No. 687,845. Patented Dec. 3, 1901.

A. P. MONNIER.

FRAME.

(Application filed Mar. 2, 1901.)

(No Model.) 2 Sheets—Sheet 1.

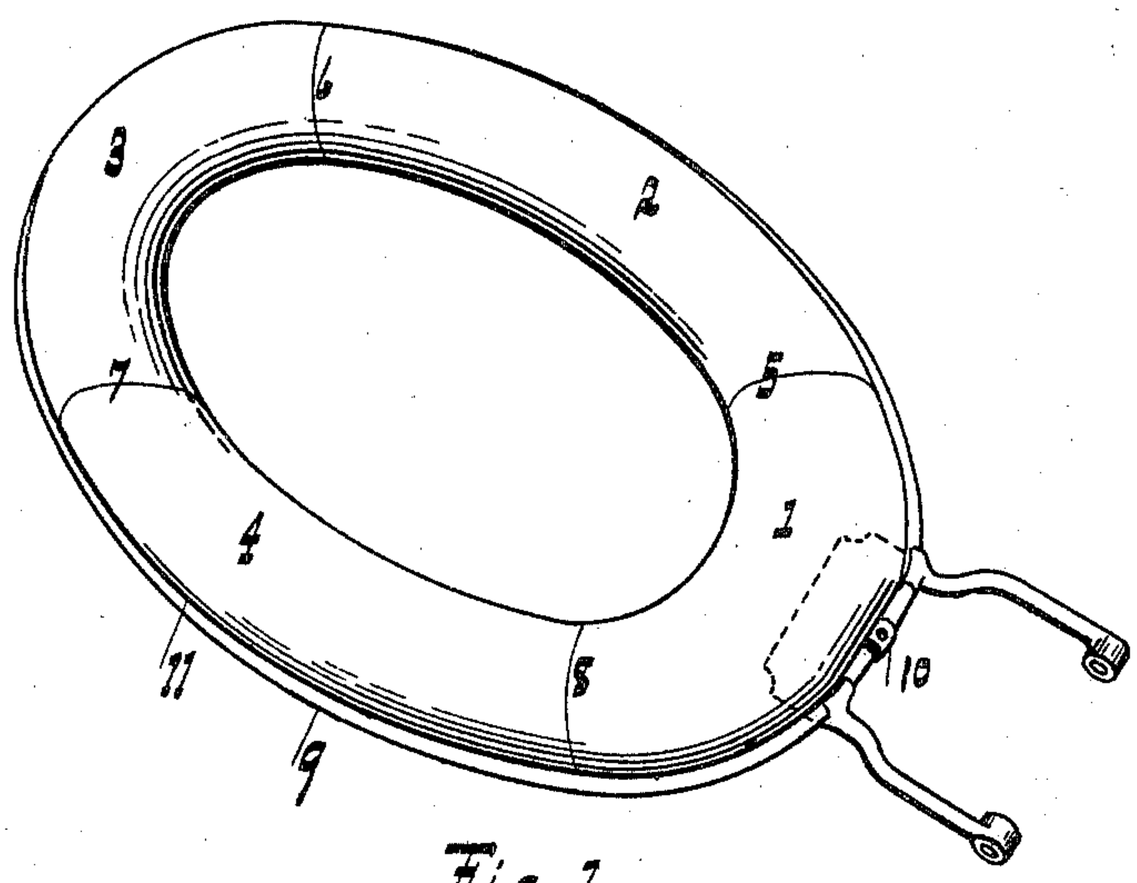

Fig. 1.

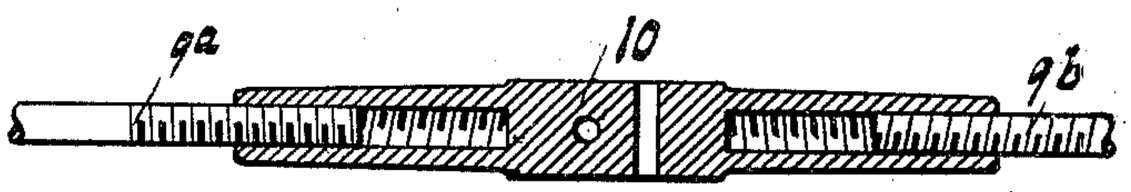

Fig. 2.

