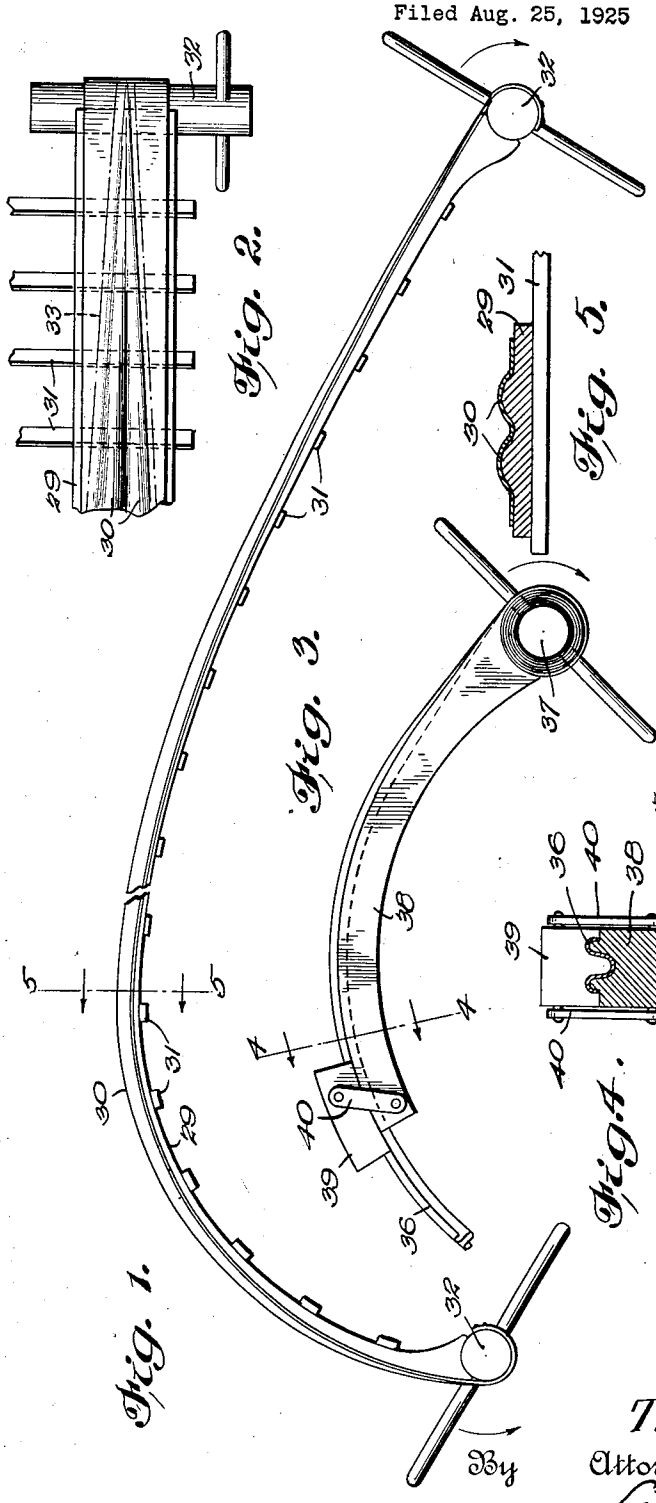
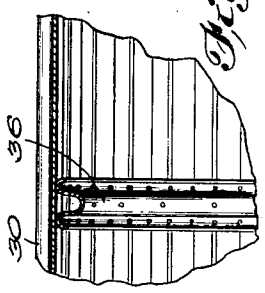
Aug. 21, 1928. 1,681,790

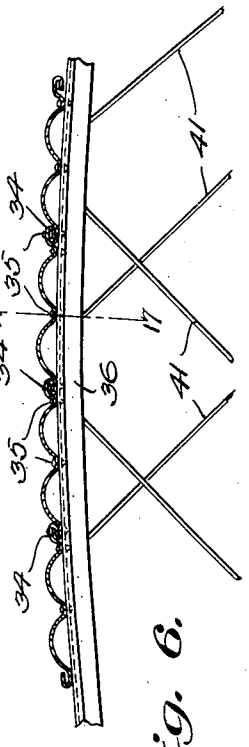
T. B. SLATE

PROCESS FOR CONSTRUCTING THE HULLS OF AIRSHIPS

Filed Aug. 25, 1925







Inventor
THOMAS B. SLATE

By Attorney
Leslie L. Largent

Patented Aug. 21, 1928. 1,681,790

UNITED STATES PATENT OFFICE.

THOMAS B. SLATE, OF GLENDALE, CALIFORNIA, ASSIGNOR TO SLATE AIRCRAFT CORPORATION, A CORPORATION OF NEVADA.

PROCESS FOR CONSTRUCTING THE HULLS OF AIRSHIPS.

Application filed August 25, 1925. Serial No. 52,390.

The object of my invention is to provide a novel process of and means for shaping metal strips to be used in constructing the hull of an airship and for any other purposes to which the process may be found suitable. It is also the object of my invention to provide a gas-tight metallic airship of the rigid type, of great strength and lightness, and which is also gastight and fireproof. It is also my object to provide an airship shell which is lightning-proof by making the outside covering of a metal that is a good conductor of electricity.

