

(No Model.)

T. LANSTON.

2 Sheets—Sheet 1.

WINDOW SASH.

No. 290,071.

Patented Dec. 11, 1883.

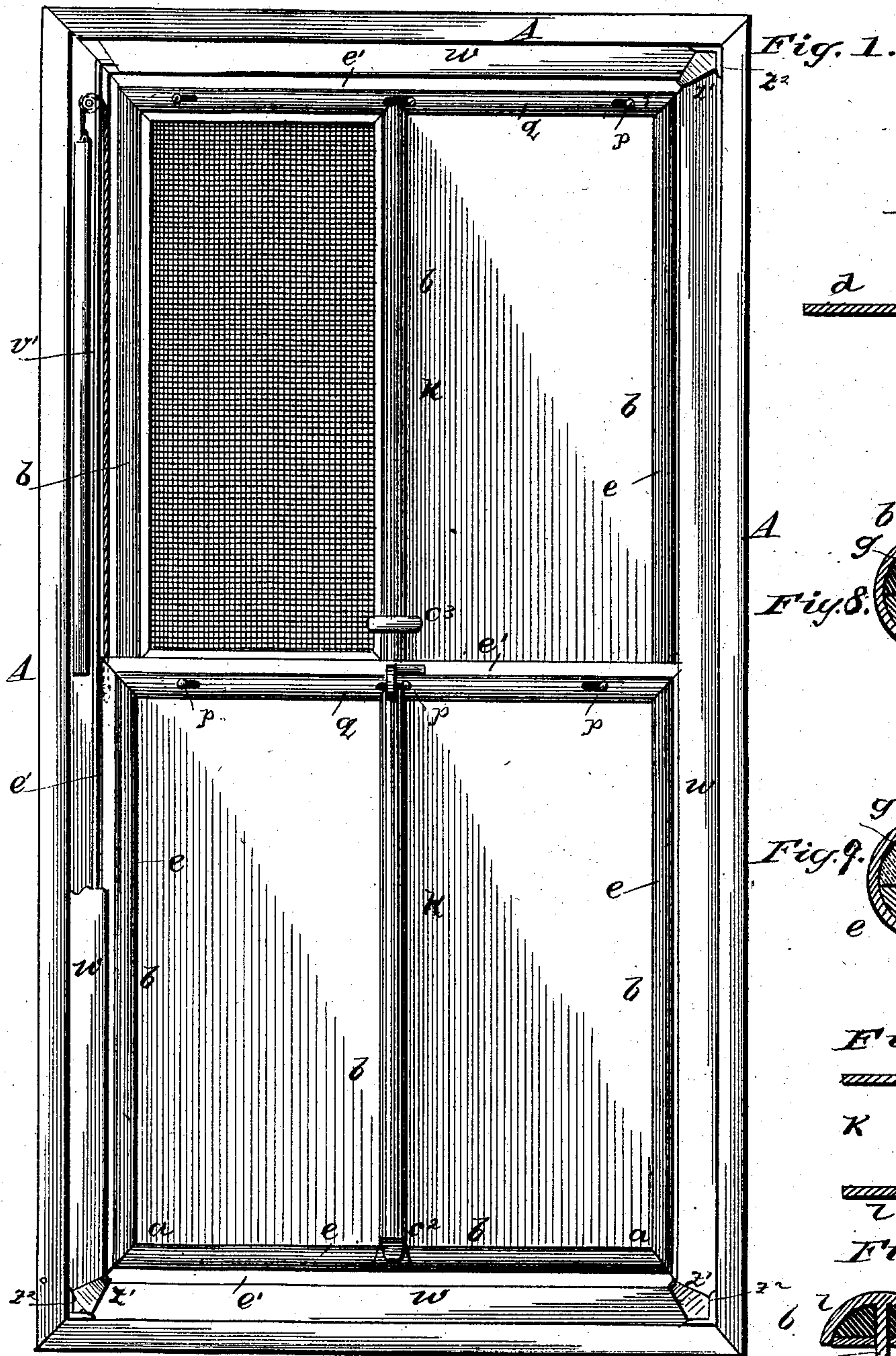


Fig. 7.

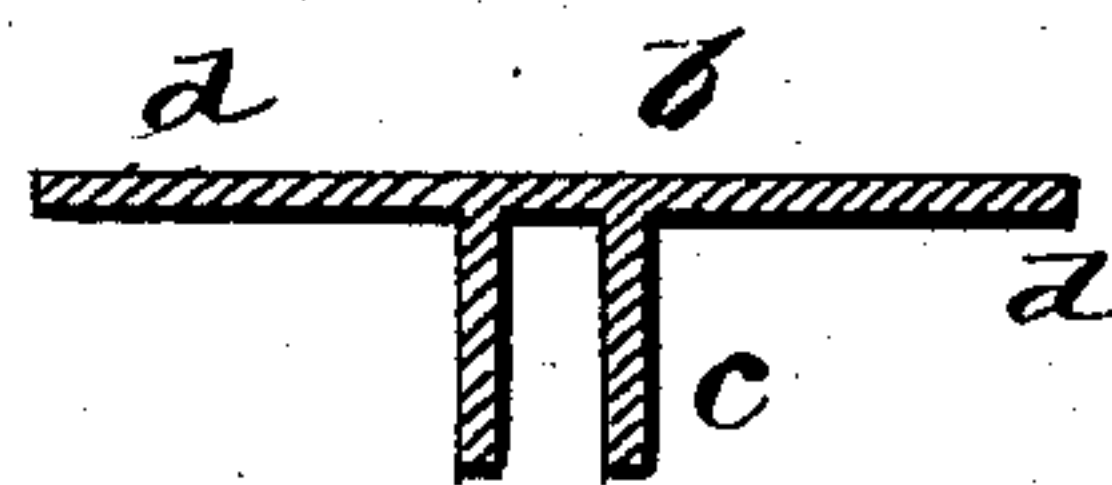


Fig. 8.

