(Model.)

2 Sheets—Sheet 1.

H. S. HALE.

SEAT.

No. 256,676. Patented Apr. 18, 1882.

Fig. 1.

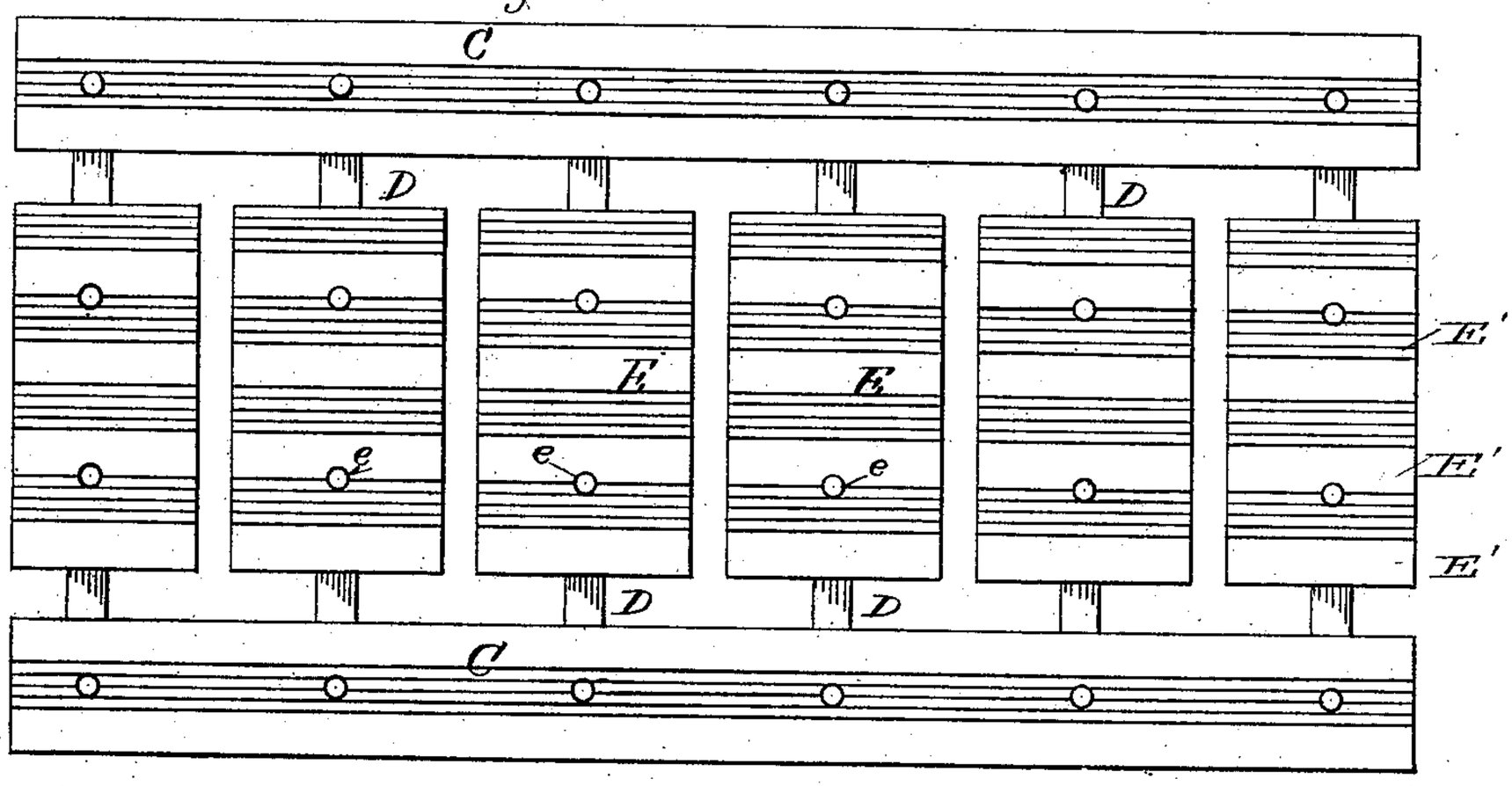


Fig. 2.

