

No. 692,332.

Patented Feb. 4, 1902.

H. C. ORR & G. MATHEWS.
CONVERTIBLE CHAIR FOR RAILWAY COACHES.

(Application filed Jan. 28, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 2.

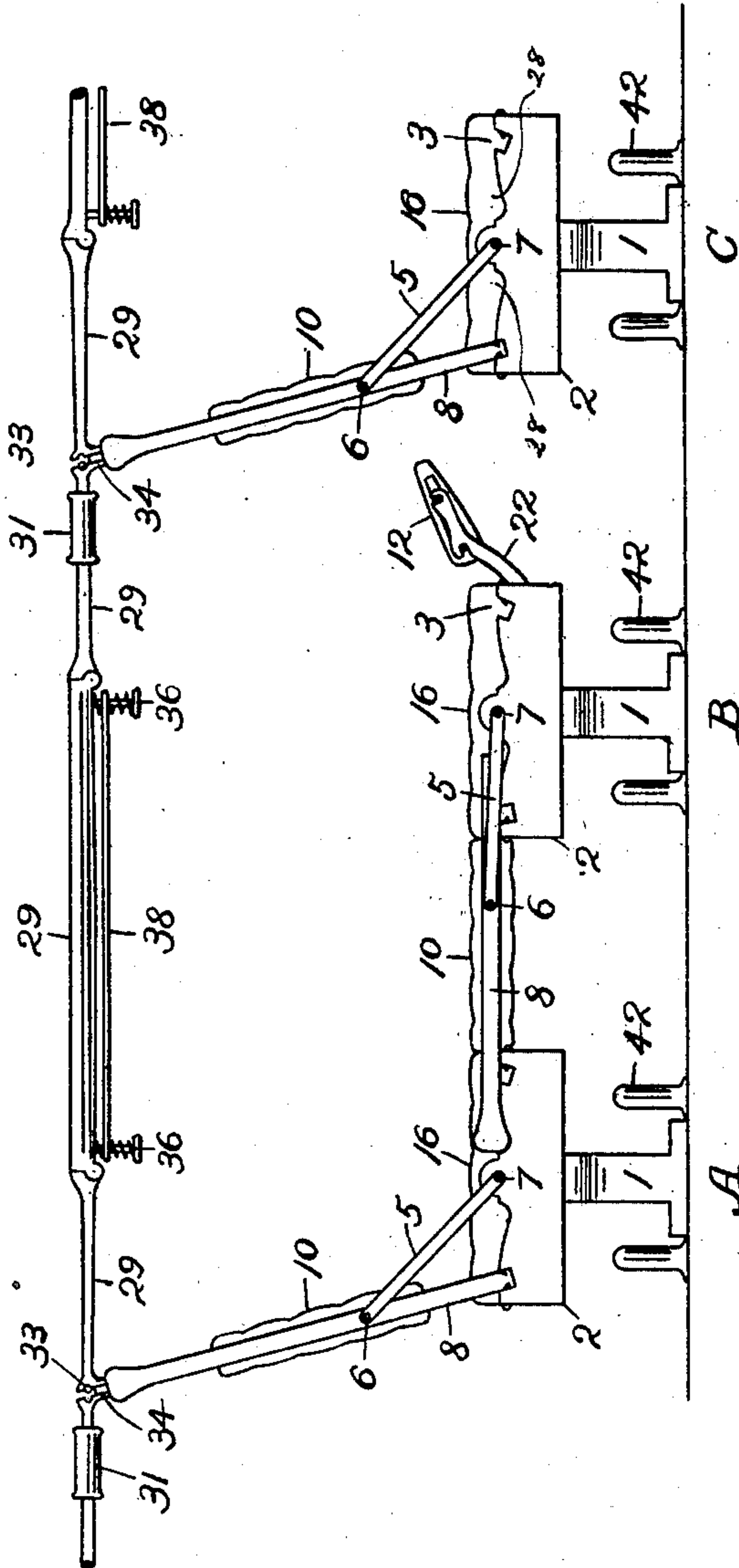
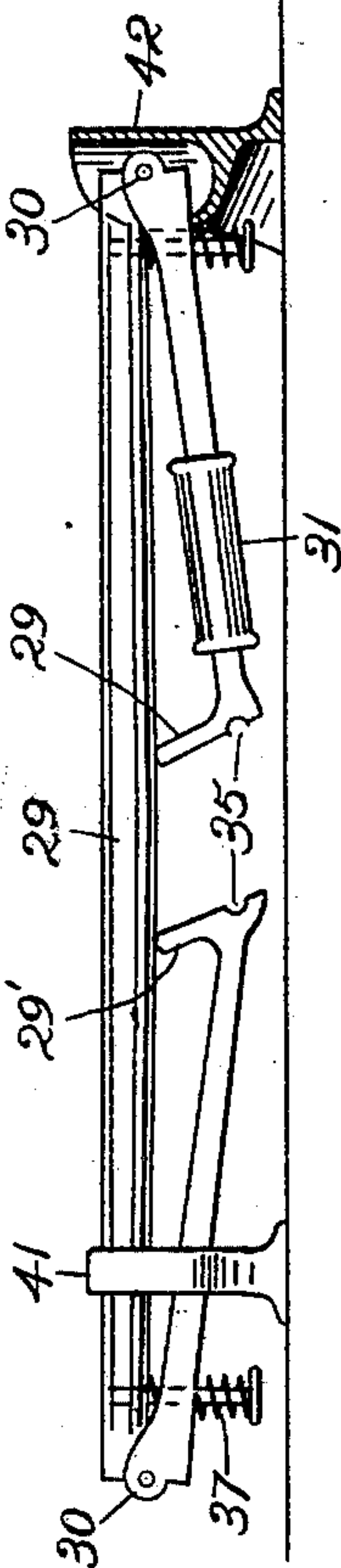


