

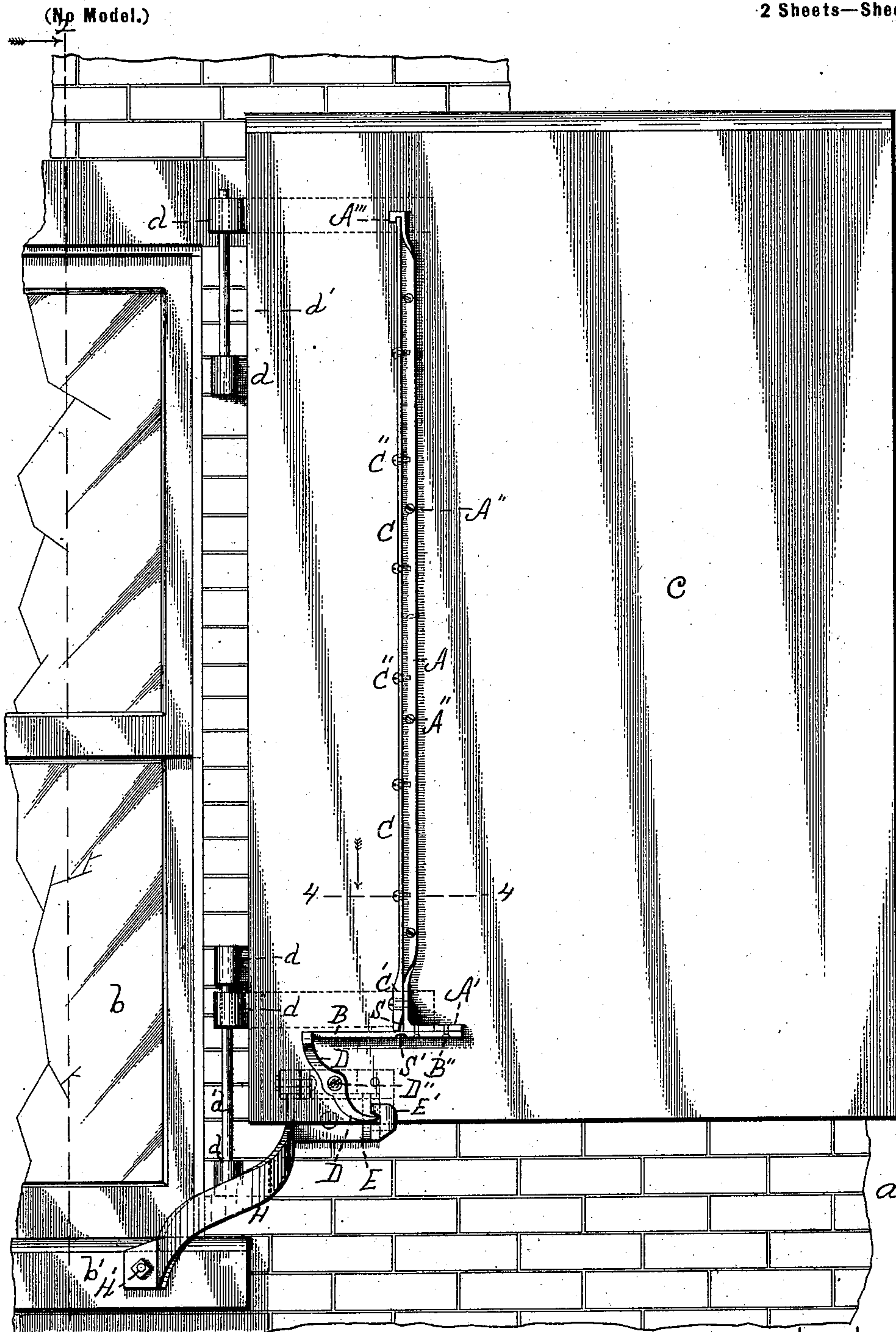
No. 691,761.

Patented Jan. 28, 1902.

J. E. GUILD.
FIREPROOF SHUTTER.

(Application filed May 1, 1901.)

2 Sheets—Sheet 1.



WITNESSES:

A. M. Bonney.
E. P. Small.

FIG. 1.

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John E. Guild,
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2 Sheets—Sheet 2.