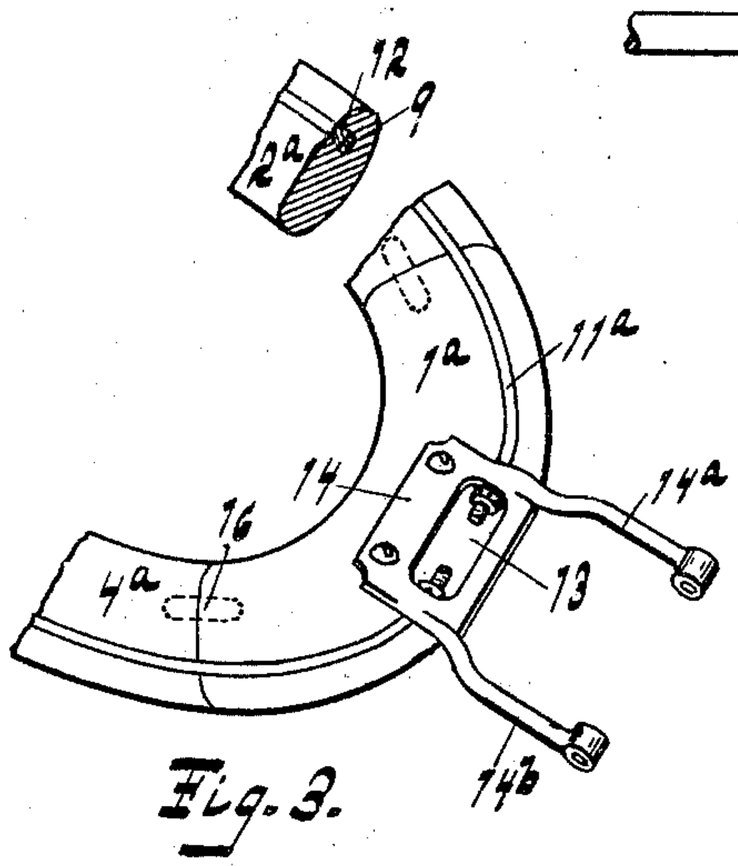

Fig. 3.

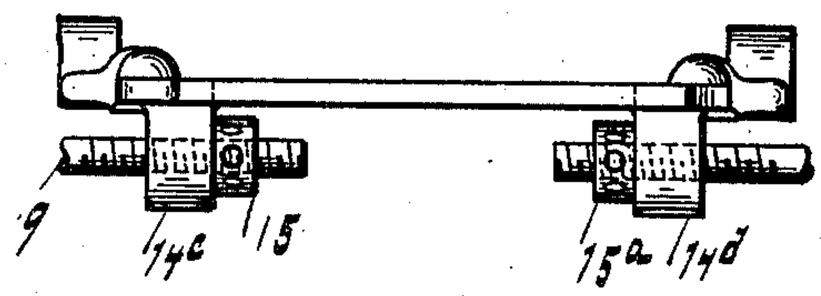

Fig. 4.

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(Application filed Mar. 2, 1901.)

(No Model.) 2 Sheets—Sheet 2.

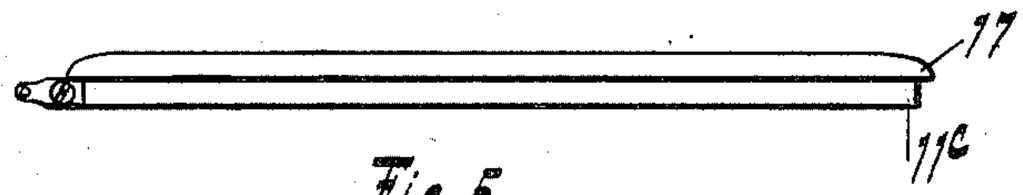

Fig. 5.

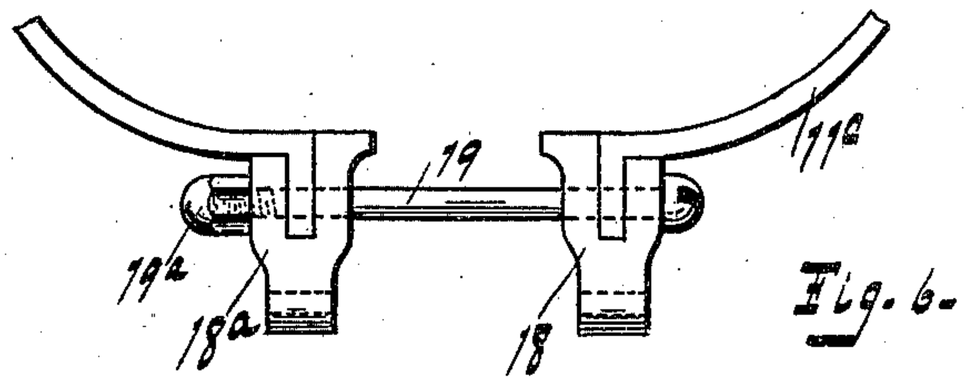

Fig. 6.