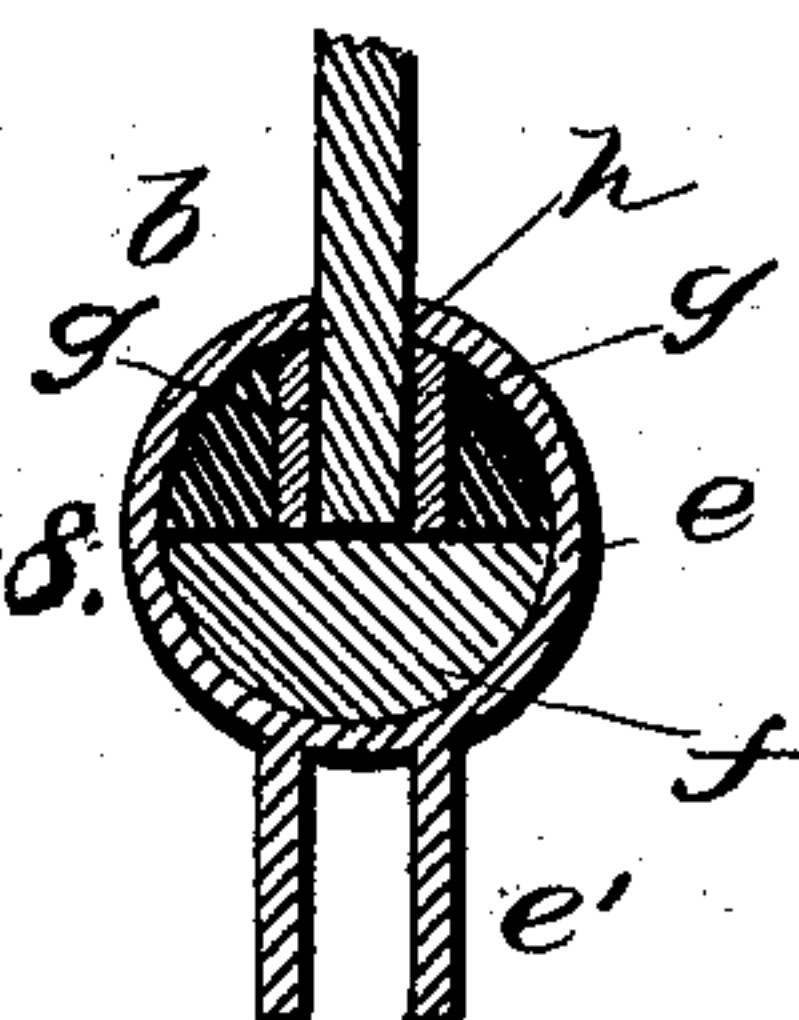


Fig. 9.

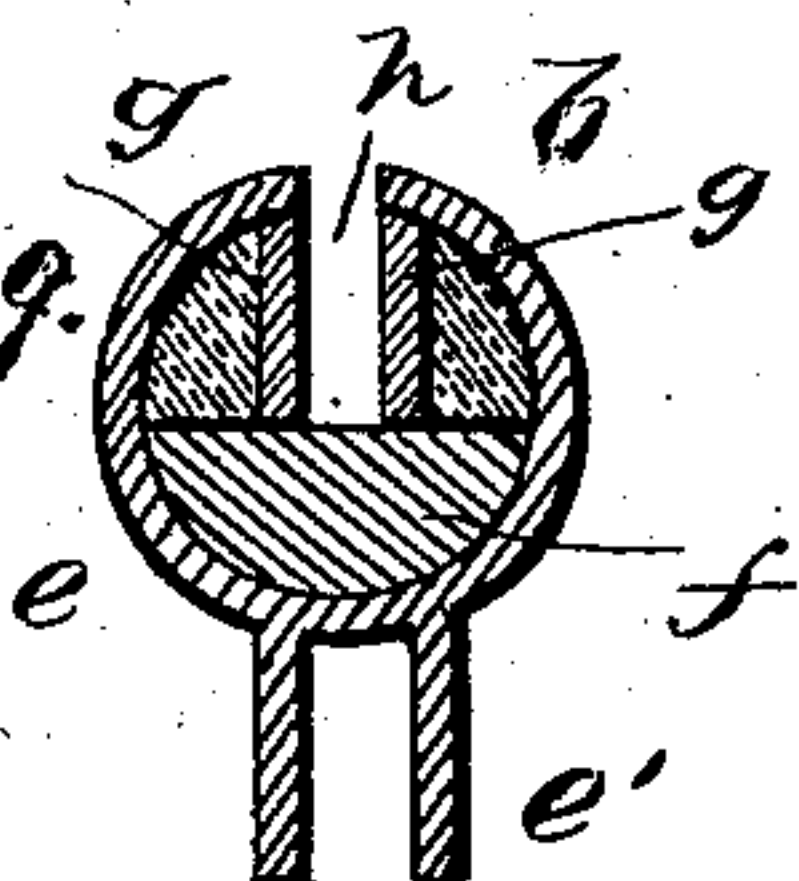


Fig. 10.

