

(No Model.)

4 Sheets—Sheet 1.

R. H. BURDGE.

CAR.

No. 370,448.

Patented Sept. 27, 1887.

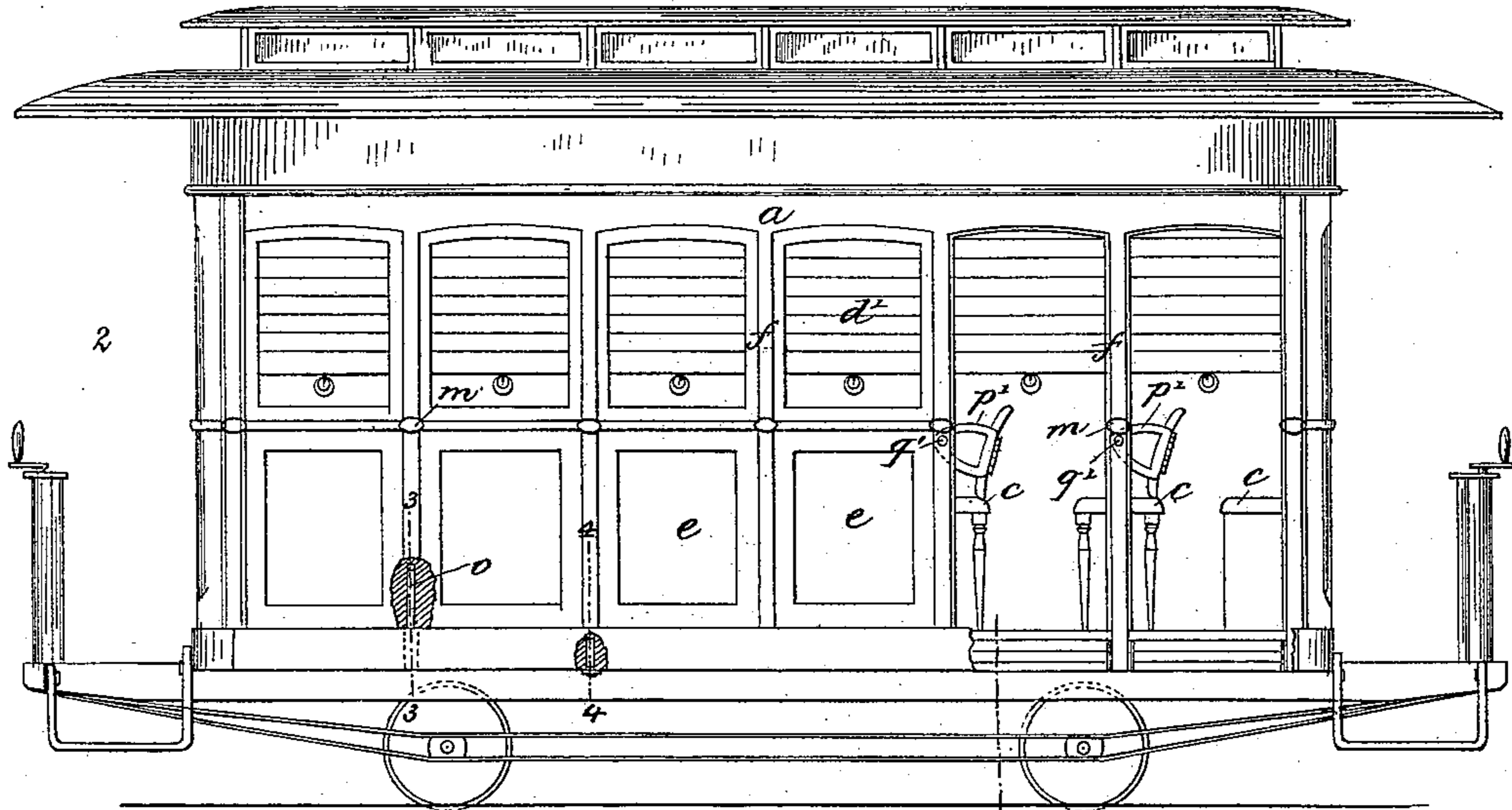


Fig: 1.

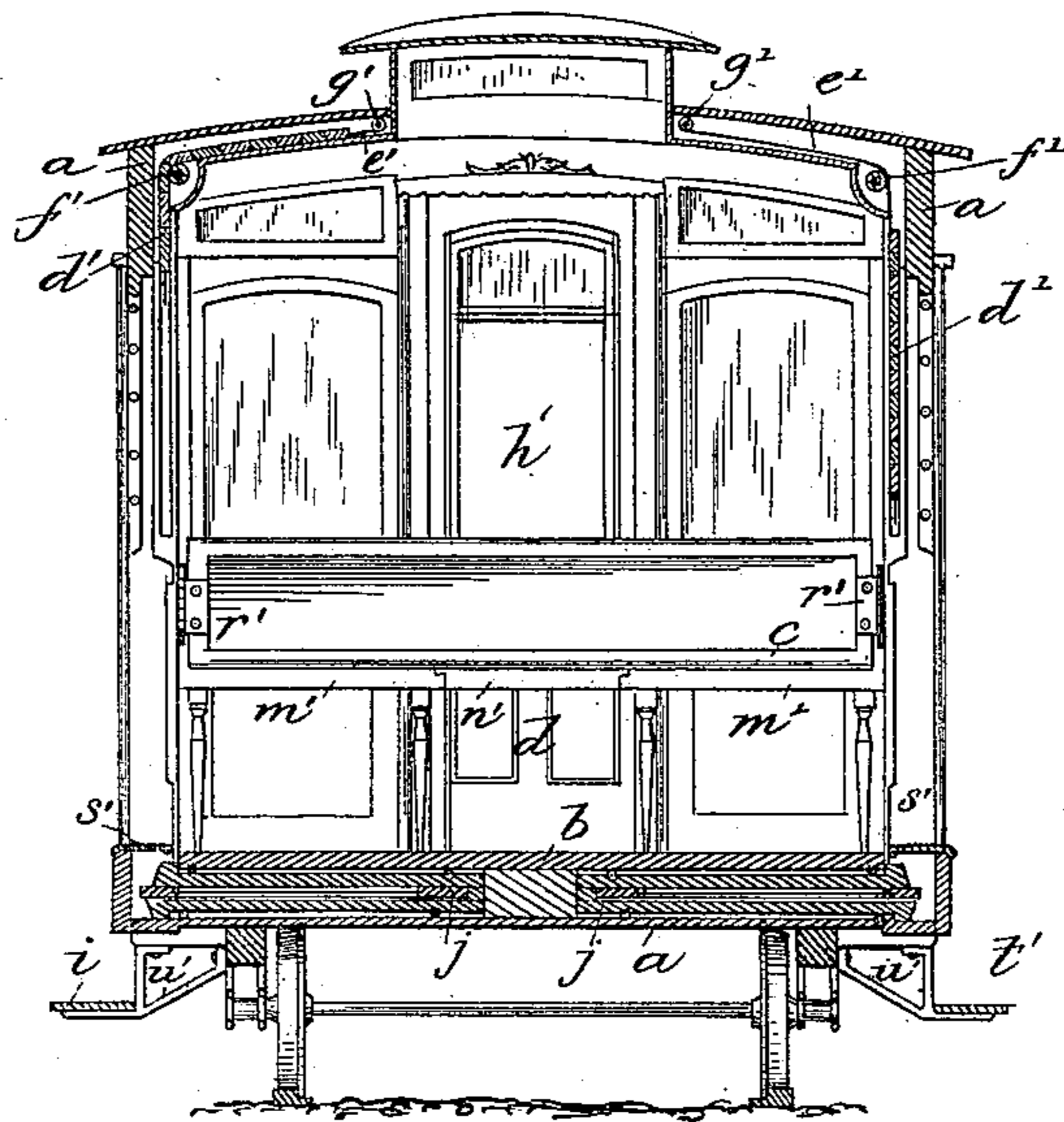


Fig: 2.