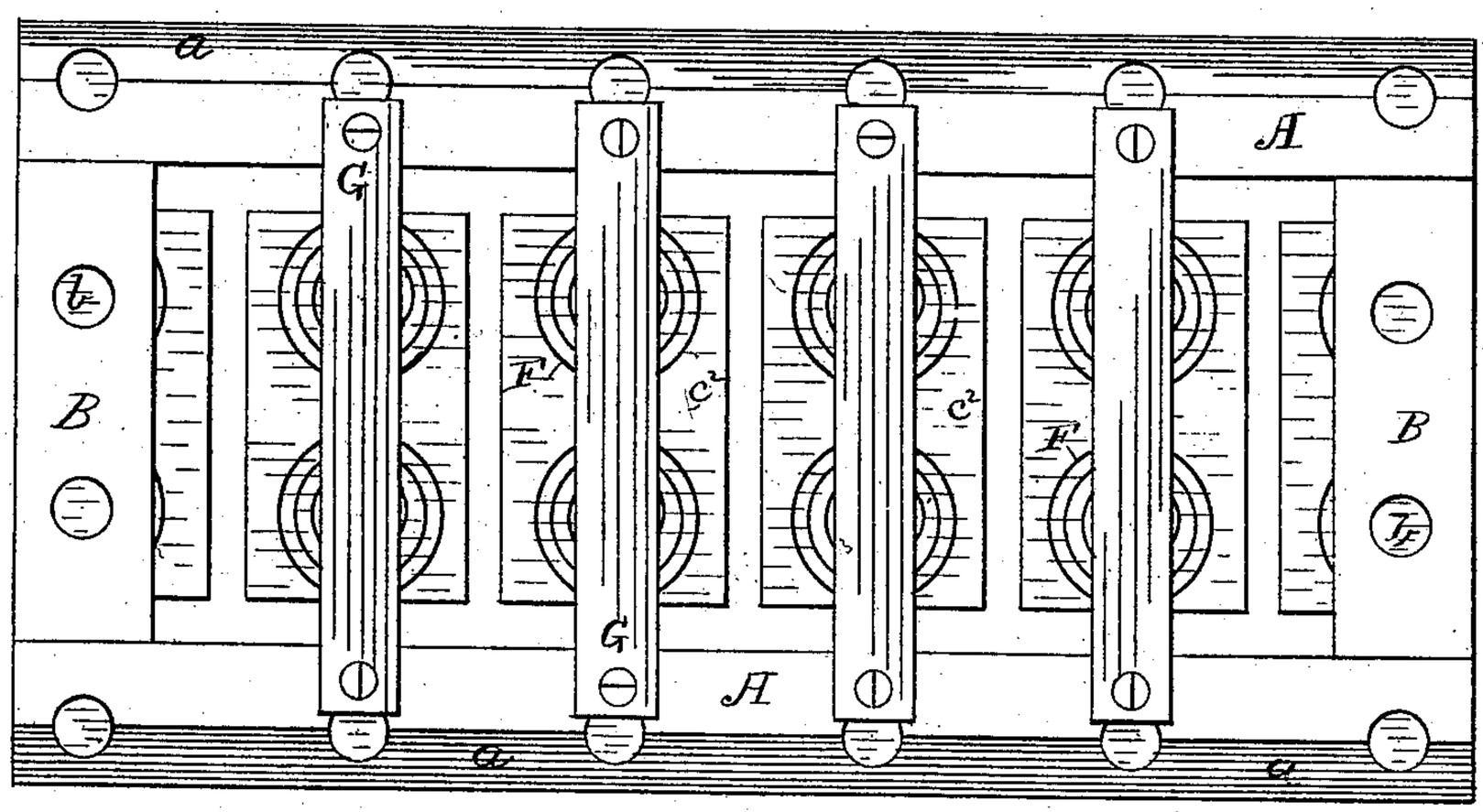


Fig. 3.