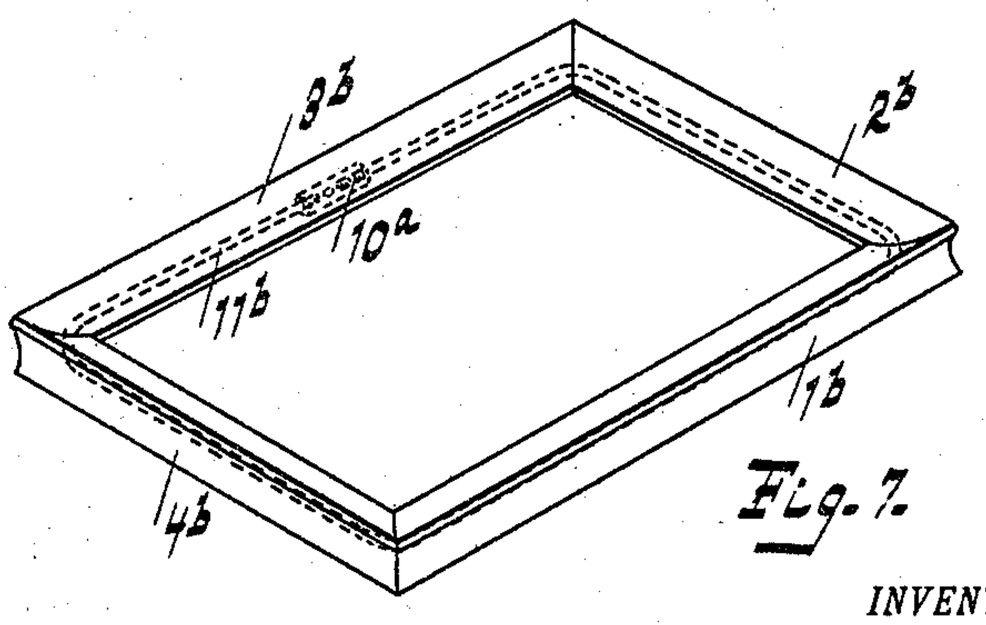

Fig. 7.

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UNITED STATES PATENT OFFICE.

ALFRED P. MONNIER, OF GREENFIELD, MICHIGAN.

FRAME.

SPECIFICATION forming part of Letters Patent No. 687,845, dated December 3, 1901.

Application filed March 2, 1901. Serial No. 49,542. (No model.)

To all whom it may concern:

Be it known that I, ALFRED P. MONNIER, a citizen of the United States, residing at Greenfield, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Frames; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to frames and similar articles made from jointed pieces of wood, and has for its object an improved attachment to be used in connection with a frame of wood by means of which the joints between contiguous portions are closed and held tightly closed against opening from any reason and by means of which also the wood itself is prevented from splitting or checking under the influence of varying conditions of heat or moisture.

The invention may be applied to any framing made of wood or similar material. It is shown in the drawings applied to a closet-seat and also as applied to a picture-frame, and the invention could also be employed in making window or door frames or any frame made up of several pieces of wood. The main idea of the invention is comprised in holding the joined pieces of the frame by an adjustable metal band.

In the drawings, Figure 1 shows a closet-seat with an external band. Fig. 2 is a detail of the coupling which unites the ends of the band. Fig. 3 shows the band sunk in the wood and concealed. Fig. 4 is a detail of a hinge provided with lugs which serve to coact with nuts to perform the function of the coupling-piece shown in Fig. 2. Fig. 5 is a side elevation of a closet-seat with an external flat band. Fig. 6 is a detail of the flat band of Fig. 5 with hinges coupled thereto. Fig. 7 shows a square frame secured by a similar band.

The frame is made of any desired number of pieces brought together with suitable joints, which are arranged to be tightly closed by forcing each section of the frame under pressure toward a central point of the frame. Such a frame oval in shape is shown in Fig. 1, where it is shown as made of four sections 1 2 3 4, each of which terminates at each end with a mitered surface, and the eight surfaces are assembled to make four miter-joints 5 6 7 8. The whole frame is bound together by a band of metal 9, that is preferably a rod or large wire drawn so as to compress the sections of the frame by means of screws. In the form of coupling-nuts shown in Fig. 2 one of the ends of the band is provided with a right-hand screw, and the other end of the band is provided with a left-hand screw, and one end of the coupling is provided with a right-hand hollow screw, and the other end of the coupling is provided with a left-hand hollow screw, so that the two ends 9^a and 9^b of the band 9 are engaged with the two ends of the coupling 10, and the band is drawn tightly around the assembled sections of the frame and held in position. Preferably the band is arranged to be concealed or partly concealed and at the same time held in place by sinking it in a groove. In Fig. 1 the groove 11 is around the periphery of the frame. In Fig. 3 the groove is sunk into the frame and the band is at the bottom of the sunken groove covered by a dovetailed fillet 12, which is pushed into the groove from an enlargement 13, made at one point in the groove. The dovetailed fillet itself serves as a holder, inasmuch as it is made, preferably, in a single piece of wood. Such a fillet can be used with oval or circular frames; but with square frames, such as is shown in Fig. 7, the fillet itself must be differently made. In the latter form a fillet can be forced under pressure into the groove, where it will expand and hold itself in place, or the fillet may be entirely omitted. In the form shown in Fig. 3 there is at one place in the groove an enlargement in which the coupling for the ends of the band is sunk into the wood of the frame, and a coupling is shown in Figs. 3 and 4 which comprises both a coupling and a hinge. The plate 14, which unites two hinge-arms 14^a and 14^b, is provided with lugs 14^c and 14^d, with perforations through the lugs that register with the groove 11^a and through which the ends of the rod 9 are inserted. The two ends of the rods may be both cut with right-hand threads, and the rod is secured and placed under tension by running nuts 15 and 15^a onto the ends of the