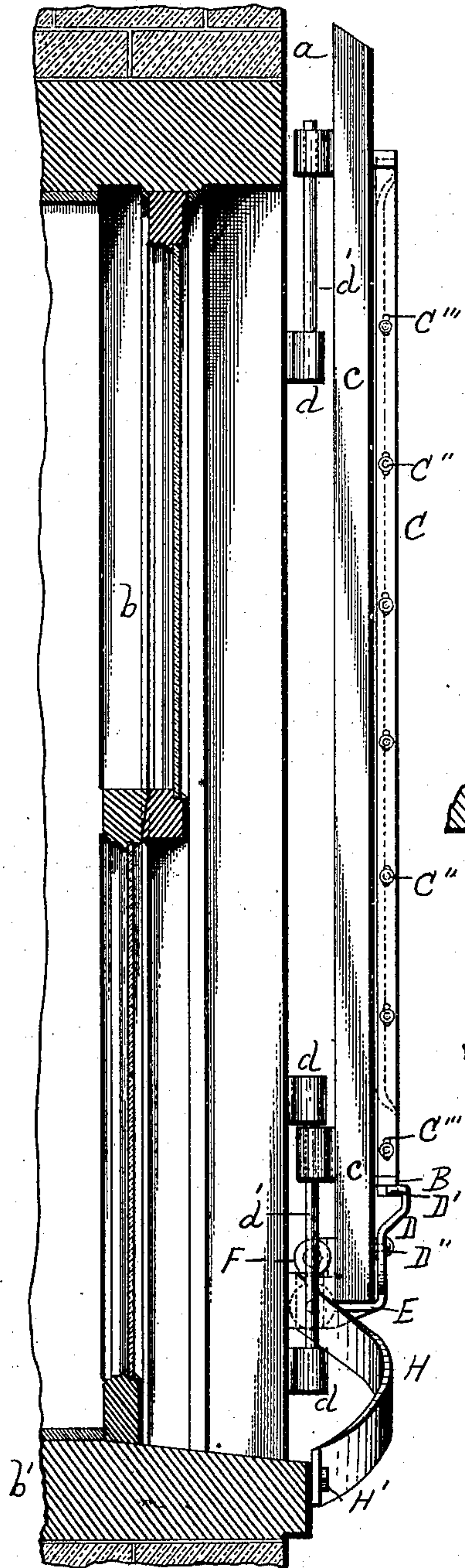


Fig. 2.

