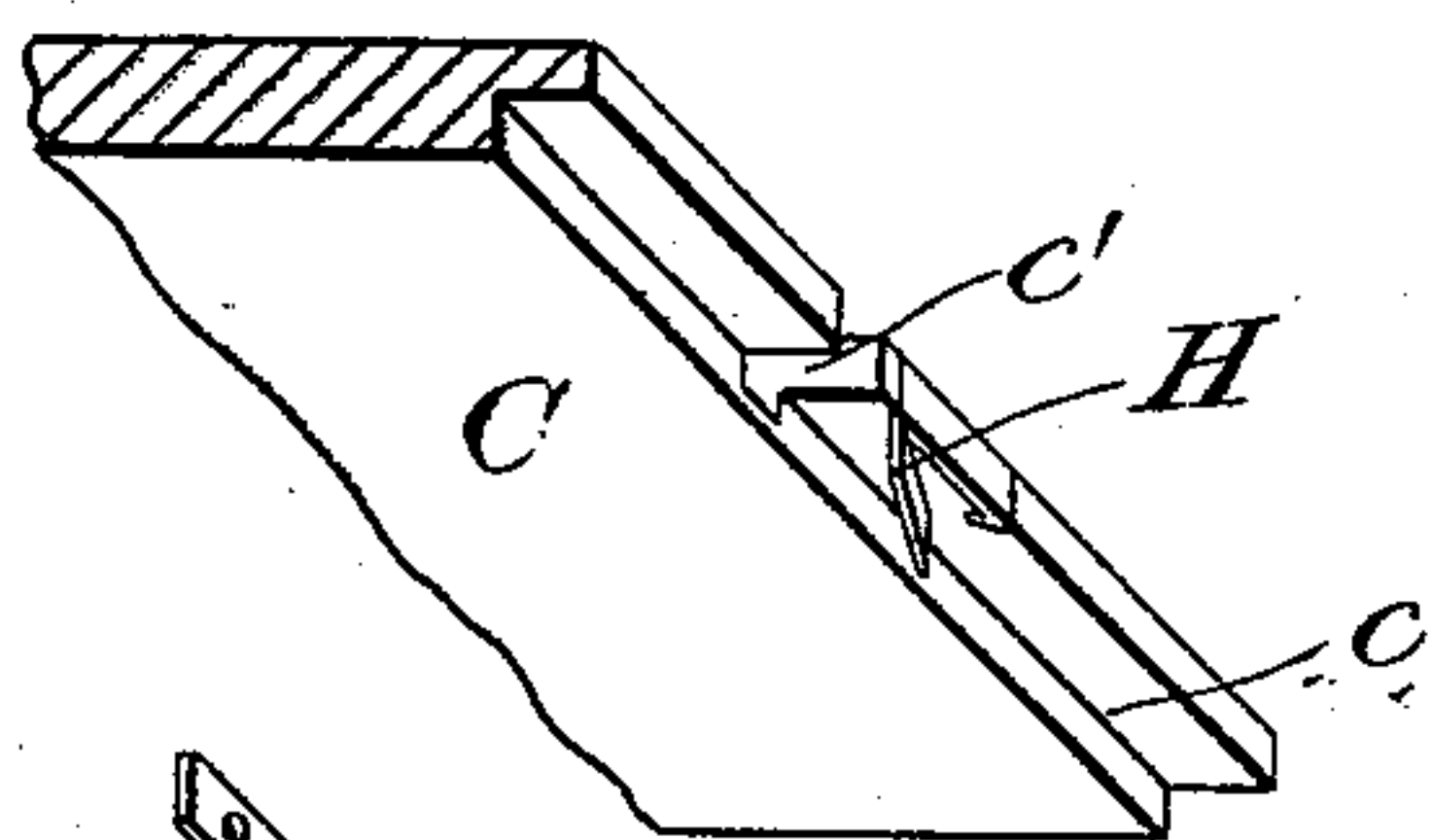
