

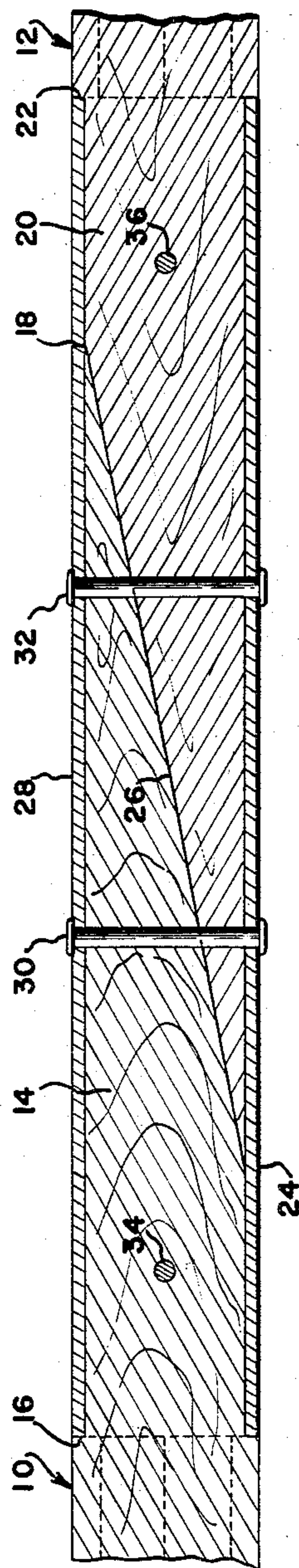
七、三、五、七、九、十一、十三、十五、十七、十九、二十一、二十三、二十五、二十七、二十九、三十一、三十三、三十五、三十七、三十九、四十一、四十三、四十五、四十七、四十九、五十一、五十三、五十五、五十七、五十九、六十一、六十三、六十五、六十七、六十九、七十一、七十三、七十五、七十七、七十九、八十一、八十三、八十五、八十七、八十九、九十一、九十三、九十五、九十七、九十九、一百

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SUCKER ROD CONSTRUCTION

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3 Claims. (Cl. 287—108)

This invention relates to wood sucker rods, and more particularly to an improved splice construction for sucker rods.

Wood sucker rods are used to connect the mechanism at the top of a pump or windmill with the plunger valve operating in the well and are used throughout their life-time completely submerged in water. In practice, sucker rods are formed of a plurality of sections coupled together to facilitate disjoining the sucker rod when the rod is taken out of or put into a well.

It often becomes desirable or necessary to form a splice in a given section of sucker rod. For example, a defect may occur in the wood which must be cut out, thereby rendering it necessary to splice the adjacent ends of the piece where the cut is made. Also, it is sometimes desirable to increase the length of a sucker rod section by splicing two portions of the wooden rod together. The splice construction of this invention is not intended as a substitute for or replacement of conventional couplings between sucker rod sections, but rather is a means which permits use of shorter or longer lengths of sucker rod between conventional couplings with a minimum of expense.

Accordingly, it is an object of this invention to provide a sucker rod construction including a strong and inexpensive splice for connecting two portions of a sucker rod together.

It is a further object of this invention to provide a sucker rod construction including a splice for connecting two portions of a wood sucker rod together which provides a tight joint and which eliminates the possibility of end play.

It is a further object of this invention to provide a splice for uniting two portions of wood sucker rod together in which danger of the wood splitting at the splice is substantially eliminated.

In achievement of these objectives, there is provided in accordance with an embodiment of this invention a sucker rod construction including a splice in which two portions of a wood sucker rod which are to be spliced to each other are each provided with dowels having complementary bevels. The dowels are pressed into a rigid tubular metal sleeve member with their respective bevels in overlapping relation to each other. The metal sleeve extends for the entire length of the two doweled portions in their overlapped relation. A pair of spaced rivets or other suitable fastening means extend through the metal sleeve and the overlapped beveled portions in a plane transverse to the bevels. A rivet or other suitable fastening means also passes through the metal sleeve and each of the wood members in a plane parallel to the plane of the bevel and spaced a short distance from each end of the metal sleeve.

A further feature of the construction is the provision of a slotted aperture in the rigid sleeve member to permit water in the well to contact the doweled portions and also to permit visual inspection of the beveled joint.

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Further objects and advantages of the invention will become apparent from the following description taken in conjunction with the accompanying drawing in which:

Fig. 1 is a longitudinal elevation of a sucker rod incorporating a splice in accordance with the invention;

Fig. 2 is a view in longitudinal section of the sucker rod of Fig. 1; and

Fig. 3 is a view in transverse section along line 3—3 of Fig. 1.