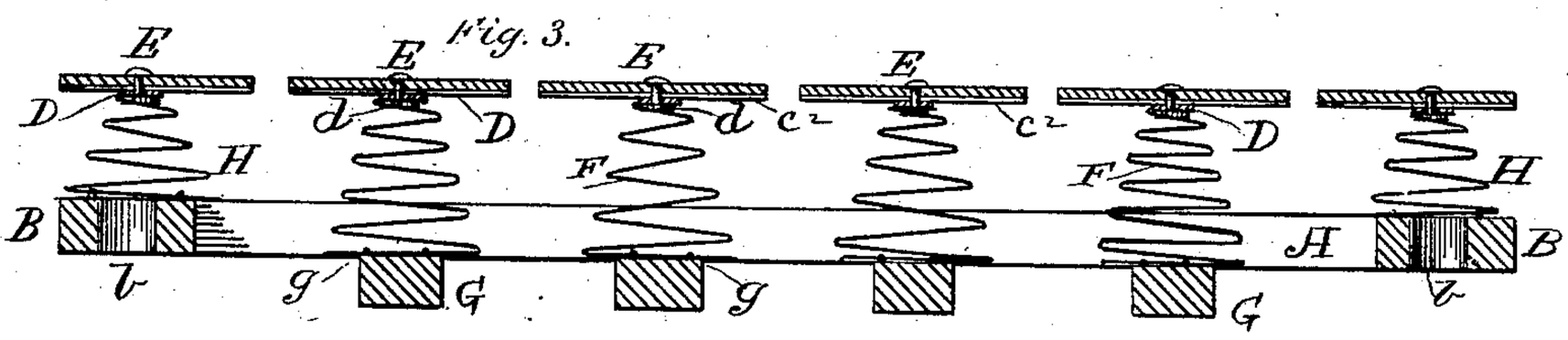
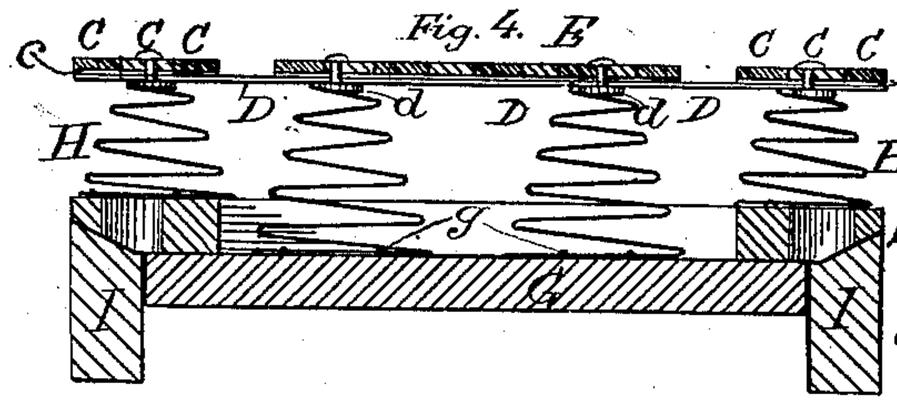


Fig. 4.



Attest:
J. C. Turner
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attys

(Model.)

2 Sheets—Sheet 2.

H. S. HALE.

SEAT.

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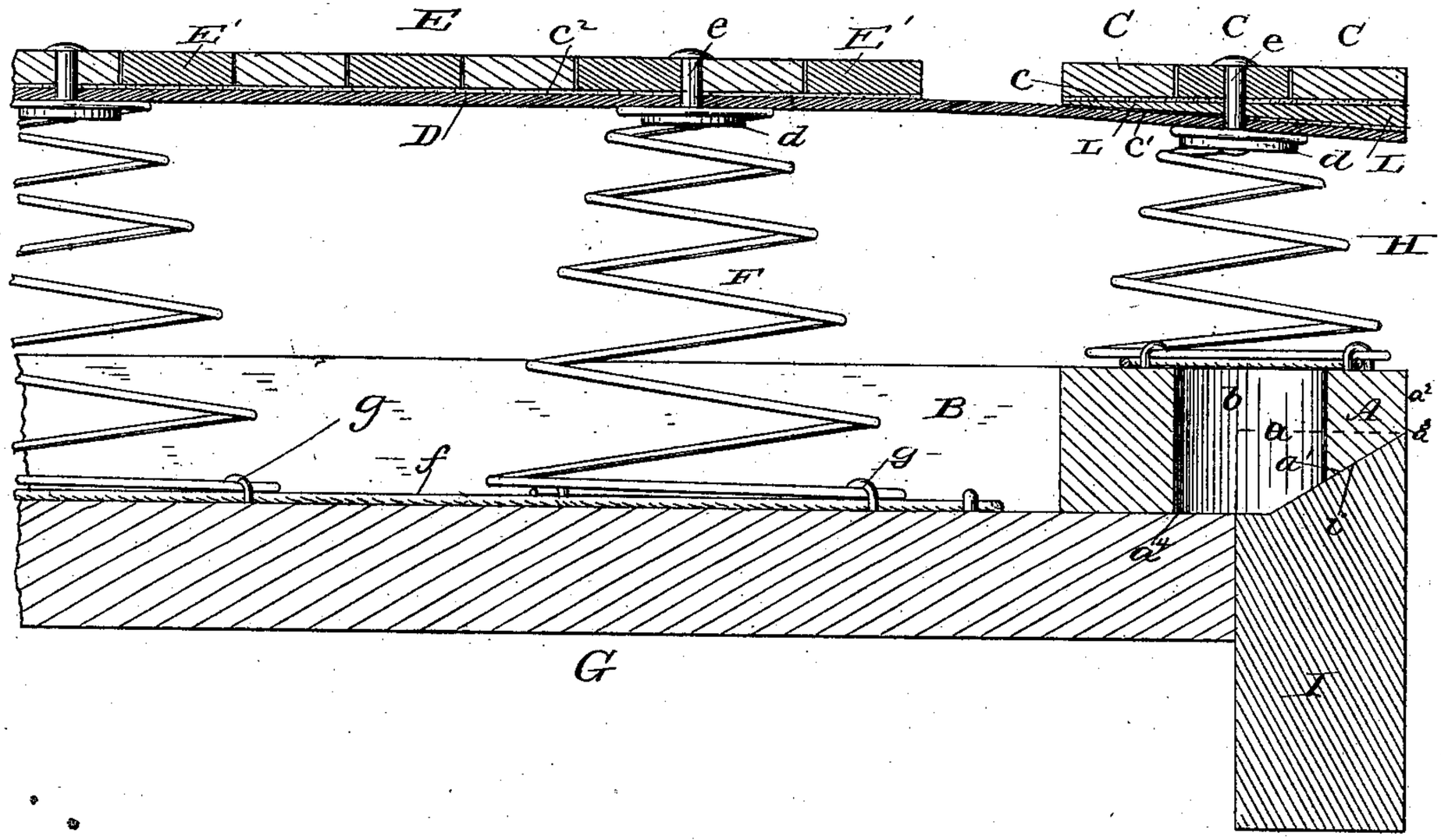
Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY S. HALE, OF PHILADELPHIA, PENNSYLVANIA.

