

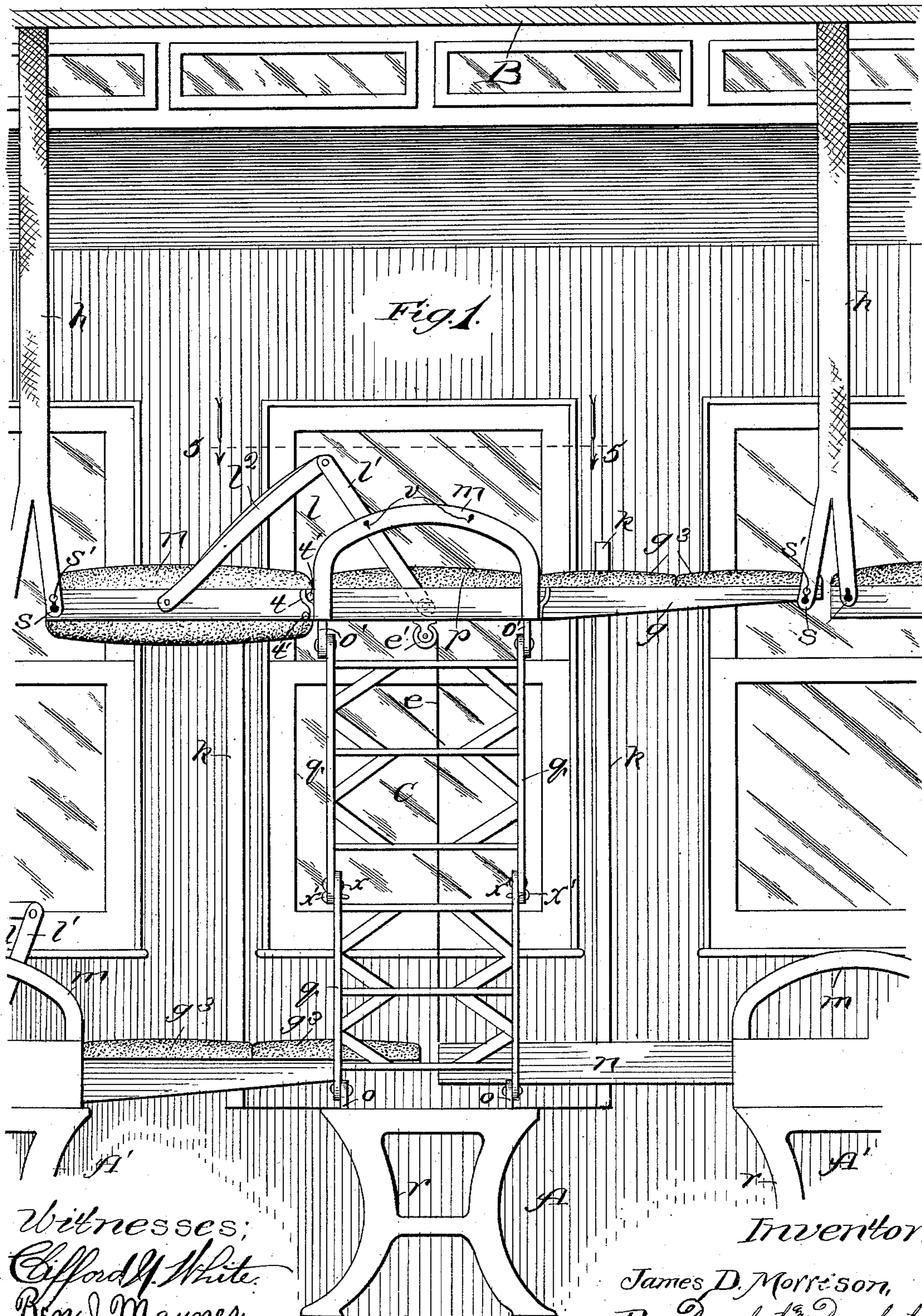
(No Model.)

3 Sheets—Sheet 1.

J. D. MORRISON.
RAILWAY CAR.

No. 475,791.

Patented May 31, 1892.



