Nov. 17, 1959 W. H. McKINLEY 2,913,208

CHAIR BASE

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FIG. 1.

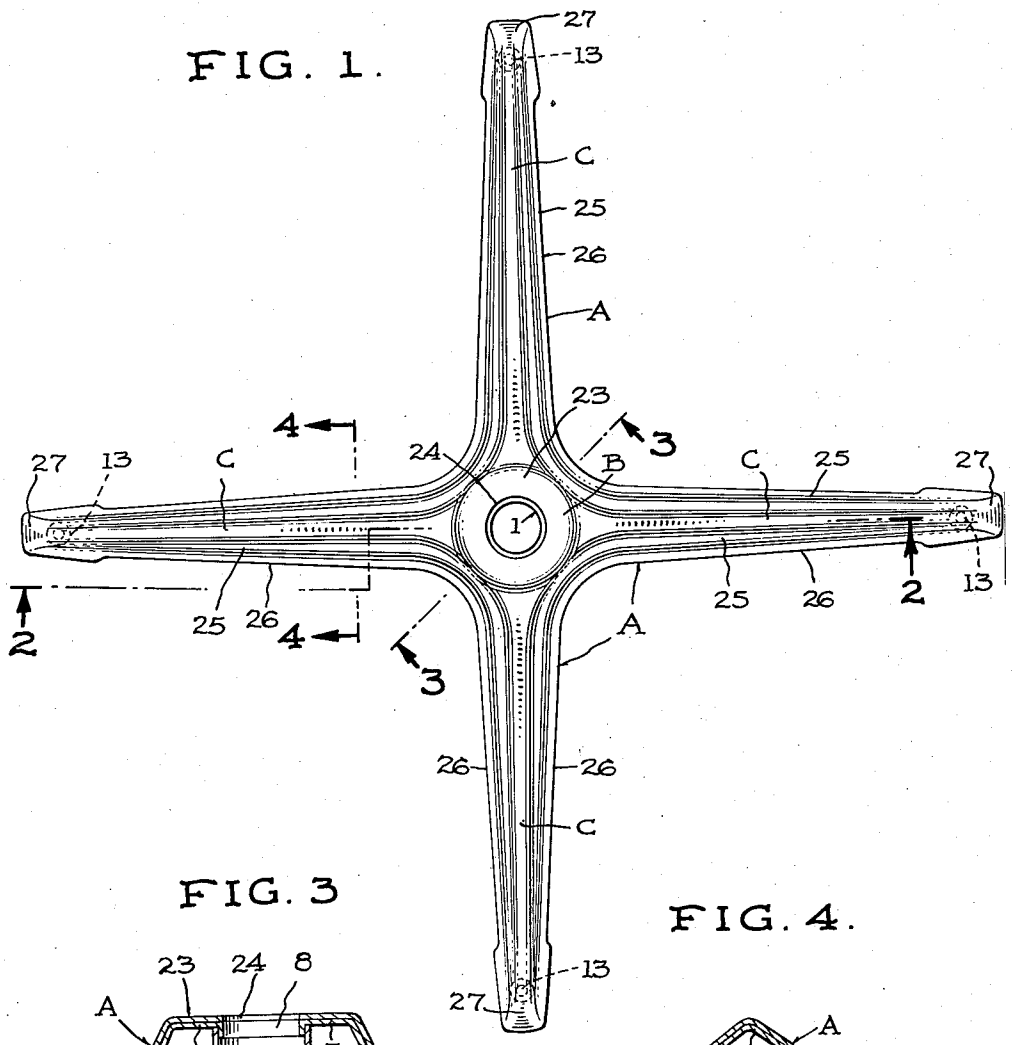



FIG. 3

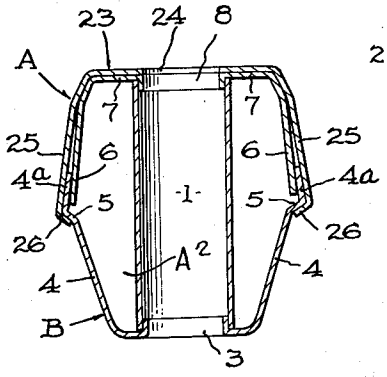
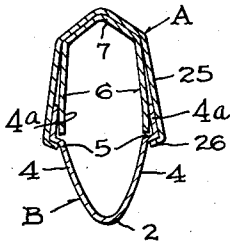



FIG. 4.




