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J. B. KILBURN & A. N. McCONNELL.

CAR SEAT.

APPLICATION FILED FEB. 18, 1902.

Fig. 1.

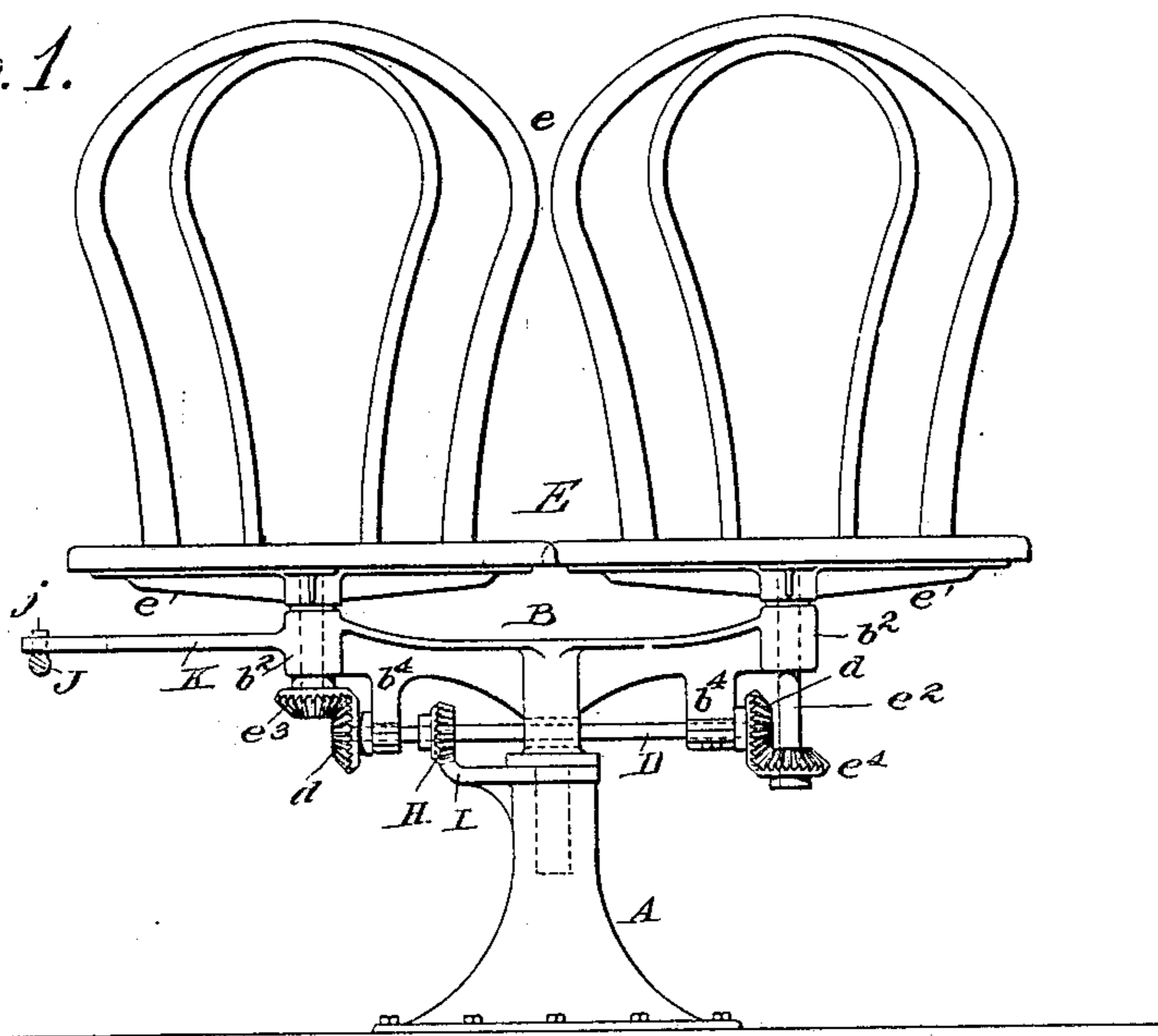
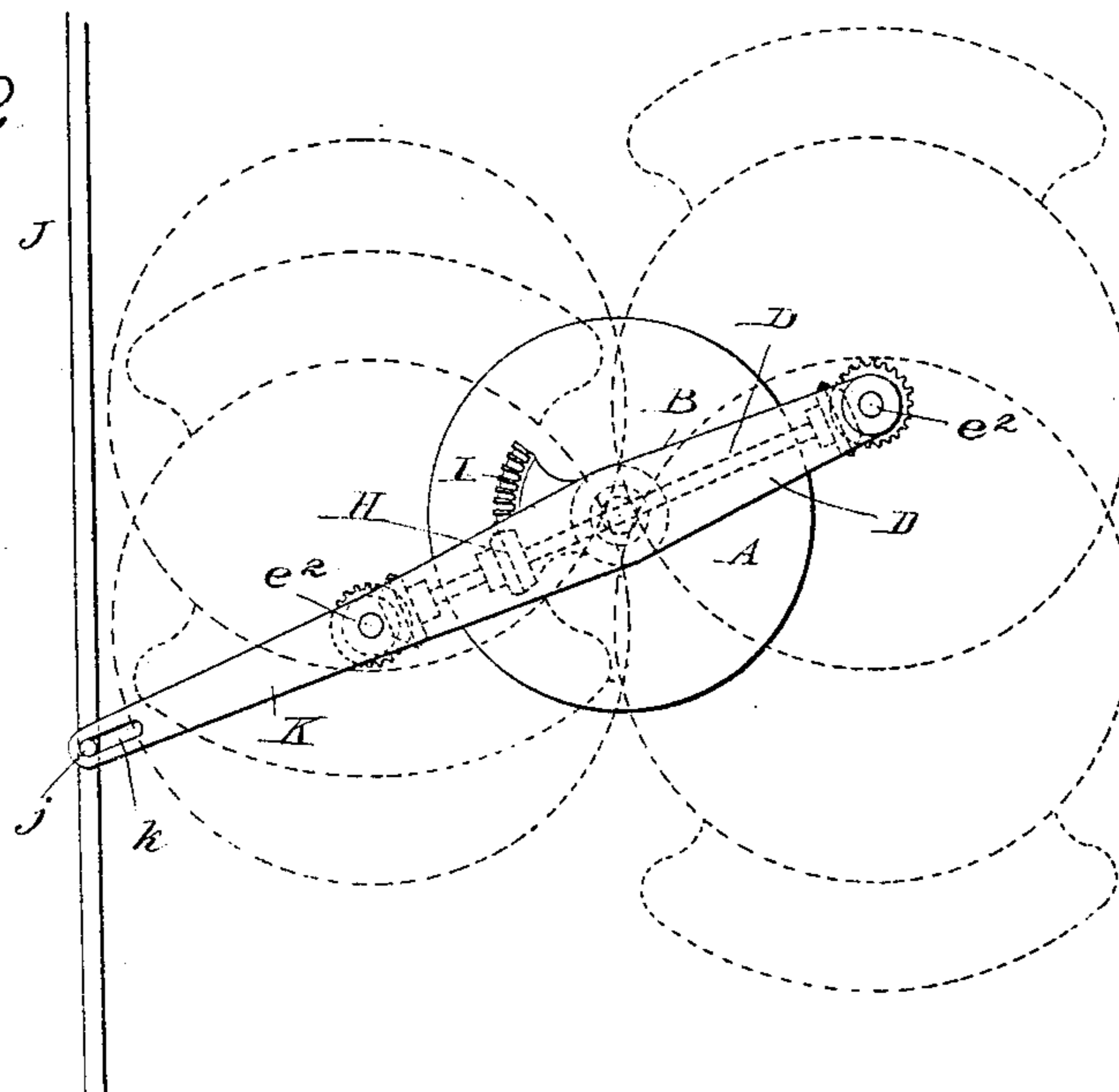