Fig. 1.

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Fig. 3.

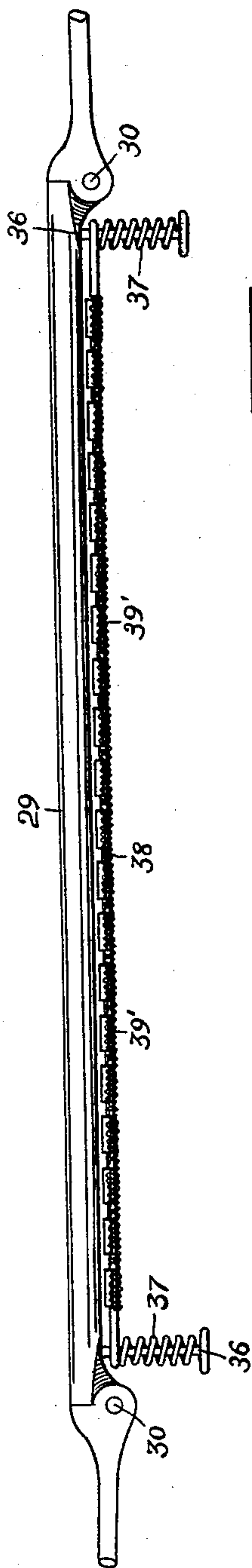


Fig. 4.

