

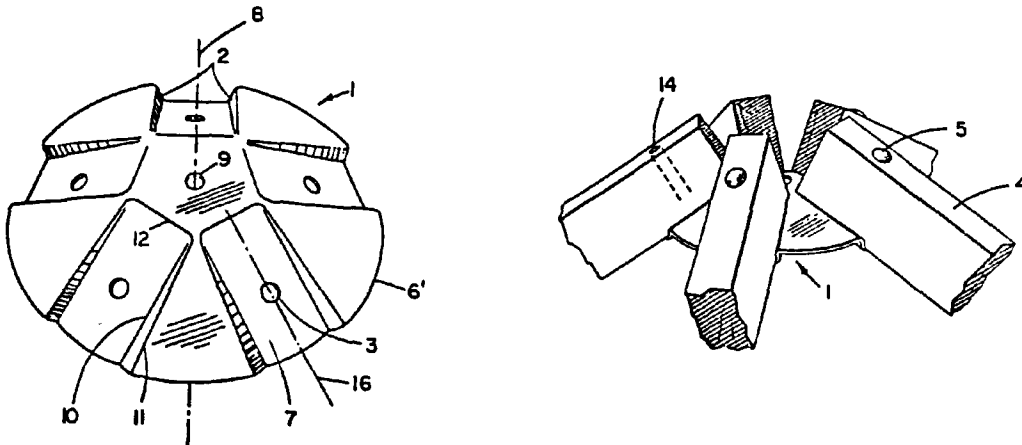
COMMISSIONER'S DECISION

OBVIOUSNESS: Junction Plate

A junction plate for a geodesic dome structure was refused in view of two citations. Claims specifying sloping walls which act as a cam surface to force the strut member into proper angular relationship to the plate were considered to be acceptable, the remaining claims were refused. Final action-modified.

Patent application 394,837 was filed on January 25, 1982 for an invention entitled Junction Plate. The inventor is David O. Hamel, assignor to East-West Design Inc. The examiner in charge of the application took a Final Action on December 7, 1983 refusing to allow it to proceed to patent. A Hearing was held on April 17, 1985 at which the Applicant was represented by his patent agent Joan VanZant and Mr. Ulrich Sieloff, an associate of the inventor.

The subject matter of this application is a junction plate for a geodesic dome structure made from a round disc of metallic plate material by a single stamping operation. Figures 1 and 3 shown below illustrate the invention.



A plurality of channels (7) with sloping edges (10,11) are sized to firmly grasp struts (4) when bolt (5) is tightened.

In the Final Action the examiner refused all the claims in the application in view of the following patents:

United States:	3,270,478	Sept. 6, 1966	Attwood
	3,844,664	Oct. 29, 1974	Hogan

Circular coined projections (25F, 25G) match recesses in metal struts which are bolted in position through hole 25D.

In the Final Action the examiner stated (in part):

...

It is considered that applicant's claimed device is not patentable over Hogan and Attwood. The only difference between the claimed device and Hogan's device is the manner in which the channels are made. Hogan produces his channels by "adding on" a three-sided trough into which the frame members fit and are fastened. Applicant, on the other hand, produces his channels by pressing or stamping them from the metal of the plate per se. While this is different, it is not a patentable difference. The metal stamping and forming art is quite capable of providing information on how to stamp such a device. In any case, the device set forth by Attwood teaches such a structure, granted in a slightly different plate.

Applicant's arguments with regard to the applicability of Hogan as a reference are not persuasive. It is conceded that Hogan's structure is not as strong as applicant's plate, but this is simply a matter of degree and choice. Also bending the plate into the desired shape by stamping as applicant does as opposed to providing lines along which the plate may be bent easily is simply a matter of choice. The provision of one or two fastening holes is irrelevant and of no patentable importance.