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## CAR-SEAT.

No. 825,736.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed February 18, 1902. Serial No. 94,606.

*To all whom it may concern:*

Be it known that we, JOHN B. KILBURN and ALBERT N. McCONNELL, citizens of the United States, residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Car-Seats, of which the following is a description.

Our invention pertains to the type known as "twin" seats, in which two chairs are mounted upon a suitable pedestal or other support and provided with means for effecting reversal or other change in the direction in which such chairs face.

The object of the invention is to provide a seat structure which shall consist of but few and simple parts possessing maximum strength and efficiency and meeting all essential requirements in operation.

Our invention relates particularly to the means employed for effecting the simultaneous reversal of the independently-mounted chairs or such other change as may be desired in the facing direction thereof. This has heretofore been accomplished to considerable extent by providing the spindles or pivots of the independently-mounted chairs with sprockets and connecting these by means of an endless chain provided with mechanism for taking up slack therein.

Our invention is directed to improving upon the prior construction so described, avoiding the use of numerous loose parts, which are noisy and unstable in operation, and which are subject to much destructive wear, and which need considerable attention from time to time in order that their usefulness may not be impaired. To accomplish these and other desirable ends, we employ independently-pivoted chairs mounted upon a suitable pedestal or support. Mounted, preferably, upon such supporting medium is a rotary shaft carried in suitable bearings. Each end of such shaft is provided with a bevel-gear so connected with a chair or an appurtenance thereof as to effect by the rotation of such shaft the movement of such chair. In practice the connection referred to consists, preferably, of a gear upon each of the chair-pivots of such pitch and so arranged as to coact with the gear upon the end of the rotary shaft. Thus the parts de-

scribed being in operative relation, the chairs so far as their movement is concerned are interdependent. Movement of one involves and, in fact, effects corresponding movement of the other. A twin-seat structure so constituted is exceedingly simple, yet strong and durable. The parts are few, may be readily assembled, and not being subject to excessive destructive wear need but little attention, if any, in operation.

