

(No Model.)

2 Sheets—Sheet 1.

R. H. LLOYD & R. REIERSEN.
CHUTE.

No. 509,041.

Patented Nov. 21, 1893.

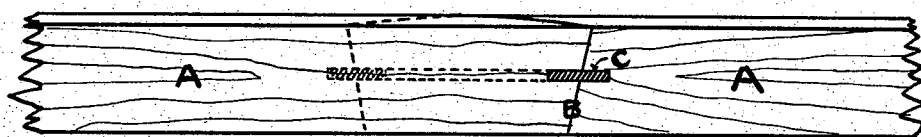
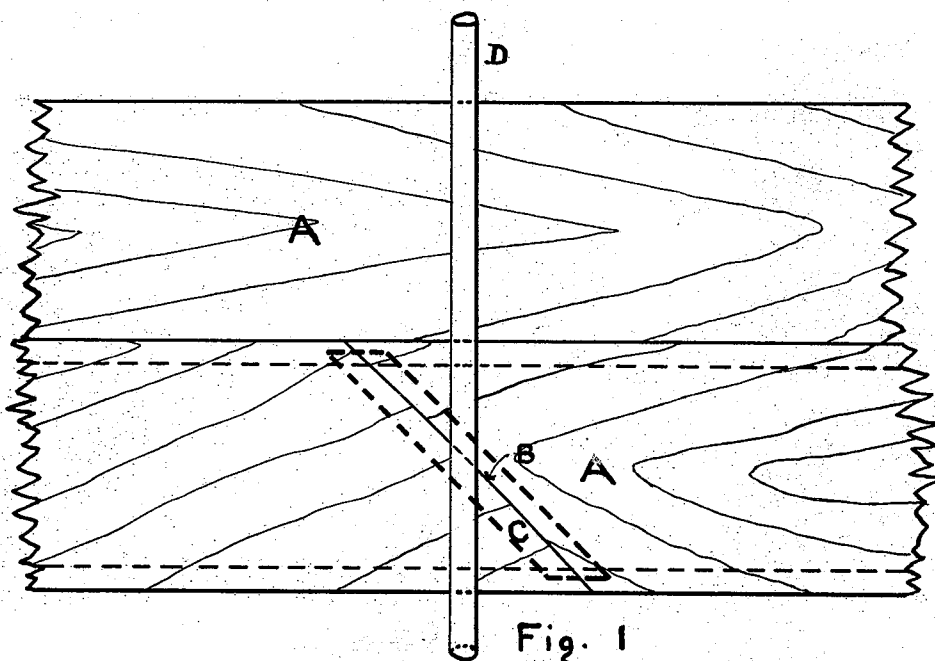


Fig. 2



Fig. 3

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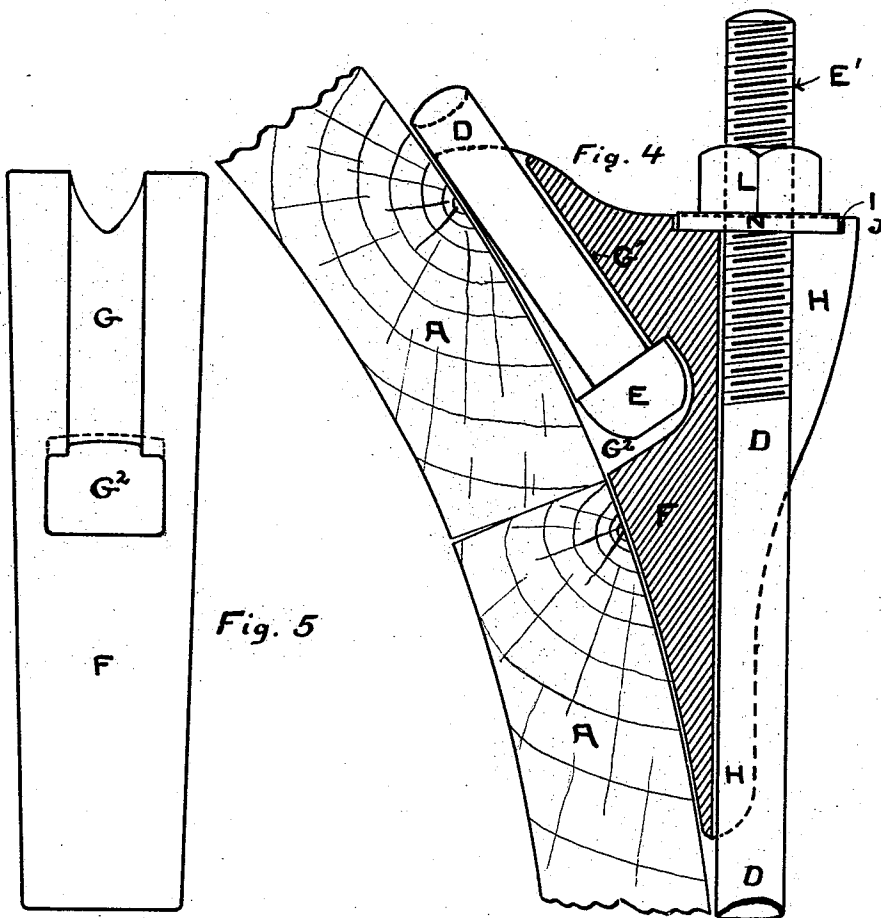
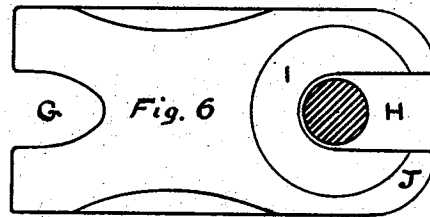
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UNITED STATES PATENT OFFICE.

