Aug. 25, 1970 E. M. KNABUSCH ET AL 3,525,549

DETACHABLE CHAIR BACK

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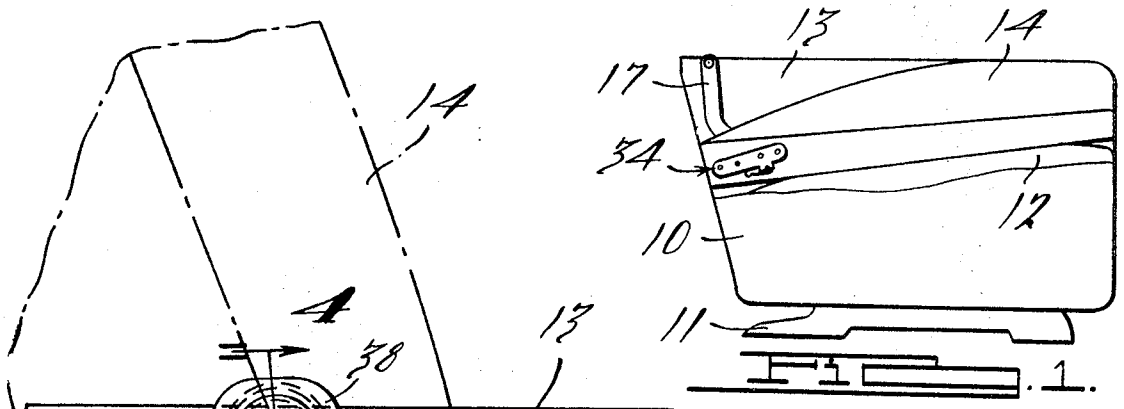

FIG. 1.