Applicant further argues that Hogan's channel walls are not as high as his. This too is simply a matter of degree and choice. Hogan's channel walls will cooperate with the bolts to effectively fix the angular relationship between the struts and the plates. Restriction of sideward motion is obviously precluded by the bolts in any case. Notwithstanding the above, Attwood shows a similar device with very high side walls that will operate in a similar manner to the side walls of the applicant. Applicant argues the inapplicability of the Attwood channel walls by stating that they diverge too much, however, he then claims an embodiment in which his own channel side walls diverge and presumably create the same effect set forth on the bottom of page 3 of his letter of October 31, 1983. It is agreed that the Attwood device is much more complicated and stronger than that of the applicant. However, the Attwood teaching is clear. It teaches a plate with a plurality of channels to receive struts as well as diverging channel walls. The angle of divergence is irrelevant and simply a matter of choice.

To sum up, the state of the art, at the time applicant arrived at his device, was such that no invention was required. Almost any imaginable shape can be stamped from sheet metal and using that method of production is simply not patentable over the method of Hogan, especially in view of Attwood. Differing from the art by small and trivial details is not sufficient to warrant a patent.

...

In response to the Final Action the Applicant submitted amendments to three disclosure pages and to three claim pages. That response stated (in part):

...

In the new claim 1, there is now specified a generally triangular shaped web portion extending between the upper side wall edges of adjacent channels with its apex at the corners of the polygonal shaped central portion. In applicant's view, Hogan clearly has no corresponding structure since it includes no polygonal shaped central portion. The Attwood structure does not have a triangular shaped web portion since it also does not have a polygonal shaped central portion. Thus this further aspect serves to distinguish the invention over the references.

In addition, the amended claim 1 calls for the web portion to be disposed at an oblique angle to the axis of the plate to fix the angular spacing of the channels and to provide a substantially continuous rigid plate structure. Because of this limitation, the plate of Attwood including the outwardly extending portions 25C thereof cannot be considered to meet this limitation since they are not positioned at an oblique angle, but rather lie in a common plane.

In general, the structure of the present invention is a unique junction plate which is stamped from a metal disk. It would appear that the Attwood structure is formed in a different manner such as by casting or otherwise. Judging from the thickness of the plate, it would not appear that the plate of Attwood is stamped.

New claim 13 is similar in many respects to claim 8 which the Examiner originally indicated as containing allowable subject matter. In addition, it also calls for a hole being formed in each of the channels to receive a fastening bolt to fasten an end of one of the struts in the channel. New claim 13 also calls for a web portion extending between the third bend lines of adjacent channels to fix the angular spacing of the channels and to provide a substantially continuous rigid plate structure. Clearly, the Hogan patent does not disclose or suggest the bend lines as called for in new claim 13. Also, the Attwood patent does not include the combination of bend lines set forth in this particular claim.

No changes have been made to the other claims in the application.

As further evidence of patentability, the following is brought to the Examiner's attention. The Examiner is already aware of the infringing activities identified in an advertisement in a magazine entitled "Bricolage" which offered for sale a plate of identical structure to that covered by the claims of the present application.

In addition to the above, there have also been several instances of third parties in the United States introducing virtually identical junction plate products following the introduction of the junction plate of the present invention. One of these is identified in an affidavit filed in the corresponding U.S. application in support of a petition to make special. A copy of this affidavit is enclosed for the Examiner's information. The junction plate of the present invention

was also granted an Innovator Award at the 1982 National Home Improvement Congress and Exposition. A photocopy of an affidavit by David O. Hamel, the inventor, relating to this award is enclosed.

...

The issue before the Board is whether the plate defined by the amended claims represents a patentable advance over the cited art. Rejected claim 1 reads:

A junction plate for securing a plurality of struts into a structural frame comprising:

a concave plate having a generally frusto-conical shape corresponding generally to the shape of junctions in the structural frame;

a plurality of channels formed in the plate oriented to extend radially outward from the center thereof, each of the channels having a hole formed therein and adapted to receive a fastening bolt therethrough to fasten an end of one of the struts in the channel;

a pair of side walls defining the sides of each of the channels, the side walls being spaced apart a distance corresponding to the width of the strut to be received in the channel and being of sufficient height so that the side walls of the channel are adapted to cooperate with the fastening bolt to effectively fix the angular relationship between the strut and the plate; and

a web portion of the plate extending between the upper margins of the side walls of each adjacent pair of channels to fix the angular spacing of the channels and provide a substantially continuous rigid plate structure.

