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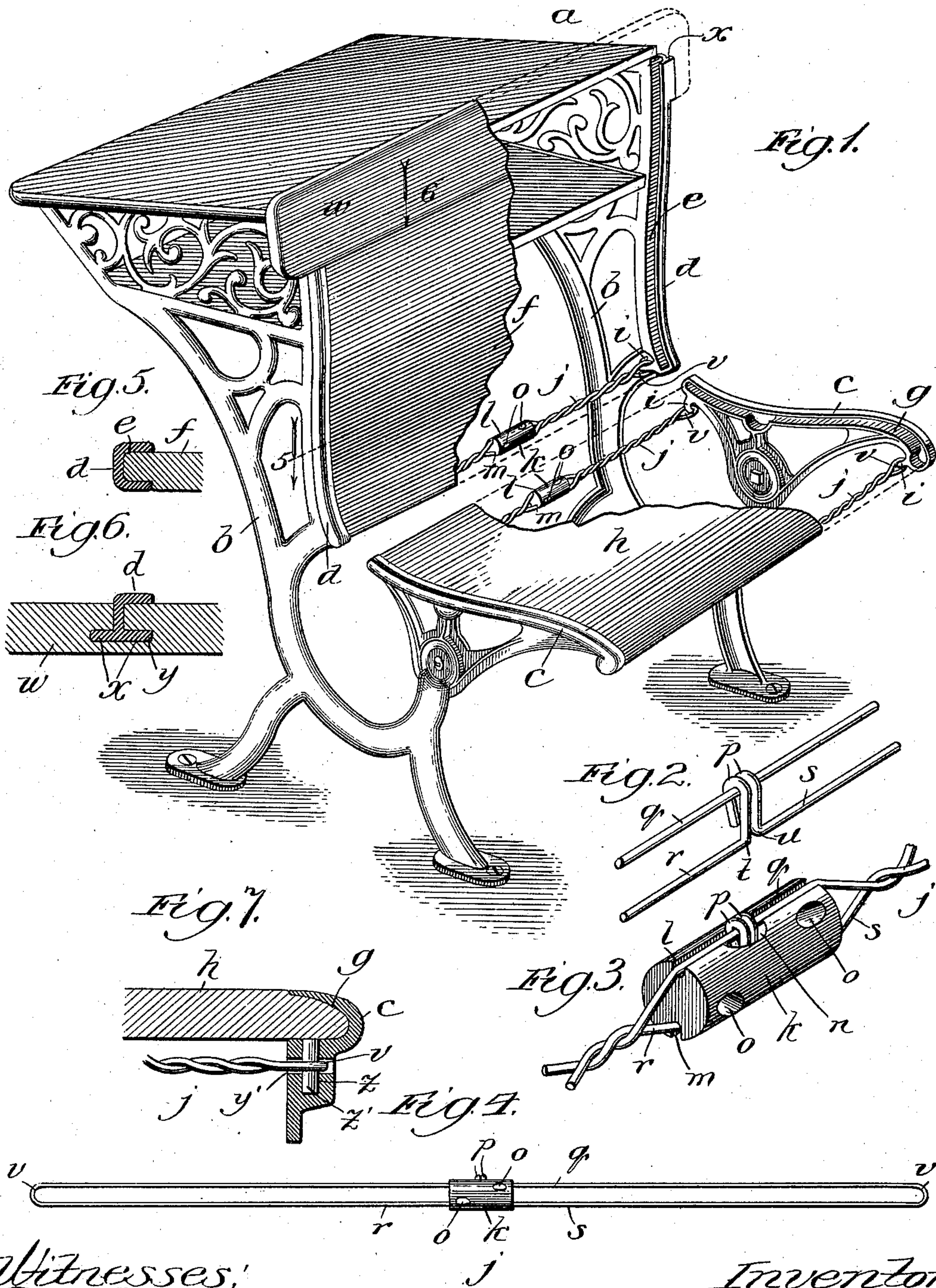
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D. E. VANVACTOR.

DEVICE FOR SECURING FURNITURE JOINTS IN POSITION.

APPLICATION FILED MAY 8, 1903.

NO MODEL.



Witnesses,

East Gaylord.
Geo. C. Dawson.

Inventor:

David E. Vannactor

By David H. Fletcher.

Atty—

UNITED STATES PATENT OFFICE.

DAVID E. VANVACTOR, OF ARGOS, INDIANA.

DEVICE FOR SECURING FURNITURE-JOINTS IN POSITION.

SPECIFICATION forming part of Letters Patent No. 756,997, dated April 12, 1904.

Application filed May 8, 1903. Serial No. 156,205. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. VANVACTOR, of Argos, in the county of Marshall and State of Indiana, have invented certain new and useful Improved Devices for Securing Furniture-Joints in Position, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which
 10 similar letters of reference in the different figures indicate like parts.