INVENTOR

WILLIAM H. McKINLEY

BY

ATTORNEY

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FIG. 2.

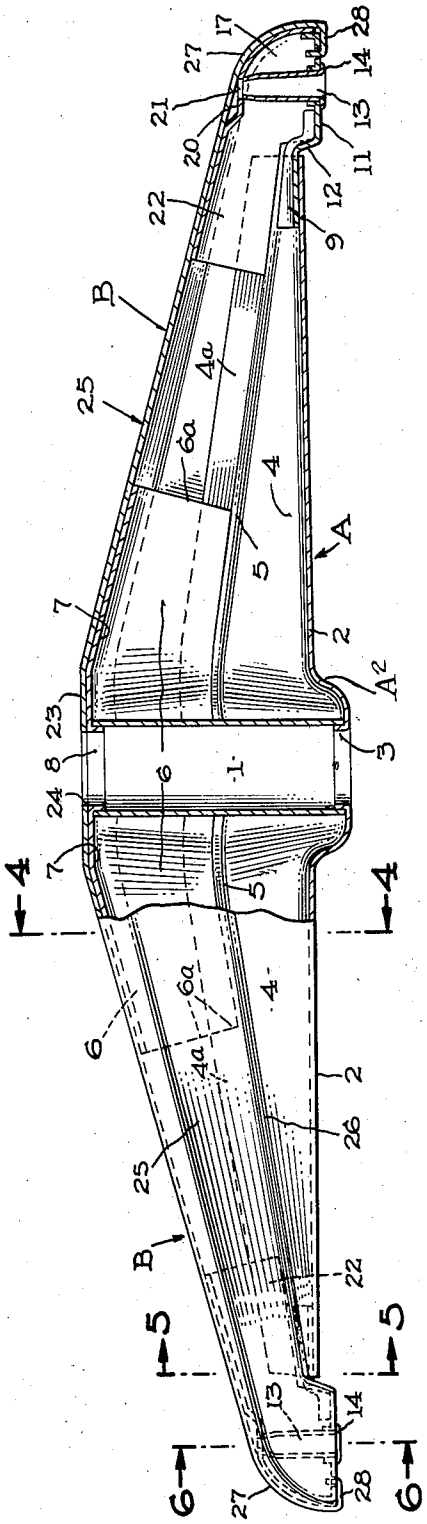



FIG. 11.

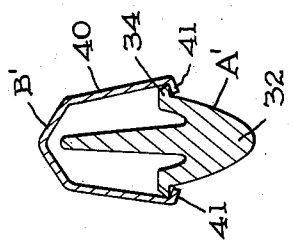



FIG. 10.

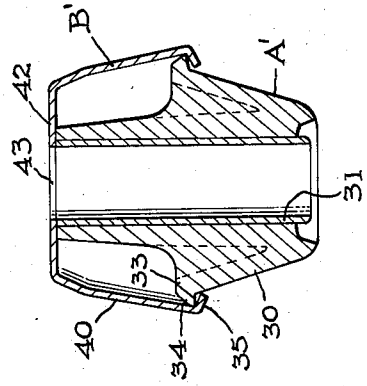



FIG. 6.

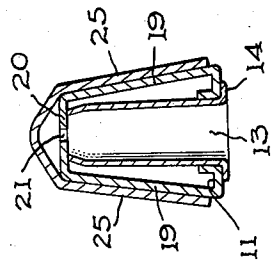
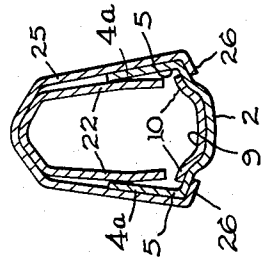



FIG. 5.




