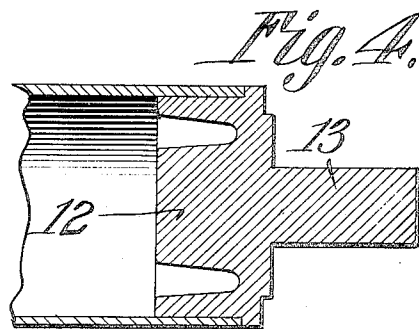
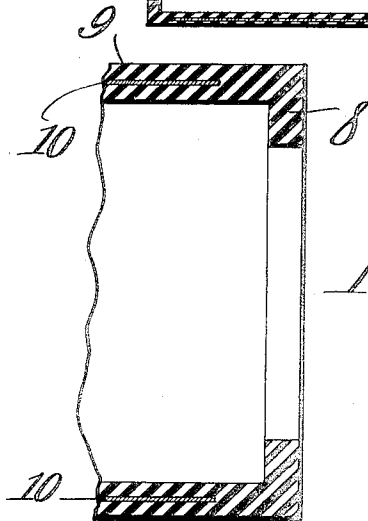
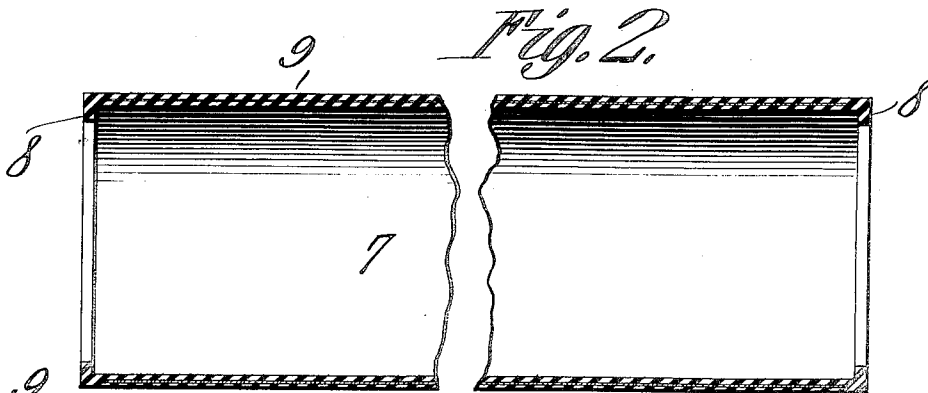
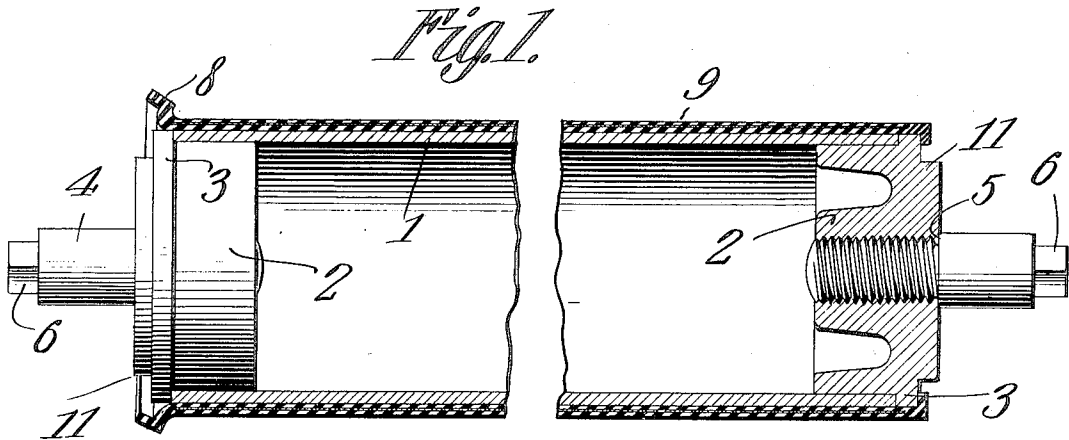


H. L. JENNINGS.  
 VANNER ROLLER.  
 APPLICATION FILED JULY 8, 1908.

902,736.

Patented Nov. 3, 1908.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HARRY L. JENNINGS, OF CANANEA, MEXICO.

## VANNER-ROLLER.

No. 902,736.

Specification of Letters Patent.

Patented Nov. 3, 1908.

Application filed July 8, 1908. Serial No. 442,565.

*To all whom it may concern:*

Be it known that I, HARRY L. JENNINGS, a citizen of the United States, residing at Cananea, in the Republic of Mexico, have invented a new and useful Vanner-Roller, of which the following is a specification.

This invention relates generally to vanner rollers, and more particularly to a novel form of sheath or cover therefor.

All vanners, or practically all, but especially those of the six foot frue type are so constructed that the vanner belt on which the separation of the metals from the sand or rock, takes place, forms a large and almost flat surface, this being due to the fact that the belt passes over and around a series of closely assembled metal rollers. Generally these rollers are made of very thin and soft iron tubing, and are supported at their ends by suitable castings carrying journals about which the rollers revolve.

As is well known, there is always acid of some kind present in all milling ores, and when these latter are undergoing the milling process, they are subjected to the action of water, and this latter causes the acids to dissolve producing thereby a serious effect on all soft iron in which they come in contact, as rusting and erosion inevitably result.

