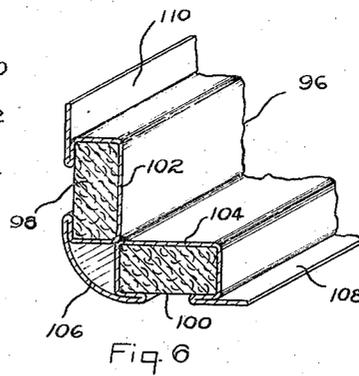
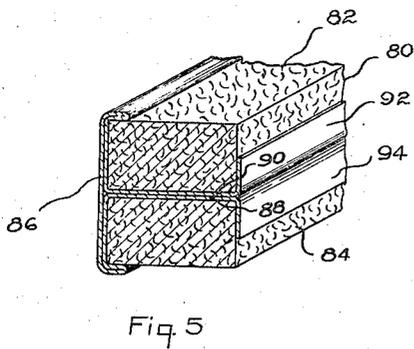
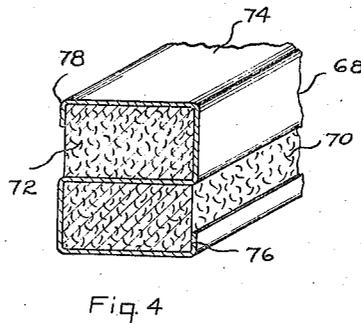
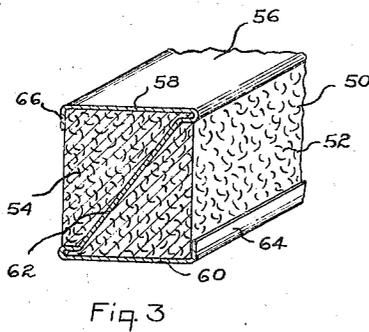
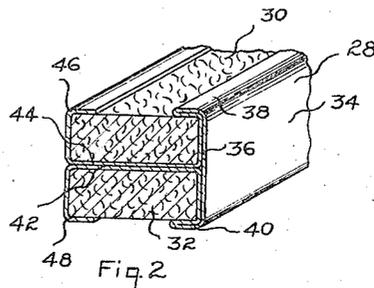
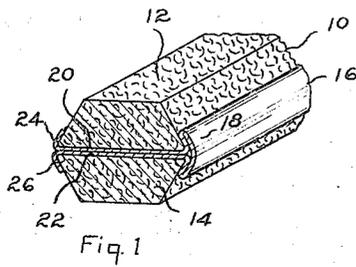


Oct. 25, 1938.

J. D. SHERMAN ET AL
COMPOSITE STRUCTURAL MEMBER

2,134,674

Filed March 9, 1936



Inventors

Jacob D. Sherman

Clair S. Reed

Otis C. Currie

334

Beaman & Langford
Attorneys

UNITED STATES PATENT OFFICE

2,134,674

COMPOSITE STRUCTURAL MEMBER

Jacob D. Sherman, Clair S. Reed, and Otis C. Currie, Jackson, Mich., assignors to Reynolds Spring Company, Jackson, Mich., a corporation of Delaware

Application March 9, 1936; Serial No. 67,924

2 Claims. (Cl. 189—40)

This invention relates generally to composite structural members of metal and fibrous stock of the type and application disclosed in co-pending application Serial No. 65,404, filed Feb. 24, 1936; now Patent No. 2,089,005, granted Aug. 3, 1937.

It is the object of the present invention to provide a composite metal and fibrous structural member made up from two or more, preferably preformed, fibrous strips held in assembled relation by a rolled sheet metal strip embracing portions of the fibrous strips but leaving exposed surfaces to receive fastening instrumentalities if desired.

Another object is to provide a strong, light, inexpensive, unitary frame or structural element fabricated from two or more fibrous strips and a strip of sheet metal; the metal strip functioning as a reinforcing and securing member for the fibrous strips.

A further object is to provide a composite structural member having two or more separate fibrous sections spaced by a reinforcing metallic section or sections.

These and other objects and advantages of the invention will become apparent when considered in the light of the following detailed description and the accompanying drawing. The invention is clearly defined in the appended claims.

In the drawing—

Figs. 1 to 6, inclusive, are broken oblique projections of several embodiments of the invention, the composite members and fibrous members being shown in section.