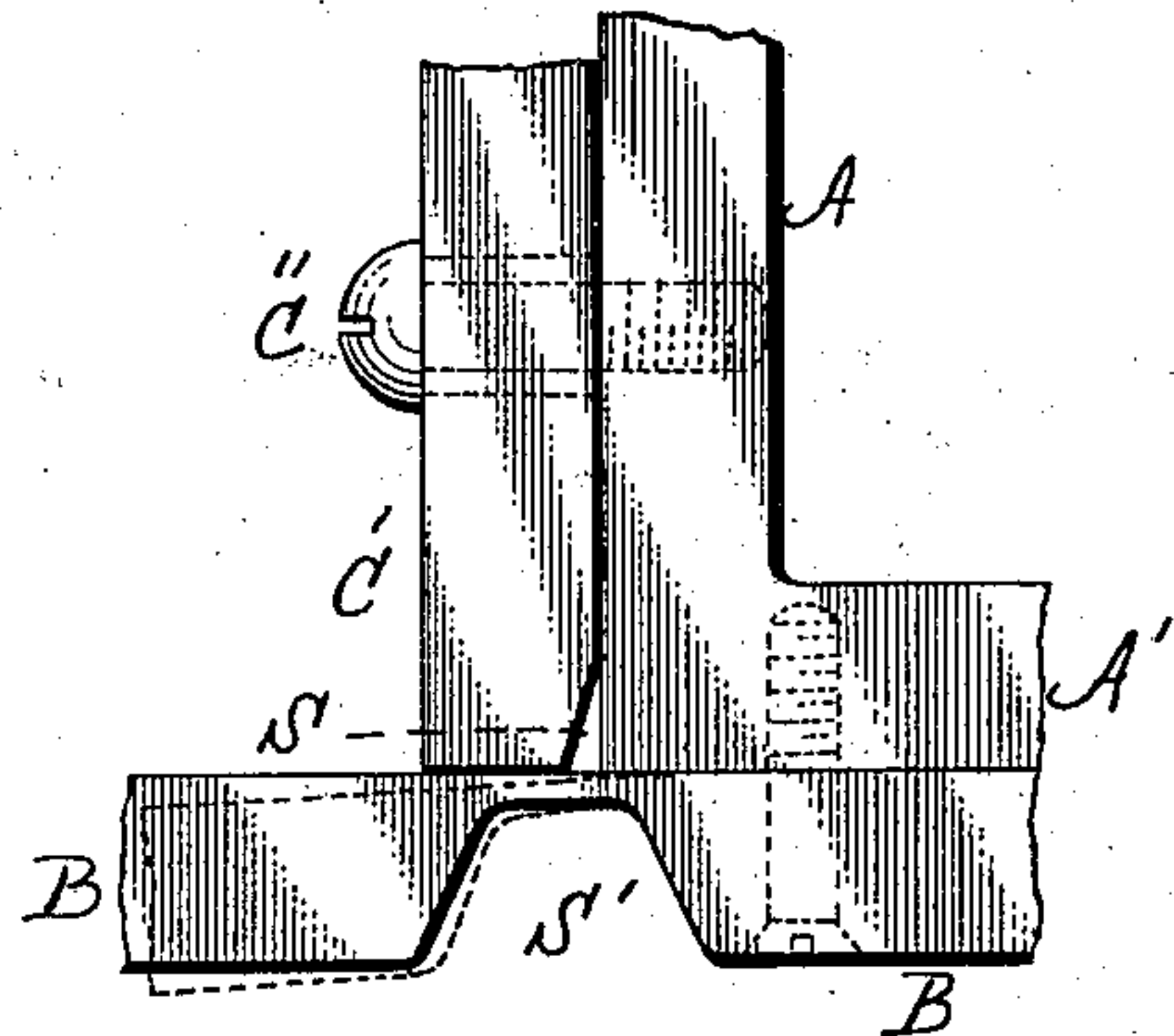


Fig. 3.