At the Hearing J. Van Zant and Mr. Sieloff pointed out numerous differences in Hogan as compared to the Applicant's plate. They emphasized that Hogan's plate was designed for use in model structures mainly for display purposes and was only made of light flexible material. They said no commercial use resulted from the patent and in their view it was a paper patent only. They pointed out the Hogan reference did not provide a stable structure such as obtained by Applicant's rigid plate. Further they said Hogan is in the shape of a cone and does not have the frusto-conical shape with the central portion having a generally polygonal shape lying in a plane perpendicular to the axis of the plate. In addition they noted the three sided ridge of Hogan merely locates the strut member and does not force the strut into the desired position as do the cam surfaces of the Applicant's formed channel side edges.

Attwood's connector plate has four angled seat portions with coined projections thereon to provide a positive interlock for the metal struts. An inclined gusset portion is located on either side of the seat portion. This seat portion has an aperture to receive a bolt for fastening the strut thereto. It is the Examiner's position that the inclined gusset portion operates in a manner similar to the Applicant's cam surfaced side edges for positioning the strut member in the angled seat portion.

Mr. Sieloff outlined the development of the Applicant's plate. Prior to the Applicant's starplate assembly there were no commercial sales of this type of item. He stated that the starplate assembly took dome technology which had been around for a long time and propelled it to the mainstream of the do-it-yourself backyard builders. In the first year of operating out of his back yard Mr. Sieloff sold \$50,000 worth of these plates. With no advertising this rose to one and a half million in the next year. Further, by the end of the second year, eleven companies copied the Applicant's plate of which five were from countries foreign to the United States.


According to Mr. Sieloff the Applicants developed the plate for use of 2 X 4 (or 2 X 2) wood struts. Because of the variation of size of 2 X 4 lumber sold throughout the country the Applicant selected channel width of approximately 1.5 inches and used a sloping wall within certain limits of angularity on either side of the channel so that any 2 X 4 sold in the country would be firmly retained by wedging action of the walls on the strut sides as the strut is drawn to seated position due to the bolt which passes through the strut and plate.

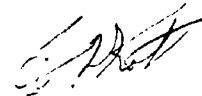
It may well seem that it would be obvious to take the Hogan reference and the sloping web of Attwood to arrive at the Applicant's plate design, and we can understand how the examiner came to that conclusion. However the submissions made at the Hearing, subsequent to the examiner's Final Action have convinced us otherwise. In view of the interaction of the camming sidewalls and the bolt, and of the quick copying and commercial success of the plate, the Board is satisfied that there is present a degree of ingenuity which was a result of thought and inventive intellect on the part of the Applicant.

The importance of the sloping side walls to cam the strut was emphasized by Mr. Sieloff at the Hearing. Not only does this accommodate the two inch strut dimension with all its size variations throughout North America, but it also acts to prevent any twisting due to the compressive side forces on the portion of the strut seated in the channel when the single retaining bolt is tightened. We believe that this is a feature which must be recited in any claim to distinguish over the cited art which does show geometric forms somewhat similar to the configuration shown in this application.


We note that rejected claims 2, 11 and 12 do specify the sloping side walls which act as cam surfaces to urge the strut into its proper angular relationship to the plate and we find them acceptable over the art of record. We recommend withdrawal of the rejection of these claims. The remaining claims namely 1, 3, 4 to 10 and 13 specify a junction plate configuration which does not differentiate patentably over the cited art. This also applies to the amended claims submitted in response to the Final Action.

In summary we recommend that rejection of claims 2, 11 and 12 be withdrawn and the refusal of the remaining claims be affirmed.


M.G. Brown
Acting Chairman
Patent Appeal Board


S.D. Kot
Member

I concur with the findings and recommendations of the Patent Appeal Board. Accordingly I withdraw the rejection of claims 2, 11 and 12 but I refuse to grant a patent on claims 1, 3, 4 to 10 and 13 of this application. The applicant has 6 months within which to appeal this decision under the provisions of Section 44 of the Patent Act.


J.H.A. Gariépy
Commissioner of Patents

Dated at Hull, Quebec
this 11th. day of December, 1985
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