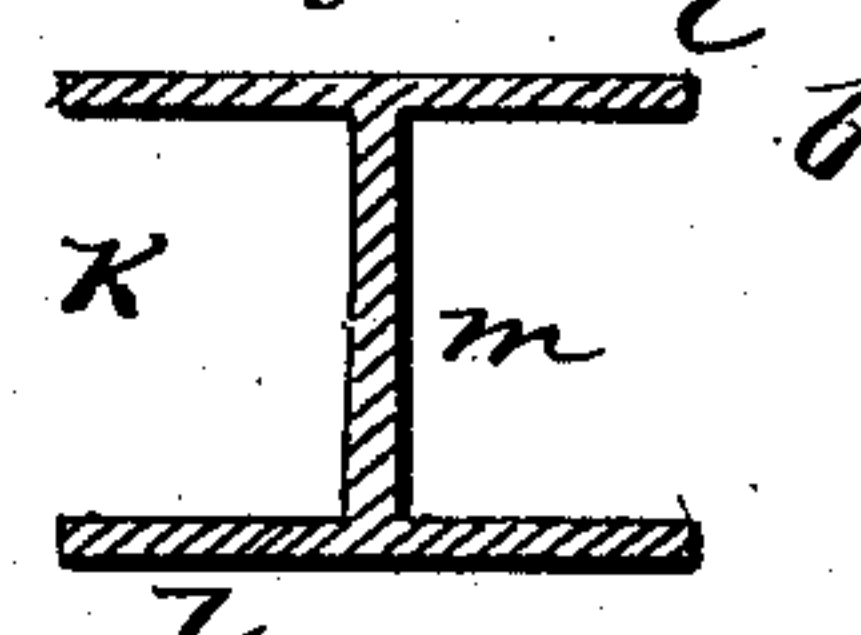
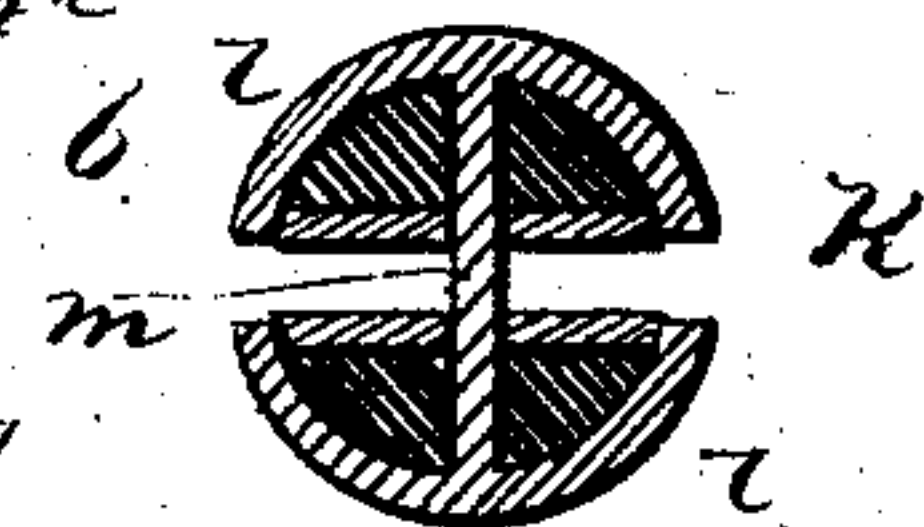


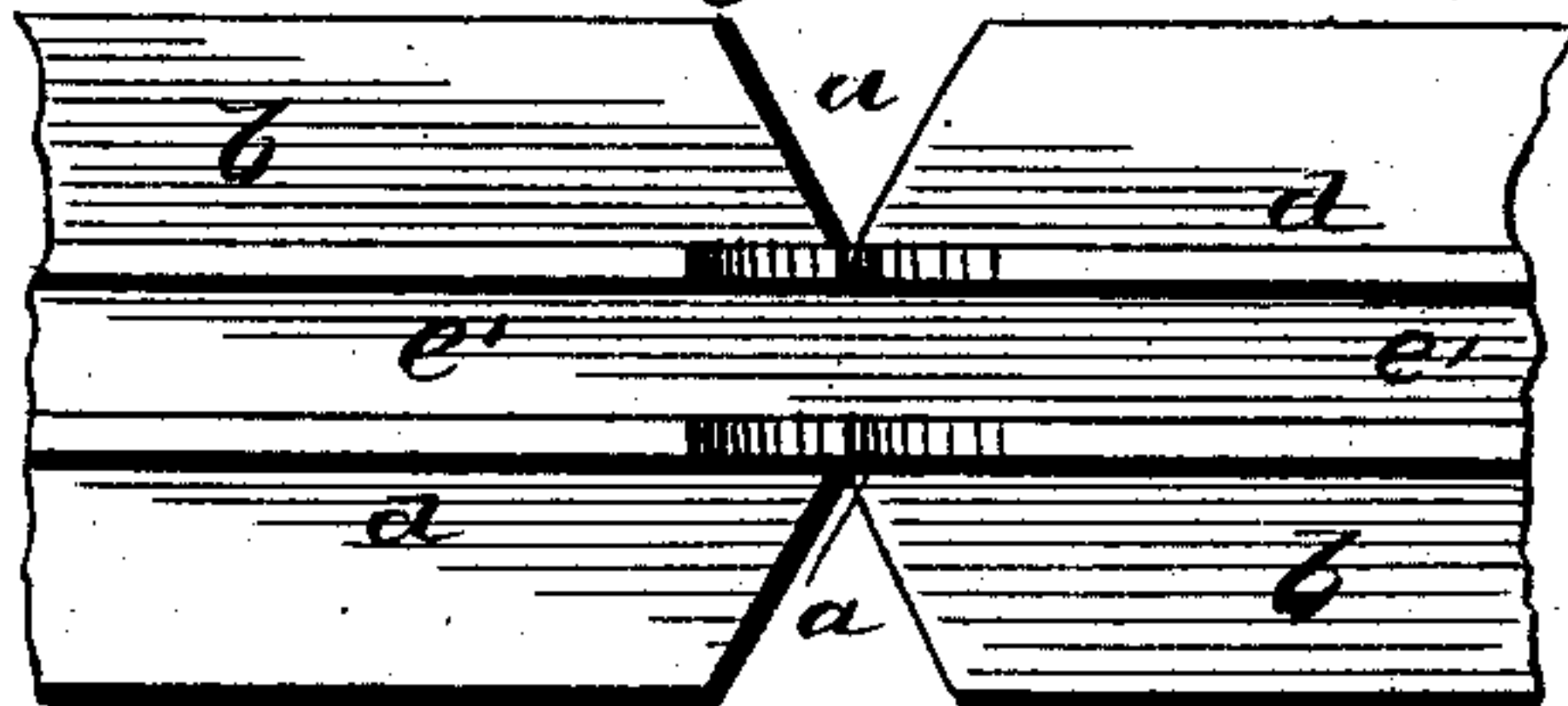
Fig. 11.