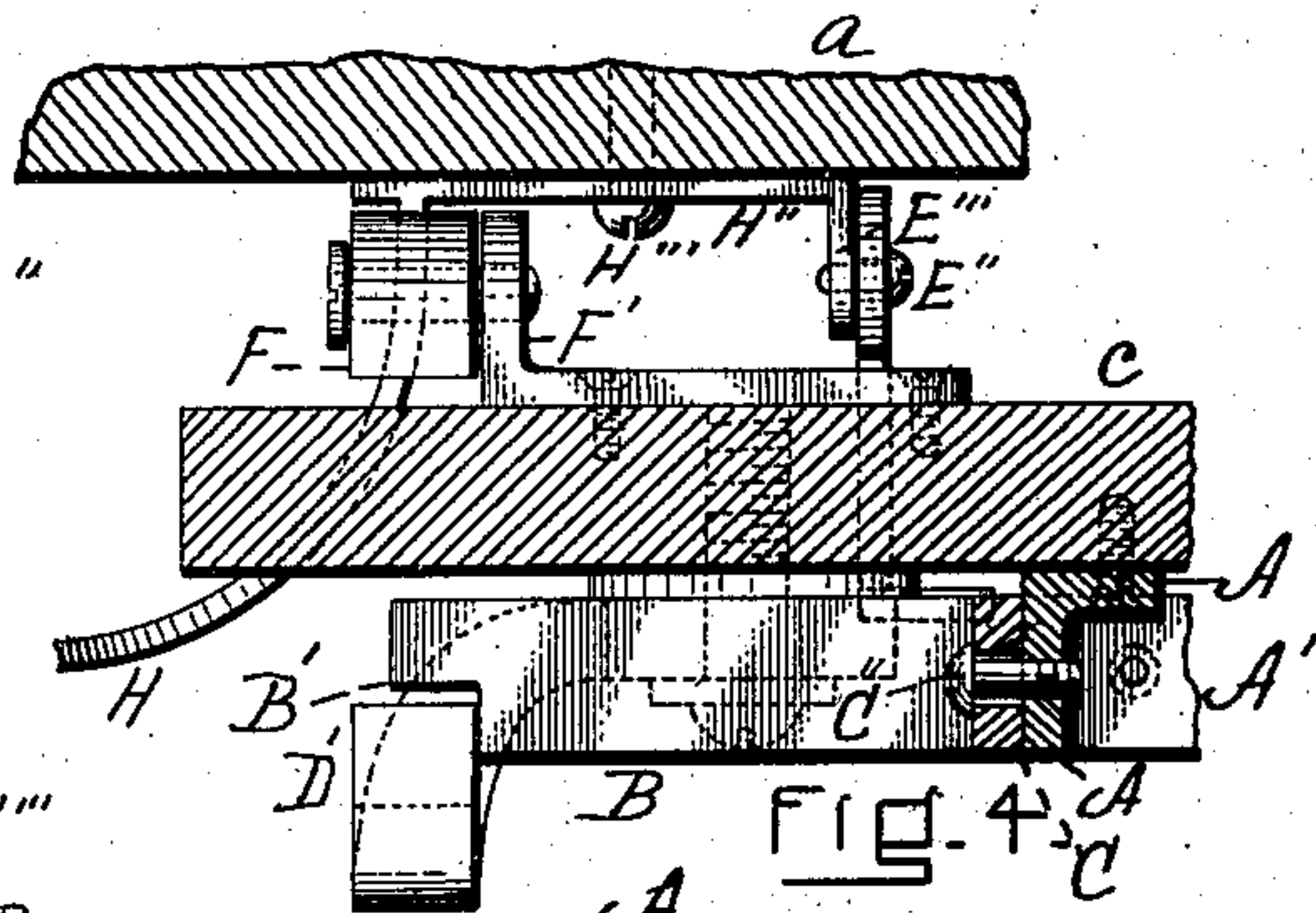


Fig. 4.