INVENTOR

WILLIAM H. McKINLEY

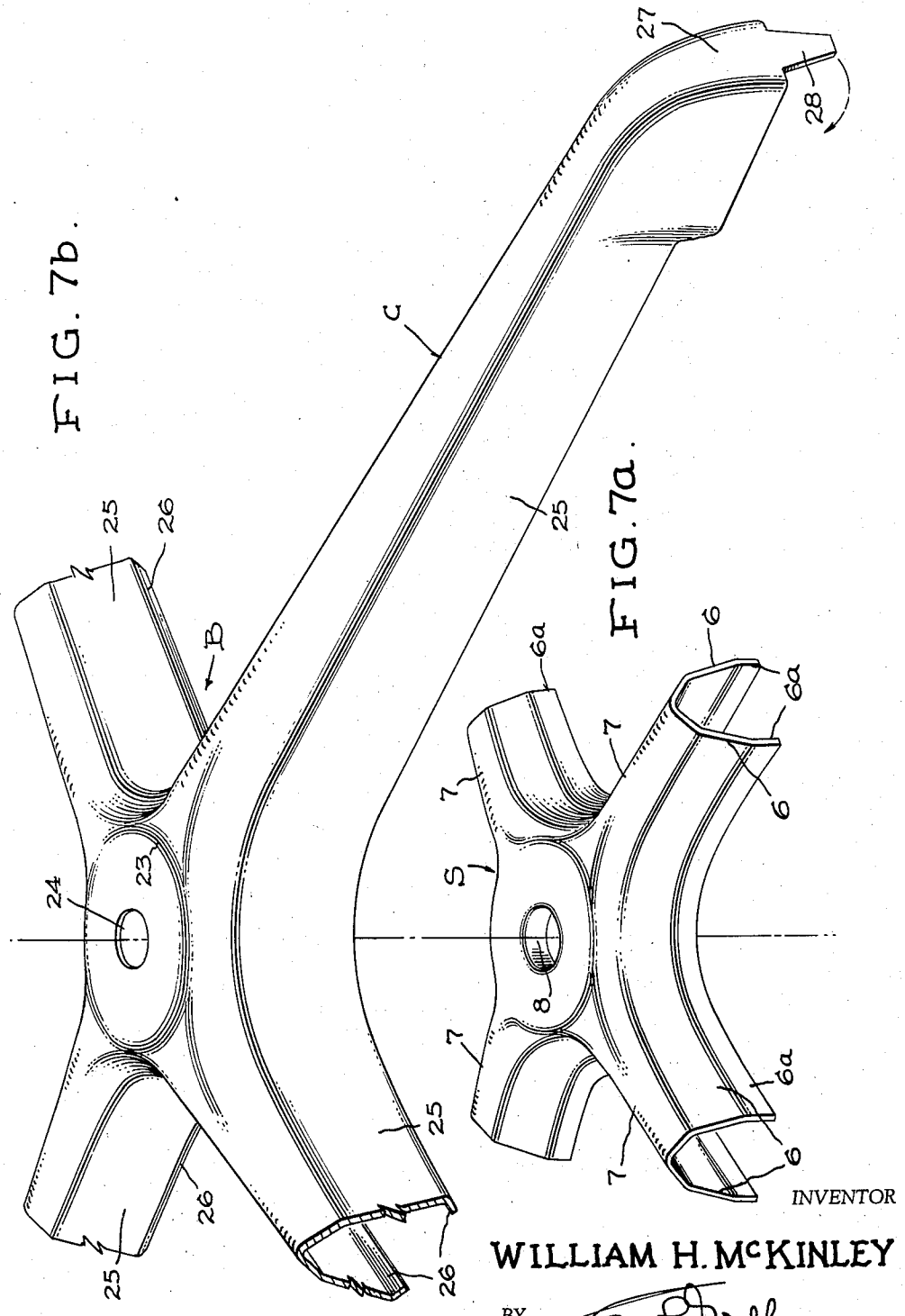
BY

ATTORNEY

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INVENTOR