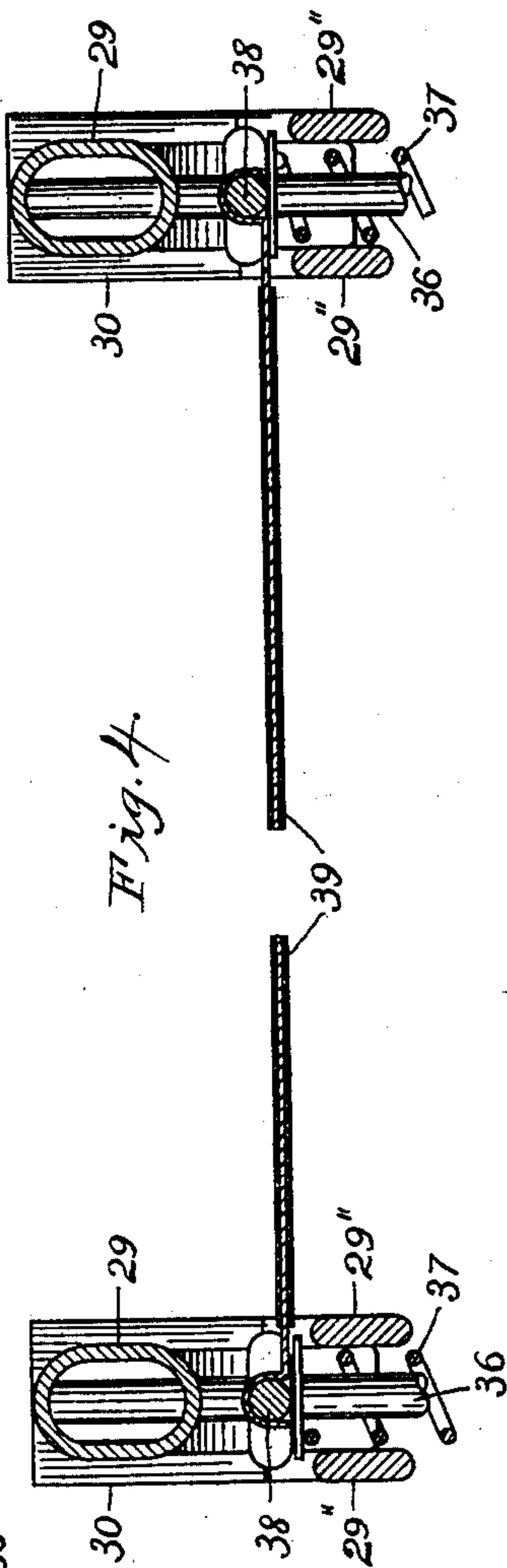


Fig. 5.

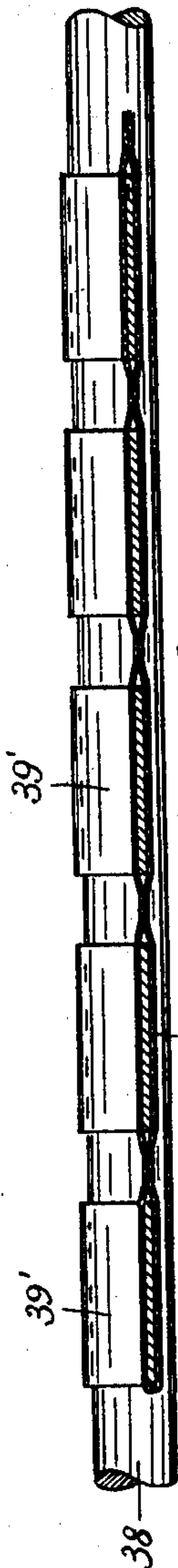


Fig. 8.