Witnesses:  
John A. Rennie,  
George Minkel

Inventor,  
Robt. H. Burdge,  
by Wright, Brown & Crossley,  
attys.

(No Model.)

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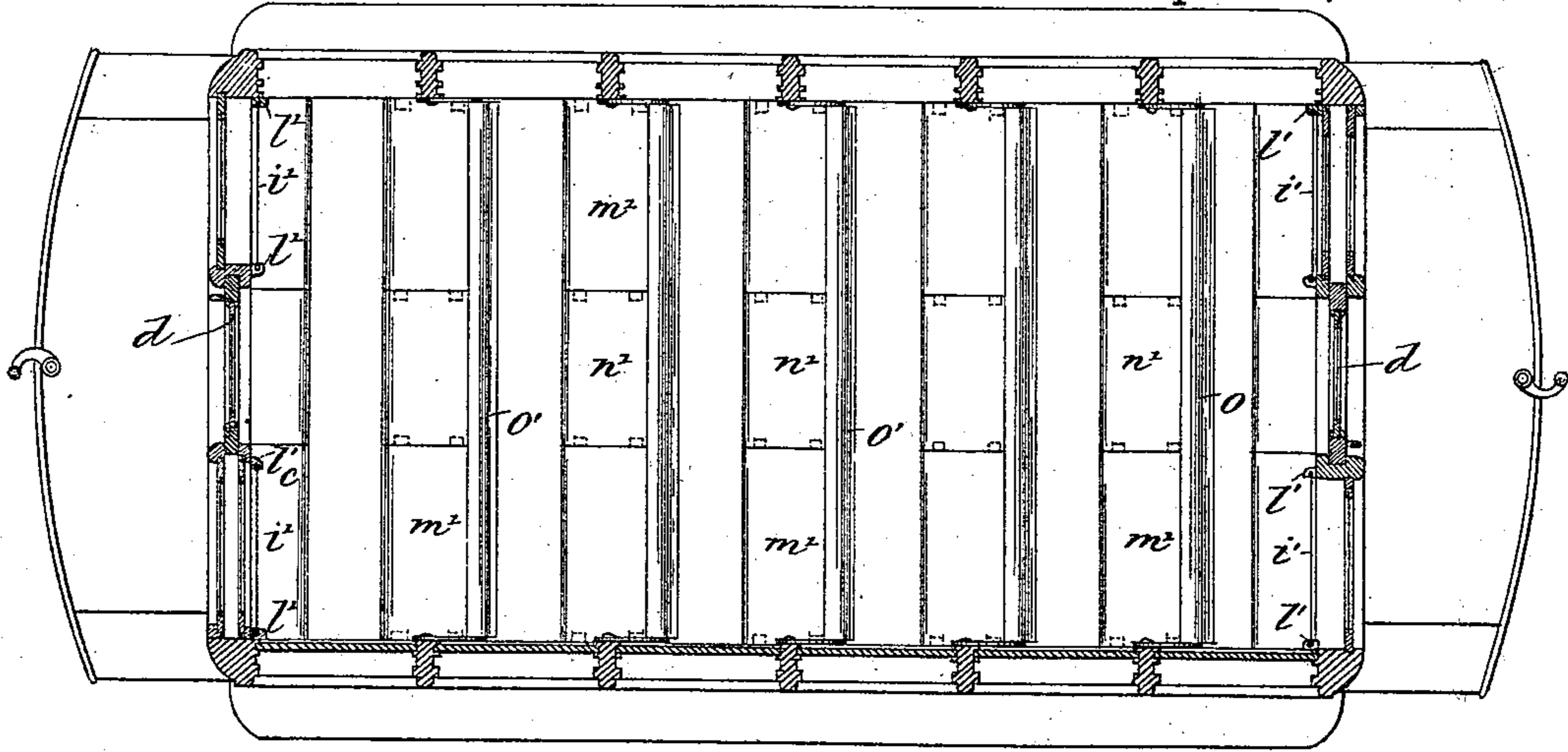


Fig. 3.

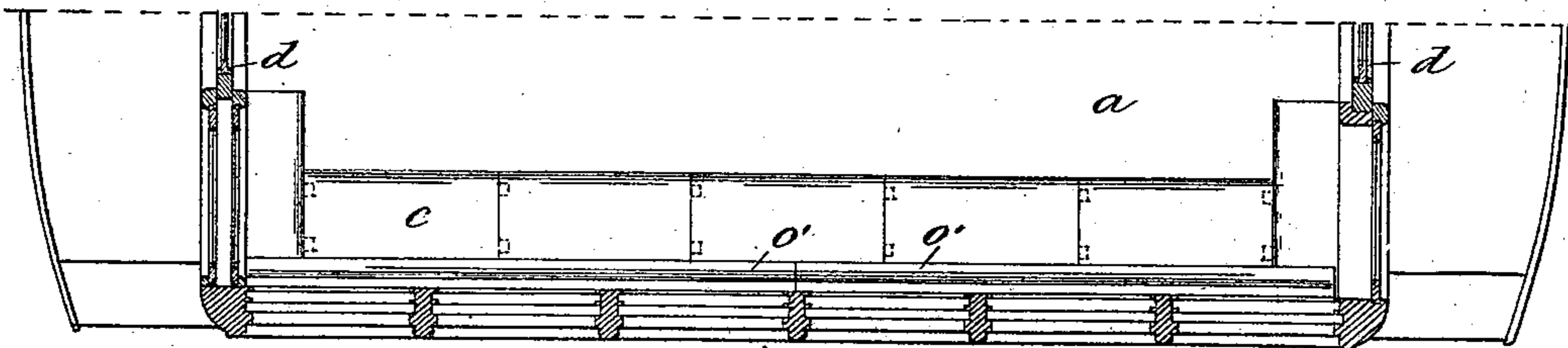


Fig. 4.