Witnesses;
Clifford W. White.
Ben J. Maynes.—

Inventor:
James D. Morrison,
By Dymenforth ^{and} Dymenforth,
Attys

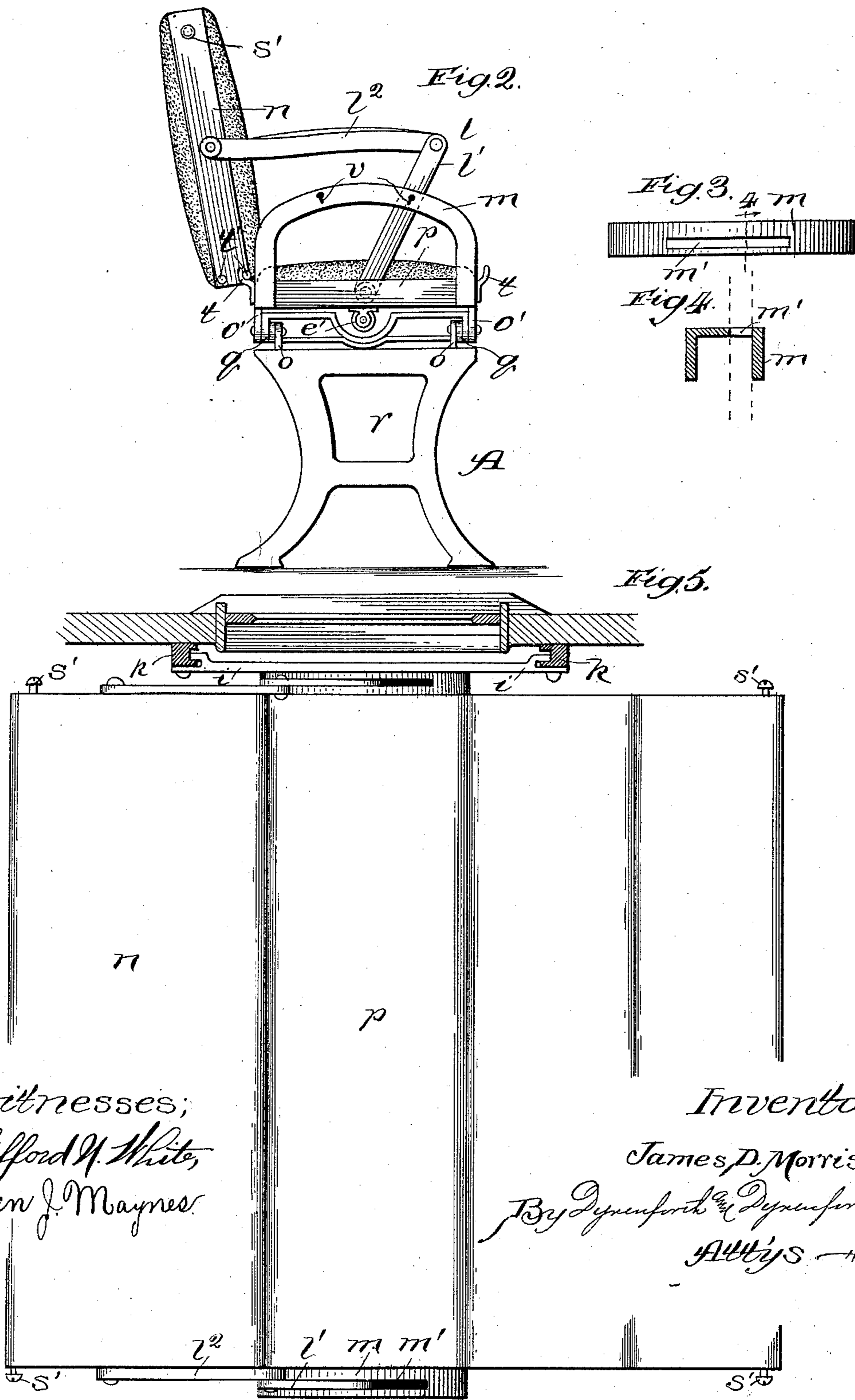
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3 Sheets—Sheet 3.

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Fig. 6.