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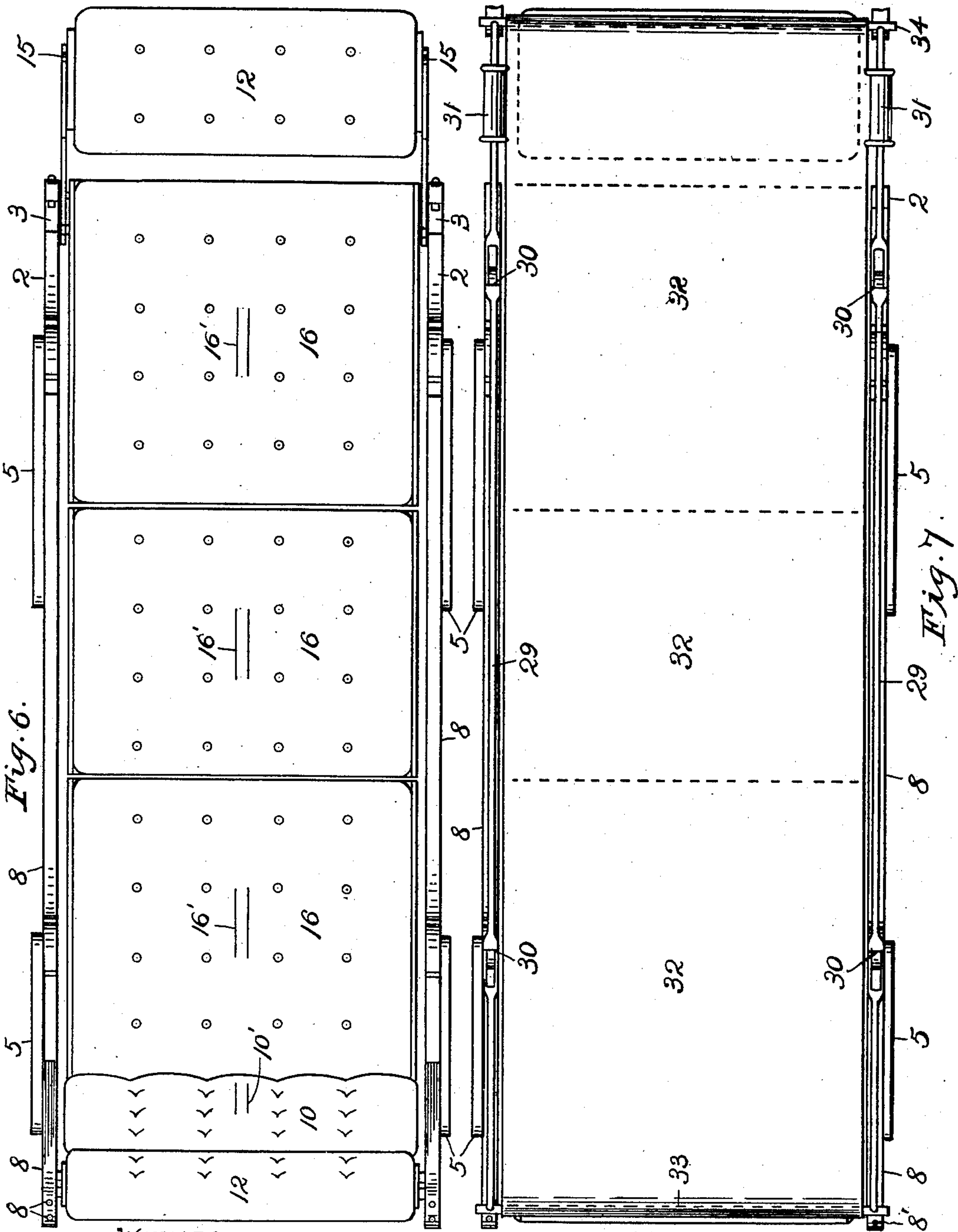
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

HARRY C. ORR AND GEORGE MATHEWS, OF KANSAS CITY, MISSOURI.

CONVERTIBLE CHAIR FOR RAILWAY-COACHES.

SPECIFICATION forming part of Letters Patent No. 692,332, dated February 4, 1902.

Application filed January 28, 1901. Serial No. 45,131. (No model.)

To all whom it may concern:

Be it known that we, HARRY C. ORR and GEORGE MATHEWS, citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Convertible Chairs for Railway-Coaches, of which the following is a specification.

Our invention relates to reversible convertible chairs more especially intended for use in passenger-coaches; and the object of our invention is to provide a system of convertible reversible chairs whereby every person occupying one of the chairs may be furnished with a separate couch or cot at any time desired. The converting of the chairs into couches is effected by lowering the back of every alternate chair to a horizontal position between its connected seat and that of one of the adjacent seats, the seats being provided with an extensible rack for supporting a head-rest or pillow. The upper couches or cots are so constructed as to rest on the framework of the chairs without touching or defacing the car.

An advantage of our invention is that the chairs may be installed in any coach or car in present use.

The detail construction of the chairs is not described in the following specification; but said construction is described and claimed as new in a separate application by ourselves, filed April 25, 1901, bearing Serial No. 57,388.