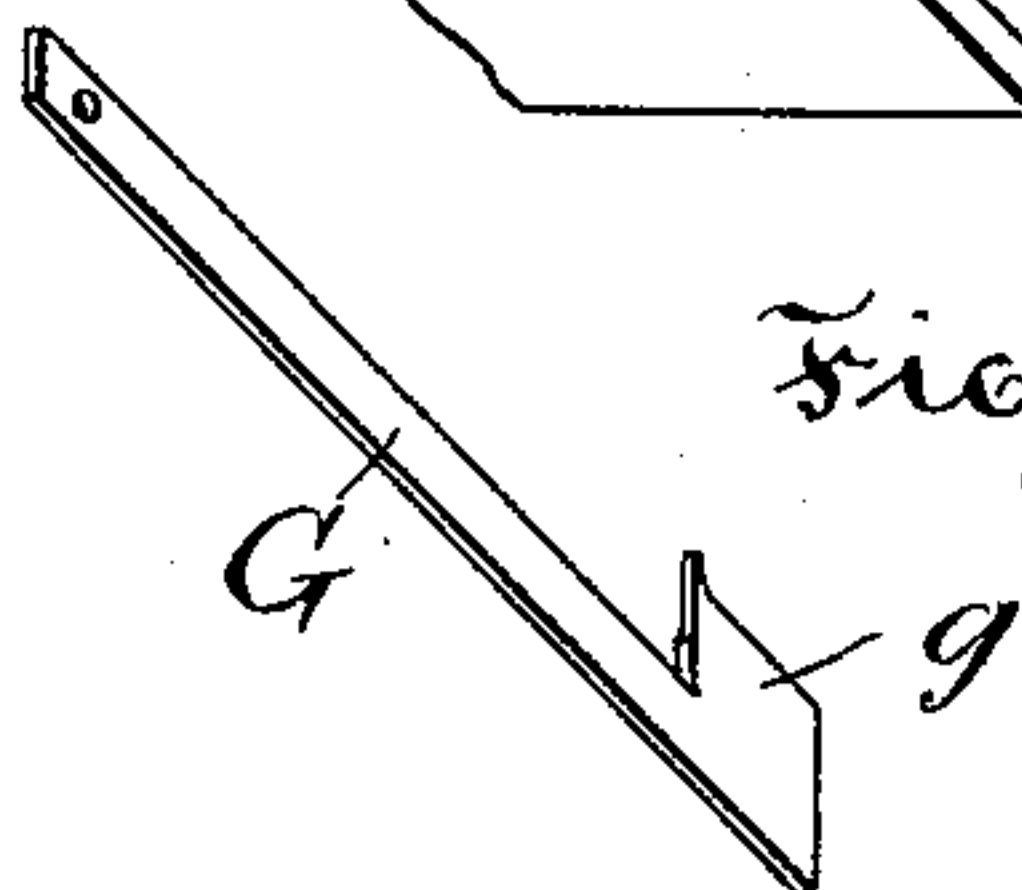