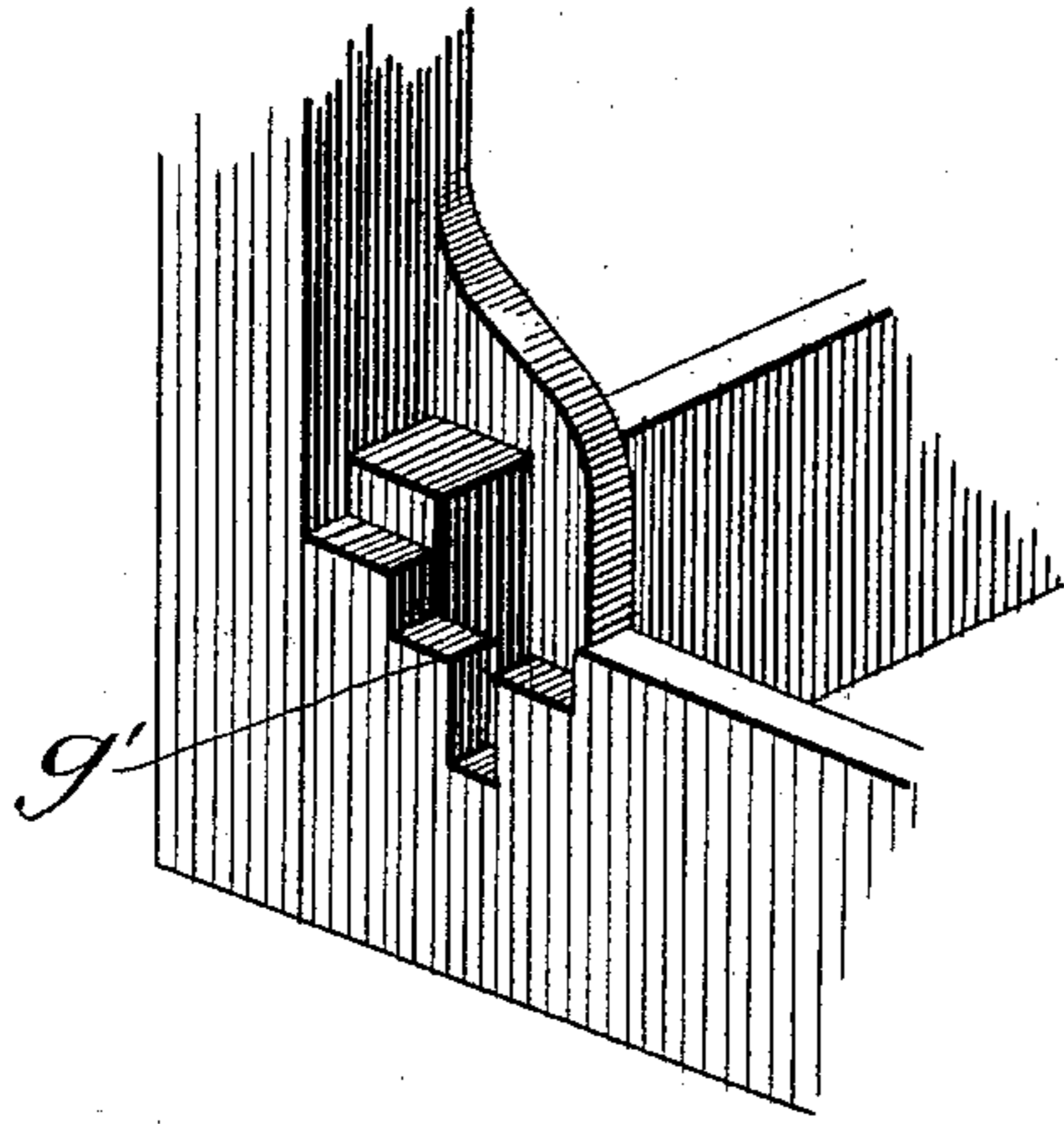


Fig. 7.