ROBERT H. LLOYD AND RICHARD REIERSEN, OF TACOMA, WASHINGTON.

CHUTE.

SPECIFICATION forming part of Letters Patent No. 509,041, dated November 21, 1893.

Application filed June 21, 1893. Serial No. 478,394. (No model.)

To all whom it may concern:

Be it known that we, ROBERT H. LLOYD, a citizen of the United States, and RICHARD REIERSEN, a subject of the King of Sweden and Norway, residents of Tacoma, in the county of Pierce, State of Washington, have invented certain new and useful Improvements in Chutes, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of two of the longitudinal boards or staves composing our chute. Fig. 2 is a view of the under edge of the longitudinal staves, showing our improved joint in section. Fig. 3, is a detail of the filling in strip; Fig. 4 a cross section of a segment of a chute, and a partly longitudinal section of the clip and its rod or band. Fig. 5 is an under side view of the clip, and Fig. 6, a top view.

Our invention relates to chutes or pipes made of wood and more particularly to such chutes or pipes as are composed of longitudinal staves, held in position by a band surrounding the barrel of the chute or pipe.

The object of our invention, is to form an improved joint between the abutting ends of two staves and to provide an improved form of clip whereby the band which encircles the barrel of the chute may be more easily applied and be of cheaper construction.

In the drawings, in which like letters indicate like parts, A, indicates the longitudinal staves, made of concavo-convex shape. In Fig. 1 is shown the joint made where two staves abut. As is seen, the ends of the staves, are cut off at an angle of about forty-five degrees with the edge, so that the two ends will fit into each other, and when pressed together will act to wedge each other outward. We may cut slots in the two inclined ends as shown, and insert therein a strip C, of galvanized iron or wood. Heretofore the joints made in this class of work have been either "butt" joints, that is joints made at right angles to the longitudinal edge of the stave, or dovetail joints, where a dovetail recess is cut in both ends of the abutting staves, and a double dovetail piece of wood is inserted, in the recess and between the ends of the staves. The "butt" joint is not tight,

and cannot be tightened by any means after the chute or pipe is in position. With the dovetail joint, the dovetail swells, and is very likely to split the wood, besides being costly compared with our joint. With our improvement, the more the wood swells the tighter the joint grows, the two pieces acting against each other with a wedging action, and not only does the end joint grow tighter itself, but the wedging action also tightens the longitudinal joints. The round band D, or hoop, which passes around the barrel of the pipe, to hold it together also has a function in connection with the joint which such bands have never had before. As the band or hoop is tightened,—as will be more fully described hereinafter,—the inclined ends of the staves are brought more closely together and wedged in.

As stated above, the band D, surrounds the barrel of the pipe. In Fig. 4 is shown our improved clip by which the two ends of the hoop or band are held together. One end of the hoop-rod D, has a head E, and the other end is provided with screw threads E'. I preferably make the band D, of round section though it might be made flat with rounded ends.

The clip F, is made of cast iron and its inside surface is rounded to conform to the outside surface of the pipe or chute. The upper end of the inside surface is slotted as at G, and the slot has at its lower end an enlargement G², which is adapted to fit the head E. The inside face G' of the slot G, is substantially parallel with the inside face of the clip so as to hold the band or hoop D, at a slight tangent to the face of the stave A. The recess G², is rounded, to conform to the rounded head E. The outside face of the clip, has a longitudinal slot H, running its entire length, the inside face of which is at an angle of about forty-five degrees, with the inside face of the slot G.