Fig. 6.



Witnesses:  
Chas. Bailey.  
W. Hoffke

Joseph Coyle  
Inventor  
by A. Harvey  
his Attorney



# UNITED STATES PATENT OFFICE.

JOSEPH COYLE, OF OTTAWA, CANADA, ASSIGNOR TO CHARLES BERKELEY POWELL AND FREDERICK WILLIAM CARLING, OF SAME PLACE.

## MATCH-SAFE.

SPECIFICATION forming part of Letters Patent No. 536,983, dated April 2, 1895.

Application filed October 29, 1894. Serial No. 527,143. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH COYLE, of the city of Ottawa, in the county of Carleton, Province of Ontario, and Dominion of Canada, have invented certain new and useful Improvements in Match-Safes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof.

My invention, which will be hereinafter fully set forth and claimed, relates to devices for retaining matches and delivering them as required.

The object of my invention is a match safe from which only one match can be taken at a time.

Figure 1 is a cross section of my improved match safe on line 1, 1, Figs. 2, 3 and 4. Fig. 2 is a horizontal section of the same on line 2, 2, Figs. 1 and 4. Fig. 3 is a top view of the same with parts removed and broken out, showing others in the position just after delivery of a match. Fig. 4 is a vertical longitudinal section of the same on line 4, 4 Figs. 1, 2 and 3, shown at rest. Fig. 5 is a bottom view of the expelling spring and deflector engaged and just before disengagement. Fig. 6 is a perspective view of the expelling spring and Fig. 7 is a perspective view of the deflector.

A box, A, is provided, having a clear width of the length of a match and a little over and of any desired length and height and provided with a top or lid, A', that can be secured by lock and key or in some other convenient manner. In this box is secured a false bottom, B, somewhat narrower than the width of the box, so as to leave a groove, b, along the edge of it between it and the side of the box. Upon this is placed a sliding bottom, C, of the full width of the box, but having its lower edge, above the groove b, rabbated out, at c, to form an upward continuation of the groove b when seen in cross section, as in Fig. 1, and said sliding bottom C being shorter than the length of the box, so as to allow sliding space. Said sliding bottom has a transverse groove, c', in its upper surface, sufficiently spacious to hold a match freely, but no more, and deep enough to extend into the rabbet c.

At each end of the box is secured a sloping

end or partition, D, joining the upper edge of the end and extending to within a short distance of the transverse groove c' and close to the upper surface of the sliding bottom, without, however, bearing upon the latter, these being for the purpose of conveying the matches toward the groove and preventing them lying in the corners or angles of the box when the latter is nearly empty. Said sliding bottom is pushed to one end of the box by a spring, E, secured upon the bottom B near the end and bearing with its end in a groove b' in the end of the bottom. Said sliding bottom is drawn to the other end of the box, against the pressure of said spring, by a lever, F, passing through a perforation, d, in the sloping end, upon which it rests as a fulcrum, and through a perforation, a', in the top, being twice bent at a right angle for the purpose, provided with a knob or finger piece, f', at its upper projecting end and engaging by its lower hooked end, f, a clevis, F', which is secured to the end of the bottom C. The same object would of course be served by a direct pull through the end or by a lever projecting through the end of the box.

In the groove b is placed a flat spring, G, secured to the side of the box near the end against which the sliding bottom abuts by the pressure of the spring E, and extending toward the other end and pressing toward the edge of the bottom B and forming the expelling spring. At the free end this spring is provided with a short upward extension, head or plate, g, projecting up into the rabbet c and having its heel bent toward the side of the box, out of the line of the spring. A recess, a, may be formed in the side to receive said plate when deflected.

To the edge of the sliding bottom, above the rabbet, is secured a deflecting spring plate, H, standing obliquely in said rabbet, its heel at the edge of the bottom slightly in advance of the groove c', and sloping inwardly and toward the forward or spring actuated end. When said bottom is drawn forward by the lever F against the pressure of the spring E, the deflector H has to pass the spring projection g and the forward inner point of the former engages the outer heel of the latter and presses it toward the side of the box. The deflector proceeding, its heel finally passes the point of the plate g and this being re-



leased strikes toward the edges of the bottoms, B and C, being also, at that moment, opposite the end of the groove  $c'$ . If a match,  $m$ , is in said groove, the spring strikes its end and projects it and ejects it through a corresponding perforation,  $a''$ , made in the opposite side of the box, opposite the spring head  $g$  and opposite the groove  $c'$  when passing forward at the moment the spring G is released.