Witnesses:

John T. Morrow
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Fig. 6.



Inventor:

Tolbert Lanstron
by Anderson Smith
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2 Sheets—Sheet 2.

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Fig. 2.

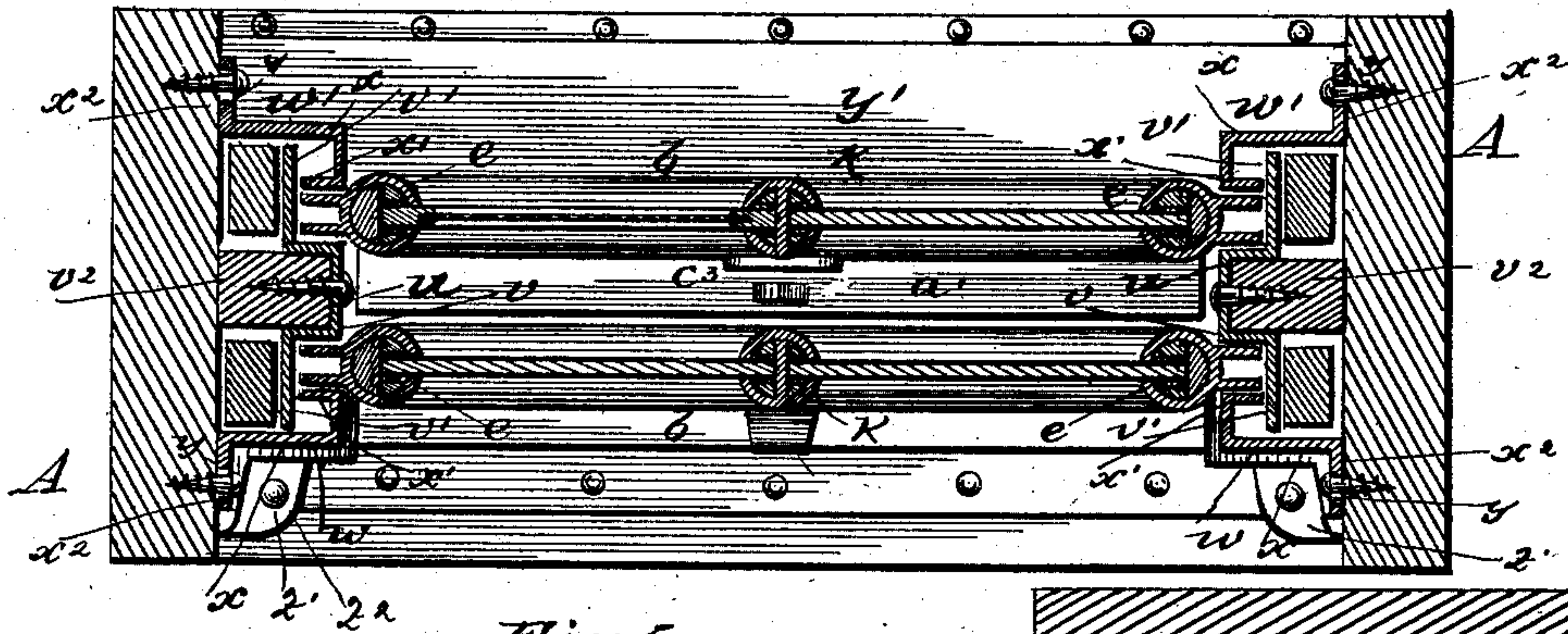


Fig. 5.