The object of my invention is to provide cheap, efficient, and simple means for connecting together and permanently securing
 15 the joints of various kinds of furniture and other articles, and particularly those of school seats and desks, opera-chairs, and other analogous structures, in which the end or marginal joints of wood seats, backs, or panels are
 20 connected with metal supports or frames without the use of screws, bolts, glue, or nails, all of which is hereinafter more particularly described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a school desk and seat embodying the features of my invention. Fig. 2 is a perspective view in detail of a portion of the tie or wire fastening, showing the manner in which the
 30 ends of the wire are connected with the main body, the interposed auxiliary member being removed in order to show the relation of the parts of the wire. Fig. 3 is a like perspective view showing said auxiliary member as it
 35 would appear when in place with the wires twisted. Fig. 4 is a view of said connecting-wire and auxiliary member as manufactured and ready to apply to the joint connection. Fig. 5 is a sectional view in detail, taken upon
 40 the line 5, Fig. 1, viewed in the direction of the arrow there shown. Fig. 6 is a like view taken upon the line 6, Fig. 1; and Fig. 7 is a sectional view of a portion of an end frame and seat, showing a modified means of connecting the end of the wire with the seat-frame.

Referring to the drawings, *a* represents a school-desk, of which *b* constitutes the main supporting-frame and *c* the usual seat-brack-

ets. The upright portions *d* of the main frame, 50 which support the back, are provided with grooves *e* upon their inner faces for the reception of the ends of a panel or back board *f*, while the members *c c* are likewise grooved upon their inner opposing faces, as shown at 55 *g*, for the reception of the ends of a seat-board *h*. At the bottom and in the rear of each of the members *c d* are formed hooks or lugs *i*, which are adapted to engage the loops at the ends of a wire connecting device or tie, (generally designated by *j*.) The main portion of said tie is formed from a single wire bent from opposite directions upon itself, so that the ends are brought back together, preferably at or near the middle of the body portion, 65 thereby bringing the doubled portions of the wire in parallel lines with loops at each end, like a long chain-link, the ends and the body of the wire being connected and secured at the middle to a specially-designed auxiliary member or turnbuckle *k*. The details of construction of said device may be more readily understood by a description of its method of construction. The straight wires are first cut to the proper length, and for each wire a turnbuckle 75 *k* is provided, having longitudinal grooves *l m* formed upon diametrically opposite sides thereof, as more clearly shown in Fig. 3, the depth of which corresponds substantially to the diameter of the wire, a diametrical bore *n* 80 midway between the ends and in the plane of said grooves, and preferably a plurality of diametrical bores *o o*, the planes of the axes of which are at an angle to each other. The ends of the wire are brought together and 85 both inserted through the bore *n*, when the loops *p p* are formed upon said ends and bent over the middle portion or body (marked *q*) of the wire. Said part *q* is then placed in the groove *l*, with the loop portions *r s* drawing 90 upon it, when said loop portions are bent in opposite directions and substantially at right angles to the planes of said loops *p*, as clearly shown at *t u*, Fig. 2. As said bends are made over the edge of the bore *n*, a portion of each 95 of the parts *r s* of said wire is caused to lie in the groove *m*. The wire is then straightened by any suitable means, so as to cause the parts

r s to be parallel with the part g , thereby forming loops v v at the respective ends of the link, as shown in Fig. 4. The device as thus constructed forms an article of manufacture adapted to be made up in quantities to be applied to any use to which it may be adapted—such, for example, as the bracing and locking together of parts of chairs, crates, step-ladders, and the like, but more especially to the fastening together of the seats or other parts of school-desks like or similar to that herein described.

The manner of application of said device is clearly shown in Fig. 1 of the drawings. For example, the ends of the back-board f are inserted within the grooves e , when the loops v v of the link j are connected with the hooks i i upon the members d d , when a rod or nail may be inserted in one of the bores of the turnbuckle h and the latter rotated, thereby twisting the parallel portions of the wire, as shown, and drawing the loops v v toward each other until the proper tension is attained. The wire employed in the loop is preferably slightly tempered or what is known as "hard-drawn" and sufficiently stiff to retain its twist under strong tension. The seat-board h may be secured in position in the grooves g in like manner by connecting the hooks i upon the seat-brackets by means of the ties j and then twisting them, as shown.

Inasmuch as the wire ties may be placed beneath the seat and behind the back-piece f , it follows that the joints of the desk may be strongly and permanently connected, while presenting a neat and attractive appearance.