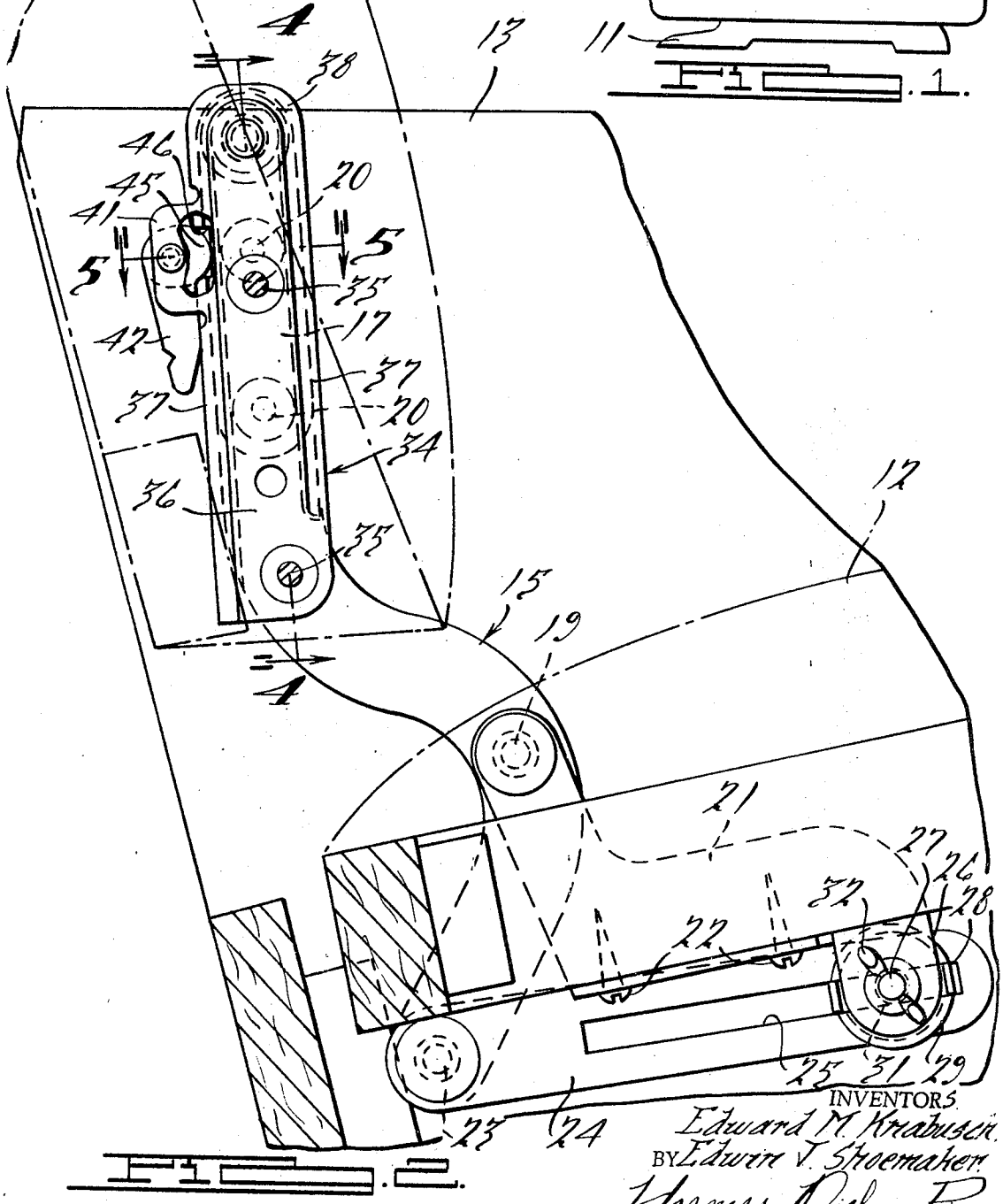

FIG. 2.

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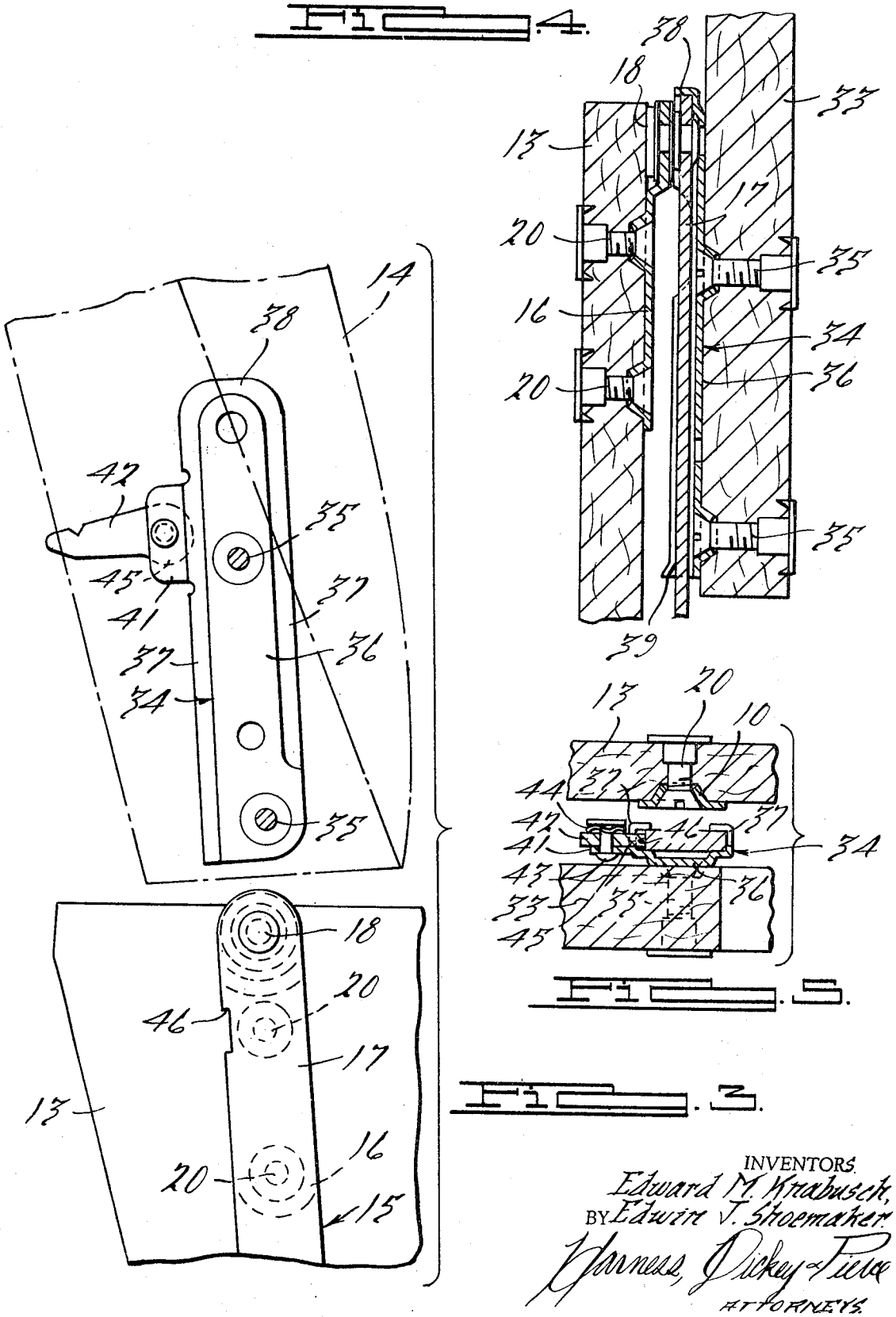
FIG. 4.