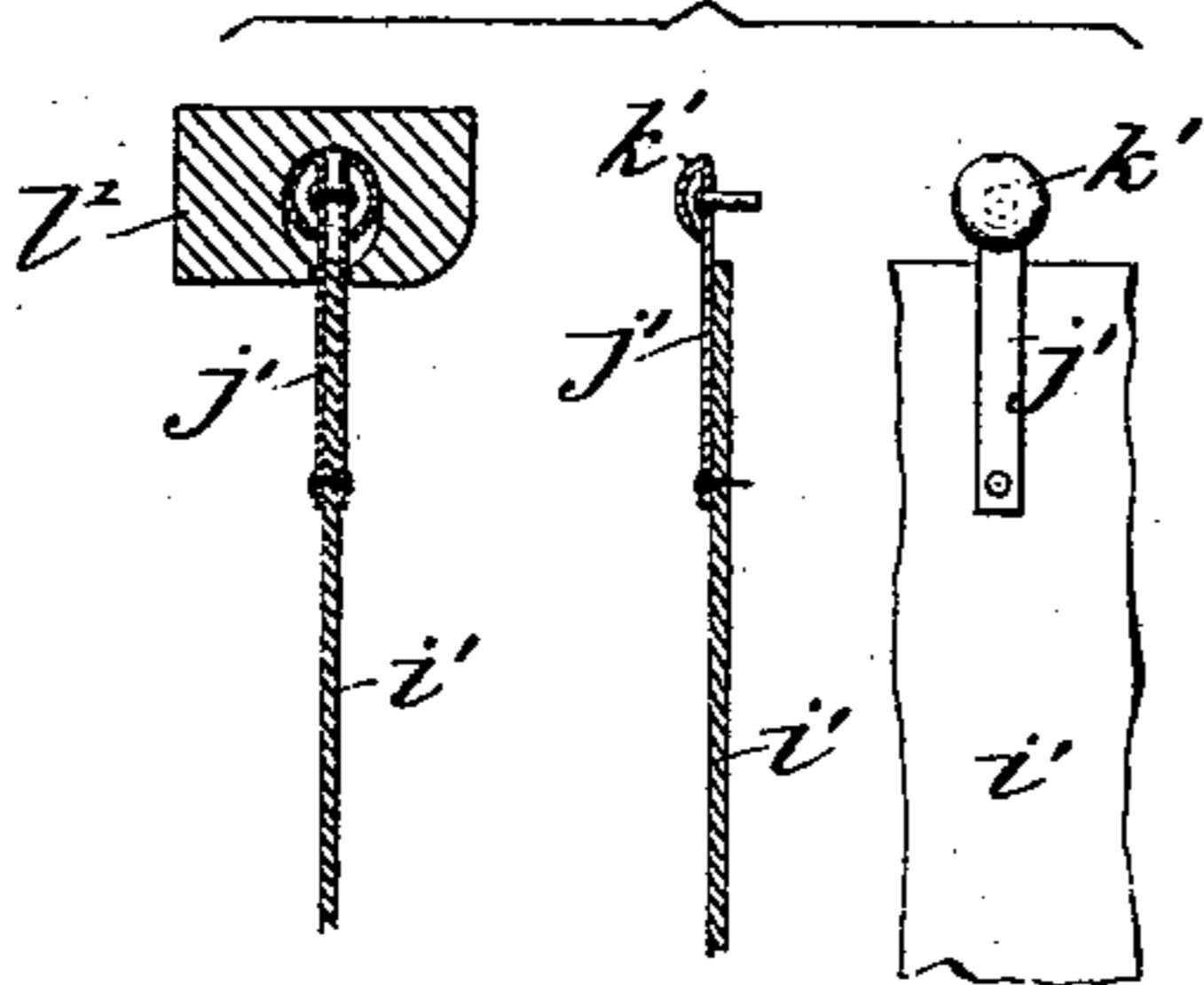


Fig. 5.

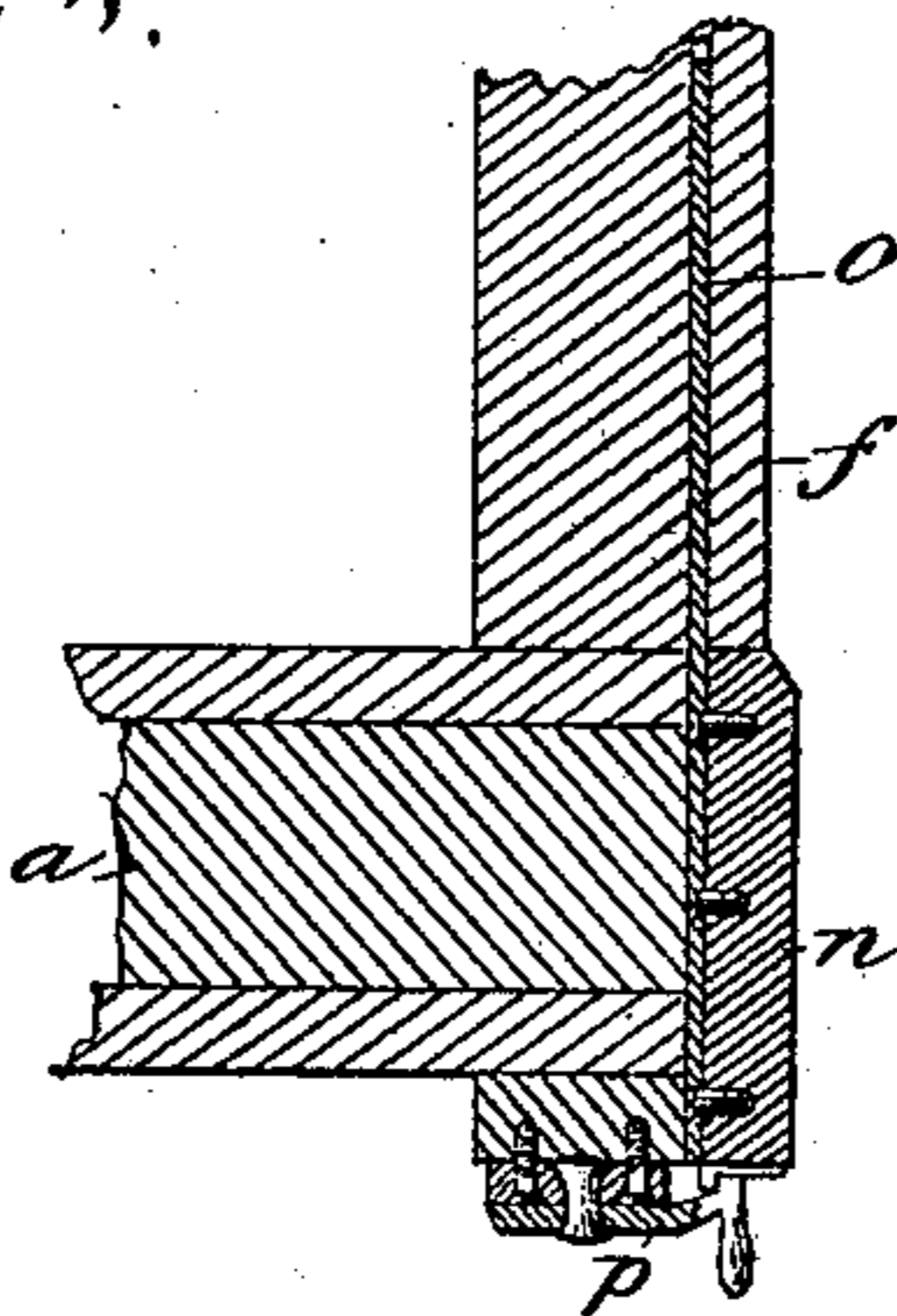


Fig. 6.

