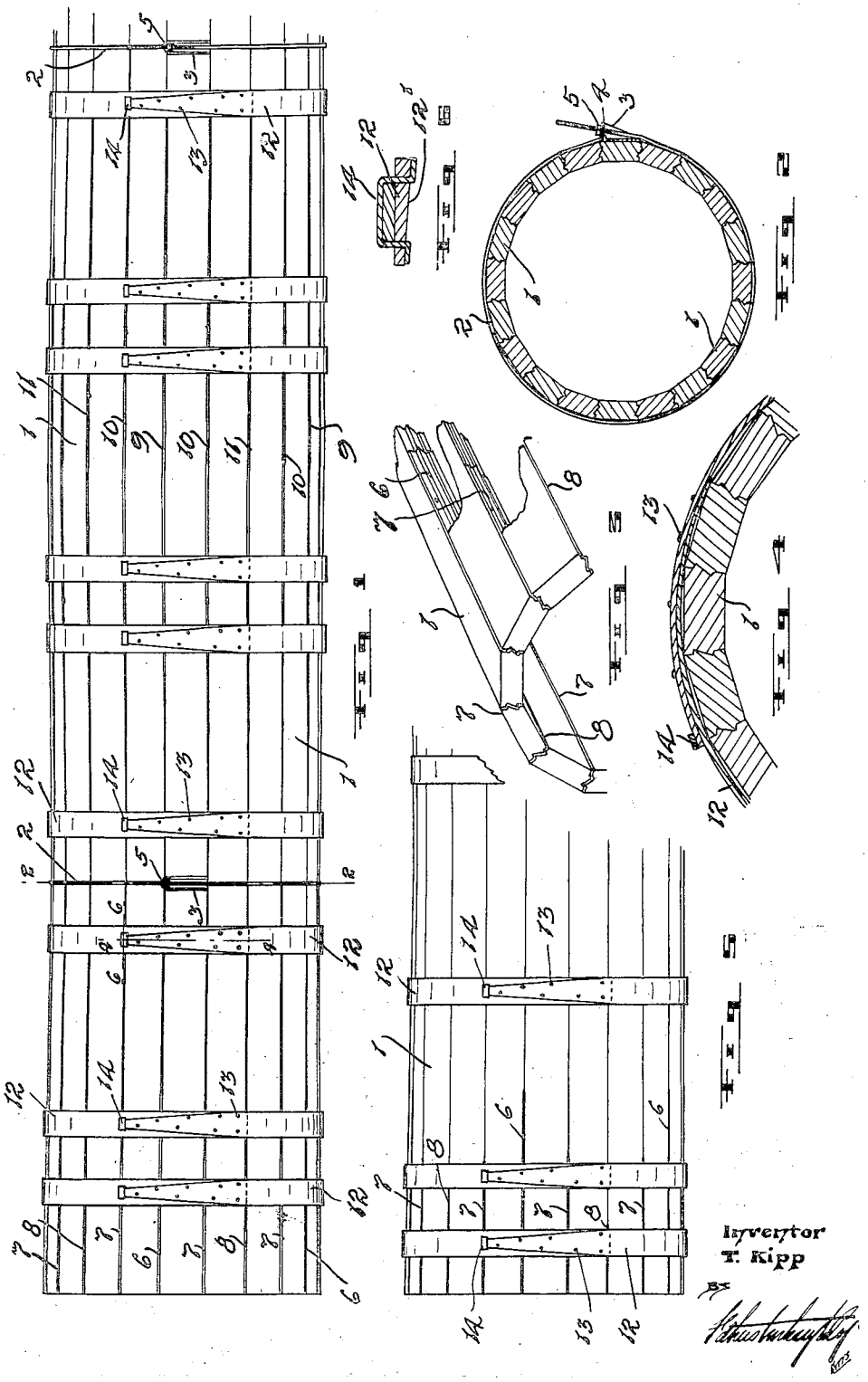
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WOODEN CULVERT, WATER PIPE, AND THE LIKE

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WOODEN CULVERT, WATER PIPE, AND THE LIKE

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2 Claims. (Cl. 137—75)

The invention relates to improvements in wooden culverts, water pipes and the like and particularly to the manner in which the staves or timbers forming the pipe or culvert are bound together and an object of the invention is to provide exterior means for initially compressing the assembled staves at selected points distributed throughout the length of the culvert, means whereby the culvert body is caused to flare outwardly in directions away from such compressed points and bands applied on the flaring portions of the culvert adapted to be driven against the flare.

A further and more detailed object of the invention is to provide spacing strips insertible between the staves of the culvert when the same is being assembled and at selected points, a number of clamping rods for tightening up the assembled staves at points where the spacing strips are omitted and bands applied on the culvert at selected points adapted to be driven endwise of the culvert to hold and bind the staves subsequent to the removal of the clamping rods.

A further object is to provide a culvert or pipe which when completed will have no irregularly projecting parts as at present occurs where clamping rods are utilized to bind the assembled staves.

With the above more important objects in view, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawing, in which:—

Fig. 1 is a side view of a portion of a culvert and showing a number of clamping rods applied thereon and a number of bands or hoops.

Fig. 2 is a vertical cross sectional view at 2—2 Figure 1.

Fig. 3 is a perspective view of a portion of the culvert, parts being broken away to expose construction.

Fig. 4 is an enlarged detailed sectional view at 4—4 Figure 1.