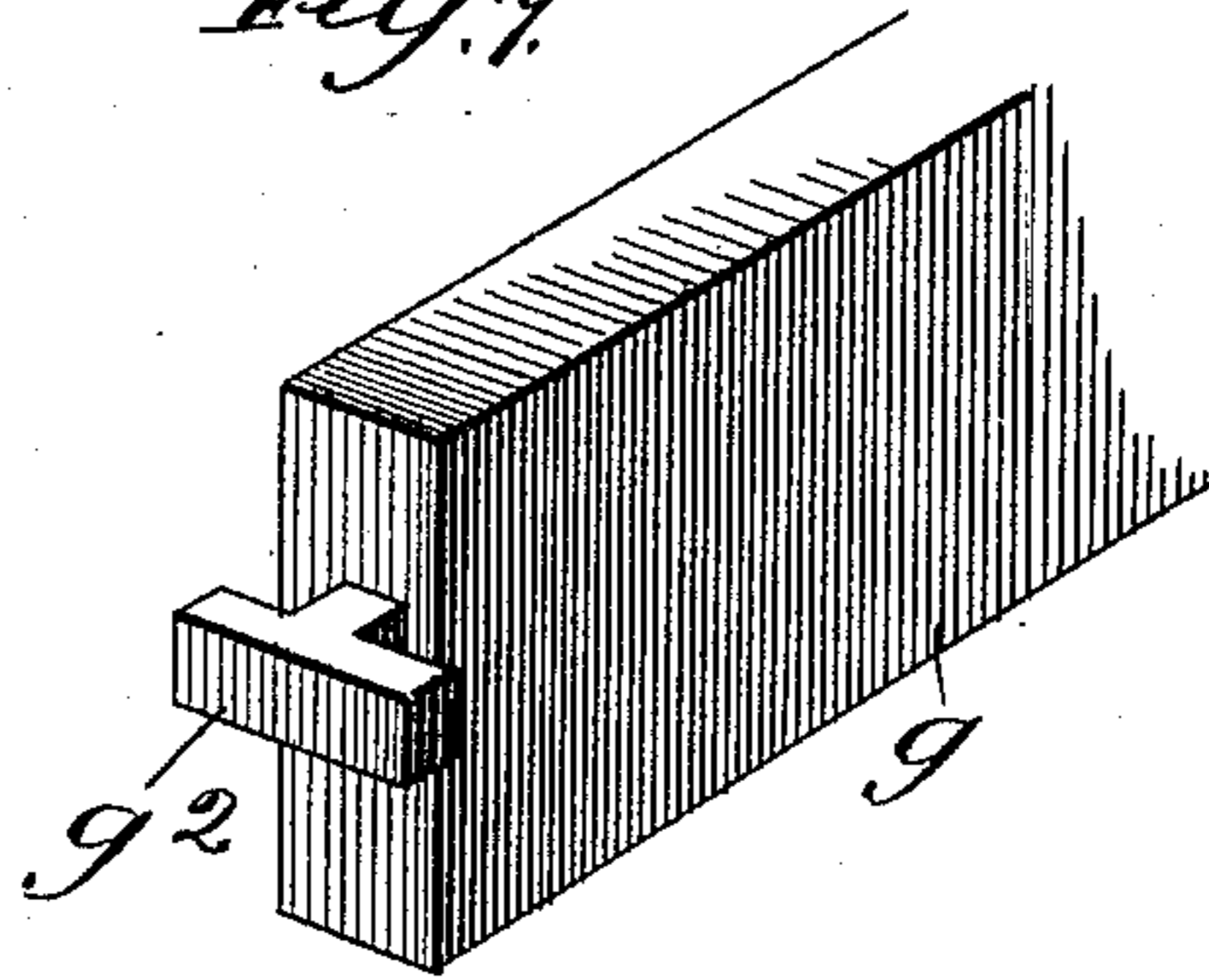


Fig. 8.