WILLIAM H. McKINLEY

BY

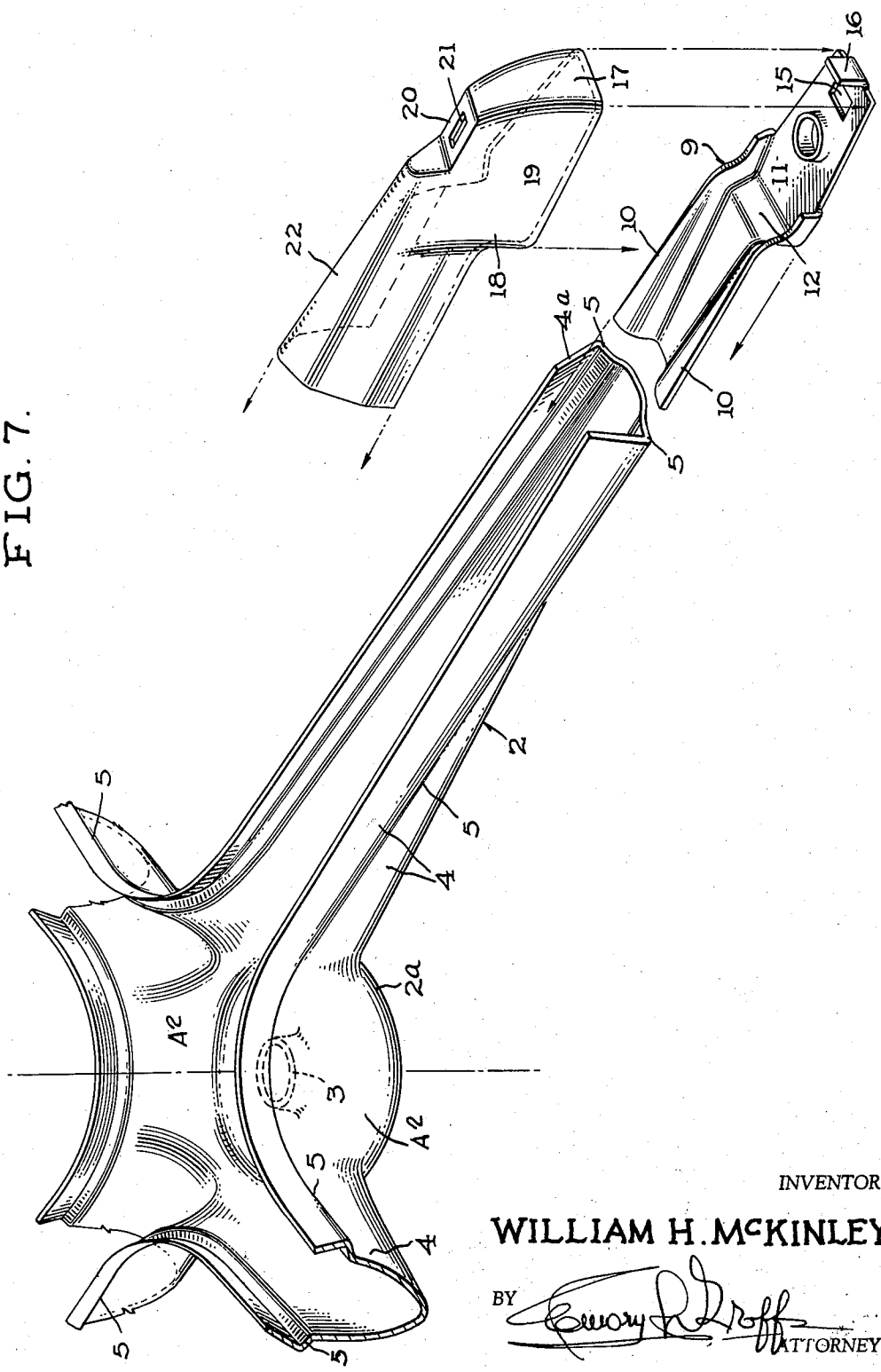
ATTORNEY

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FIG. 7.