Our invention also involves the employment of mechanism whereby the movement of the twin-seat structure as an entirety and the movement of the chairs forming part thereof shall be interdependent. For this purpose we employ a pedestal, pivoted chairs mounted upon a beam pivotally supported by such pedestal, a rotary shaft preferably carried by said beam, and gearing intermediate of said shaft and said chairs or an appurtenance of the latter whereby the movement of one chair shall effect similar movement of the other.

In order that by a single movement the structure may be moved to one or another of its several positions and in order that such movement shall include not only movement as an entirety, but also movement of each of the independently-mounted chairs, we provide mechanism intermediate of the pivoted beam and the pedestal whereby the movement of the former relatively to the latter shall effect the movement of each of the pivoted chairs. For this purpose we prefer to employ in connection with the rotary shaft hereinbefore referred to a gear carried by said shaft intermediate of its ends and coacting with a track formed integral with or secured to the supporting-pedestal. Obviously as the beam is moved relatively to the pedestal the shaft will be caused to rotate, and such rotation being transmitted through the gears carried by such shaft to the chairs will cause the reversal of such chairs, so that they shall face in any one of the several directions in which the structure is adapted to be utilized. This movement of the chair-supporting beam may be effected in any manner—as, for instance, by moving each beam of a series of chairs separately and by hand. We prefer, however, to operate them in multiple, a number of the twin-chair structures be-

ing connected together, so as to be operated simultaneously. In carrying out this feature of the invention we employ an oscillating rod or bar located, preferably, on or adjacent to the side of the car in which the seats are intended to be used, such rod being provided opposite each twin-seat structure with a stud which coacts with an elongated slot formed in the end of a connecting-bar, the other end of such bar being secured to or formed integral with one of the beams upon which a pair of chairs is mounted. Obviously movement of such rod in one direction will correspondingly shift the beam upon its pivot, and this movement of such beam may be employed to effect the reversal of the chairs. The same operation will take place upon the movement of the rod in the opposite direction. Such rod may be provided with locking means in order to make individual locking mechanism upon each of the twin-seat structures unnecessary, and in addition such rod may be actuated either manually or by elastic-fluid pressure. Such rod may be employed to connect and operate either the entire number of twin seats on one side of a railway-car or there may be a separate rod for any number of such seats less than the whole so arranged as that the reversal of one seat either by actuating the rod or by bodily moving a chair or chair-supporting beam shall cause the similar reversal of adjacent seat or seats.

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

Figure 1 is a front elevation of a twin-seat structure embodying our invention. Fig. 2 is a plan view thereof, the chairs being removed from their supporting mechanism and two positions of the seat being indicated in dotted lines.

Referring to the drawings, in which similar letters denote corresponding parts, the seat mechanism is here shown as mounted upon a pedestal A, pivotally mounted upon which is a beam B, adapted to swing in a horizontal plane upon said pivot. At each end the beam B is provided with a bearing  $b^2$ , comprising a vertical orifice of such diameter as to receive a chair-spindle, as hereinafter described. Said beam is also provided with suitable shaft-bearings  $b^4$ , in which are mounted a rotary shaft D, provided at each end with a bevel-gear  $d$ .

E E designate twin chairs having backs  $e$ . Said chairs are preferably mounted upon spiders  $e'$ , and secured to or formed integral with said spiders are spindles or pivots  $e^2$  of such diameter as to fit snugly within the bearings  $b^2$  in the ends of the beam B.

$e^3$   $e^4$  designate bevel-gears keyed or otherwise secured upon the spindles or pivots  $e^2$  of the chair-spiders. These are arranged in operative relation to the gears  $d$ , carried by the rotary shaft D. As will be seen, the gear  $e^3$

is located near the lower end of the chair-pivot  $e^2$ , close to the bearing  $b^2$ , and meshes therefore with the gear  $d$  at the upper portion thereof. The gear  $e^4$  is mounted lower upon its pivot  $e^2$  and meshes therefore with the lower portion of the gear  $d$  with which it coacts. Due to this arrangement the movement of the chairs E is necessarily in the same direction.