The vanner belt, when in operation, is constantly moving through a bath of the acidulated water above referred to and thence passes over and around the soft metal vanner rollers, thereby causing them always to be wet with the water, with the result that rust and scaling ensue. As soon as the rollers begin to rust, they grow rough, and in operation cut and wear out the large and expensive vanner belt, which is indispensable in the present system of milling ores. Again, these rollers are often softer on one side than on the other or in spots, and the acid will naturally attack and destroy the softer parts more rapidly than the harder, and thus cause the periphery of the rollers to become uneven, and further so to weaken them as to allow them to bend under the weight of the vanner belt and its traveling load. When bent, the rollers will not revolve, and so as the vanner belt is dragged thereover the attrition and wear are proportionably augmented. These defective rollers also cause sunken places to be formed in the vanner belt in which the concentrates accumulate in such quantities as necessitates their being raked off, or an extra amount of water being used, and this

latter feature is objectionable as the concentrates are washed off with the tailings and are lost.

The object of the present invention is in a ready and practical manner to obviate all of the objectionable features above enumerated, without adding material cost to the apparatus, or in any way changing its construction.

The invention consists in the various novel details of construction of a sheath for vanner rollers, as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a broken vertical longitudinal section view through a vanner roller equipped with the improvements of the present invention. Fig. 2 is a similar view through the sheath. Fig. 3 is a sectional detail view, on an enlarged scale of a portion of the sheath. Fig. 4 is a detail sectional view, of a portion of an ordinary vanner roller such as is in common use.

The roller 1 is, as usual, constructed of a tube of relatively thin soft iron, and its ends are closed by two heads 2 that are held in position by frictional contact with inner walls of the roller. In order to limit the inward insertion of the heads, each is provided with a circumferential shoulder 3, and these two shoulders abut against the ends of the tube as clearly shown in Fig. 1, the peripheries of the shoulders being disposed flush with the outer face of the roller.

The heads carry journals 4 which are threaded into central orifices, each of the journals being provided with a shoulder 5 to bear against the outer wall of the head thus to insure a rigid connection, and also accurate alinement of the journals. To facilitate the removal of the journals, each is provided at its outer ends with a polygonal extension 6 to be engaged by a suitable wrench. By having the journals detachable from the heads, repairs may readily be effected, and a material saving will result, as it will not be necessary to remove the heads and cast them aside, when the journal bearings become worthless.

The essential feature of the invention resides in a novel form of sheath, which is so constructed as it will not only entirely protect the roller, but will also preclude entrance thereto of water, acidulated or otherwise.

This sheath, which is shown in detail in Fig. 2 comprises a body portion 7 constructed of relatively hard rubber, such as is usually employed in rubber belting, and two relatively soft terminals 8. As shown in Fig. 3, the body portion is a multi-ply structure, that is to say, is composed of two plies of rubber 9 interposed by fabric 10, such as canvas, and to which the plies are vulcanized. The terminals 8 are made of soft single ply, and highly elastic rubber and are vulcanized to the ends of the body portion whereby to permit of their being turned back, as shown in Fig. 1, when the roller is to be removed for any purpose. The flanges are designed to bear tightly against the outer ends of the heads, and with sufficient force to preclude entrance of water to the roller. As usual, the ends of the heads on their outer faces are circumferentially reduced at 11, and the flanges engage these portions and thus lie within the planes of the outer faces of the heads, and are thereby protected from injury as by contact with the parts of the vanner belt supporting frame in which the rollers are journaled.

It will be seen from the foregoing description that by the provision of the sheath such as described, the vanner rollers will be positively protected against injury as from the action of the acidulated water, so that uneven wear of the vanner belt will be prevented, and a large saving in operating a mining machine of this character will be secured.

In Fig. 4 there is shown the ordinary form of vanner roller in which the head 12 and journal 13 are integral. By this arrangement should the journal break or wear unevenly, it will necessitate the removal of both the head and journal to repair the defect.

While the body portion of the sheath, which as, will be understood is tubular and seamless, is shown as composed of two plies of rubber and a single ply of fabric, it is to be understood that the invention is not to be limited to this precise arrangement, as the sheath may be composed of a greater

number of plies without departing from the spirit of the invention.

An advantage accruing from the soft and highly elastic terminals is that the sheath may be removed from the roller with ease, and further the contact between the flanges and the heads will be of a character to secure the object sought.

I claim:

1. A sheath for a vanner roller having its body portion constructed of relatively hard rubber and its terminals of soft rubber.

2. A sheath for vanner rollers having its body portion constructed of multi-ply rubber and its terminals single ply rubber.

3. A sheath for vanner rollers constructed of rubber; the intermediate portion of which is multi-ply and relatively hard, and the terminals of which are single ply and relatively soft.

4. A sheath for vanner rollers constructed of a continuous seamless tube of rubber and having its terminals inturned to form flanges.

5. A sheath for vanner rollers constructed of rubber, the intermediate portion of which is multi-ply and the terminals of which are single ply and inturned to form flanges.

6. The combination with a vanner roller of a sheath constructed of a continuous seamless tube of rubber having terminal inturned flanges to engage the ends of the roller.

7. The combination with a vanner roller, of heads carried thereby and having their outer faces circumferentially reduced, of a continuous seamless rubber sheath engaging the roller and having terminal inturned flanges to engage the reduced portion of the heads.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HARRY L. JENNINGS.

Witnesses:

M. F. MICKEY,  
W. E. MITCHELL.