The sides of the slot H, project out farther at the upper end of the clip, than at the lower end as shown, forming what might be termed brackets. On the end of the clip and surrounding the slot H, is a countersink I, the metal around the countersink forming a flange J. The washer N, below the nut L,

fits in this countersink, when the nut is in place, and the band D, drawn tightly around the piping. The countersink and washer might be polygonal, though we prefer them round, and have so shown them.

In applying the band or hoop D, to the barrel of a chute, the head E, is first slipped into position in the recess G, G² and the band passed around the barrel. Then the end E' of the rod—with the nut and washer in place,—is sprung into the slot H, and the nut L screwed down, until the rod is tightened sufficiently, and the joints, both lateral and transverse are brought together.

In the clips as heretofore constructed, the end of the rod D, and head E, have been either cast in one piece with the clip or welded into it, and in place of the slot H, a hole was made entirely through the clip, through which the rod D has to be threaded before the nut can be placed in position and tightened, thus necessitating much labor and consequent expense which are done away with by our device. If the clip was broken the entire rod had to be thrown away. If the rod was defective, the clip was useless. The nuts and washers had to be taken entirely off the ends of the rods, before they could be fastened in position, and the operation of threading the rods through the clips was troublesome and took time. With our improved clip, however, the clips may be cast separately, and put on the market separately, and defects in the clip mean only its loss and not that of the hoop rod, as well. It is much easier of construction and casting, than the old style there being no need of cores for the rod-holes, and withal it is very much simpler and quicker in its application, as will be readily seen. The head E, as shown is rounded. Heretofore this head has been square and rested in a square pocket in the casting. Such construction causes trouble in that the band D, had to be turned and re-turned, until the head was in register, with the sides of the pocket, or the head would only be held in the casting by the corners of the nut and not by its sides. Our construction obviates this, in that the nut and recess both being round whichever way it is turned it is always in position.

We do not limit ourselves to the exact construction shown as many slight changes might be made without departing from the spirit of our invention.

Our invention may be used in many constructions, such as water pipes, sluices, wasteways, and shafts beside that of a chute and we do not limit ourselves to its use in that connection.

Having described our invention, what we claim is—

1. In a chute, a joint for the meeting ends of two staves, the joint being inclined to the

longitudinal edge of two abutting staves, all as and for the purpose described.

2. In a chute, a joint for the meeting ends of abutting staves, the two staves being made—one with an upwardly and rearwardly inclined end, and the other with an upwardly and forwardly inclined end, the ends being adapted to fit upon one another, all as and for the purpose described.

3. In a chute, the combination, with an inclined joint between the meeting ends of two longitudinal staves, of a band surrounding the barrel of the chute, and passing across the inclined joint, to hold the joint together, all as described and shown.

4. The combination with a rod or band surrounding the barrel of a chute, and provided with a head at one end, of a clip for joining the meeting ends of the rod, and consisting of a casting having on its under surface, a recess for the head, and end of the rod, and on its outside face, a longitudinal slot for the reception of the other end of the hoop or band, and means for tightening the band, all as and for the purpose described.

5. As an article of manufacture, a clip for use in joining the hoops or bands surrounding circular chutes, consisting of a casting, having at one end of its inner face, a slot and an enlarged recess at the end of said slot, and on its outer face a longitudinal slot, the upper end of the clip having a countersink around the upper end of the slot, substantially as described.

6. As an article of manufacture, a clip for use in joining the ends of bands or hoops surrounding chutes, consisting of a casting provided at one end of its inner face, with a slot and enlarged recess at the lower end of the slot, and on its outer face with a longitudinal slot, all substantially as described.

7. The combination, with a rod or band surrounding the barrel of the chute, one end of the said rod having a head, the other end being screw threaded and provided with a nut and washer, of a clip for connecting the meeting ends of the rod or band, the inner face of the clip being adapted to fit the barrel of the chute, and provided with a slot at its upper end, and an enlarged recess at the end of the slot to receive the head of the band or rod, and the outer face of the clip having a longitudinal slot for the reception of the screw-threaded end of the rod or band, and a flange or projection upon the forward edge of the upper end of the clip, for preventing the rod and nut slipping out of the longitudinal slot, all substantially as described.

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