To prevent the matches that are ejected or expelled from the box straying, the bottom of the box A is extended at the side of the perforation  $a''$  to form a platform,  $A''$ , and a butt,  $A'''$ , is placed upon it opposite said perforation, which arrests the ejected matches. Thus it will be observed that if the box A is filled or partly filled with matches, they will lie across the sliding bottom C, parallel to the groove  $c'$  and one of the matches will be lying in the bottom of said groove. If, now, the lever F is depressed, it will draw the sliding bottom C forward from the position shown in Fig. 2 against the pressure of the spring E. When the groove  $c'$  and match  $m$  at the bottom thereof approach the plate or head  $g$  of the spring G, the point of the deflector H, being carried close to the side of the rabbet, engages the heel of the said head, and proceeding, deflects it toward the side of the box, as shown in Fig. 5. The engagement is effected by the heel of the head projecting into the rabbet toward the side of the box, although the head itself presses against the inner side of the rabbet when at rest. Finally the heel of the deflector will slip past the point of the plate  $g$ , and the spring G, being now free to act, will strike with its plate  $g$ , toward the edge of the rabbet, as shown in Fig. 3. Before this occurs the groove  $c'$  has arrived opposite said plate and is in line with the perforation  $a''$  and said plate is opposite the end of the match in the groove and when the spring G is liberated its head strikes said match and ejects it through the perforation  $a''$  upon the platform  $A''$ . When the pressure on the lever F is relieved, the spring E pushes the slide C back and another match  $m$  takes its place in the bottom of the groove  $c'$ . The slide C in returning from the position shown in Fig. 3, just after the ejecting action of the spring G, to the position shown in Figs. 2 and 4, carries the deflector H between the head  $g$  and the side of the box, the head  $g$  pressing the deflector a little toward the side of the box for the purpose.

I claim as my invention—

1. In a match safe, the combination of a box having a width equal to the length of a match, a longitudinal groove  $b$  in the bottom at one side so that the side of the box forms one side of the groove, a flat spring secured in said groove at one end and having an upward projecting head or plate at the other tending to press toward the inner side or edge of the groove and having the heel of said plate bent toward the outer side of the groove, a bottom

adapted to slide longitudinally and provided with a transverse groove in its upper face adapted to hold a match freely and having a rabbeted lower edge forming an upward continuation of the groove  $b$  to form a passage way for the head of the spring aforementioned, a spring deflector placed obliquely in said rabbet secured to said sliding bottom and adapted to engage deflect and pass the head of said spring so as to cause the latter to strike toward the inner side of said rabbet and the end of the lower part of the transverse groove, a perforation in the opposite side of the box opposite said spring head, a spring moving said sliding bottom toward one end of the box and a lever adapted to move it toward the other end against the pressure of said spring, substantially as set forth.

2. In a match safe, the combination of a box A having inside sloping ends D and provided with a cover, a sliding bottom C having a transverse groove  $c'$  and a longitudinal rabbet  $c$ , a groove  $b$  forming a downward continuation of said rabbet in the bottom of said box, a spring G secured in said groove and having an upward projecting head or plate  $g$ , an oblique deflecting plate H in the rabbet  $c$ , a perforation  $a''$  in the side of the box opposite said spring head, a spring E pressing said sliding bottom toward one end and a projecting lever F adapted to draw it in the opposite direction, substantially as set forth.

3. In a match safe, the combination of a box A, a longitudinal sliding bottom in said box, sloping ends inside said box extending to said sliding bottom, a perforation  $a'$  in the top, a perforation  $d$  in one of the sloping ends, a lever F passing through said perforations and bent at a right angle at a point at which it passes through the sloping end forming a support in said perforation and bent at a right angle at the point at which it passes through the top and engaging said sliding bottom at the lower end by a clevis F', substantially as set forth.

4. In a match safe, the combination of a rectangular box, a groove  $b$  in the bottom adjoining one side, a bottom adapted to slide with its edges against the sides and having a rabbet  $c$  above said groove, a flat spring secured to the side of the box in said groove, a plate or head at one end of said spring projecting upwardly in said rabbet tending to press against the inner side of said groove and rabbet, and a deflecting spring plate H projecting obliquely across said rabbet and adapted to engage deflect and pass said spring head when said sliding bottom is moved in one direction and passing between said head and the side of the box when moving in the other direction, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses.

JOSEPH COYLE.

Witnesses:

A. TROWSSE,  
L. PETER.