It is a further object of my invention to provide novel means for forming the sheet metal strips in corrugated form whereby to give greater strength and lightness to eliminate a multiplicity of jointed parts in an airship casing. I attain the objects of my invention by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the forms for producing the longitudinal strips;

Fig. 2 is a top plan view of one end of the form;

Fig. 3 is a side elevation of the form for shaping the transverse rings used to reinforce the hull of the airship;

Fig. 4 is a section on line 4—4 of Fig. 3;

Fig. 5 is a section on line 5—5 of Fig. 1;

Fig. 6 is a detail transverse section through a portion of the airship showing the lock seaming of the edges of the longitudinal strips; and

Fig. 7 is a detail interior plan view of a portion of the airship hull and one of the rings 36.

Like numerals designate like parts in each of the several views.

Referring to the accompanying drawings, I provide a suitably corrugated form 29 reinforced by strips 31. Form 29 is curved to conform to the desired contour of the airship hull and is provided with longitudinal ridges or corrugations tapering or gored at each end according to the proportional diameter of the airship, that is corrugations extending longitudinally of the metal strips conforming to the gored shape of the strips as shown. At the end of the form I provide drums or rollers 32 having suitable handles for revolving same. A strip of sheet metal is laid over the outside of the form and fastened at its ends to the drums or rollers 32 and these are then revolved in the proper direction to stretch the sheet of metal. When the sheet has been placed under the tension of its elastic limit it will conform to the corrugations of form 29, or form 38. This operation may be considerably aided by rubbing the strip down with the corrugated form or shaping block 39, as shown in Fig. 3, at the same time that additional stress is applied to drums 32. The strips of metal are always left in even and uniform width until they have been shaped to the desired form. The strips are then trimmed to the proper width from end to end, tapering at each end, and the edges 34 are bent into U-shape for lock seams, as indicated in Fig. 6. The strips are joined together to form a symmetrical hull and the U-shaped edges are lock seamed and fastened by rivets 35.

The operation in forming the spacing rings 36 is somewhat similar. I provide a form 38 having a surface suitably corrugated as desired. At one end is a block 39 connected by links 40 to the end of form 38. The strip of metal is drawn from one end and is held by block 39 during the drawing process. I first wind on the roller a strip of metal of sufficient length to make one complete circle of the hull of the airship. The strip is gradually unwound from drum 37. As it is unwound block 39 is moved back and forth to shape the strip into the desired cross-sectional corrugations, as shown in Figs. 3 and 4. The corrugations in either circular or longitudinal ribs may be of any suitable shape to give great strength to strips of light metal. The strips 29 are longitudinal frame and outside covering combined in one piece to reduce the total weight of the airship.

The circular spacing rings are made in one continuous strip to add to their strength without adding the weight of riveted joints, etc. Spacing rings 36 function to give rigidity to longitudinal corrugated strips 31 in the direction of their width.

I may provide suitable cross and longitudinal bracing wires 41 affixed to the rings 36. I prefer, however, to entirely omit cross and longitudinal bracing wires 41.

I claim:

1. The process of constructing the hull of an airship consisting in forming corru-

gated metal strips of the desired curvature for a section of an airship hull said strips having their corrugations tapered to a point at the end of the strip, sealing the longitudinal edges of adjacent strips together to form the hull, and affixing corrugated rings to the hull transversely thereof.

2. A process of forming metal strips to be used in constructing an airship hull, placing the ships over a corrugated form, fastening the ends to rollers to stretch the strips to their elastic limit, whereby to corrugate the strip to correspond with the shape of the form, and trimming the strips at each end to a symmetrically tapering shape conforming with the tapering shape of the corrugations previously formed in the strip.

3. A process of constructing reinforcing rings for an airship hull consisting in placing a metal strip over a corrugated form, attaching one end of the strip to the roller at one end of the form, winding sufficient metal on the roller to make a complete circle of the ship, pressing the strip down over the form with a reversely corrugated block slidably seated over and pivotally mounted on the form, and unwinding the metal strip from the drum as it is shaped to form a complete ring.

4. The process of constructing an airship consisting in shaping strips of metal into the desired curved shape longitudinally and at the same time forming longitudinal corrugations in the metal strips to increase the strength thereof, said corrugations being tapered at each end of the strip and trimming off the edges of the strips after forming same to provide symmetrically tapered ends.

5. The process of constructing the hull of an airship, consisting in simultaneously curving and corrugating strips of metal to increase their strength, the corrugations being tapered at each end of the strip, and trimming the edges of the strips after forming same to provide symmetrically tapered ends, and fastening the strips together securely along their longitudinal edges.

6. The process of constructing the hull of an airship, consisting in shaping strips of metal into the desired curved shape longitudinally and at the same time forming longitudinal corrugations in the metal strips to increase the strength thereof, said corrugations being tapered at each end of the strip, trimming the edges of the strips after forming same to provide symmetrically tapered ends, fastening the longitudinal edges of the strips together securely, forming metal rings with corrugations extending lengthwise of the rings, and fastening the rings at spaced intervals inside to form the hull of the airship.

7. The process of constructing the hull of an airship, consisting in shaping strips of metal into the desired curved shape longitudinally and at the same time forming longitudinal corrugations in the metal strips to increase the strength thereof, said corrugations being tapered at each end of the strip, trimming the edges of the strips after forming same to provide symmetrically tapered ends, fastening the longitudinal edges of the strips together securely, forming metal rings with corrugations extending lengthwise of the rings, and fastening the rings at spaced intervals on the interior of the hull of the airship.

8. In combination with the process described in claim 6, affixing cross and longitudinal bracing wires to the rings for reinforcing.

9. The process of constructing an airship of the type described, consisting in forming its hull of light sheet metal in narrow strips drawn to shape the full length of the ship, corrugating the strips by stretching the metal to its elastic limit over a corrugated form, and securing the longitudinal edges of the strips together, and sealing them.

THOMAS B. SLATE.