SEAT.

SPECIFICATION forming part of Letters Patent No. 256,676, dated April 18, 1882.

Application filed January 3, 1882. (Model.)

To all whom it may concern:

Be it known that I, HENRY S. HALE, a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Seats; and I do hereby 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 part of this specification.

Figure 1 is a top or plan view. Fig. 2 is a bottom view. Fig. 3 is a longitudinal section, and Fig. 4 is a transverse section. Fig. 5 shows a portion of Fig. 4 on an enlarged scale.

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

A A are the side pieces, and B B the end pieces, of the rectangular main frame which constitutes the lower part of the seat, and is adapted to rest upon a supporting frame-work. The side pieces, A, are beveled upon their under surfaces for a purpose which will soon be explained; or, when preferred, they may be rabbeted, as indicated in dotted lines *a*, Fig. 5. These pieces A B are also provided with holes or openings *b*, the purpose of which will also be explained.

H H are springs arranged in rows upon the side pieces, A A, and the end pieces, B B, of the main frame.

F F are longer springs, situated between the side pieces and the end pieces of the frame. They are attached to the upper sides of cross-bars G G, which are detachably secured to the under side of the side pieces, A A. The tops of the springs F F lie in substantially the same plane as do the tops of the springs H H, the springs together forming several parallel series extending across the seat. The springs of each of these series are joined together at the top by a flexible metallic band, D, extending at each ends to points a little beyond the springs.

C C are flexible bars or strips of wood or metal. Of these two or more are arranged along each side of the seat, above the row of shorter springs H upon that side. They are connected together by means of a flexible band of fabric, *c*, preferably woven, to which they are united by suitable adhesive materials. Between the strip of fabric *c* and the ends of the flexible metallic bands D D are interposed short pieces, blocks, or strips of wood, L L, to the under sides of which are attached small pieces of fabric, as shown at *c' c'*, these blocks or strips serving as a building-up material for the edge of the seat.

e e are rivets passing through the outer ends of the flexible metallic bands D, the pieces L L, the fabric *c*, and one of the longitudinal wooden strips C C.

d d are washers whereby the upper ends of the springs H H are attached to the rivets *e e* and joined to the parts last enumerated.

It will be seen that as the rivets *e e* pass through but one of the flexible strips of wood C C, while the others are held together by the ends of the flexible metallic bands D and by the fabric *c*, said strips form a flexible side piece at the edge of the seat.