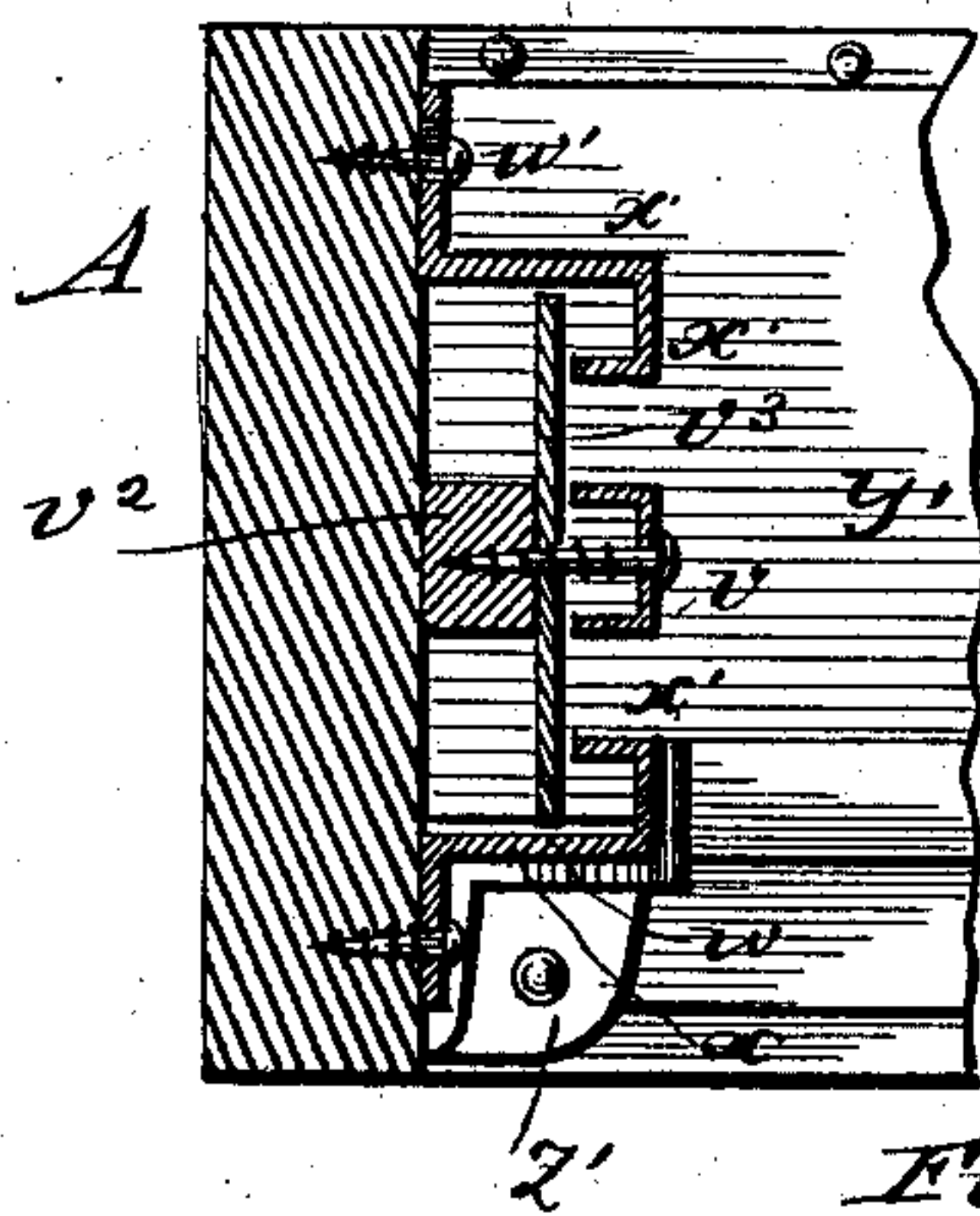


Fig. 12.

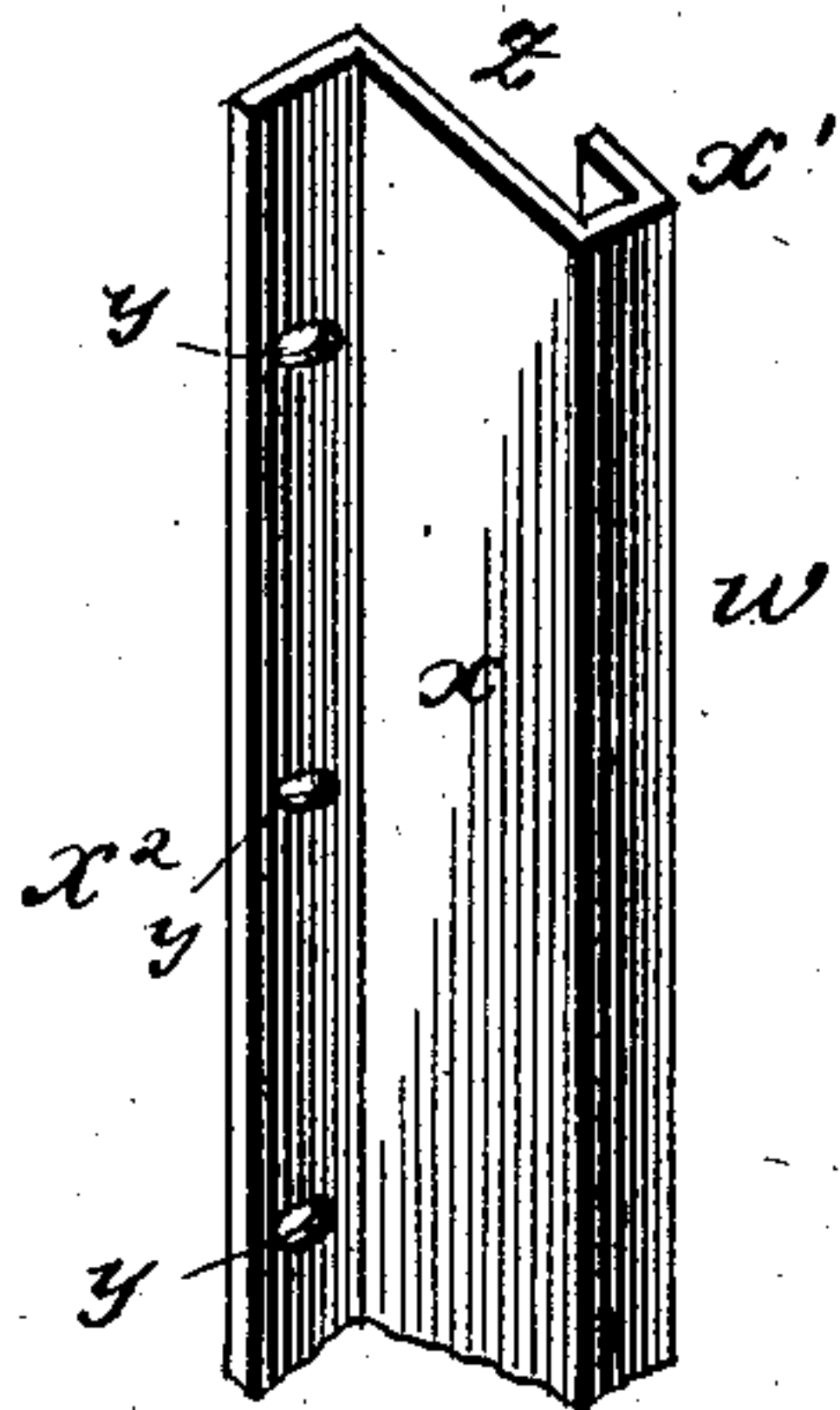


Fig. 13.