rod until they bear against the lugs 14^c and 14^d and produce the necessary strain on the band. In a frame which is other than oval the construction is similar, the only difference being that the groove instead of being oval is oblong and more or less approaches to a parallelogram with rounded corners. Such a frame is indicated at Fig. 7, where the sections 1^b 2^b, 3^b, and 4^b are joined together with miter-joints and are forced and held under compression by a band inserted in the groove 11^b and united and drawn together by a coupling-nut 10^a. Such a banded frame is effectually prevented from checking or splitting, and should it in the first instance be made of material that is still liable to shrink it can after a period be retightened to again bring into close connection any joints that may have slightly opened. If the wood be thoroughly dry and seasoned when the article is made, it will not open. It is preferable in the construction of a frame to be drawn together by the band that the joints be doweled by a pin 16. (Indicated in Fig. 3.)

In Figs. 5 and 6 is shown a frame in which the band extends around the outside, but is partly concealed by a projecting rim 17. The band 11^c is sharply bent at its ends, each end is perforated, and a hinge-leaf 18 18^a engages each end of the band. All the parts are bound together by the bolt and nut 19 19^a.

I am aware that the staves of tub-like structures, such as churns and tanks for the storage of large quantities of water, have been used with a hoop or band arranged to be drawn or strained by a bolt and nut. For this purpose the ends of the hoop or band are bent sharply out at right angles to the general course of the main part of the band and holes are punched in the ears thus formed, and a bolt is inserted through the holes and the band strained by running a nut on the bolt; but in all such structures of which I am aware the sections of the article were in the form of staves in which the length very greatly exceeded what may be termed the "radial" distance through them. In the structure of my invention the section of the article is short in this direction and that distance which may be termed the "radial" distance is comparatively long, and it is desirable that some device be provided to prevent the band from slipping from place, as a very little movement along the section would cause it to be entirely disengaged therefrom. It is also desirable in this class of articles that the sections be held from warping and twisting in a direction at right angles to their radial thickness, because a small amount of warp or twist will destroy the beauty and symmetry and might entirely destroy the usefulness of the article, and therefore in the article there are brought into coaction the means for preventing the warping or twisting of the sections, the means for compressing and holding the sections, and means for preventing the holding-band from slipping from place.

What I claim is—

1. In a frame having radial dimension greater than its thickness at right angles to its radius, in combination with the frame-sections, a compression-band, means for straining said band to compress the sections, and means to prevent the escape of the band from the frame, substantially as described.

2. In a frame, in combination with the sections of a frame, a compression-band, a hinge connection provided with lugs through which the ends of the compression-band are engaged, and means for securing and drawing said band through said lugs, substantially as described.

3. In a frame, the combination of the sections thereof provided with grooves arranged to register to form a continuous groove around the frame, a compression-band adapted to be engaged in said grooves, means for straining the compression-band, and a covering arranged to conceal the band, substantially as described.

4. In a frame, made of several sections, each of which is provided with a groove arranged to register with the grooves of contiguous sections, and thereby to form a continuous groove around the frame, a compression-band engaging in the groove, means for producing tension on the band to enable it to hold and compress the sections of the frame tightly together, and a concealing-strip inserted in said groove, the said groove and strip each being dovetailed in cross-section and widening from the surface of the frame inward, whereby the concealing-strip is prevented from escaping, substantially as described.

5. In a frame composed of sections, having a comparatively long radial thickness, and a comparatively short thickness at right angles thereto, the combination of the sections, means for compressing and holding the sections together, means for preventing the warping of the sections, and means for retaining the compressing and holding band in place.

6. In a frame composed of sections having a comparatively long radial thickness and comparatively short thickness at right angles thereto, the combination with the sections, dowel-pins, a compressing-band and a means for preventing the compressing-band from slipping, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

ALFRED P. MONNIER.

Witnesses:

MAY E. KOTT,

CHARLES F. BURTON.