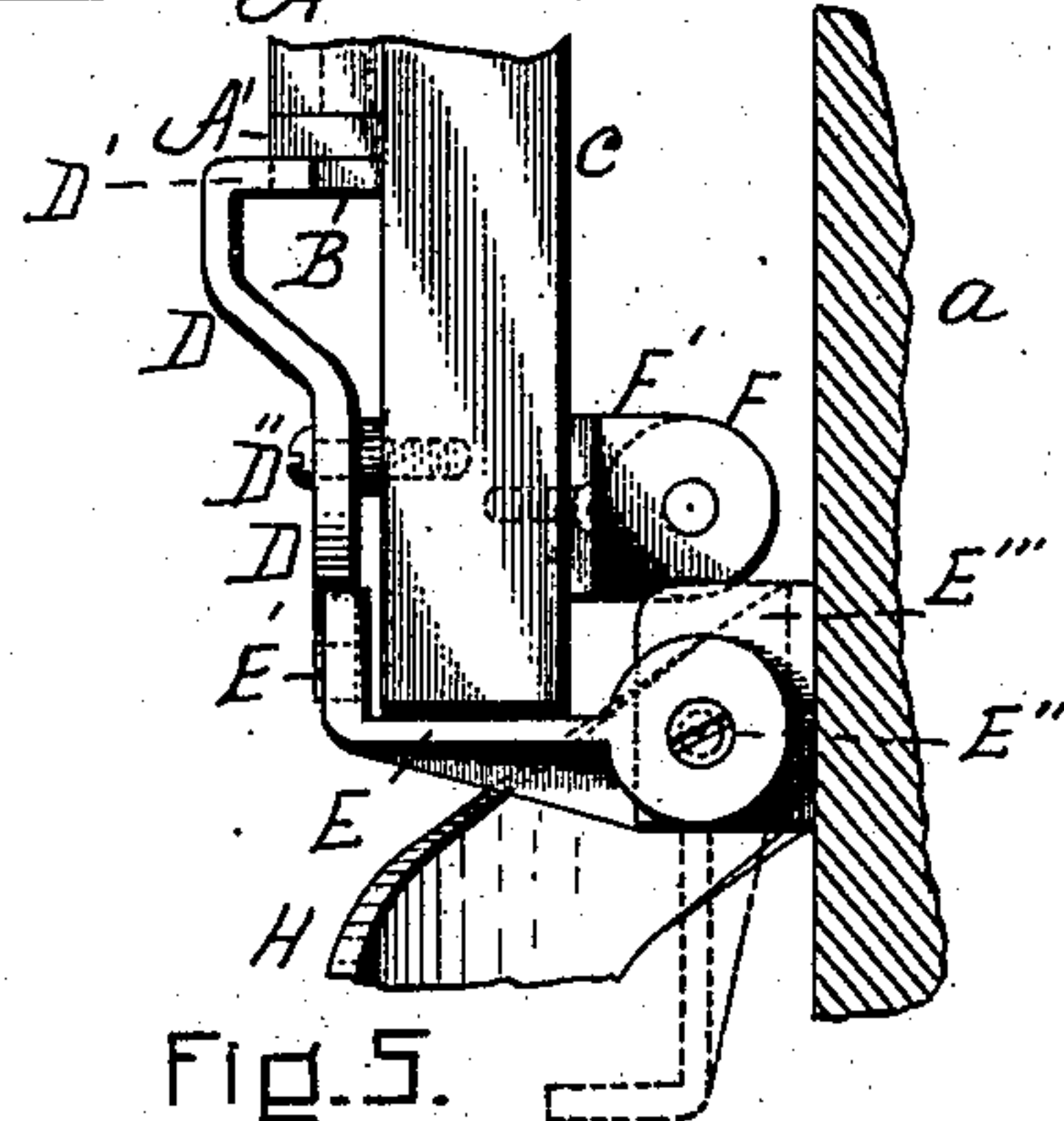


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN E. GUILD, OF WORCESTER, MASSACHUSETTS.

FIREPROOF SHUTTER.

SPECIFICATION forming part of Letters Patent No. 691,761, dated January 28, 1902.

Application filed May 1, 1901. Serial No. 58,368. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. GUILD, a citizen of the United States, residing in Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Fireproof Shutters, of which the following is a specification.

This invention relates to fireproof shutters for buildings, and especially to that class of fireproof shutters which are applied to the outside of buildings, although it may be applied, if desired, to an inside shutter; and the invention applies specifically to that class of fireproof shutters which are adapted to close automatically when the temperature rises above a certain degree or to a certain height, as would be the case in the event of a fire or conflagration in the vicinity of the shutter.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a rear elevation of a portion of the outer wall of a building, illustrating a portion of a window with my improved fireproof shutter and its automatic connections, the shutter being in its normal position—that is, swung back against the wall. Fig. 2 is a cross vertical section taken on line 2, Fig. 1, looking toward the right. Fig. 3 is an enlarged detail in elevation of the lower end of the expanding-bar and adjacent parts. Fig. 4 is an enlarged horizontal section taken on line 4, Fig. 1. Fig. 5 is a detail in vertical section and front elevation of the actuating mechanism looking toward the left, the hinge having been removed.

Similar letters of reference indicate corresponding parts.

a represents the wall of a building, *b* a window therein, and *b'* the sill of said window. *c* represents a fireproof shutter, made of iron or other suitable material and secured to said wall in the ordinary manner by the hinges *d*, of which *d'* are the pintles.

Secured to the inner face of the shutter—that is, the face next the window when the shutter is closed—is a metallic bar A, preferably of iron. This bar is screwed to the shutter at A'', preferably in a vertical position, and is provided with a horizontal foot A', to which is secured at B'' a horizontal metallic

bar B. Bolted at C'' to the iron bar A is the bar C, made of brass or other metal which is relatively expansible by heat as compared with the iron bar A. The bolts C'' extend through vertical slots C''', Fig. 2, in order to allow of the relative vertical movement of the bar C. The foot C' of this bar reaches and is in contact with the horizontal bar B and is beveled off at its inner surface at S, Figs. 1 and 3, and the upper end of the bar C is prevented from upward movement by the notched lip or flange A''', which extends over it from the upper end of the bar A. The free end of the bar B is provided with a recess or notch B', Fig. 4, and the under surface of said bar is recessed at S', substantially under the recess formed by the beveled portion S in the foot C'. Into the recess B' extends normally the horizontal upper portion D' of the pawl D, which is pivoted at D'' to the shutter *c*. The lower end of this pawl is in engagement with the tooth E' of a catch E, pivoted at E'' to an ear E''', extending from the wall. The rear side of the shutter is provided with a roller F, supported by a suitable bracket F', secured to the rear side of the shutter, and a strong inclined track H is secured at its lower end at H' to the sill *b'* and at its upper end to the wall by a plate H'', Fig. 4, by means of suitable bolts H'''. This track is curved, as shown, so as to be directly under the path of the roller F when the shutter is swung from an open to a closed position.