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DETACHABLE CHAIR BACK

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U.S. Cl. 297—460 8 Claims

ABSTRACT OF THE DISCLOSURE

A chair back has a slide bracket at each side which is insertable over an upstanding end of links at opposite sides of the chair when moved downwardly thereover to secure the back in predetermined relation to the chair seat. A locking element is provided on each bracket which secures the brackets to the link ends in firm locked relation thereto.

BACKGROUND OF THE INVENTION

There is no known art which discloses the particular chair construction and it is believed that the particular structure for providing a removable back is broadly new.

SUMMARY OF THE INVENTION

Many of the chairs manufactured today have a high back and particularly those of the reclining type. The shipment cost of the chairs is exceedingly high because of the area occupied when the back is retained in fixed relation to the seat. The present invention permits the back to be separated from the seat so that it can rest on the seat during shipment and thereby substantially reduce the area occupied and the shipping cost. The chair back has a slide bracket on each side edge composed of a web and an inwardly presenting channel section at the sides and top. Apertures in the web receive securing elements by which the brackets are secured on the back. A locking arm is pivoted to each bracket which draws them into secured fixed relation to upwardly extending links on the chair which receives the brackets when moved downwardly thereover. The locking arms secure the brackets and links against separation and retain them in firm fixed relation against any movement when in use. By releasing the locking arms the back may be removed and placed upon the seat to substantially reduce the space occupied by the chair in storage and when transported.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of a chair with the back removed and resting upon the seat;

FIG. 2 is an enlarged broken view of the chair, seat and back when in joined relationship;

FIG. 3 is a broken view of the structure illustrated in FIG. 2 with the back separated from the seat;

FIG. 4 is a sectional view of the structure illustrated in FIG. 2, taken on the line 4—4 thereof, and

FIG. 5 is a broken sectional view of the structure illustrated in FIG. 2, taken on the line 5—5 thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A chair **10** is supported on a base **11** having a cushion **12** and a pair of spaced arms **13**. A back **14**, as illustrated in FIG. 1, rests upon the cushion **12** between the arms **13** in knocked-down relation for storing and shipping. In the example illustrated, the seat **12** will be urged forwardly when the back **14** is tilted backwardly, but it is to be understood that the back may be separated from the seat when the seat is in fixed relation to the chair frame. In the present arrangement, an S-shaped link **15** is secured to the inner face of the arms **13** by a link **16**

which is attached thereby by securing elements **20**. Upstanding ends **17** of the links **15** are pivotally secured to the top end of the links **16** by rivets **18**. The curved portion of the links **15** is connected by a pivot **19** to a bracket **21** secured at opposite sides of the seat by screws **22**.