INVENTOR

WILLIAM H. McKINLEY

BY Emory R. Roff

ATTORNEY

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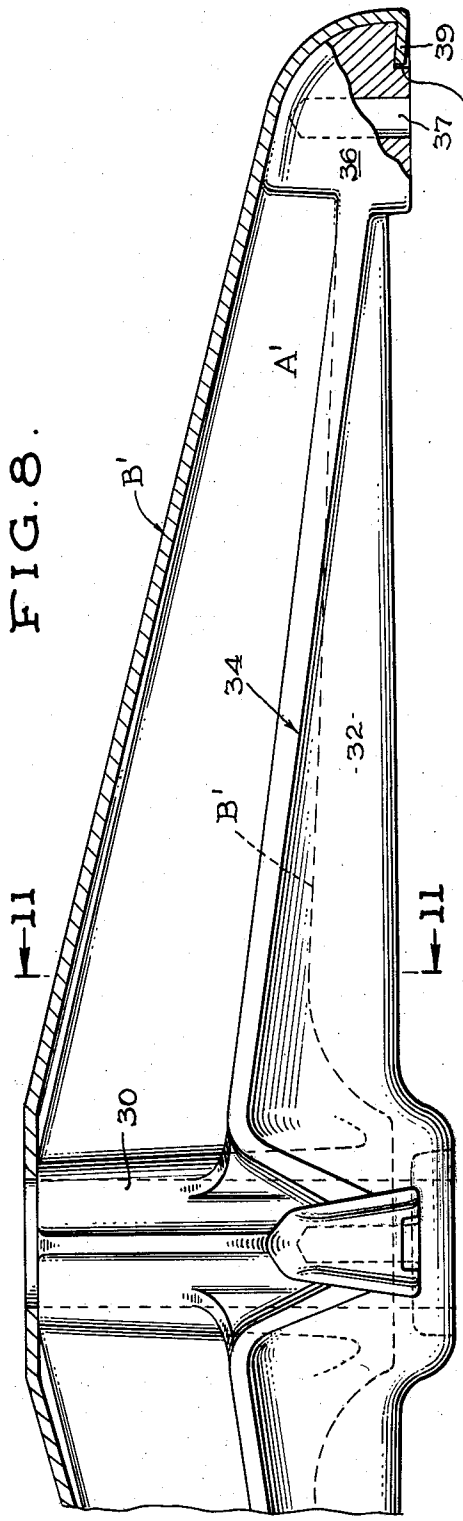



FIG. 8.

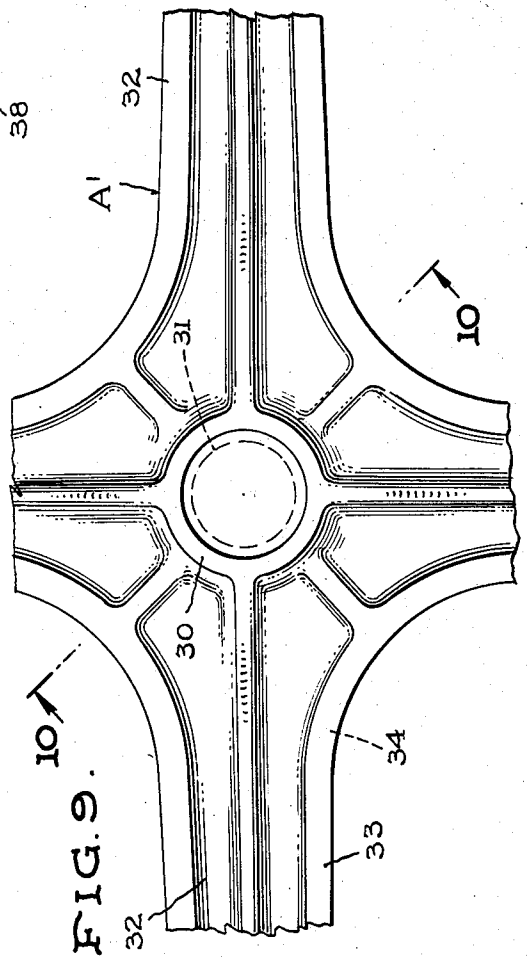



FIG. 9.

INVENTOR.
WILLIAM H. McKINLEY
BY
ATTORNEY

United States Patent Office 2,913,208
Patented Nov. 17, 1959



2,913,208

# CHAIR BASE

William H. McKinley, Youngstown, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio, a corporation of Ohio

Application April 2, 1958, Serial No. 725,821

6 Claims. (Cl. 248—194)

This invention relates to an advanced improvement in bases for swivel chairs.

Heretofore, bases for swivel office chairs have been made solid or integral from either one-piece steel or aluminum stampings, and in some cases the bases have been made of cast metal. Also, it is known in the art to provide a pressed metal chair base with scuff plates, namely, plates superimposed on the outer ends of the legs to assume the wear and abrasion of the chair-user's shoes.

However, with the advent of modern furniture design, and the current use of anodized aluminum in many widely different colors, it becomes desirable to provide a fabricated chair including a substructure and an anodized aluminum cap or shell.

In other words, because steel and aluminum require separate and different methods of manufacture and treatment for ornamentation, it is desirable to have a fabricated chair base wherein the substructure may be built up out of pressed metal parts, or a cast structure, both of which will be covered or capped with a shell made from a relatively thin sheet of aluminum, either in its natural finish or in color.