Between the supports formed by the strips C C and by the flexible bands *c* on the opposite sides of the seat there are arranged intermediate sections, E E, formed of short strips E' E' of wood. These strips are preferably arranged in contact, so as to form a substantially continuous wearing-surface. Each series of them is supported upon a single metallic band, D, and a single series of springs being arranged transversely to said band and spring series. These short strips E' are secured to a base of fabric, c^2, preferably woven, by an adhesive material. The intermediate longer springs, F F, are secured to this wooden wearing-surface by means of rivets passing through washers *d' d'*, the bands D, the fabric c^2, and the wooden strips E'.

The heads of the rivets are by preference countersunk into the strips, so as to be substantially level with the upper faces thereof.

In riveting the springs H H the tool or set is inserted in the holes *b*, as will be readily understood without further explanation; but in riveting the springs F F to the intermediate portions, E E, the cross-bars are turned into positions substantially at right angles to that shown in the drawings, when the upsetting-tool can be thrust in between the convolutions of which the springs are formed.

I I, Fig. 4, represent the front and rear rails

of an ordinary railway-car seat, to which my improved seat can be readily applied.

One of the advantages derived from the use of my invention is this: The strips C C, extending as they do substantially the entire length of the seat at its outer edges or sides, form flexible yielding supports for the upper outer edges of the upholstery, and are therefore much more comfortable than are the rigid side pieces usually employed, while at the same time, owing to their width in horizontal cross-section, they support the tension of the plush and canvas or other fabric or fabrics with which the seat is cushioned. Another advantage is this: The central part of the seat is formed of separate intermediate portions, E, each of which is mounted upon springs independently of the adjacent section, and is therefore practically independent, so far as upward and downward movement is concerned, of the adjacent section or sections. Therefore when this seat is used for railway-cars each end is practically independent of the other, so that if one end be occupied by a comparatively heavy passenger the other end will not be depressed thereby materially. Therefore the seat will not be inclined. Another advantage due to my construction is this: The intermediate sections, yielding independently of the longitudinal supporting side strips, C C, which are also mounted on springs, form in connection therewith a more comfortable seat than can be produced by the combination of yielding intermediate sections with rigid side supporting-strips or by the combination of a series of supporting-springs of substantially similar character, or a combination of intermediate supporting-springs with a rod or small bar arranged at the front edge of the cushion, the use of this latter feature being rendered undesirable also by reason of its not being adapted to resist the lateral tension of the fabric used in upholstering. An advantage growing out of the use of the separate bars G is the facility with which one or more springs can be replaced when desired, and also the convenience with which the upholstery can be tufted by passing a needle between said bars. Another advantage which is derived from the use of the thin flexible strips connected by a yielding fabric is the small amount of hair which is required for making a comfortable and desirable cushion. The outer lower portion of the side piece, A, is beveled to form an inclined face, a'. This leaves a short outer face, a^2, the lower edge, a^3, of which is considerably above the lower face or bottom a^4 of the side piece. The supporting-bar I, which supports the seat-frame, is formed with a correspondingly beveled or inclined upper face, *i*.

It will also be seen that by beveling the under side of one or both of the side pieces, and by beveling one or both of the supporting-rails I I to correspond, I am enabled to make a wider seat with the same width of plush than would be possible if the whole thickness of the side piece were exposed, which is many times very desirable from the fact that the plush or other material which is ordinarily employed for covering such cushions is of uniform width, and it will be seen that by beveling or rabbeting the engaging-surfaces I avoid the necessity for extending the plush down to the lower edge or edges of the side pieces. The edge of the plush, which is secured to the upwardly-inclined face a^2, is concealed behind the inclined part of the rail I.

In case a seat constructed in this manner is so arranged that one edge abuts against a permanent wall or partition, it can be made reversible by thus beveling, even though its width be such that the plush is not wide enough to extend down to the lower edge of both side pieces, it being obvious that if they were not thus beveled and the material was of such width that it would only reach from the bottom of one side piece over the top of the cushion and far enough down upon the other side piece to be securely fastened a seat thus made could not be reversed.

Connecting the intermediate portions with the side supporting-strips upon both sides of the seat by means of the flat strap, which constitutes a flexible tie, supports the springs on which the intermediate sections are mounted against lateral deflection, as will be readily understood without further explanation.

I am aware that car-seats have been made with a rectangular supporting-frame substantially like mine, except that the edges were not beveled, and that, instead of having separate bars to support the springs which are arranged within the frame, in such prior construction the entire opening was closed by being covered with a board or plate the edges of which were coincident with the outer edges of the frame, it being apparent that in such earlier seat the plush must extend to the lower edges of these boards.