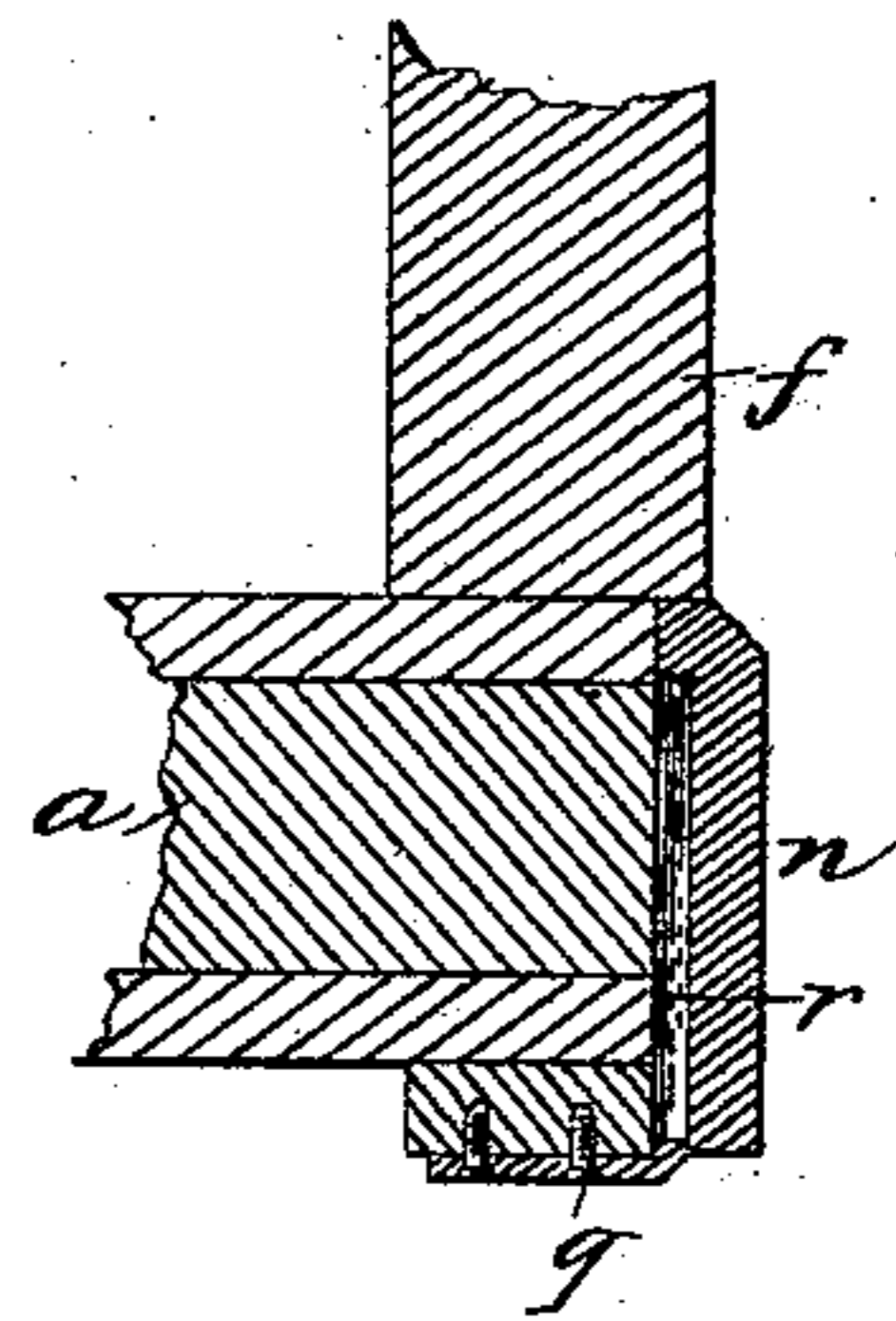


Fig. 7.

Witnesses:  
John A. Rennie  
Geo. M. Finckel

Inventor,  
Robt. H. Burdge  
by Wm. B. Brown & Crossley,  
Attys.

(No Model.)

4 Sheets—Sheet 3.

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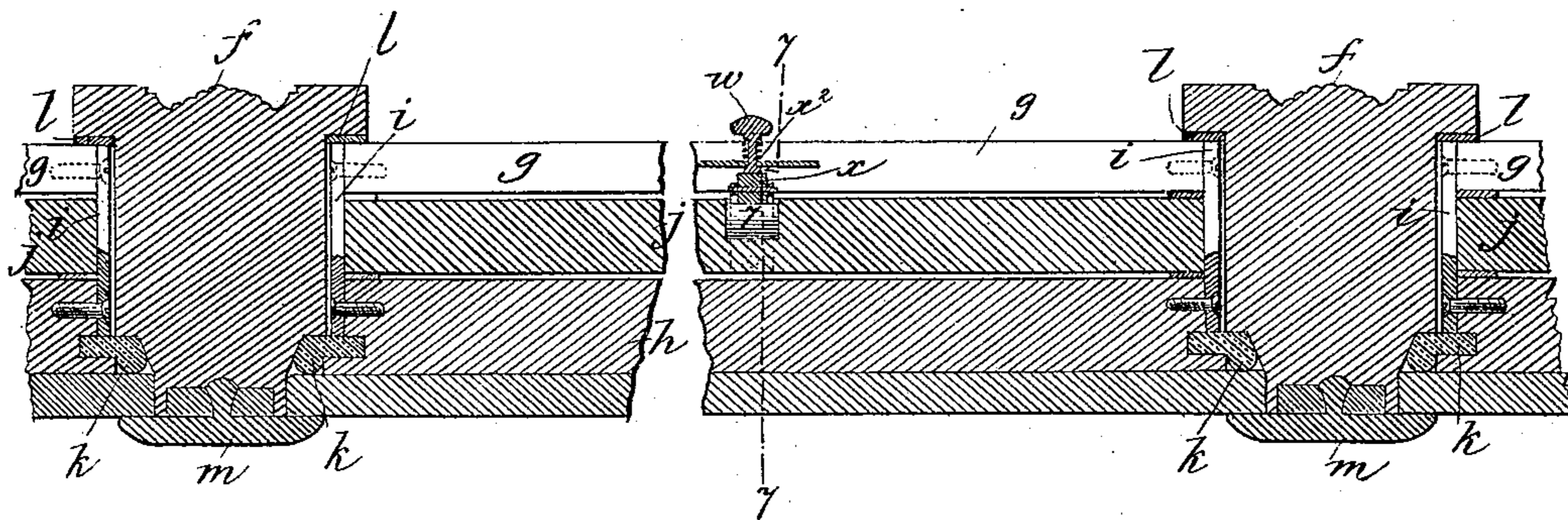


Fig. 8.