We attain the above objects by the construction described hereinafter and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of three of the chairs adjusted to provide an upper and a lower couch in connection with parts to be described hereinafter. Fig. 2 is an enlarged detail view of one of the combined chair-braces and foot-rests as supported for use as the latter. Fig. 3 is a longitudinal sectional view of one of the mattresses and its supports. Fig. 4 is an irregular sectional view through the mattress and its supporting-bars, the end sections of said bars being folded back, as shown in Fig. 3. Fig. 5 is an enlarged longitudinal section through one end of the mattress. Fig. 6 is a plan view of one of the lower couches as formed by the seat and back of one chair, the seat of an adja-

cent chair, and a suitable head-rest. Fig. 7 is a plan view of one of the upper couches as formed by a hammock supported by the backs of two of the chairs, as shown in Fig. 2. Fig. 8 is an enlarged sectional view of one of the sleeve-nuts for adjusting and tightening the chair-braces.

Fig. 1 represents three chairs arranged for reclining position of the occupants. The back-posts 8 of the chairs are connected to the side castings 2 by braces 5, pivoted at 6 and 7. Formed in the top of each side casting 2 are two sockets 3, preferably rectangular, as shown, equidistant from the pivots 7. (See Fig. 1.) The lower ends of the back-posts 8 rest in two of these sockets and are automatically locked therein by devices to be described hereinafter.

As shown, the top of each side casting 2 is formed in two curved recesses 28, symmetrical with respect to the pivotal points 7 and to each other. These recesses are preferably of the same profile as the side portions of the heads of the posts 8. The seats are secured at such a distance apart that when the back of any chair is lowered to a horizontal position the heads of the posts 8 will fit within two of the recesses 3, as shown in Fig. 1, in which the back of chair B rests on the side castings 2 of chair A, all of the head-rests 12 having first been removed from the chair-backs and placed in the racks in the manner hereinbefore described. It will be seen that the back-cushion of chair B fills the gap between its own seat and the seat of the chair A, and thus forms part of a virtually continuous couch provided with a comfortable head-rest 12. The seat of chair C would form the foot of the next couch to the right in Fig. 1, just as the seat of chair A forms the foot of the couch shown in this figure. A strap 10' is secured to each side of each back-cushion 10 to facilitate the reversing or raising and lowering the backs of the chairs, and each seat-cushion 16 is provided with a similar strap 16', by which said cushions may be adjusted or removed entirely from the chairs. These straps lie flat against the cushions to which they are attached and may be of the same material as the covers of the cushions.

A cot or couch is provided for the occupant of every chair, and for this purpose a

cot is suspended above each lower couch by the means shown in Figs. 1, 3, 4, 5, and 7. To make up an upper cot, the porter takes up two bars or struts 29 (which are used as foot-rests in the day-time, as described hereinafter) and inserts their ends 29' into sockets provided for that purpose in the upper ends of the back-posts 8, so as to form a frame between the backs of two chairs, as shown in Fig. 2. Each strut or bar 29 is made in three sections, the middle section being the longest, and said sections are connected by shouldered joints 30, which will turn in only one direction, the shoulders holding the bars rigid when the bars are in position, as shown. One of the short sections is divided into two parts, which are provided with right and left hand threads, respectively, and connected together by a sleeve-nut 31, having right and left hand threads, (see Fig. 8,) which sleeve may be operated by hand. The object of the sleeves 31 is to provide for adjusting the bars 29 to slightly-varying distances between the posts 8 and also to bind said bars tightly into the aforesaid sockets in the back-post 8.

A hammock 32 (shown in Fig. 7) is hung between the backs of the chairs A and C, Fig. 1, its ends being supported as follows: One end of the hammock is secured to a cross-bar 33, which may be either square or round in section, but preferably round, as shown. The opposite end of the hammock is secured to a cross-bar 34, which should be rectangular in section and small enough to be inserted between the oblique ends 29' of the struts 29, as shown in Fig. 1. The round cross-bars 33 are first placed between the ends of two of the bars 29, resting upon either the heads of the posts 8 or upon the rectangular cross-bar of the next hammock in the row. The preferable arrangement is to have the rectangular bars resting directly on the heads of posts 8, with the round bars 33 above them. The tension or tightness of the hammock 32 may then be adjusted by turning the rectangular bar 34, with one end of the hammock wound thereon, and then pushing said bar down until it rests on the heads of posts 8. The ends of the bars 29 are provided with notches 35 for engaging the round rods 33 should the latter for any reason tend to rise out of their guides—viz., the ends of the bars 29. Secured to the ends of the middle sections of the bars 29 are depending pins or shanks 36, having heads at their lower ends. (See Figs. 3 and 4.) Around each pin or shank 36 is a coiled expansion-spring 37. Below the middle section of every bar 29 is a longitudinal rod 38, having eyes 38' at its ends, through which the shanks 36 extend. When a pair of the bars 29 are in position above the seats, the two rods 38 form a support for a detachable mattress 39, which is placed thereon by the porter either before or after the hammock 32 is hung. The mattress comprises a series of transverse metal slats 39', secured between two sheets of webbing or other