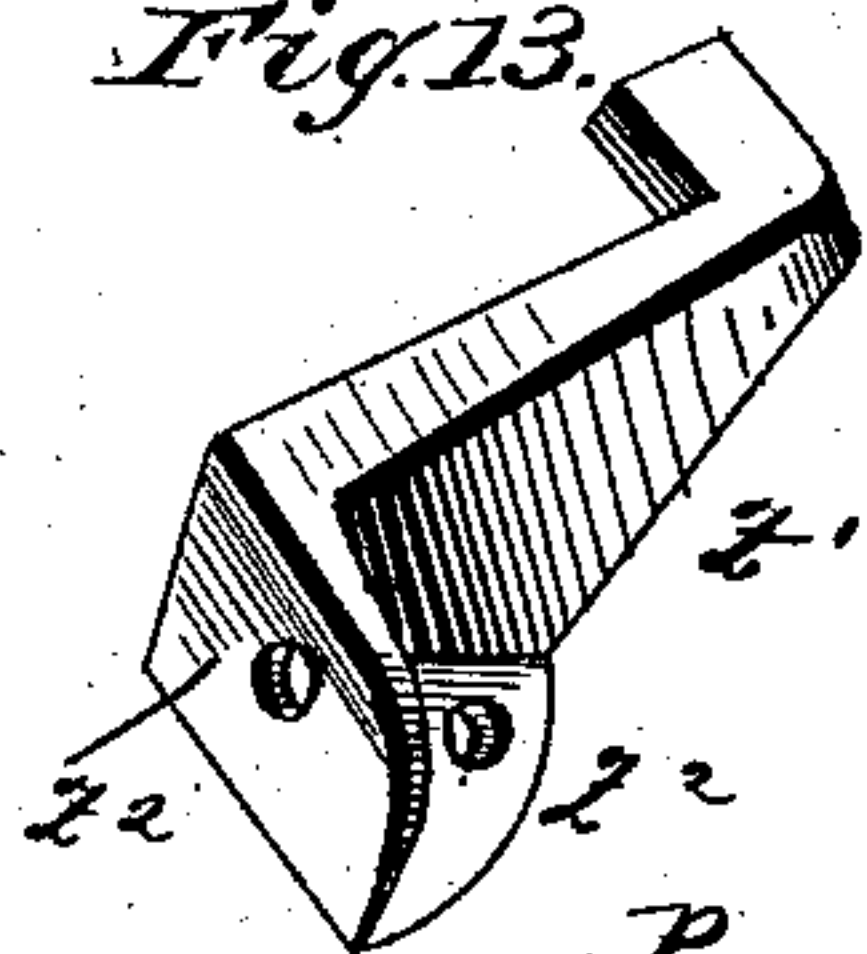
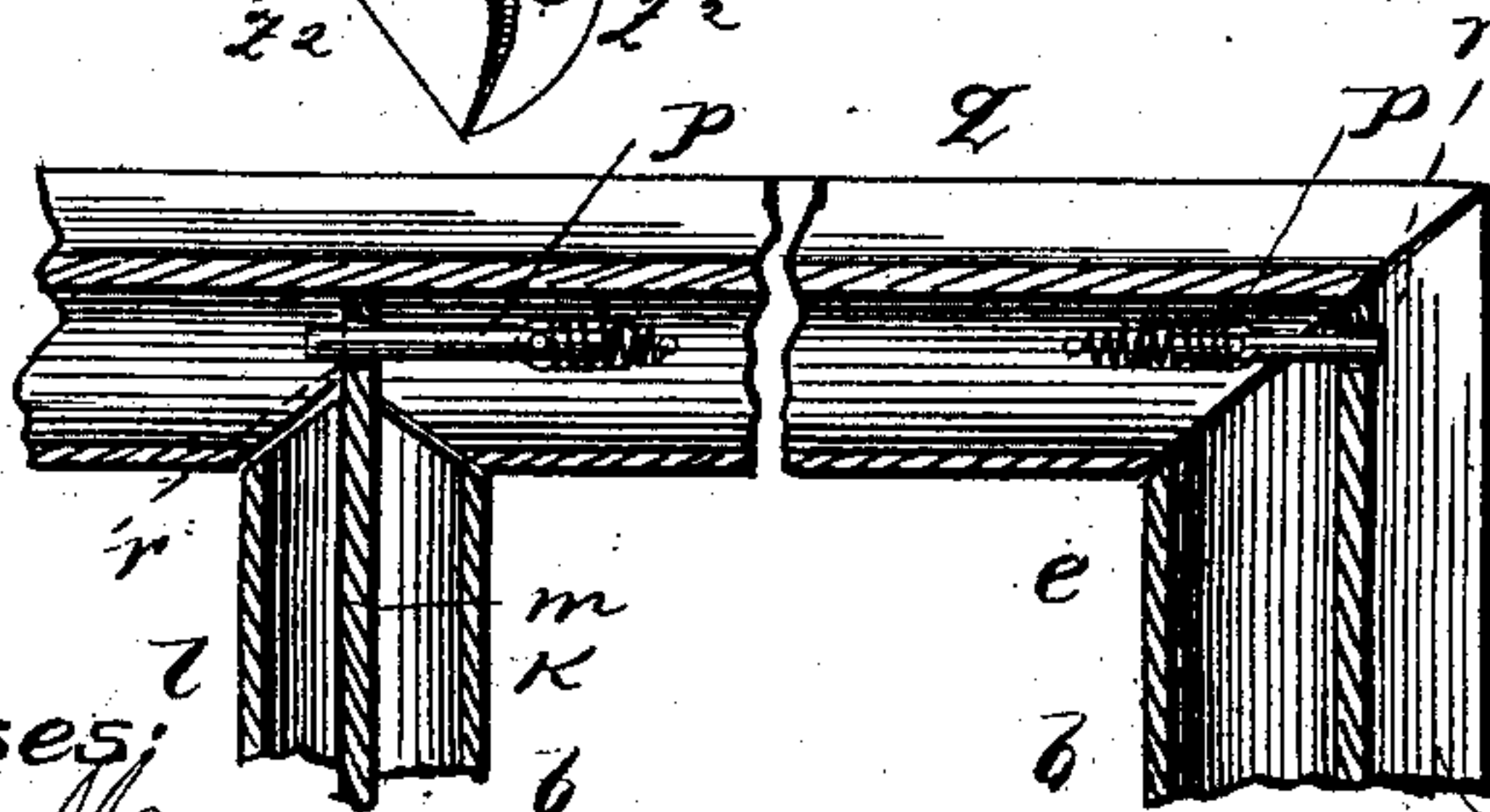