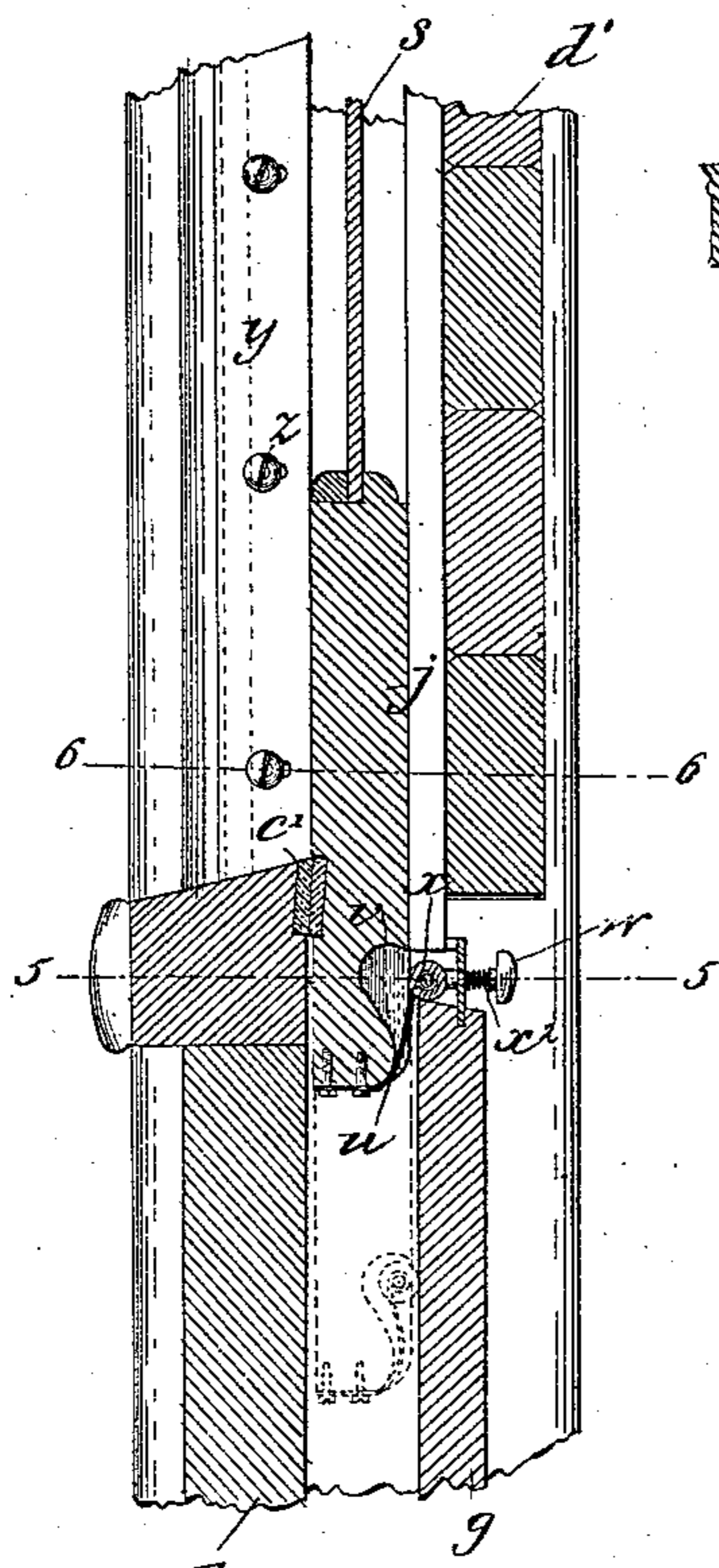


Fig. 10.

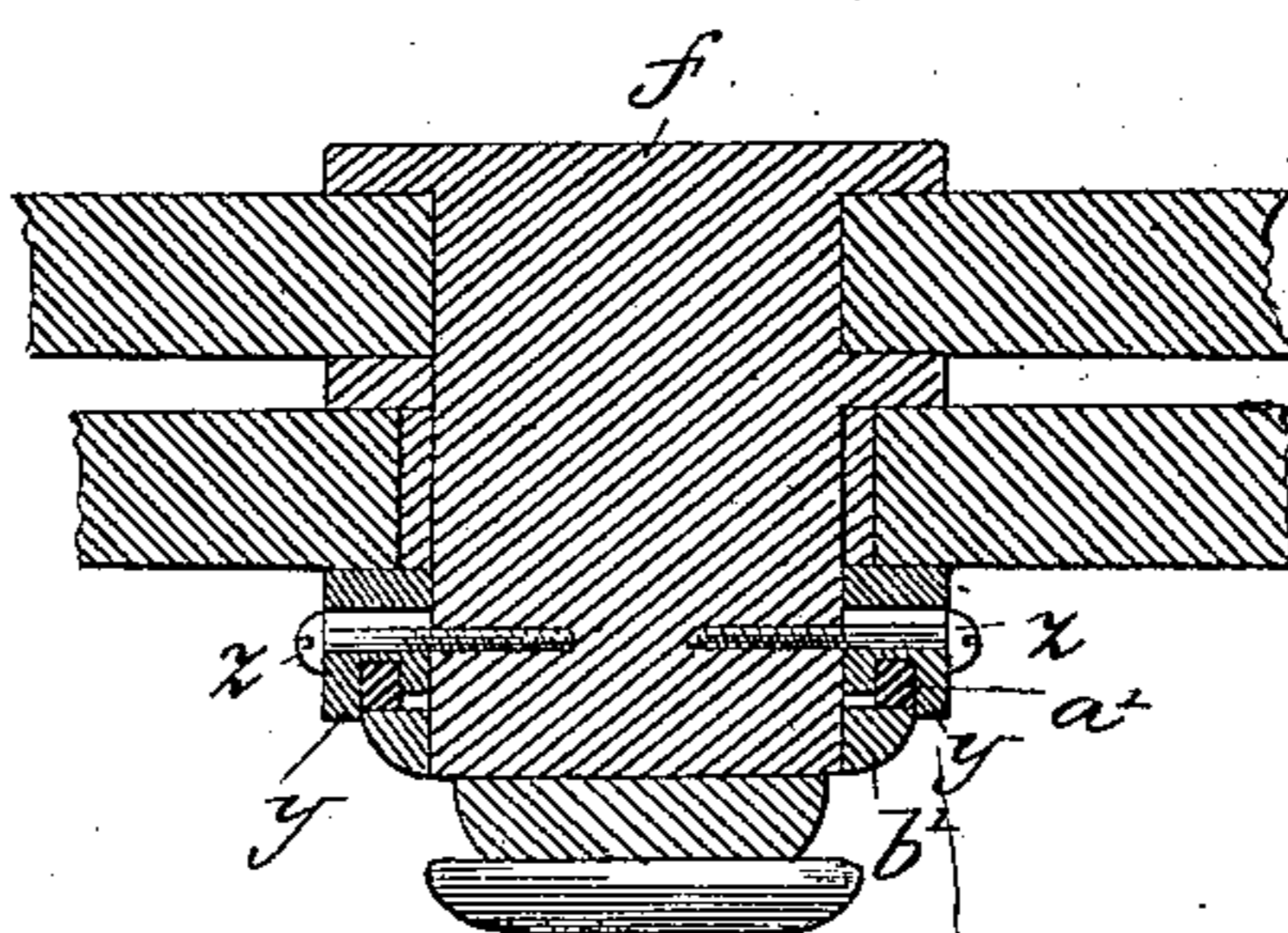


Fig. 9.

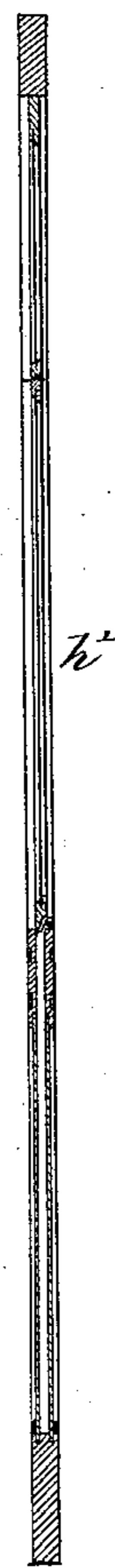


Fig. 11.

Witnesses:  
John A. Kennie  
Geo. M. Finckel

Inventor:  
Robt. H. Burdge  
by Wright, Brown & Crossley  
Attys.

(No Model.)