Accordingly, the present invention has primarily in view a composite chair base including a substructure of adequate strength and an aluminum cap or shell, making it possible to practically provide a wide range of novel, ornamental effects while providing a base of the required weight and stability.

Another object is to provide a fabricated steel or cast substructure and a shell both of which lend themselves to conventional manufacturing procedures and convenient methods of assembly to maintain costs within reasonable limits.

A further object of the invention is to provide a simple and practical construction which is strong and sturdy and adequately able to withstand the severe use to which a swivel chair base is normally subjected.

With the above and other objects in view, which will appear as the nature of the invention is better understood, the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a top plan view of a composite chair base made in accordance with the present invention.

Fig. 2 is a side elevation, partly in section of the construction shown in Figure 1.

Fig. 3 is a vertical cross-sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 2.

Fig. 7 is an enlarged detail, exploded, perspective view of the stamped lower substructure of the base in its fabricated form.



Fig. 7*a* is a detail, perspective view of the upper spider.

Fig. 7*b* is a partial perspective view of the shell which overlies the spider and the lower leg forming structure.

Fig. 8 is a detail side elevation, partly in section of a cast substructure.

Fig. 9 is a detail top plan view of the hub portion of the cast substructure of Fig. 8.

Fig. 10 is a vertical section taken on the line 10—10 of Fig. 9.

Fig. 11 is a detail vertical section taken on the line 11—11 of Fig. 8.

Similar reference numerals designate corresponding parts throughout the several figures of the drawing.

The chair base as a whole, preferably has four legs radiating from the zone of a central hub and, as will be seen from the drawings, generally includes, in Figs. 1–7*b*, a skeleton steel fabricated substructure A, and in Figs. 8–10, a cast substructure A′, each respectively covered and concealed by and interlocked with a one-piece shell or cap B and B′.

Referring first to the substructure A of Figs. 1–7*a*, it will be observed that the same includes the lower half $A^2$ of the central hub portion having the bottom end of a tubular sleeve 1 fitted thereto, said sleeve intended to receive the bearing of the adjusting screw of the chair iron, not shown. This sleeve 1 constitutes the primary assembly point for the substructure, including the stamping forming the lower portion of the similar legs of the base and an upper central spider S.

A description of the formation of one skeleton leg will suffice for the others.

Each leg member includes a primary lower section 2 having its inner end formed on an arc (Figs. 1 and 7) and also deformed medially downward at 2*a* while its central portion is provided with an inner upstanding flange 3 which fits within the lower end of the tubular sleeve 1 and is welded thereto.

As will be observed more particularly from Figs. 4 and 7, the lower section 2 is of generally channel cross-section and the side walls 4 thereof have their upper portions $4^a$ inclined inwardly toward each other. Each of the legs are medially provided with longitudinal shoulders 5 which, as will later appear, assist in locking and holding the shell B in place. These shoulders continue about the lower half $A^2$ of the central hub and the side walls 4 taper away from the said central hub portion of the base toward the outer ends of the legs as shown in Fig. 2.

Above the shoulders 5 the inturned portions $4^a$ of the side walls 4 of each lower leg section are intended to telescopically receive therewithin the downturned flange portions 6 of the arms 7 of the reinforcing spider S. These arms are of substantially inverted U-shaped cross section, as will be apparent from Figs. 3, 4 and 7*a*. The upper wall of the spider 7 is provided with a central, downturned collar 8 which fits into the upper end of the tubular sleeve 1 to be secured thereto by conventional means.

It will, of course, be understood that the walls 4 and flanges 6 of the members 2 and 7 are welded together about the tubular sleeve 1 to provide a solid skeletal substructure.

As will be seen from Figs. 2, 7 and 7*a*, for example, the outer ends 6*a* of the arms of the spider S are not co-extensive in length with the bottom wall 2 for the purpose of saving both steel and weight.