The lower end of the links **15** is secured by a pivot **23** to a laminated link **24** which has a slot **25** therein. The bracket **21** has an extending end **26** containing an aperture through which a bolt **27** extends. The bolt has a washer thereon containing a pair of fingers **28** which extends within the slot **25** with washers **29** of plastic or like material disposed between the laminations and the outer faces of the link **24**. A spring **31** and a thumb nut **32** is applied to the threaded end of the bolt **27** so that a pressure can be applied between the extending end **26** and the laminations of the link **24** for regulating the amount of force required to move the back to different positions and for retaining it therein.

The opposite sides of a frame **33** of the back **14** has a slide bracket **34** secured thereto by screws **35** in the conventional manner. The slide bracket has a web portion **36** and inwardly presenting channel sections **37** at the sides and a section **38** at the top of arcuate shape following the arcuate shape of the top of the upstanding link ends **17**. The bottom of the side channel section may be flared outwardly at **39** to readily receive the upstanding ends **17** of the links **15**. With this arrangement the slide brackets at each side of the back may be moved downwardly over the upstanding link ends **17** to be limited in the downward movement by the top channel section **38**.

The web portion **36** is extended at **41** below the top channel section **38** for supporting a locking arm **42** when secured thereon by a rivet **43** and a sinuous spring washer **44**. The locking arm has an offset cam portion **45** which extends within a notch **46** in the edge of the upstanding link ends **17** for clamping the slide brackets thereto and locking them against endwise displacement. The cam portion **45** forces the link end **17** against the opposite side channel section of the slide brackets to firmly secure the brackets to the link without chance of movement occurring therebetween.

The chair is shipped in knock-down condition, as illustrated in FIG. 1, and it is only necessary to lift the back **14** and insert the slide brackets **34** downwardly over the upstanding ends **17** of the links **15** to apply the back to the seat. Thereafter, the downward movement of the locking arms **42** will clamp the slide brackets in firm fixed relation to the ends of the links **15**. The movement of the cam portion **45** in the notch **46** in the edge of the link **15** firmly draws the channel sections **37** opposite to the locking arms against the opposite edges of the links **15** in firm fixed relation throughout the length thereof. The location of the cam portion **45** in the slot **46** prevents any upward movement of the back relative to the links **15** while the locking arms are retained in position by the sinuous spring washer **44**. After attachment the back is fixed to the chair frame or seat in a rigid manner against any movement when in use.

What is claimed is:

1. In a chair having a frame a seat and a back, a slide bracket at each side of said back, an upstanding link at each side of the frame which receives said slide brackets, and locking means on said slide brackets for securely locking the brackets to said upstanding links.

2. In a chair as recited in claim **1**, wherein a bracket is secured at each side of said seat to which the links on the frame are pivoted, and a bracket on the facing sides of the frame to which the upper ends of the links are pivoted.

3. In a chair as recited in claim **2**, wherein the slide bracket has a web and facing channel sections at the

sides and top, and securing means for attaching the web of the slide brackets to the side edges of the back.

4. In a chair as recited in claim 3, wherein the web of the slide brackets is extended at one side, and wherein said locking means is a locking arm pivoted to each said extension having a cam projection which engages the edge of the upstanding links for securing the opposite edge of the links in the engaged channel section of the slide bracket.

5. In a chair as recited in claim 4, wherein the link is extended to the bottom of the seat, a laminated link pivoted to the bottom end of the first said link, and an adjustable friction element between the laminated link and seat for regulating the pressure required to tilt the back rearwardly.

6. In a chair as recited in claim 1, wherein said locking means embodies a locking arm pivoted to each said slide bracket which firmly secures the bracket to the upstanding links after the brackets have been applied thereto.

7. In a chair as recited in claim 6, wherein the rear edge of said links has a notch and said lock arms have

a projecting cam which moves into the notch when the locking arm is moved to locking position to prevent the removal of the back.

8. In a chair as recited in claim 7, wherein the slide brackets have facing channel side sections and wherein the front edge of the links is forced into the front channel sections in firm fixed relation therewith throughout the length thereof by the force applied by the projecting cam at the rear edge of the links.

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297—353, 440