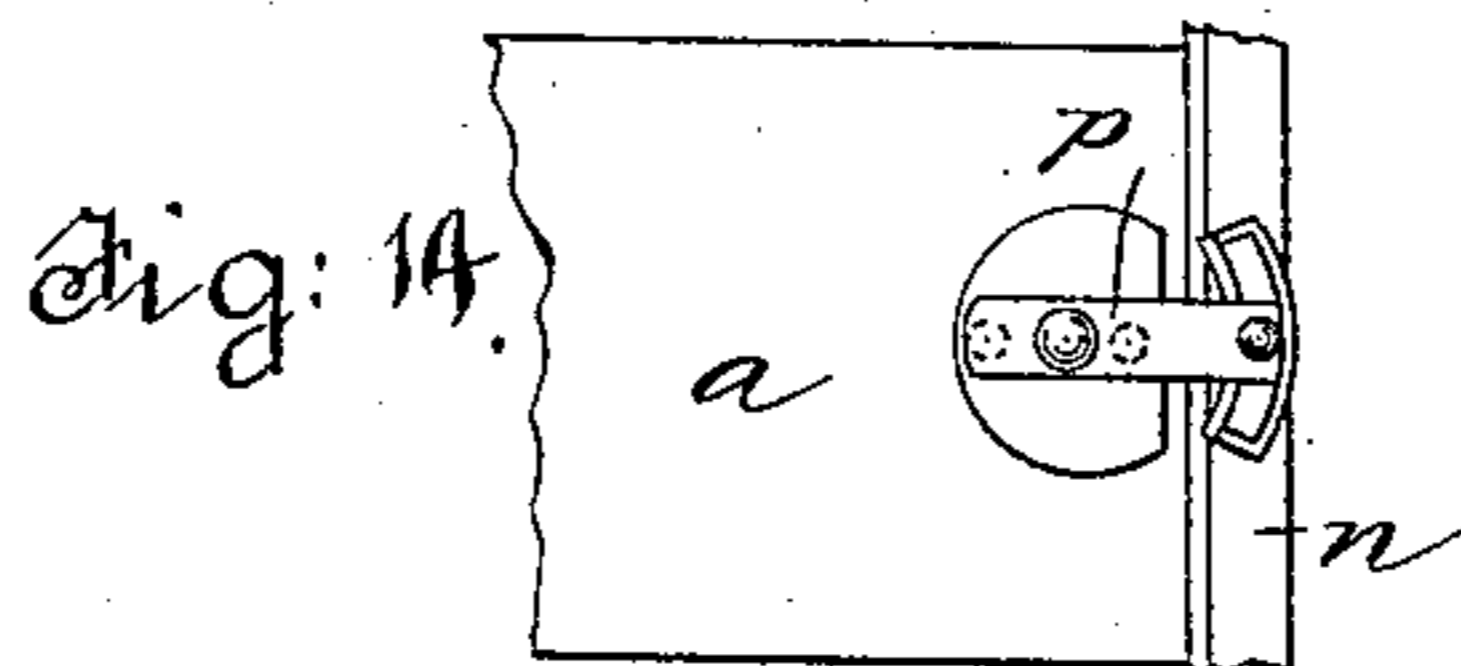
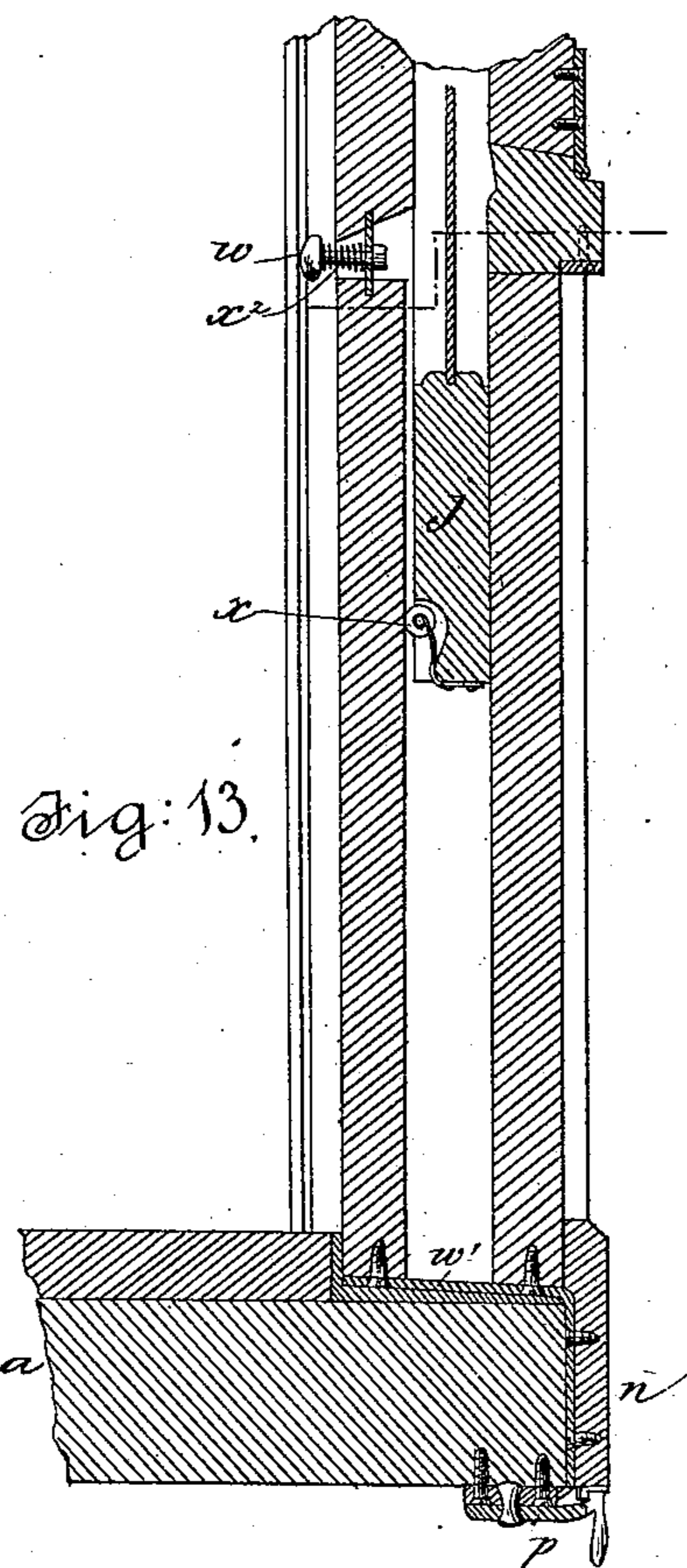
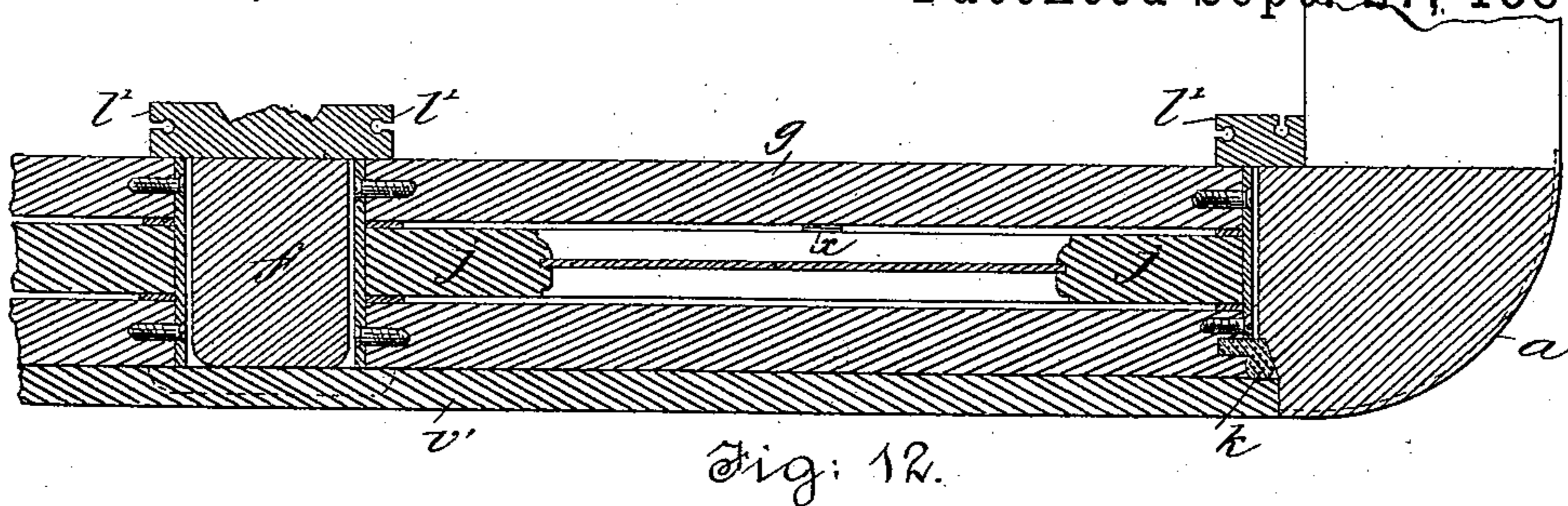
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Witnesses:  
John A. Rennie.  
Geo. M. Finckel

Inventor;  
Robt. H. Burdge.  
By Wright, Brown & Crossley,  
attys.