I am aware that car-seats have heretofore been made with metal frames having horizontal flanges to rest upon the tops of the side rails of the seat-support and vertical faces which fit behind the said rails of the seat-support, and have also transverse strips which support the central springs, the flanges and strips made in one and the same piece, and I do not claim such construction as my invention; but my seat-frame is essentially different from such prior constructions. In the first place, each of my cross-bars is separately removable, and, secondly, my side rails, being made of wood, afford a convenient support for the ends of the cross-bars and a convenient support for the plush or other cushion covering to be attached to at a higher plane than the face to which the cross-bars are attached; and, thirdly, by making my side rails much wider than the front and rear rails of the car-seat I am enabled to provide a suitable point of attachment for the cross-rails, and I leave room for the holes *b*, while at the same time the ends of the cross-

rails may be made to serve as stops to effectually prevent displacement of the seat and yet enable me to use plush of the width which is almost uniformly manufactured, and at the same time construct my seat of the desired width without piecing said fabric.

I do not claim in this application any inventions except those specifically set forth in the claims hereof, preferring to claim all other patentable features in another application which I have filed.

What I claim is—

1. A seat having upon one side a support composed of two or more elastic strips, C C, connected together by a flexible fibrous fabric, the springs H H beneath said strips and fabric, and the metallic bands or strips D D, situated transversely to the strips C C and between said strips and the springs H H, substantially as set forth.

2. A seat having upon one side a support composed of two or more elastic strips, C C, a flexible fibrous fabric secured to the under side of said strips, the springs H H below the strips, the intermediate metallic plates or bands, D D, and the blocks or building-up pieces L L between the strips C C and the plates or bands D D, substantially as set forth.

3. In a seat, the combination, with the main frame, of several series of springs, flexible metallic bands D D across the tops of the springs, independent seat-sections E E, each supported separately upon a single transverse series of springs and constructed of a series of wooden slats, E′, situated transversely to the band D below it, and a flexible fibrous fabric, c^2, between said metal band and the series of slats E′, the metallic band D, extending beyond the fabric c^2, and devices which connect together the outer ends of the metal bands D, substantially as set forth.

4. In a seat having a main frame, the combination of several transverse series of springs, flexible metallic bands D, each arranged across the top of a series of springs, wooden strips C, connected rigidly to the metallic bands D at the ends and extending the full length of the seat, and intermediate seat-sections, E E, each of which is supported upon a single series of springs, and is constructed of a flexible fibrous fabric, and a series of wooden slats attached to said fabric and situated transversely to the series of springs, substantially as set forth.

5. In a seat having a main frame, the combination of several series of transverse springs, flexible strips C, connecting together the end springs of the several series, the flexible metallic bands D, arranged across the tops of the springs of the several series, and intermediate seat-sections, E E, each supported upon a single series of springs and constructed of strips E′, situated transversely to the series of springs and of a length greater than the width of the flexible metal band D by which they are supported, substantially as set forth.

6. In a seat having a main frame, the combination of the cross-bars G G, secured to the under side of the main frame, springs H H, supported upon the side pieces and the end pieces of the main frame, the intermediate springs, F F, arranged to form, in conjunction with the springs H H, several transverse series, strips C C, arranged along the sides of the seat and extending from end to end, the flexible metallic bands D D, arranged across the tops of the series of springs, and the intermediate seat-sections, E E, each supported above a single series of springs, F F, independently of the other sections and of the side strips, C, substantially as set forth.

7. In a seat, a series of springs arranged along the edge of the seat, a series of two or more flexible strips, C C, arranged above said series of springs in close proximity to each other, seat-sections arranged behind said edge strips, and the metal bands D D, connecting the flexible edge strips and the rear seat-sections, said rear sections being supported upon the frame of said seat independently of the edge strips, substantially as set forth.

8. In a seat, a series of springs arranged along the edge of the seat, springs arranged in several series transversely across the top, flexible strips C C, extending across the tops of the edge series, a flexible fibrous fabric, c, which secures together the edge strips, C C, the metal bands D D, extending transversely to the strips C C across the seat, and the independent seat-sections E E, each arranged above and transversely to the metal band D and each supported upon a single transverse series of springs, substantially as set forth.

9. A seat having a wooden side piece, A, beveled at its outer lower portion, as at a', in combination with a series of removable transverse cross-bars, G, and attached to said side piece in rear of the front supporting-rail, I, substantially as set forth.

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

HENRY S. HALE.

Witnesses:

CHAS. H. OTTERSON,

E. R. BOWLBY.