Fig. 4.



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UNITED STATES PATENT OFFICE.

TOLBERT LANSTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 290,071, dated December 11, 1883.

Application filed August 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, TOLBERT LANSTON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Window-Sashes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of an elevation of the inside of the window. Fig. 2 is a horizontal section through the window-frame and strips, showing the tops of the sashes. Fig. 3 is a vertical section through the window, top strips, sashes, and sill. Fig. 4 is a sectional detail, spring-bolts in the slots of the vertical rails. Fig. 5 is a sectional view of a modification of the guide-strips. Fig. 6 is a view of the blank V-notched to form the side and bottom rails of the sashes. Fig. 7 is a cross-section of the blank rolled but not V-notched, from which all except the middle rails are formed. Fig. 8 is a cross-section of these rails formed from the blank and packed with the wood and rubber strips. Fig. 9 is the same with a packing of composition instead of the strip-rubber. Fig. 10 is the H-shaped rolled blank, from which the middle rails, shown packed in cross-section in Fig. 11, are formed. Fig. 12 is a sectional detail view of one of outer strips *x*, and Fig. 13 is a perspective detail view of one of the corner-pieces.

This invention has relation to metal window-sashes for receiving removable glass panes and removable screen-sheets; and it consists in the construction and novel arrangement of devices, as will be hereinafter fully described, and particularly pointed out in the claims appended.

Referring by letter to the accompanying drawings, A designates the window-frame, which is of the ordinary construction, except that the boxes for the weights are not formed therein in the usual manner, but are formed as will be hereinafter explained.

The frames of the sashes are formed of metal, wood, and rubber packing, or gypsum, or

other composite matter of a consistency that will admit of its being poured into a former or mold, or into the sash itself, the glass being first placed therein. The metal portions of the outer vertical rails and the transverse bottom rails of the sashes are made in one piece, the miters being formed by V-notching the metal strips at *a*, and bending them to form the rectangular corners of the frames. The metal strip *b*, forming the exterior of the side rails and bottom rails of the sash-frames, is first rolled in T form in cross-section, the stem *c* of the T being grooved longitudinally, as shown in the drawings. The cross-arms *d d* of the T are then curved upwardly and inwardly above the stem *c* until their edges nearly meet. This manipulation forms a hollow rail-piece, *e*, having a continuous double flange, *e'*, on one side thereof. What may be termed the "bore" of the rail-strip is then provided with a wooden and rubber or metal and rubber packing, to form the seat for the edges of the glass frame or sheet-screen, as the case may be.

The wooden packing is preferably composed of a half-oval strip, *f*, and two flat strips, *g g*, at right angles to the flat face of the strip *f*, and resting against it, the adjacent corners of the strips *g g* being rounded and less than the pane-spaces being left between them. Between the metal and the wooden strips, but not in the pane-space *h*, rubber packing is interposed, it being cemented or glued to strips *g g*. The rubber packing is to be of such size as will bring the wooden strips *g g* nearly together, or at a distance apart less than the thickness of the glass, so that when the latter is inserted it will be gripped by and held firmly between the strips *g g*, and compressing the rubber and tightening the packing. I may, however, use gypsum or other composite matter and pour it into the spaces occupied by the rubber for the same purpose—viz., to prevent rattling, to serve as a weather-strip to prevent the entrance of rain or cold air, and to prevent the glass from being broken by jars in raising and lowering the sashes, and also to permit the removal of the glass pane for the purposes of washing it, or for the substitution of the screen-sheets in warm weather. The middle vertical rails of the sashes are packed similarly to the strip just

described, omitting, however, the half-oval strip f ; but the manner of packing the strips may be varied without departing from the character of the invention, the essential feature of which, in this particular, is to form the bearing for the edges of the glass pane or screen-sheet, as the case may be. The middle rails, k , are, however, slightly different in construction from the side and bottom rails. They are first rolled in H shape, and the sides ll are curved inwardly on opposite sides of the web m of the H until they nearly meet, the space being for the edges of the glass pane or screen-sheet, as the case may be.