While it is obvious that another tie might be used to connect the upper portion of the frame of the desk portion, I prefer to connect the parts together in another way by means of a finishing-piece w , which is adapted to form the upper part of the seat-back. Said piece is made longer than the distance between the outer faces of the supports d and project beyond them at each end, as shown. Upon the upper portion of the supports d are laterally-projecting T-shaped flanges x , Figs. 1 and 6, adapted to fit into counterpart vertical grooves y , which are extended upwardly from the lower edges of the part w . This construction serves to retain the part w firmly in place, constitutes a tie for the upper ends of the parts d d , forms an attractive finish without the application of screws or bolts, and is capable of being accurately and rapidly assembled by operatives of little skill.

In Fig. 7 I have shown a modification which enables the hooks i to be dispensed with. A horizontal slot y' is formed in the end of the seat-bracket c , and also a vertical bore z , intersecting said slot. The loop v of the link is then passed through the slot and a pin z' dropped into the bore z through the loop. Before twisting the turnbuckle the end of the

seat-piece h is placed in the groove g , when the wire is twisted, so as to cause the loops to draw upon the pins, and thus secure the seat-board in place.

It is obvious that other means than that described may be utilized for rotating said turnbuckle. It is also obvious that the construction of said fastening tie or link may be modified or changed in details without departing from the principle involved, and hence I do not wish to be confined to the exact construction shown.

Having thus described my invention, I claim—

1. A fastening tie or link of the class described, consisting of a wire doubled upon itself to form end loops with the ends of the wire located between said loops and a connecting member for securing said ends in position while holding the strands of the wire apart to enable them to be twisted upon each other by the rotation of said connecting member.

2. As an improved article of manufacture, a fastening-tie for securing furniture-joints together by tension, comprising a wire doubled upon itself to form end loops, the ends of the wire being located between said loops, in combination with a turnbuckle for connecting the ends of said wire with the body portion opposite to said ends.

3. A fastening-tie of the class described, comprising a wire doubled back upon itself to form end loops, the ends of the wire being bent and interlocked with the body portion at a point between said loops, in combination with a turnbuckle connected with said ends and interposed between the two strands of the tie.

4. A fastening device of the class described, comprising a wire doubled back upon itself from opposite directions to form end loops, a connecting member having a bore there-through from side to side with longitudinal grooves upon opposite sides in the plane of the axis of said bore, the ends of said wire being passed through said bore and locked to the body of the wire upon the opposite side, the strands of the wire lying respectively in said opposite grooves.

5. A fastening-tie of the class described, comprising a wire doubled back from opposite directions upon itself to form end loops, a connecting member having a bore therethrough from side to side with opposite longitudinal grooves located in the plane of the axis of said bore, the ends of said wire being passed through said bore, bent over the body of the wire upon the opposite side and thence back into said bore, the parallel strands of the wire lying respectively in said opposite grooves, and means upon said connecting member for receiving an operating-tool.

6. The combination with a structure, comprising a frame and intervening members having end-joint connections therewith, of a tie

in operative connection with opposite members of said frame, said tie comprising a wire doubled back from opposite directions upon itself to form end loops for connection with the opposing members of said frame, the ends of the wire being bent and interlocked with the body portion between said loops, and a turnbuckle connected with said wire ends, said turnbuckle being interposed between the two strands of said wire.

7. The combination with a structure comprising a frame and intervening members having end-joint connections therewith, of a tie in operative connection with opposite members of said frame, said tie comprising a wire doubled back from opposite directions upon itself to form end loops for connection with the opposing members of said frame, the ends of the wire being bent and interlocked with the body portion between said loops, and a turnbuckle connected with said wire ends, said turnbuckle being interposed between the two strands of said wire, said strands being twisted thereby to draw upon the opposite members of said frame.

8. The combination in an article of furniture, of a frame having grooves for the reception of the ends of a jointed connecting member such as a seat-board, a jointed connecting member having end joints fitted to project into said grooves, a connecting-tie comprising a wire doubled back upon itself from opposite directions to form end loops, the ends of the wire being bent and interlocked with the body

portion at a point between said loops, a turnbuckle connected with said wire ends, said turnbuckle being interposed between the two strands of said wire, and means for connecting the loops of said tie to the opposite members of said frame.

9. A seat of the class described consisting of frame members for the seat and back respectively grooved upon their inner faces, connecting seat and back members having end joints fitted within said grooves and ties for connecting the frame members consisting of twisted wires having their ends connected by means of intervening turnbuckles secured thereto.

10. A seat of the class described having a back-frame, the members of which are provided with grooves upon their inner faces, T-shaped flanges at the top, a back-panel having its ends fitted within said grooves, a twisted-wire tie for connecting said frame members at the lower part of and behind said back-panel and a top piece having grooves formed therein adapted to receive said T-shaped flanges, thereby forming a finish for the top of said back-panel and a tie for the upper ends of said frame members.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 5th day of May, 1903.

DAVID E. VANVACTOR.

Witnesses:

J. L. DOGGETT,
M. L. BREWER.