# UNITED STATES PATENT OFFICE.

ROBERT H. BURDGE, OF BOSTON, MASSACHUSETTS.

## CAR.

SPECIFICATION forming part of Letters Patent No. 370,448, dated September 27, 1887.

Application filed May 22, 1886. Serial No. 202,971. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT H. BURDGE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cars, of which the following is a specification.

My invention relates to railway-cars, and particularly to street-cars, and has for its object to provide a car which can readily be converted from a close or box car to an open or summer car, and vice versa, whenever it may be desired.

My improvements will be hereinafter described in connection with the drawings, so that those skilled in the art may be able to make and use the same, the invention being particularly set forth in the claims hereto appended.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved car, parts being broken away and parts being shown as in section. Fig. 2 represents a cross-section on the line 1 1 of Fig. 1. Fig. 3 represents a section taken on the line 2 2 of Fig. 1. Fig. 4 represents a horizontal view of a portion of the car as arranged for winter or cold-weather use. Fig. 5 represents detail views showing the manner of guiding the curtain in its up and down movements. Fig. 6 is a sectional detail view on the line 3 3, Fig. 1, showing the manner of locking what I term the "base-strip" in its raised position. Fig. 7 is a sectional detail on the line 4 4, Fig. 1, showing the means for limiting the downward movement of the base-strip. Fig. 8 is a horizontal sectional view of a portion of the car on the line 5 5 of Fig. 10. Fig. 9 is a sectional detail on the line 6 6 of Fig. 10. Fig. 10 represents a vertical sectional view on the line 7 7 of Fig. 8. Fig. 11 represents a vertical sectional view of the door of the car. Figs. 12, 13, and 14 represent sectional detail views of a modified construction of my improved car, hereinafter referred to.

Similar letters of reference indicate similar parts in all of the figures.

In the drawings, *a* represents the car-frame, by which term I mean to include all of the stationary side parts, roof, or top and bottom, of common construction, and not constituting a

part of my invention. *b* represents the floor, *c c* the seats, and *d d* the doors.

As has been stated, my car is adapted to be converted from a close or box car adapted for winter or cold-weather use to an open or summer car, and vice versa, and in carrying out this feature of my invention I make the side sections, *e e*, between the posts *f f*, with the windows removable, and to effect this I construct said sections separately, each consisting of an inner wall, *g*, and an outer wall, *h*, which two walls are separated and held in proper position by metallic strips *i i*, secured by means of screws, as shown, or by other suitable means to the edges of the walls, forming therebetween a space into which the window *j* may be lowered.

*k k* represent strips of rubber secured to the sides or edges of the outer walls, *h*, and adapted to bear against shoulders or offsets formed on the posts *f f*, as shown in Fig. 8.

*l l* represent strips, also of rubber or of felt or other suitable material, which may be secured to offsets on the posts *f*, against which the inner edge of the strips *i* and the adjacent parts of the inner wall, *g*, rest.

*m m* represent oblong buttons adapted to turn in bearings secured to the posts *f*, and when in the position in which they are represented in Fig. 1 to have their ends extend over a strip or molding secured to the upper end of the outer wall, *h*.

*n n* represent base-strips extending from end to end of the car at the bottom thereof, and to said strips are secured guide-straps *o o*, which are adapted to move in ways formed in a post, *f*, as shown in Figs. 1 and 6.

*p* represents a button or latch, similar to what is commonly known as a "sash-fastener," adapted to turn in a bearing secured to the bottom of the car and arranged in such position that its latching or locking end may be turned under the bottom of the base-strip when the latter is in its raised position or turned out therefrom under, as seen in Fig. 6.

*q* represents a finger secured to the bottom of the car and extending out into a vertical slot, *r*, formed in the inner face of the base-strip *n*, and extending nearly to the upper edge thereof.

By this construction the side strip is held

in position on the side of the car, and may be raised or lowered and be limited in its upward movement by the outer lower edge of the post *f* and in its downward movement by the fin-  
5 ger *g*.

*s s* represent the windows adapted to be raised and lowered between the outer and inner walls, *h* and *g*, and the posts *f f*.

*x* represents a roller secured to the free end  
10 of a spring, *u*, attached to the lower edge of the sash and adapted to press the roller against the side of the wall *g*, a recess, *v*, being formed in the sash to permit the roller *x* to be crowded therein. When the window is raised to its ut-  
15 most limit, the roller *x* is adapted to be pressed inward over the top of the inner wall, *g*, or with a notch formed therein, and thus hold the window in this position.

*w* represents a push-pin secured in a plate  
20 attached to the inner wall, *g*, in such position as to be pressed against roller *x* when the window is raised for the purpose of pressing the roller off the upper edge of the wall or out from the notch formed therein, into which the  
25 roller was pressed by the spring *u*, a spiral spring, *x*<sup>2</sup>, surrounding the stem of the push-pin and interposed between its head and supporting-plate, serving to press the pin out-  
30 ward, an offset on the inner end of the pin operating to limit its inward movement.

By the movement just described the window may be raised and locked in its raised position and readily unlocked and lowered, the  
35 roller *x*, bearing against the side of the wall *g*, serving to frictionally hold the window from falling or being lowered by its own gravity, but permitting it to be lowered by the application of slight force.

*y y* represent slats secured to the sides of the  
40 posts *f* above the removable sections *e* by means of screws or bolts *z z*, passing through slots formed in the slats, permitting the latter to have a slight movement on the posts. A  
45 strip of rubber, *a'*, is secured in a groove in the slats and interposed between the latter and a head or molding, *b'*, secured to the post, this construction serving to prevent the window  
50 from binding or "sticking" in its slideway formed in the posts, as it would otherwise be liable to do in damp or rainy weather, and yet  
a tight or close joint or connection is always preserved. Strips of rubber, *c'*, are also secured  
55 in grooves formed in the outer face of the lower portion of the sash and to the upper inner edge of the outer wall to effect a close joint at this point when the window is raised.

Between the floor *b* and the bottom of the car is a space of sufficient depth and width to  
60 admit of the sections *e* being placed therein when they are removed from the position in the sides of the car, access being gained at these spaces by lowering the base-strips *n* in the manner hereinbefore described.

*d'* represents the blind, composed of slats  
65 strung upon a cord or hinged together in any suitable way, to the upper end of which a tape

or strap, *e'*, is secured, which passes over a roller, *f'*, and is attached to a spring curtain-roller, *g'*, of ordinary construction, arranged in  
70 a spaceway in the roof of the car, as is clearly shown in Fig. 2. By this means the blind may be drawn down and held by any of the appli-  
75 ances of common construction, and be raised by the spring curtain-roller winding up thereon the strap or tape *e'*.