The horizontal top rails may be and are formed from the same strip as the side rails and bottom rails; but they are cut off at the V-notches, and are secured to the upper ends of the vertical side rails and middle rails by sliding latches p in the groove of said top rails, q , which latches engage lateral slots r in the upper ends of the webs of the vertical rails, as shown. The top rails, q , are thus made removable, in order that the glass panes and screen-sheets may be removed and replaced at will. The screen-sheets are of wire-gauze bound at the edges by a metal frame, as shown.

The ways in which the sashes slide are also of metal. The middle strips, u , with which the sides and top of the window-frame are provided, have a rectangular central projection, v , and lateral flanges $v'v'$, formed by rolling a flat strip of metal into such shape, and the groove formed in the strip fits over a rectangular strip, v^2 , secured to the window-frame at the longitudinal middle line of the inner faces of the sides and top of the same, and held in place by screws.

Instead of making the middle metal strip in one piece, the rectangular wooden strip v^2 may be made smaller in cross-section, so that the inner transverse face may come nearly flush with the edges of the shorter flanges of the side strips, $w w'$, the distance from said edges being sufficient to place a flat strip, v^3 , upon the face of wooden strip v^2 and secure it in place by screws. The projection v in this instance is rolled separately from a single flat strip, and is secured upon the flat strip v^3 by screws passed through the projection, and also through the flat strip v^3 , into the wooden strip v^2 , when reduced in size in cross-section. The inside and outside strips, $w w'$, are similar in construction, except that the top strips are shorter than the side strips. These are also of metal, and are rolled in rectangular form in cross-section, so as to have side flanges, $x x'$, the flanges x' being shorter than the flanges x , and resting, when in place, against the faces of the lateral flanges $v'v'$ of the middle strips. The flanges x have lateral flanges x^2 extending outwardly from them at right angles thereto, and these flanges x^2 are provided with elongated screw holes or slots y , through which the securing-screws are passed into the window-frame to secure the strips $w w'$ in place. The

slots y enable me to adjust the inside strips, w , to or from the sliding sashes. The outside strips, w' , have similar screw-holes, as it is necessary to adjust them also. By this construction of grooved ways, the weight-boxes are formed on each side of the central wooden strips and are separately boxed, avoiding danger of wedging in passing, and are directly behind the grooves. The miter ends of the strips $w w'$ do not quite meet, a miter-space, z , being left between them. Angular corner-pieces z' , however, are employed to close these spaces and lock the joints at these points, and said corner-pieces z' enter the smaller points of these spaces and extend over the remainder of the spaces and lap the faces of the strips. The corner-pieces z' have angular flanges z^2 , and are secured to the window-frame by screws, as shown. The strips $w w'$ are removable, as are also the corner-pieces, and the sashes may be removed at any time to repair the weights. The pulleys over which the cords run are secured to the rear faces of the flanges of the middle metal strips near or at the upper ends of the same. The sill-plate y' is also of metal, and is secured in place by screws and the corner-pieces z' . The lower rail of the top sash has a lateral longitudinal horizontal flange, a' , on its inner face, and the top rail of the lower sash has a similar flange, a^2 , on its outer face. These flanges $a' a^2$ meet when the sashes are closed and exclude wind, water, dust, and cold air.

The middle rail of the upper sash is provided near its lower end, on the inner side, with a finger-piece, c^3 , by which said upper sash is manipulated.

The metal portions of the sashes, strips, corner-pieces, and sill-plate may be nickel-plated or otherwise plated and ornamented to suit the taste of the purchaser; or the metal may be painted over the exposed parts, if desired.

There is very little friction created in sliding the sashes, on account of the smoothness and material of the rails and ways. There is but little trouble attending the cleaning of the windows, and they are very durable and decidedly ornamental and comparatively light.

The corner-pieces permit side strips, w and w' , that are not evenly matched to be used.

The rail-pieces, being rolled and bent as described, may be made quite cheaply.

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

1. A sash-frame having its side rails and bottom rail made of one piece of rolled metal provided with suitable packing, substantially as specified.

2. A sash-frame having its side and bottom rails made of one piece of metal rolled into shape and V-notched at the miter-corners and packed, as described, in combination with a removable rolled-metal top rail, substantially as specified.

3. A sash-frame having its side and bottom rails of one piece of rolled metal, **V**-notched at the miter-joint, and bent into form at the miter-joints, in combination with a middle vertical rolled-metal rail and a rolled-metal top rail removably secured to the side rails and middle vertical rail, all of said rails being suitably packed to hold the glass pane or screen, substantially as specified.
- 10 4. A window-sash frame having its middle vertical rail rolled in **H** form, and then having its wings bent or curved inwardly on opposite sides of the web of the **H**, substantially as specified.
- 15 5. A rolled-metal side, top, or bottom rail, rolled in **T** form, and having the wings of the **T** curved upwardly and inwardly above the stem, and the stem longitudinally grooved to form a double flange, substantially as specified.
- 20 6. In a window, the combination, with the rolled-metal middle strips secured to the central wooden strips, of the inner and outer way-strips of rolled metal, having their shorter flanges bearing against the flanges of the middle strip, and their slotted flanges secured to the window-frame by screws, substantially as specified.
7. The combination, with the inner and outer way-strips, the middle strips, and the sash-frames, of the removable corner-pieces covering and engaging the miter-spaces, substantially as specified.
8. In a window, the weight-boxes formed by the combination of the rolled-metal middle strips secured to the wooden central strip and the inner and outer rolled-metal side strips secured to the window-frame, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

TOLBERT LANSTON.

Witnesses:

THEO. MUNGEN,
JOHN A. MORROW.