Mounted upon the shaft D intermediate of its ends is a gear H, preferably keyed to said shaft in such manner as that it may be released and slid longitudinally thereon. When in fixed operative position, the gear H meshes with a track I, here shown as formed integral with (although it may be secured to) the upper portion of the pedestal A. Said track may be in the form of a continuous circle, where the movement required necessitates such construction, or it may be in the form of an arc of a circle, as herein illustrated, where movement of less degree is required. As will readily be seen, the movement of the beam B upon its pivot (in this instance shown as extending into the pedestal A) will, through the coaction of the gear H and track I, cause the rotation of the shaft D. This in turn causes, through the gears which are secured to the ends thereof, the rotation of the gears which are secured to the pivots of the chairs. The movement of such chairs and the movement of such beam are therefore interdependent. Movement of one effects that of the other.

In the drawings we have also illustrated means employed for moving the chair structures in multiple. The utilization of this depends not upon the interdependence of the seat-supporting mechanism and the seats, for such means may be employed in a structure in which there is no movement of the supporting-beam relatively to the pedestal. As here shown, said means comprise an oscillating rod or bar J, which may be secured in suitable bearings (not shown) in the side of a car in which the seats are adapted to be placed. At intervals and opposite each seat structure such rod or bar is provided with a stud  $j$ , which operates in an elongated slot  $k$ , formed in one end of a connecting-rod K, the other end of said rod being secured to or formed integral with the beam B of the chair structure, (although it may be secured to the inner chair or an appurtenance thereof.)

Although we prefer to employ the slot-and-pin form of connection between the connecting-rod K and the oscillating rod or bar J, it is obvious that other means may be employed—as, for instance, collars secured upon said rod or bar J on either side of the end of the connecting-rod K. As said rod is oscillated to move the supporting-beam B into one or another of its positions the chairs (where the movement thereof is dependent upon movement of the beam) are caused to turn upon

their pivots, so as to face in the new direction. Said rod may connect all of the twin-chair structures upon one side of the car, or any number less than the whole, as hereinabove indicated.

We are aware that it has heretofore been proposed to pivotally mount two revoluble chairs upon a common support and to connect these for interdependent movement by an endless chain and sprockets. This construction, however, has been found very objectionable for a variety of reasons, among these being inherent weakness, the noise which accompanies the operation of the seats, and the inevitable stretching of the chain, making it necessary either to employ an additional device for taking up the slack or to constantly modify the length of the chain. A further objection is that the construction in question is expensive, both to install and to maintain, constant attention being required to keep the chain in order in view of the settling of dust thereon.

We do not desire to claim herein a car-seat having a pedestal, a beam pivoted thereon, the pivotal point being nearer to one end of said beam than the other, and chairs mounted pivotally or otherwise upon said beam, nor a car-seat having a pedestal, a beam pivoted thereon, the portion of said beam on one side of such pivot extending at an angle to that portion thereof on the other side of said pivot, and chairs mounted upon said beam.

What we do claim, however, and desire to secure by Letters Patent, is—

1. In a car-seat, the combination with a pedestal, of a beam pivoted thereon, revoluble chairs pivoted upon said beam, a rotary shaft, and gearing intermediate of said shaft said chairs and said pedestal, substantially as described.

2. In a car-seat, the combination with a pedestal, of a beam pivoted thereon, revoluble chairs mounted upon said beam and provided with pivots, gears carried by said pivots, a rotary shaft, and gears carried thereby and coacting with the gears on said pivots and with a rack on said pedestal, substantially as described.

3. In a car-seat, the combination with a pedestal, of two pivotally-mounted chairs, a rotary shaft, an operative connection between said shaft and said chairs, and an operative connection between said shaft and said pedestal, substantially as described.

4. In a car-seat, the combination with a pedestal, of two pivotally-mounted chairs, a rotary shaft, gearing intermediate of said shaft and said chairs, and an operative connection between said shaft and said pedestal, substantially as described.

5. In a car-seat, the combination with a pedestal, of two pivotally-mounted chairs, a rotary shaft, gearing intermediate of said shaft and said chairs, and gearing intermediate of said shaft and said pedestal, substantially as described.

6. In a car-seat, the combination with a pedestal, of two chairs mounted thereon and having pivots, gears carried by said pivots, a rotary shaft and gears carried thereby and coacting with the gears on said pivots, and an operative connection between said shaft and said pedestal, substantially as described.

7. In a car-seat, the combination with a pedestal, of two chairs mounted thereon and having pivots, gears carried by said pivots, a rotary shaft and gears carried thereby and coacting with the gears on said pivots, and another gear also carried by said shaft and coacting with a gear or track connected with said pedestal, substantially as described.

8. A series of reversible car-seats each having two independently-pivoted chairs, a movably-mounted beam constituting a common support for each pair of such chairs, an extension carried by each of said beams and an operating-rod connected to and coacting with a plurality of such extensions to reverse such pairs of seats in multiple, substantially as described.

This specification signed and witnessed this 11th day of February, 1902.

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