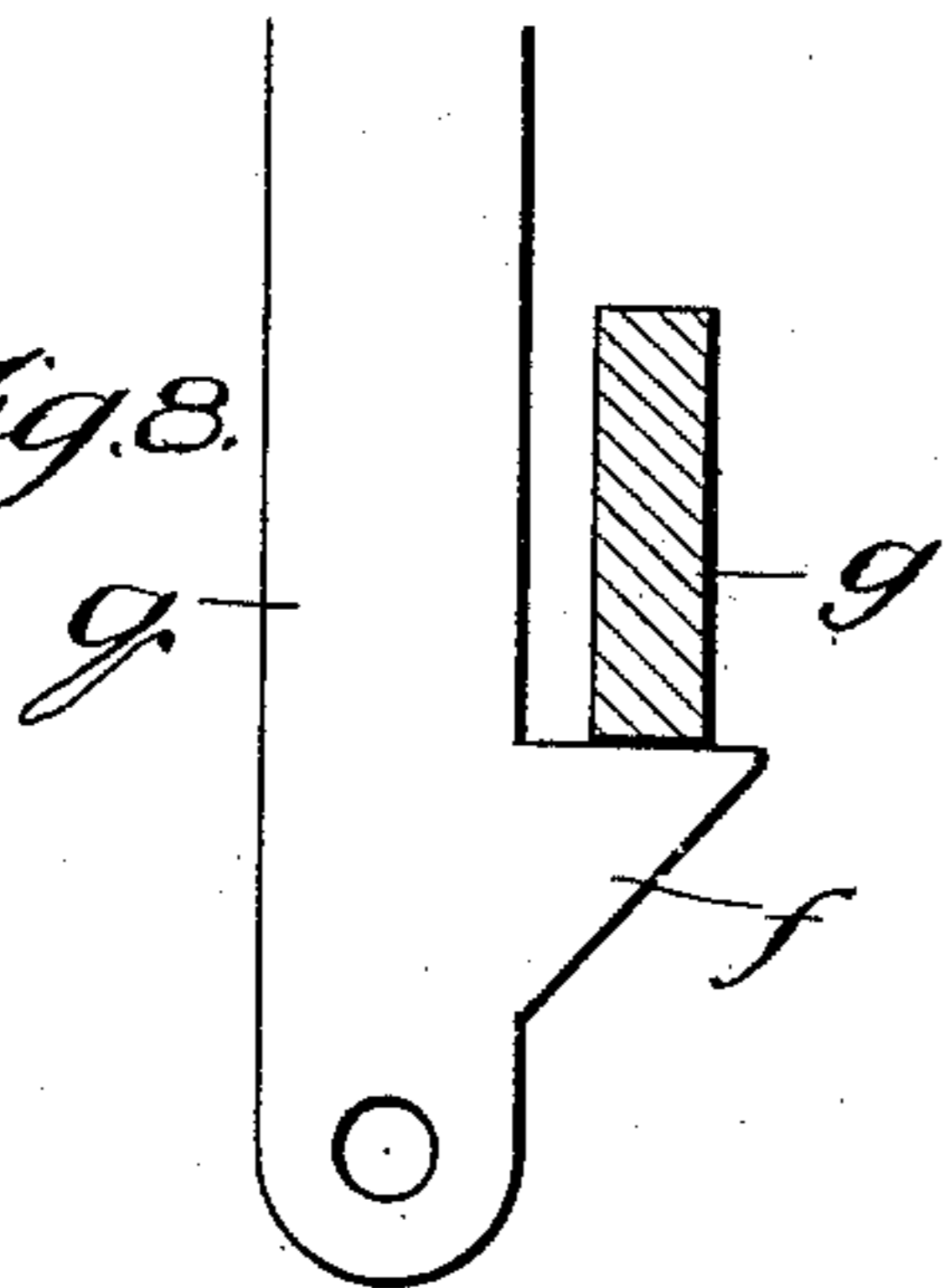
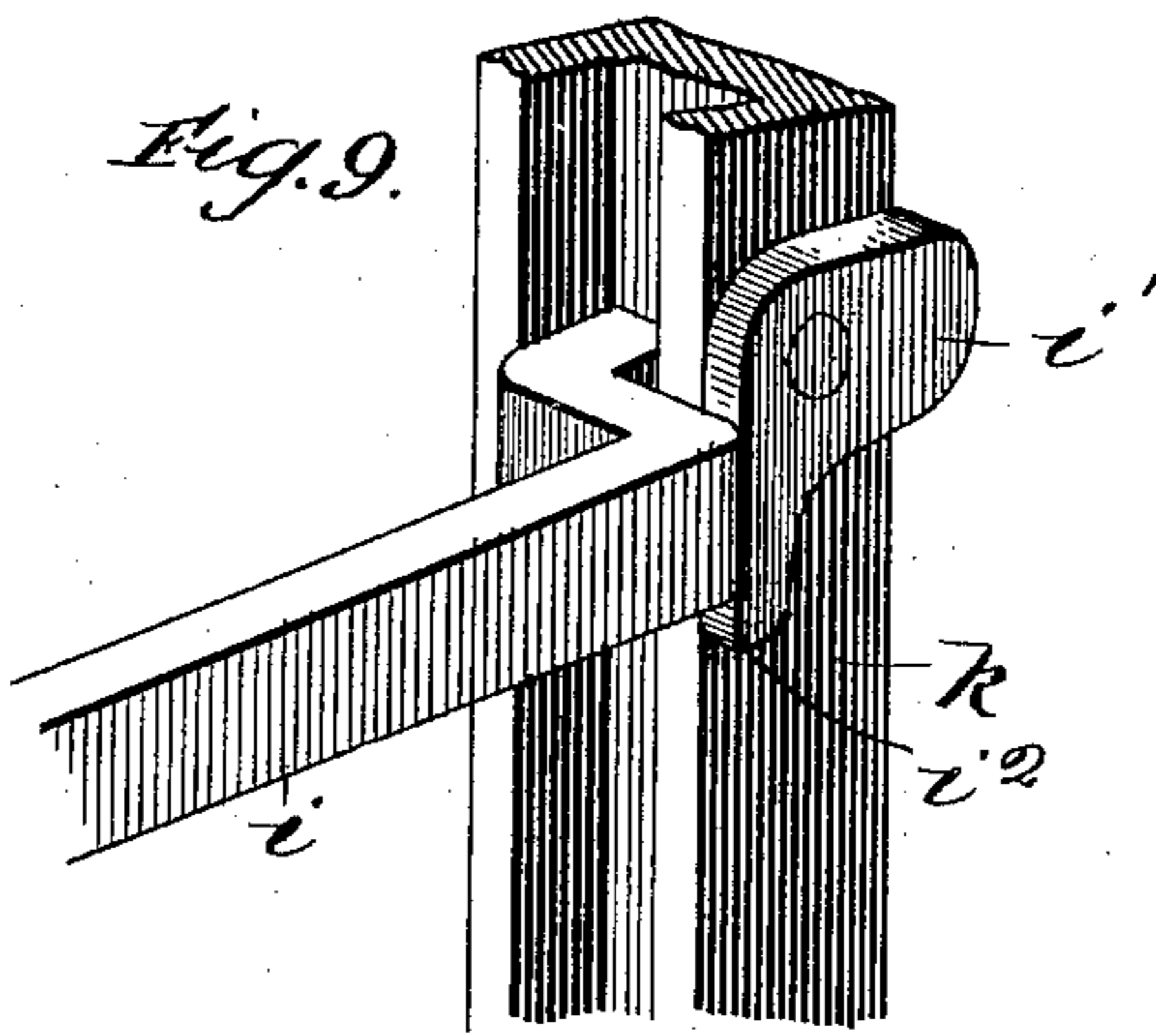


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES D. MORRISON, OF REINBECK, IOWA.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 475,791, dated May 31, 1892.

Application filed December 21, 1891. Serial No. 415,755. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. MORRISON, a citizen of the United States, residing at Reinbeck, in the county of Grundy and State of Iowa, have invented a new and useful Improvement in Railway-Cars, of which the following is a specification.