The outer end portion of each leg carries a toe assembly which includes a toe piece and a hood-like canopy. For example, the end of the leg 2 has fitted therein the mating portion of toe piece 9 whose side walls 10 overlap and telescope within the front portion of

the walls 4 on the leg 2 (Figs. 2 and 7). As will be seen from these figures, the outer portion of each toe piece has a horizontal bottom wall 11, downwardly offset as at 12 and providing a ground including an opening for receiving the caster shank tube 13 whose flanged end 14 is preferably welded in place. Also the bottom wall 11 is provided with a keeper 15 to receive and lock the shell B in place as will later appear. In addition, the outer edge of the wall 11 is formed with a struck up tang 16. This tang is intended to fit within the front wall 17 of the hood 18 of the toe assembly including: the side walls 19; a substantially flat top wall 20 provided with a weld access slot 21; and the rearwardly extending inverted channel portion 22, the latter intended to fit within and between the walls 4, 4 of the leg member 2.

When the caster socket 13 is fitted in the opening in the bottom wall 11, it may be welded in place at its top through the slot 21.

It will, of course, be understood that the side wall portions 10 of the bottom of the toe piece, when fitted within the mating portion of the bottom wall 2 of the primary leg member and between the walls 4, 4 are welded together to make a strong connection therebetween. Also, the hood portion 19 of the upper portion of the toe assembly is fitted about the bottom wall 11 of the toe piece and its channel shaped portion 22 fitting within the walls 4, 4 is secured in place by appropriate welds.

After the legs having the construction set forth are assembled about the sleeve 1, the aluminum shell B is put in place. This shell (Fig. 7*b*) preferably comprises a single piece of stamped aluminum having an annular central portion 23 provided with an opening 24 for registering with the sleeve 1. The shell also has radial arms C of inverted U-shaped cross section and whose downturned side walls 25 are provided with inturned flanges 26 which are coextensive with and engage behind the shoulders 5 of the substructure.

When the outer ends or tip portions of the arms of the shell B are superimposed in registry with the legs of the substructure A, it will be seen that the skeletal form of the base is preferably substantially concealed or masked by the shell, only a small portion of the side walls 4 projecting below the flanges 25 in the zone of the central hub portion being visible.

The outer ends or tip portions 27 of the shell B are provided with the tongues 28 which are intended to have their end portions turned back and into the keeper 15, here in the form of a slot, in the bottom wall 11 of the toe assembly.

It will now be seen that the substructure A is fabricated of a strong metal such as steel and forms the support for the outer, upper shell B. When the keeper flanges 26 of the substantially inverted channel shaped sides 25 of the shell are interlocked with the shoulders 5 on the sides of the leg 2, and the tongues 28 are in keepers 15, the entire composite arrangement will be securely united for use.

Aside from the structural features which give strength to the entire chair base, the flexibility of combining aluminum and steel finished in different colors is made feasible and possible from a production standpoint.

While in its preferred form, the substructure A is preferably assembled of pressed steel parts interlocked and welded, nevertheless, it is possible to make the substructure A′ in cast form, as shown, for example, in Figs. 9–11.

Referring first to Fig. 9, it will be seen that the hub 30 may be made of cast material to receive the tubular sleeve 31 (Fig. 9) and the side walls of the legs 32 are provided with ribs 33 which present shoulders 34 interlocking with the inturned flanges 35 of the shell B′.

Referring to Figures 9, 10 and 11, it will be seen that the hub 30 and radial leg members 32 are cast in one integral piece, preferably of aluminum alloy, although steel may be used for adding weight to the entire base to provide adequate balance and stability for the entire chair.

The toe portions 36 of each leg 32 are provided with a caster shank receiving socket 37 and the outer bottom portion of the toe is provided with a keeper in the form of a notch or recess 38 for receiving the locking tongue 39 at the tip end of the arms of the shell B′. This shell follows the same pattern as the shell B in the respect that it is of inverted channel shape formation to include opposite side flanges 40 provided with locking flanges 41 intended to engage with the shoulders 34 on the base. The shell B′, as will appear from Figure 10, has a relatively flat central portion 42 provided with an opening 43 for registering with the bearing sleeve 31, and as each leg tapers outwardly from the hub portion 30, the shell or mask B′ follows its general shape and contour.

From the foregoing it will be seen that in both the fabricated substructure A of Figures 1–8 and the cast or integral substructure A′ of Figures 9–10, the conditions are substantially the same with respect to the shells B and B′ masking the upper portions of the legs.

The shells are preferably made from stamped aluminum sheet material and may be made in a color to contrast with the lower exposed portion of the legs. For example, the base may be painted one color and the shell may be made of anodized colored aluminum in a different color.