Referring to Fig. 1 the structural member 10 consists of lengths of fibrous strips 12 and 14 held in unitary relation by a sheet metal strip 16 folded upon itself to provide a double flange edge 18, double wall central sections 20 and 22, spacing the strips 12 and 14 and flanges 24 and 26. The flange and central sections of the metal strip 16 provide channels opening in opposite directions in which the strips 12 and 14 are clamped. It will be noted that the major exterior surface of each of the strips 12 and 14 is exposed to receive fastening instrumentalities such as nails, tacks, screws, etc. The I-beam like configuration of the metal strip 16 imparts strength and rigidity to the fibrous strips 12 and 14 which may be of a twisted or laminated paper stock or other suitable fabricated fibrous material preferably without grain although wood is not excluded. In practice, using twisted preformed paper stock, the strips 12 and 14 will be preferably fed from reels into the rolling machine

where the metal strip 16 is given the shape shown and the flanges thereof are rolled into embracing engagement with the fibrous strips 12 and 14. When these fibrous strips have dried out they become extremely hard and provide a good nailing or tacking surface; the central sections 20 and 22 serving to deflect the end of the nail or tack to anchor the same in position in a well known manner. Among its many uses the structural member shown in Fig. 1 may be used to advantage because of its strength and lightness in the fabrication of frameworks for upholstered furniture and seat construction for vehicles.

In the modification shown in Fig. 2 the structural member 28 consists of fibrous strips 30 and 32 of rectangular cross-section held in unitary assembled relation by the sheet metal strip 34 folded upon itself to provide a double wall T-shape side portion 36 having flanged edges 38 and 40, double wall central sections 42 and 44 disposed between the fibrous strips 30 and 32 and flanged portions 46 and 48 embracing the fibrous strips 30 and 32 in the manner of the flanged edges 38 and 40. The structural member 30 may be fabricated in the manner heretofore described with reference to the structural member 10. It only differs therefrom in that greater portions of the fibrous strips are metal encased increasing the rigidity and strength of the construction at some sacrifice of the exposed area of the fibrous strips.

In the form of the invention shown in Fig. 3 the structural member 50 comprises two fibrous strips 52 and 54 held in unitary relation by the metal strip 56 having sections 58 and 59 connected by diagonal section 62 spacing the strips 52 and 54. Flanges 64 and 66 retain the fibrous strips in position in the oppositely facing channels formed by the strip 56. The modification in Fig. 4 is similar to that in Fig. 3 and shows the members 68 fabricated from fibrous strips 70 and 72 of rectangular section with the metal strip 74 conforming to three sides of each fibrous strip. Flanges 76 and 78 slightly overlapping the exposed sides of the strips 70 and 72 hold the latter in position.

Fig. 5 shows a modification similar in most respects to that of Fig. 2. The structural member 80 is made up of fibrous strips 82 and 84 spaced and held in position by the T-shaped metal strip 86 having a double wall head 88 and central sections 88 and 90 terminating in narrow flanges 92 and 94. With this arrangement surfaces of the fibrous strips are exposed from three different directions.

The structural member 96 shown in Fig. 6 is somewhat of a departure from the forms shown in Figs. 1 to 5, inclusive, although embodying the same general structural features. The fibrous strips 98 and 100 are disposed in channels 102 and 104 defined by the metal strip and connected by the web 106. If desired flanges 108 and 110 may be provided for the purpose of welding the member 96 in position or to act as points of attachment for connecting members that may be welded or otherwise secured to these flanges in a manner disclosed in the aforesaid co-pending application. As shown, the strips 98 and 100 are disposed at right angles, however, the angularity of these strips may be varied to suit conditions by straightening out or changing the curvature of the web 106.

Each of the illustrated forms of the invention is characterized by the fact that it may be conveniently rolled in continuous lengths in production to give a strong, rigid, inexpensive, structural member which does not possess any of the undesirable characteristics of wooden structural members, namely, warping and splitting.

Having described our invention what we claim as new and desire to protect by Letters Patent is:

1. A light weight relatively rigid structural member for the fabrication of frames of vehicle seats, furniture and the like and capable of being formed to the desired contour during such fabrication, comprising a plurality of elongated strips of twisted paper of preformed cross-sectional shape, an elongated strip of relatively light gauge sheet metal, said elongated strip being formed to provide a pair of channels with restricted openings defined by longitudinal edge

portions of said channels, said channels having a common web consisting of said strip folded laterally on itself, said edge portions consisting of relatively short flanges inclined inwardly from the edges of said web and on opposite sides thereof at an angle of less than ninety degrees, said paper strips being disposed in said channel and held against removal from within said restricted openings by said edge portions, the surface of said strips being exposed between said longitudinal edge portions.

2. A light weight relatively rigid structural member for the fabrication of frames of vehicle seats, furniture and the like, comprising a plurality of elongated strips of preformed tack receiving material, an elongated strip of relatively light gauge sheet metal, said metal strip being formed so as to provide a pair of channels with restricted openings defined by longitudinal edge portions of said channels constituting flanges, the web of each of said channels being formed from a different section of said metal strip, one flange of each channel being formed from a common portion of said metal strip folded upon itself to form a flange, said strips of tack receiving material being disposed in said channels and held against removal by said flanges, a portion of the surface of said strips of tack receiving material being exposed between said longitudinal edge portions, the common portion of said metal strip functioning to unite said channels into a unitary structure.

JACOB D. SHERMAN.
CLAIR S. REED.
OTIS C. CURRIE.