The door *d* is provided with a window, *h'*,  
80 which is adapted to be lowered into the space formed between the two walls constituting the lower portion of the door. This window may be locked in its raised position by means simi-  
85 lar to those employed for a like purpose on the side windows, or by any other suitable contrivances.

As shown in Figs. 3 and 4, the door is adapted  
85 to be opened by being slid between the two walls of the end of the car in the usual manner, and the windows at the ends are constructed to be raised and lowered in the same manner as the side windows.

In lieu of blinds for the end windows, I pre-  
90 fer to employ curtains *i'*, which may be attached to a spring-roller similar to roller *g'*, and be raised by being wound thereon.

As a means for holding the curtain in posi-  
95 tion and guiding it in its movements, I attach at suitable intervals along its edge short metallic strips *j'*, having hemispherical knobs *k'* at their ends, which project beyond the edge of the curtain, securing two of such strips *j'*  
100 on opposite sides of the curtain at the same point, whereby the two hemispheres *k'* are made to form a complete sphere or ball on the projecting ends of the strips *j'*, which balls are  
105 adapted to move in a rounded groove channeled out in a bead or molding, *l'*, secured to the side of the car, as shown in Figs. 3 and 5.

It is obvious that the curtains *i'* may be used instead of blinds *d'* for the side windows.

The seats *c* are constructed with legs adapted  
110 to be secured to the floor of the car in any suitable manner, and for a close or box car will extend along the sides, and for an open or summer car will extend crosswise of the same, as commonly arranged in cars of this  
115 kind.

To adapt the seats to be changed from one  
position to another I construct them in sec-  
120 tions *m' m'*, with lugs or dowel-pins in the end of one section fitting into corresponding holes or recesses in its adjacent section, as shown in Figs. 3 and 4. One of these sections may be  
125 arranged for the car in its open form at each post *f* on each side of the car, extending inward, and the space between the ends of two such sections joined by placing a section, *n'*,  
130 therebetween, as shown in Figs. 2 and 3, such sections *n'* being held in position by the lugs or dowel-pins before mentioned. For close cars, or where the seats are arranged along the sides, the seat-sections *m'* only will be em-  
135 ployed, as they will be sufficient to extend from end to end of the car.

The backs of the seats in instances where they extend along the sides of the car are formed in sections  $o' o'$ , which permits them to be employed as backs for the seats extending crosswise of the car, arms  $p'$ , pivoted at  $q'$  to the posts  $f$ , being hinged, as at  $r'$ , to the ends of the backs, which permits said arms to be folded against the backs out of the way when arranged along the sides, as in close or "box" cars.

In cars as commonly constructed the sections  $o'$  of the side seats will not be sufficient to supply all of the cross-seats with backs. I therefore provide additional sections or backs for use in open or summer cars.

A metal strip,  $s'$ , is hinged to the floor of the car, as shown in Fig. 2, which, when the sections  $e$  are removed, folds down over the space between the upper outer edge of the floor and upper edge of the base-strip. The step is removably attached by bolts or otherwise to the bottom of the car, as shown in Fig. 2, so that it can be applied to the car when arranged and organized for summer use and be removed therefrom when the car is closed as for winter use.

The sections  $e$  need not necessarily be stored between the floor and bottom of the car, as they may be left, properly numbered or otherwise designated to secure their orderly replacement, at the car station or shop, the arrangement hereinbefore described being for the purpose of enabling the conductor or driver to at any time quickly close an open car, if desired, in the event of a shower or other emergency.

Instead of making these sections  $e e$  removable separately, they may be connected by the molding or strip  $v'$ , extending the entire length of the car and across or outside of the posts  $f$ , and the base-strip  $n$  may also be secured to the sections  $e$  by means of the metal strip  $w'$ , as shown in Figs. 12, 13, and 14. In this latter construction all of the sections  $e$  of the side of a car may be removed and replaced at once.

In Fig. 12 I have also shown guides  $l'$ , secured to the sides of the car for the curtains  $i'$  when they are employed in lieu of the blinds  $e'$ .

I do not confine myself or expect to be confined to the precise form and arrangement of all of the parts comprising my improvements, as these may be varied without departing from the spirit or nature of the invention.

I claim—

1. The combination, in a convertible car, of a body or frame provided with posts  $f$  and a series of rigid sections, each adapted to close the lower portion of the car between two of said posts and each comprising an inner and outer wall, and window-frames sliding in said sections and adapted to be incased therein when the latter are removed, substantially as described.

2. The combination, in a convertible car, of a frame or body provided with posts  $f$ , each

having inner and outer shoulders, as described, a series of removable rigid sections,  $e$ , forming the lower car-panels between the posts  $f$ , each section having inner and outer walls,  $g h$ , strips  $i$ , secured to the edges of said walls to connect them, and rubber strips  $k$  and  $l$ , forming airtight joints and preventing rattling of the parts, substantially as set forth.

3. The combination, in a convertible car, of a frame or body provided with posts  $f$ , a series of rigid sections, each adapted to be inserted and close the lower portion of the car between two of said posts, devices located on said posts for securing the upper portion of said sections, and a movable base-strip,  $n$ , for retaining the lower portions of the sections against lateral movement, substantially as set forth.

4. The combination, in a convertible car, of a frame or body provided with posts  $f$ , a series of rigid sections, each adapted to be inserted and close the lower portion of said car between two of said posts, devices located on said posts for securing the upper portions of said sections, a base provided with horizontal compartments for receiving said sections, a strip,  $s'$ , closing said compartments and forming a bearing for said sections, and a movable strip,  $n$ , retaining said sections against lateral play when they bear on said strip  $s'$ , substantially as set forth.

5. The combination, in a convertible car, of a body or frame provided with posts  $f$  and a series of rigid sections, each adapted to be secured and close the lower portion of the car between two of said posts, window-frames sliding in said sections, and a base provided with horizontal compartments adapted to receive both sections and window-frames when the latter is within the former, substantially as set forth.

6. The combination, with the car body or frame and its posts  $f$ , of the seats and seat-backs  $o'$  and arms  $p'$ , pivoted at  $q'$  to the posts  $f$  and hinged at  $r'$  to the ends of the backs  $o'$ , so as to fold parallel thereagainst when disconnected from  $q'$ , all constructed, arranged, and operating substantially as and for the purposes hereinbefore set forth.

7. The combination, with a curtain provided with the strips and knobs  $j' k'$ , of a strip or molding provided with a guideway for said strips and knobs, as set forth.

8. The combination, in a convertible car, of a body or frame provided with posts  $f$ , rigid removable sections  $e$ , adapted to be inserted and secured between said posts, movable base-strip  $n$ , for retaining said sections against lateral play, and a locking device,  $p$ , for securing said base-strip in position, substantially as set forth.

9. The combination, with the car body or frame, of the removable sections  $e$ , comprising an outer and inner wall, metallic strips  $i$ , and rubber strips  $k$ , as set forth.

10. The combination, with the car body or frame, of the window-sash provided with a

recess, *v*, spring *u*, having one end secured to  
the sash, roller *x*, secured to the free end of  
the spring and adapted to be pressed into re-  
cess *v*, and push-pin *w*, connected with the  
5 body or frame and arranged to push roller *x*  
into recess *v* in the sash.

In testimony whereof I have signed my name

to this specification, in the presence of two  
subscribing witnesses, this 19th day of May,  
1886.

ROBERT H. BURDGE.

Witnesses:

ARTHUR W. CROSSLEY,  
C. F. BROWN.