Also in both forms of construction the shell has a medial opening for registering with the tubular sleeve or bore, as the case may be, to receive the chair spindle, and in each instance the outer end of each radial portion of the shell which overlies the related portion of the substructure is mechanically interlocked with the substructure as, for example, by a tongue engaging in keeper element whether it is a slot or a tongue.

I claim:

1. A fabricated chair base, comprising, a skeletal substructure including radial U-shaped legs having sides each formed with a longitudinal shoulder, a spider having radial portions registering with and fitting within said legs, a shell having radial arm portions in mating superimposed relation to said radial portions of the spider and the arm portions of the legs, said arm portions of the shell being of inverted U-shaped cross section having inturned locking flanges at their lower edge for telescopic interfitting engagement with said shoulders, the said locking flanges and shoulders preventing separation of the shell and substructure, a central tubular hub connecting the spider and legs, toe members secured to the outer ends of the legs and having a keeper slot, and tongues formed on the ends of the arms of the shell for entering said slots in the legs.

2. A fabricated chair base comprising, in combination, a substructure, concealed when the base is in use, said substructure including, a central hub portion and integral radial legs, a downwardly facing shoulder at opposite sides of each of said radial legs extending continuously longitudinally from approximately the end of said legs to and about the central hub portion, and a one-piece shell including a hub portion registering with said central hub portion and integral radial arms of greater length than said legs, said last mentioned hub portion and arms being of substantially inverted U-shaped cross section to cover the top and sides of the legs and having inturned flanges along their bottom edges for interlocking engagement with the said shoulders on the hub and legs of the substructure to hold the latter and shell together.

3. A fabricated chair base, comprising, in combination, a substructure including, a central hub portion and integral radial legs of U-shaped cross-section, downwardly facing shoulders at opposite sides of each of said radial legs extending continuously longitudinally from said hub

to approximately the end of the leg, a toe assembly including a toe-piece fitting into the open outer end of each radial leg, a canopy of inverted U-shaped cross-section secured to said toe-piece, and a one-piece shell including a hub portion and integral radial arms of greater length than said radial legs of the substructure, said arms being of substantially inverted U-shaped cross section to cover the top and sides of the legs and having inturned flanges along their bottom edges for interlocking engagement with the shoulders on the radial legs of the substructure to hold the latter and shell together.

4. A fabricated chair base, comprising, in combination, a substructure concealed when the base is in use, including, a central hub portion and integral radial legs of substantially U-shaped cross-section, a shoulder formed at opposite sides of each radial leg and extending continuously longitudinally along the lower portion thereof from around said hub to approximately the outer end of said leg, a reinforcing spider of inverted U-shaped cross-section and having a hub portion and short radial legs for telescopically fitting downwardly within the channel portions of each radial leg of the substructure, and a shell comprising a hub portion and integral radial arms for registering with and overlying the legs of said substructure, each of said arms being of inverted U-shaped cross section and having inturned flanges along their bottom edges for interlocking engagement with the shoulders on the legs of the substructure to hold the latter and the shell together.

5. A fabricated chair base, comprising, in combination, a substructure including a central hub portion, integral radial legs of substantially U-shaped cross-section, shoulders on opposite sides of said leg portions extending continuously throughout the length thereof from the hub towards the ends, a toe assembly including toe pieces interfitted with the related outer ends of the U-shaped legs of the substructure, and a hood-like canopy on said toe piece, a reinforcing spider including short



radial arms of inverted channel shape cross-section having their flanges fitting within the upturned portions of the radial arms of the substructure adjacent the hub portion thereof, and a masking shell for completely registering with and covering the hub portion, radial arms and toe assembly of the substructure, said shell comprising a hub and integral radial arms each having depending and inturned flanges for engaging with the shoulders of the substructure to interlock the shell with the substructure.

6. A fabricated chair base, comprising, in combination, a substructure including a unitary central hub portion having radial floor engaging legs, downwardly facing shoulders disposed medially of and extending longitudinally along each side of each leg; and a superimposed mating unitary covering shell for said substructure comprising, a central hub portion registering with the central hub portion of said substructure, and arms including spaced side walls embracing the legs and masking the top and sides thereof, and inturned flanges along the terminal portions of the side walls of said arms for engaging related shoulders on the legs of the substructure to interlock the shell and substructure together.

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