It will be noticed that when the shutter is open it is not supported by its hinges, but is simply prevented by the pintles *d'* thereof from tipping or becoming disengaged. The shutter is supported by the catch E through the medium of the pawl D, which is kept in engagement with the catch by the horizontal bar B. In case the temperature near the shutter rises above a certain point the brass bar C expands longitudinally with relation to the iron bar A, the expansion being permitted by the slots C''', and its beveled foot C' presses down the left end of the bar B, the pressure being applied at a short distance from the bar A by means of the space formed by the bevel S. Thus the bar C secures the advantage of a leverage equal in length to the width of said space. The pressure of the bar C upon the bar B is facilitated by

the weakening of the power of the resistance of the bar B afforded by the notch or recess S', and the free end of the bar B is bent downward, say, fifty to sixty times the distance of the movement of the portion of the bar directly under the foot S, as indicated by dotted lines in Fig. 3. This brings the end of the bar B below the upper end D' of the pawl D and releases it, and the weight of the shutter on the catch E causes its hooked end E' to rotate the pawl D on the pin D'', such rotation being permitted by the removal of the resistance of the bar B, and said catch drops out of the way, as indicated in dotted lines in Fig. 5. The shutter is therefore released and drops slightly—say half an inch—bringing the roller F upon the upper edge of the spiral track H. The shutter then closes by gravity, the roller traveling along the spiral track to the lowest point thereof.

It is evident that the device can be regulated to open at a higher or lower temperature by lengthening or shortening the bar C.

It is advisable that all the parts should be heavily galvanized with the exception of the bar C, which should be painted, in order that rust and corrosion may be prevented.

A shutter provided with this attachment would of course never be closed by hand.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building and locked in an open position; a bar formed of a material which is particularly expansible by the action of heat, supported by the shutter; and mechanism adapted to be operated by the expansion of the bar whereby the shutter is released and allowed to swing into a closed position by sliding down the inclined track, substantially as described.

2. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building in a raised position and locked in an open position; a bar formed of material which is particularly expansible by the action of heat, supported by the shutter; and mechanism adapted to be operated by the expansion of the bar whereby the shutter is released and allowed to drop upon the inclined track and swung into a closed position by sliding down said track, substantially as set forth.

3. In an attachment of the character described for fireproof shutters, an inclined spiral track supported by a building; a fireproof shutter hinged to the building in a raised position; a bar supported by the shut-

ter and formed of a material which is particularly expansible by the action of heat; mechanism for supporting said shutter in such raised position; mechanism intermediate of the supporting mechanism and the expansible bar whereby the application of heat to said bar releases the supporting mechanism and allows the shutter to drop; and suitable antifriction means whereby the shutter when it drops onto the track is facilitated in sliding down said track and swinging into a closed position, substantially as described.

4. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building; a bar A supported by the shutter; the relatively expansible bar C supported by the bar A in a manner to allow downward movement to the bar C; the bar B secured to the bar A and extending therefrom across the lower end of the bar C; the catch E, E' hinged to the building; the pawl D hinged to the shutter and normally in engagement at its opposite ends with the bar B and the catch, said catch and pawl holding the shutter normally in a raised position; and the inclined spiral track H secured to the building, whereby the expansion of the bar C by the application of heat disengages the parts B, D, E, E' aforesaid and allows the shutter to drop upon said track, substantially as set forth.

5. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building; the bar A supported by the shutter; the relatively expansible bar C supported by the bar A in a manner to allow downward movement to the bar C, said bar C being formed on the inner side of the lower end of its foot C' with the beveled surface S; the bar B secured to the bar A and extending therefrom across the lower end of the bar C, said bar B being formed with the recess S' directly under the space formed by said beveled portion S; the catch E, E' hinged to the building; the pawl D hinged to the shutter and normally in engagement at its opposite ends with the bar B and the catch, said catch and pawl holding the shutter normally in a raised position; and the inclined spiral track H secured to the building, whereby the expansion of the bar C by the application of heat disengages the parts B, D, E, E' aforesaid and allows the shutter to drop upon said track, substantially as described.

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

JOHN E. GUILD.

Witnesses:

HENRY W. WILLIAMS,
A. N. BONNEY.