Fig. 5 is a side view of the end of the culvert and showing the wooden hoops as they appear in their final position.

Fig. 6 is an enlarged detailed cross sectional view at 6—6 Figure 1.

In the drawing like characters of reference indicate corresponding parts in the several figures.

The culvert is herein shown as formed from a plurality of similar staves or timbers 1, the number of staves used depending on the diameter of the culvert required. The edges of the staves are shaped to provide a break joint between the staves, the particular type of joint employed being best shown in Figure 4.

According to present practice, it is customary to bind the assembled staves by applying clamping rods 2 at desired intervals, the clamping rods being tightened up to effectively squeeze the staves together and hold them in such position. Various types of clamping rods are employed and that herein shown embodies a rod having one end suitably anchored to a shoe 3 and the other end screw threaded and passing slidably through an outstanding flange 4 provided on the shoe, the latter end being screw threaded and fitted with a nut 5 engageable with the flange. Obviously one can tighten up the applied rod by screwing up the nut. According to my invention, I utilize a number of these tie rods but the tie rods are not left on the completed culvert as is customary practice.

In carrying out my invention, I insert spacing strips such as of tar paper between the edges of the loosely assembled staves, the spacing strips being placed in selected locations. As an example, I place spacing strips between the edges of the staves at one end of the culvert, the strips being of varying length, that is to say, there will be a long strip 6, an intermediate length strip 7 and a short length strip 8 appearing successively in rotation throughout the complete circumference of the culvert. These strips can be inserted at the time the staves are initially more or less loosely held in a cradle.

At some distance in from the end of the culvert, I will locate between the edges of the staves, a further number of spacing strips of varying length, there being relatively long strips 9, intermediate length strips 10 and relatively short strips 11 used, the said latter strips appearing in successive sets throughout the complete circumference of the culvert. The adjacent ends of the strips 6, 7 and 8 and those 9, 10 and 11 will be apart a predetermined distance so that there will be a portion of the assembled culvert where no strips are employed. The placing of the strips at selected points is continued throughout the length of the culvert in the manner above described.

Assuming that the loosely assembled staves with the inserted strips at the selected points are held in a cradle, I then apply clamping rods, such as those described, around the culvert in the centre of those locations where there are no spacing strips and in the present disclosure, two clamping rods are shown. Having so applied the clamping rods, they are tightened up which causes the

staves to be effectively bound at such points and also causes the body of the culvert to become outwardly flared in directions away from the applied tie rods, such being caused by the inserted spacing strips.

Hoops or bands 12 are supplied, these being herein shown as wooden bands and in this connection, it is to be understood that such bands are treated with a preserver such as creosote. Any number of bands can be used. The ends of the bands or hoops are lapped and fastened permanently together and they are located on the culvert initially in positions say as shown in Figure 1 and in such positions, the bands are drawn up fairly tight.

Subsequently the bands are driven in directions away from the tie rods so that they will draw the staves very tightly together and effectively bind the same. This will be readily understood by reference to Figure 5 where the three end bands as shown are in their final position which is considerably to the left of the position occupied by the same three bands in Figure 1.

After the applied bands have been driven to their final positions, the tie rods 2 are removed and the culvert is ready for use.

The inner sides of the bands or hoops are tapered as indicated at 12', Figure 6, this corresponding to the flare of the culvert when the same are applied. The ends of the bands are herein shown as permanently fastened together by driving non-corroding nails 13 therethrough and clinching and the overlying end of each band is shown as received underneath a staple 14 carried by the underlying end of the band.

This construction will give the interior of the finished culvert a small Venturi effect but it is not believed that this will be detrimental to the flow therethrough. Culverts bound in this manner have no irregularly shaped projecting parts and accordingly they can be telescoped for shipping or storage purposes and can be very easily handled without liability of damage and there is no possibility of a workman being injured through being caught by a projecting part.

While I have particularly stated that the hoops are impregnated wooden hoops, I wish it to be understood that metal hoops can be used if desired as they can be driven in the same manner as the wooden hoops to tighten up the staves and they will permit of the easy telescoping of culverts of varying diameter and also of the easy handling of the culverts as there will be no irregular projecting parts.

I might also point out that the assembled staves can be initially compressed at the selected points in any desired manner and accordingly I do not wish to be limited to the particular type of clamping bands herein shown.

What I claim as my invention is:—

1. The method of binding a wooden stave culvert or pipe which consists in inserting spacing strips between the edges of the loosely assembled staves and in selected locations throughout the length of the pipe or culvert, then applying external pressure on the assembled culvert or pipe at points devoid of strips to tightly compress the culvert or pipe at such points and effect an outward flaring of the pipe or culvert in directions away from such points due to the inserted strips, then applying hoops around the pipe or culvert in locations adjacent the points of greatest compression, then driving the hoops endwise of the culvert or pipe against the flare to effectively jam the hoops and finally removing the exterior pressure.

2. The method of binding a wooden stave culvert or pipe which consists in placing sets of spacing strips successively between the loosely assembled staves in selected locations throughout the length of the pipe or culvert, then applying clamping bands around the culvert or pipe in locations devoid of packing strips and tightening up the clamping bands to effectively compress the culvert or pipe at the points of application of the clamping bands and effect an outward flaring of the culvert or pipe in directions away from the said bands due to the inserted strips, then applying hoops on the culvert or pipe adjacent the bands, then driving the hoops against the flare to effectively jam the same on the culvert or pipe and finally removing the applied bands.

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