The object of my improvement is to provide means whereby a passenger-car equipped with seats, which may be relatively located as in the ordinary day-coach, may be readily and conveniently converted into a sleeping-car with adequately commodious berths. The convertibility of the car is due to the construction of the car-seats. Hence my invention may properly be regarded as an improvement in car-seats, adapting them to be converted into sleeping-berths, though the foregoing title is selected as the more comprehensively defining the improvement. Generally stated, my plan is to provide for converting alternate seats on either or each side of the car-aisle into upper berths by providing supporting-frames at the ends of the seats, adapted to be folded up on the seats when the latter are used as such, and to be extended vertically to raise and support the seats in the elevated position of upper berths for forming the couch portions thereof with the seats proper and their backs and with adjustable and removable added sections. The other seats, or those flanking each upper-berth seat, need not be convertible in the manner described; but I use them for conversion into lower berths by adjusting the back of each said seat into a horizontal position to form the head portion of the couch, the continuation of which is formed by the seat portion and an adjustable and removable extension suitably supported.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal sectional view in elevation of a broken portion of a car provided with my improvement, the view being in the nature of a diagram. Fig. 2 is a view in end elevation of one of my improved car-seats adapted to be extended in forming an upper berth. Fig. 3 is a plan view of a seat-arm. Fig. 4 is a section taken on the line 4 of Fig. 3 viewed in the direction of the arrow and enlarged. Fig. 5 is a broken sec-

tional plan view taken on the line 5 5 of Fig. 1 and viewed in the direction of the arrow. Fig. 6 is a broken perspective view of a corner of a seat-frame, showing a detail of construction. Fig. 7 is a similar view of a detail to co-operate with that shown in Fig. 6. Fig. 8 is a broken sectional view taken on the line 8 of Fig. 1 viewed in the direction of the arrow and illustrating a detail of construction. Fig. 9 is a broken perspective view showing further details.

A denotes my improved vertically-extensible and convertible car-seat, and A' denotes the car-seats alternating with the seats A, all the seats being relatively disposed in a usual manner with day-coaches in a passenger-car B. The seat A is shown in its normal or folded condition in Fig. 2 and in its unfolded or vertically extended and converted condition in Fig. 1. It comprises the base *r*, of usual or any suitable form and construction, surmounted by an upholstered seat *p*, connected with the end of the base *r* adjacent to the aisle by a frame C, formed in hinged or pivotally-connected sections *q*. The preferred construction of each section *q* is that illustrated—of side bars connected by cross-bars and strengthened by corner-braces—the intention being to cast each of the said frame-sections of malleable iron. The two sections *q* should be of the same length, corresponding, approximately, with that of the top of the seat-base, and they are pivotally connected together, as indicated at *x* in Fig. 1, the lowermost section being pivotally connected in a similar manner with lugs *o* on the top of the base *r* near its aisle end and the uppermost one being connected in a like manner with lugs *o'*, depending from opposite sides of the bottom of the seat portion *p*. Each seat is provided with a reversible back *n* and at each end with an arm *m*, having a longitudinal slot *m'* in its top part, through which extends a link of the jointed connecting medium *l* between the back and seat portions. This connection *l* is provided at each end of the seat and comprises the links *l'* and *l''*, respectively connected, pivotally, with an end of the seat portion *p* and back *n* and pivotally connected together, the link *l'* passing through the slot *m'*, which limits the extent of its play and in which it is adapted to be

locked at the opposite ends of its throw, as indicated by the keyholes *v*. (Represented.) On the wall of the car, at opposite sides of each car-window adjacent to a seat A, are vertical guide-cleats *k*, in the guides of which are confined the opposite bent ends of a bar *i*, fastened between its extremities to the wall end of the seat portion *p*, and near the upper end of each guide-cleat is pivoted a dog *i'*, adapted to extend by gravity at its engaging or hook end *i''* normally into the path of the adjacent end of the bar *i*, whereby raising the latter will swing the dog out of its path to pass by the dog, which will swing back when so passed to its normal position and thus sustain the bar, as represented in Fig. 9, in its elevated position. As will be seen, the connection with the seat portion *p* of the back *n* adapts it to be adjusted into a horizontal position, as illustrated in Fig. 1, at either side of the seat on its bearing, shown as a stud *t'* in proper place on the ends of the back, one for each position of the latter, and rests *t* at opposite sides of the seat portion to receive the studs.