Referring now to the drawing, there is shown a pair of sucker rod portions generally indicated at 10 and 12, each having an octagonal shape in transverse cross-section. Each of the portions 10 and 12 may have, for example, an outer diameter of one and one-eighth inch. Each of the wood portions 10 and 12 which are to be united are doweled for an equal length to their outer ends. Thus, sucker rod portion 10 has a dowel 14 which extends from the dotted line 16 to its outer end 18 while the sucker rod portion 12 has a dowel 20 which extends from the line 22 to its outer end 24. Each of the doweled portions 14 and 20 may have a length of six and one-half inches, for example. Each of the doweled portions 14 and 20 is provided with a bevel which is complementary to the bevel of the other doweled portion, the two bevels being indicated at 26. Each of the bevels 26 extends for a distance somewhat less than the length of the doweled portion, such as five inches, for example. Thus, each doweled portion 14 and 20 is unbeveled for a portion of its length, such as one and one-half inches. The two dowels 14 and 20 are pressed into the opposite ends of a metal sleeve member 28, the complementary beveled portions 26 of the two dowels overlapping each other in wedging engagement. Sleeve 28 has a length equal to the combined lengths of the two dowel portions 14 and 20 in their overlapped relation. The outer surfaces of the two dowels 14 and 20 are sufficiently less than the outer diameter of the octagonal or undoweled portions of the sucker rod that the outer surface of metal sleeve 28 is flush with the outer surface of the octagonal portions of the sucker rods. After the doweled portions have been positioned inside tube 28 with their respective bevels in wedging and overlapped engagement to each other, a pair of spaced rivet members or other suitable fastening means 30 and 32 are then passed through tube 28 and through the overlapped beveled portions 26 in a plane transverse to the plane of bevels 26 and perpendicular to the longitudinal axis of the sucker rod. In order to additionally secure the doweled portions to the tube 28, a rivet or other suitable fastening means 34 extends through dowel 14 in the unbeveled portion thereof approximately one inch from the beginning of the dowel and a second rivet or other suitable fastening means 36 extends through the dowel 20 approximately one inch from the beginning of the dowel. Rivets or fastening means 34 and 36 extend in a plane perpendicular to the plane of the rivets 30 and 32 and in a plane substantially parallel to the plane of bevels 26.

A further feature of the construction is the slotted opening indicated at 38 in Fig. 1 which is provided in sleeve member 28 substantially centrally of the length of the sleeve and of the length of the beveled portions 26. The slotted opening 38 is so located as to render a portion of the beveled joint visible for inspection. The opening 38 permits observation of the joint to insure that the overlapped dowel portions are properly aligned and tightly fitted together. The opening 38 permits water in the well to gain access to the interior of the metal sleeve at the middle of the length thereof, thereby assuring equal expansion of both of the doweled portions 14 and 20. The water in the well tends to cause the doweled portions 14 and 20 to expand or swell, thereby tightening and strengthening the joint.

The splice construction hereinbefore described provides an economical and strong splice for two portions of a wood sucker rod which are to be joined together. The splice is mechanically strong due to the wedging relation of the overlapped beveled portions in combination with the outer tubular metal sleeve or casing which surrounds the doweled portions of the joint. The wedging action of the two overlapped beveled portions provides a tight joint and eliminates the possibility of end play of the joined members. The metal sleeve which surrounds the doweled portions prevents the wood from splitting when connected by rivets or other fastening means. The rivets or other fastening devices extending through the rigid metal sleeve and wood members at right angles to each other reinforce the sleeve and prevent splitting of the sleeve from any direction caused by expansion of the wet wood.

While there has been shown and described a particular embodiment of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and, therefore, it is aimed to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as my invention is:

1. A sucker rod construction for use in a well or the like comprising a pair of aligned wood sucker rod portions, said sucker rod portions having complementary beveled end portions disposed in overlapped abutting relation to each other, a rigid tubular sleeve surrounding said end portions, said tubular sleeve having an aperture therein overlying a portion of both beveled end portions with a portion of the joint between said beveled end portions being exposed within said aperture whereby liquid may pass through said aperture and contact both of said end portions.

2. A sucker rod construction for use in a well or the

like comprising a pair of aligned wood sucker rod portions, said sucker rod portions having complementary beveled end portions disposed in overlapped abutting relation to each other to provide a joint between said beveled end portions, a rigid tubular sleeve surrounding said end portions, said tubular sleeve having an elongated aperture therein, said joint being exposed within said aperture and extending diagonally with respect to said aperture to permit liquid to pass through said aperture and contact both of said end portions, and a plurality of fastening members extending through said sleeve and said end portions.

3. A sucker rod construction comprising a pair of aligned sucker rods, each of said sucker rods having a doweled portion extending from an end thereof and said doweled portions having complementary beveled end portions disposed in overlapped abutting relation to each other to provide a joint between said beveled end portions, a rigid tubular sleeve surrounding said doweled portions and having an exterior surface substantially flush with the exterior surface of each sucker rod, said sleeve also having an aperture therein and said joint being exposed within said aperture to permit liquid to pass through said aperture and contact both of said beveled end portions, and fastening means extending through said sleeve and said beveled end portions to maintain said beveled end portions in said abutting relation.

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