flexible fabric, as shown in Fig. 5, an enlarged sectional view through several of the slats. The mattress forms a partial support for the hammock 32, and as it rides upon the springs 37 the comfort of the occupant is fully provided for. When the hammock is stretched between its supports, it does not touch the mattress 39; but the weight of the occupant may cause it to sag sufficiently to bring the mattress into play. The bars 29 form guards for preventing the occupant of the hammock from falling out.

As shown in Fig. 4, each end section of bar 29 is branched or slotted near the break-joint 30, so as to form two bars 29'', which straddle the spring 37, thereby permitting the bar to be folded up, when not in use as a support, into the form shown in Fig. 2. This view shows one of the bars arranged for a foot-rest. The left-hand end of the bar is close to or against the side of the car and is supported by a fork 41, secured to the floor, while the end next the aisle is supported by a cup or socket 42, which prevents longitudinal movement of the foot-rest.

The spaces beneath the seat-cushions 16 form receptacles for the hammocks 32 or mattresses 39, or both, when the same are not in use.

Having now fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of three reversible chairs constructed as described hereinbefore, said chairs being secured in straight alignment, with the distances between their adjacent seat-cushions substantially equal to the heights of their respective back-cushions, the backs of the outer two chairs being in elevated position and the back-cushion of the intermediate chair lying between the seat-cushions of said outer chairs, back-posts forming the sides of said chair-backs, each back-post having two sockets in its upper end, two jointed braces having their downwardly-projecting ends inserted in the back-post socket of said outer two chairs respectively, cross-bars resting across the tops of the back-posts of said chairs, respectively, and a hammock having its ends secured to said cross-bars respectively, substantially as described.

2. In combination with the back-posts of two alternate chairs, a bracing-bar having downwardly-projecting ends adapted to be inserted in sockets in two of said back-posts, said bar being divided near one of its ends, an internally-threaded sleeve connecting the externally-threaded ends of the two sections of said bar, two depending pins secured to said bar near its respective ends, expansion-springs on said pins, a rod having eyes at its ends embracing said pins and supported by said springs, a companion bracing-bar supported by the two back-posts at the opposite sides of said chairs, a companion rod supported by springs from said companion bar, a series of transverse spring-slats having

their ends hooked downwardly for engaging said rods, and a sheet of flexible material to which said slats are secured; said bars acting as braces for the backs of said chairs and as
5 supports for said slats, substantially as described.

3. In combination with the back-posts of two alternate chairs, a pair of bracing-bars having downwardly-projecting ends adapted
10 to be inserted in sockets in the upper ends of said posts, two depending pins secured to each of said bars near the respective ends thereof, expansion-springs supported by the heads of said pins, a pair of mattress-supporting rods
15 below and parallel to said bracing-bars respectively and having terminal eyes embracing said pins and supported by said springs, and a mattress supported by said rods, said
20 mattress consisting of a series of transverse slats sewed between two sheets of flexible material, substantially as described.

4. An upper couch or cot, comprising, in combination with the back-posts of two adjacent chairs, said posts having sockets in their upper ends, the combination of a pair of bracing-bars having their ends inserted in the
25 sockets of said posts and extending between said chairs, a hammock having its ends secured to transverse rods lying against the ends of said bracing-bars, and a mattress
30 yieldingly supported by said bars, said mattress being formed of a series of transverse slats secured between two sheets of flexible material, substantially as described.

In testimony whereof we affix our signatures
35 in the presence of two witnesses.

HARRY C. ORR.
GEORGE MATHEWS.

Witnesses:

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