Other details of the construction are best to be described in connection with the description of the manner of converting the seats of the car into sleeping-berths, which is as follows, though limited mainly to the conversion into one upper berth and into one lower berth, since all being required to be manipulated alike description of one will suffice:

The seat portion *p* of the seat A is raised, thereby unfolding the sections *q* of the supporting-frame C and adjusting them into their vertical position, (represented in Fig. 1,) wherein pins *x'* should be inserted through the sides of the sections near the joints *x* to render the connection between the sections adequately stiff. The raising of the seat portion *p* likewise raises the bar *i* at the wall end of the seat in the guides *k* past the dogs *i'*, which thus support that end. When the seat portion has been thus elevated, the link *i'* is unlocked and turned to an end of its guide-slot *m'* in the arm from the position in which it is illustrated in Fig. 2 to that shown in Fig. 1, thereby permitting the back *n* to assume the horizontal position in which it is represented in the last-named figure and wherein it forms the head of the couch portion of the upper berth, and the link *l'* may be locked in that position. To support the back *n* as the head of the couch at its free or rear end, I provide straps *h*, suspended from the upper portion of the car B at the aisle and wall, which straps may be bifurcated at their lower ends, as shown, to adapt each strap to serve a double purpose, hereinafter described, the bifurcated ends being provided with eyes *s* to engage with studs or buttons *s'* on the ends of the back. At each corner in the opposite sides of the seat portion *p* is provided a T-shaped recess *g'* (see Fig. 6) to receive and lock a T-head *g''* on the end of a rail *g*, (see Fig. 7,) one rail being thus connected with the said seat

portion at each end thereof on its side opposite that from which the back *n* is caused to extend, and the opposite ends of the rails are supported, like the back, by straps *h*. The rails *g* are designed to support cushion-sections *g''* and form, with the latter, an extension of the couch portion of the upper berth.

It should here be stated that the upper berths may be separated from each other by curtains hung between coincident straps *h* or by any other suitable means. (Not shown.) Thus an upper berth may be provided conveniently and with dispatch, and the supporting-frame C affords a ladder by which to gain access to it. To reconvert the upper berth into a seat A, it is but necessary to remove the rails *g* and cushions *g''*, which may be stored during the day in the seat portion *p*, then formed to afford a receptacle for them, to disengage the back *n* from its supporting-straps *h* and the ends of the bar *i* from the dogs *i'*, when upon removing the pins *x'* the frame C may be collapsed and caused to fold along the top of the base *r*, the parts thus assuming the relative positions represented in Fig. 2, and the back *n* is adjusted into position to serve its function as a back. Of course it will be understood that the side of the raised seat portion *p* on which the back *n* is adjusted to afford the head of the upper berth may depend upon the direction of motion of the car or desire of the occupant of the berth, and the position of the foot portion afforded by the rails *g* and cushions *g''* is to be arranged accordingly. It will be noticed that the bifurcated ends of the straps *h* adapt each to support an end of the foot portion of one upper berth and the end of the head portion of an adjacent berth. Each lower berth is formed with a seat A' and the base *r* of a seat A by dropping the back *n* of the seat A' (the seat portion *p* of which is not or need not be adapted to be raised like that of the seat A) to a horizontal position similar to the adjustment of the back of a seat A to form the head of the couch of the lower berth. Instead of supporting the back at its free end by straps, as in the case of the upper berth, it rests on brackets *f*, (see Fig. 8,) provided on the inner side of the adjacent sides of a frame C of an adjacent seat A. The foot-extension of each lower berth is formed, substantially like that of the upper berth, with side rails *g*, supporting-cushions *g''* and connected at one end with a seat A' by the T-shaped recesses *g'* thereon, and T-heads *g''* on the rails and resting at their opposite ends on brackets *f* on the adjacent sides of the lower section *q* of the frame C.

The foregoing arrangement, as will be seen, causes the upper and lower berths mutually to overlap one another, since it brings the head of one lower berth and the foot of the adjacent one to meet below the center of an upper berth or between the sides of a frame C, and they may be separated by a curtain *e*, (represented by dotted lines in Fig. 1,) which

is adapted to be rolled up during the day on a suitable roller *e'* on the bottom of the overhead seat portion *p*.

I consider the gist of my improvement to lie, generically regarded, in a vertically-extensible car-seat provided with a support in its extended position to adapt it to be converted into a sleeping-berth, the support being formed in hinged sections adapted to fold in the direction lengthwise of the seat, and I do not, therefore, wish to be understood as limiting my invention to specific details of the construction shown and described, either of this my leading feature, nor in fact of the devices herein set forth for serving the other functions described, as included in my improvement.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-seat, the combination, with the base, of a seat portion separably supported thereon, and a connection between the seat portion and base formed in sections folding lengthwise along the base and extensible upward to elevate the seat portion into and support it in position for an upper sleeping-berth, substantially as described.

2. In a car-seat, a connection between the seat portion and base, comprising a frame formed in folding sections extensible upward to elevate the seat portion into and support it in position for an upper berth and forming when so extended a ladder, substantially as described.

3. In a car-seat, the combination, with the base, of a seat portion separably supported thereon, a connection between the seat portion and base formed in sections folding lengthwise along the base and extensible upward to elevate the seat portion into and support it in position for an upper sleeping-berth, and a back on the seat portion adjustable into alignment therewith to form part of the said berth, substantially as described.

4. A car-seat provided with an upward-extensible support for elevating the seat portion into and supporting it in position for an upper sleeping-berth, a back supported in bearings on the seat portion and connected therewith by jointed links, rendering the back reversible and adjustable into alignment with the seat portion to form part of the said berth, substantially as described.

5. In combination with a car, a seat comprising the base and seat portion, having a folding and extensible connection between them and a reversible back adjustable into alignment with the seat portion, guides on the car-wall, provided with adjustable bearings, and a bar secured to the said seat portion and extending at opposite ends into said guides to be raised thereon and supported on said bearings in converting the seat into an upper sleeping-berth, substantially as described.

6. In combination with a car, a seat provided with an upward-extensible support for elevating its seat portion into and supporting

it in position for an upper sleeping-berth, a back on the seat portion adjustable into alignment therewith to form part of said berth, side rails removably connected with the seat portion to extend the length of the berth at the end thereof opposite that formed with the back and supporting an extension of the couch, and means for sustaining the said back and rails at their free ends, substantially as described.

7. In combination with a car, a seat comprising a base *r*, a seat portion *p*, a frame *C*, formed of pivotal sections *q*, connecting the seat portion with the base at the aisle end of the seat and adapted to be folded under the seat portion on the base and to be extended vertically to elevate the seat portion into position for an upper sleeping-berth, a back *n*, reversibly supported on the seat portion and fastened thereto by pivotally-connected links *l'* and *l''*, slotted arms at opposite ends of the seat portion and through which the links *l'* extend, guides *k* on the car-wall, provided with dogs *i'*, a bar *i*, secured to the wall end of the said seat portion and extending at opposite ends into the guides to be raised therein and supported by the dogs in converting the seat into an upper sleeping-berth, side rails *g*, separably connected with the seat portion *p* to extend the said berth and support an extension of the couch, and suspended straps *h*, supporting the free ends of the seat portion *n*, and rails *g*, substantially as and for the purpose set forth.

8. In combination, a car-seat provided with a swinging back adjustable into alignment with the seat portion in converting the seat into a sleeping-berth, and a removable extension of the berth at the side of the seat portion opposite that on which the back is so adjusted, substantially as described.

9. In combination with a car, seats *A* and *A'*, convertible into upper and lower sleeping-berths, each seat *A* being provided with an upward-extensible support for elevating its seat portion into and supporting it in position for an upper sleeping-berth and each seat *A'* having a back *n* adjustable into alignment with it to extend the couch at one end in forming a lower sleeping-berth and provided with removable side rails *g* to extend the said berth toward the opposite end and support an extension of the couch portion thereof, substantially as described.

10. In combination with a car, seats *A* and *A'*, convertible into upper and lower sleeping-berths, each seat *A* being provided with an upward-extensible support for elevating its seat portion into and supporting it in position for an upper sleeping-berth and with a back on the seat portion adjustable into alignment therewith to form part of the said berth, side rails removably connected with the seat portion to extend the length of the berth at the end thereof opposite that formed with the back and supporting an extension of the couch, means for sustaining the adjusted back

and rails at the ends of the berth, and each seat A' having a swinging back adjustable into alignment with its seat portion to convert said seat into a lower sleeping-berth, and a removable extension of the said berth at the side of the seat portion opposite that on which the back is so adjusted, the backs and extensions on the lower berths being supported on the bases of seats A, substantially as described.

11. In combination with a car, seats A and A', convertible into upper and lower sleeping-berths, each seat A comprising a base *r*, a seat portion *p*, a frame C, formed of pivotal sections *q*, connecting the seat portion with the base at the aisle end of the seat and adapted to be folded under the seat portion on the said base and to be extended vertically to elevate the seat portion into position for an upper berth, a back *n*, reversibly supported on the seat portion and fastened thereto by pivotally-connected links *l'* and *l''*, and slotted arms *m* at opposite ends of the seat portion and through which the links *l'* extend, guides *k* on the car-wall, provided with bearings *i'*, a bar *i*, secured to the wall end of the said seat

portion and extending at opposite ends into the guides to be raised therein and supported by said bearings in converting the seat into an upper sleeping-berth, side rails *g*, separably connected with the seat portion *p* to extend the said berth and support an extension *g'* of the couch, and suspended supporting-straps *h* for the opposite ends of the said berth, and each seat A' comprising a seat portion *p*, a swinging back *n*, adjustable into alignment with its seat portion to convert said seat into a lower sleeping-berth and connected with the seat portion by pivotally-connected links *l'* and *l''*, and slotted arms *m* on the said seat portions through which the links *l'* extend, and side rails *g*, separably connected with the seat portion to extend the said berth and support an extension *g'* of the couch, the backs and side rails on the lower berths being supported on the bases of seats A, substantially as described.

JAMES D. MORRISON.

In presence of—

M. J. FROST,

J. N. HANSON.