(No Model.)

M. DAYHUFF.

PACKING FOR OIL WELL TUBING.

No. 321,488. Patented July 7, 1885.

Fig. 4.

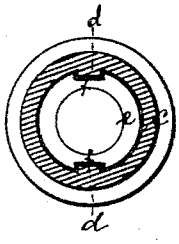


Fig. 5.

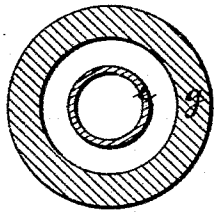


Fig. 6.



Fig. 1.

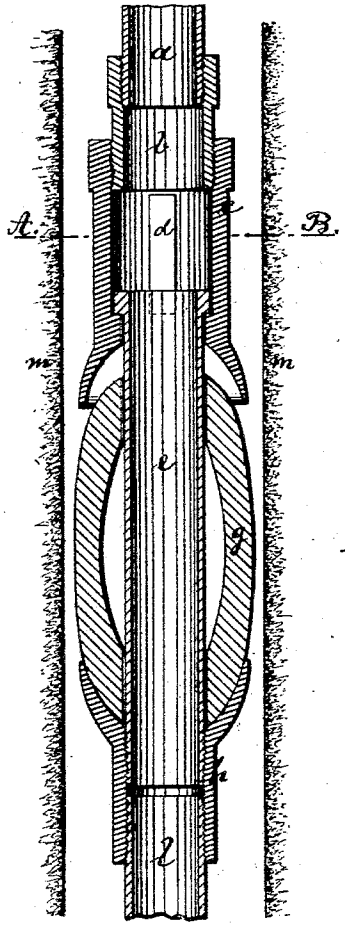


Fig. 2.

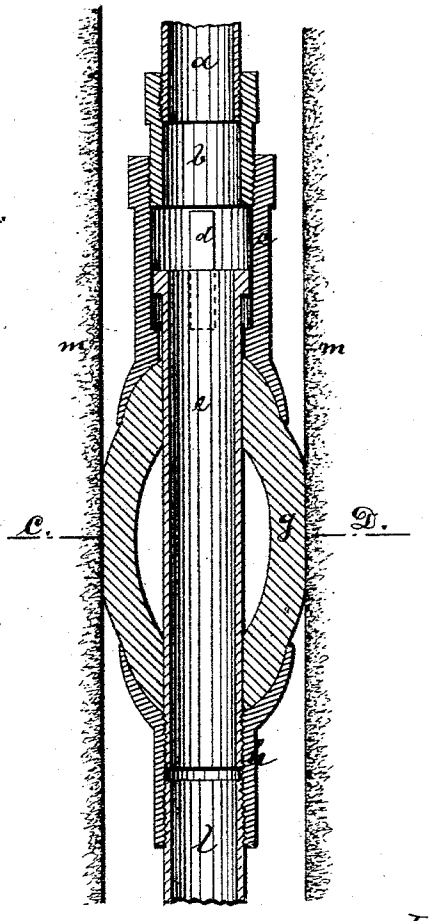
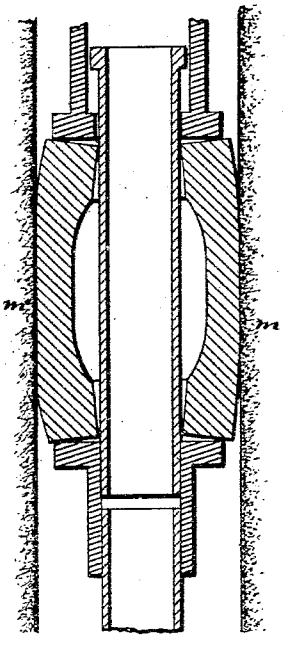


Fig. 3.



Witnesses:
H. L. Crawford
James Chambers

Inventor:
Martin Dayhuff
per Julius Schubert attorney.

BELL BROS., PHOTO-LITHOGRAPHERS, WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

MARTIN DAYHUFF, OF VOLCANO, WEST VIRGINIA.

PACKING FOR OIL-WELL TUBING.

SPECIFICATION forming part of Letters Patent No. 321,483, dated July 7, 1885.

Application filed March 12, 1885. (No model.)

To all whom it may concern:

Be it known that I, MARTIN DAYHUFF, a citizen of the United States, residing in Volcano, in the county of Wood and State of West Virginia, have invented a new and useful Packing for Oil-Well Tubing, of which the following is a specification.

My invention relates to improvements in packing of oil-well tubing, in which two cups press on a globe or oval shaped hollow piece of india-rubber, and expand it sidewise to such an extent as to completely fill the hole, and to prevent the water coming from a vein above the packing reaching the part of the hole below the packing, at the same time giving to the india-rubber a large cone-shaped bearing in the cups, so as to make perfect water-tight joints. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section through the entire packing with the tubing suspended in the hole. Fig. 2 is a vertical section through the entire packing with the weight of the tubing resting upon it. Fig. 3 is a vertical section through a cylindrical packing, which is in use, but fails to fulfill its mission, and on which my invention is an improvement. Figs. 4 and 5 are cross-sections of the packing at lines A B and C D. Fig. 6 is a detailed view of the spindle connecting lower and upper cups.

Similar letters refer to similar parts throughout the several views.

The tubing *a* is screwed into the bushing *b*, which latter is connected with the barrel *c* by a water-tight screw-joint. This barrel *c* has on the inside two tongues, *d*, fitting into the grooves *f* of the spindle *e*. This arrangement allows the barrel and the upper cup, which is the lower part of the barrel *c*, to be moved on the spindle up and down, and by turning the barrel *c* the spindle *e* is turned also, and the screw-connection of the lower end of the spindle with the lower cup, *h*, is made. The tubing *l*, below the packing, is connected to the lower cup, *h*, by water-tight screw-joint.

Before the connection between barrel *c* or upper and lower cup is made, the hollow globe or oval shaped piece of india-rubber *g* is slipped over the spindle *e*, and when this is done, and the connection of the spindle with lower cup is made, the packing is ready for use.

In order to prevent adhesion of the india-rubber at both ends to the spindle, which would prevent its expansion after the pressure is removed, one of the holes at the end of the rubber is lined with muslin.

The operation is as follows: The amount of tubing *l* which is to be below the point of packing is let into the well. Then the lower cup, *h*, is screwed to the tubing. After this the spindle *e*, over which the upper cup, with barrel *c* and the globe or oval shaped piece of rubber *g*, is slipped, is screwed tight into the lower cup, which operation is made possible by the grooves in the spindle and the tongues in the barrel compelling the spindle to turn when the barrel *c* is turned. The bushing *b* is then screwed into the barrel *c*, and the tubing *a* above the packing is screwed into the bushing. As long as the tubing in the well (the walls of which are represented by the shading at letters *m*) is suspended from above, the upper cup of the packing does not touch the india-rubber, and leaves it in its original form, not coming into contact with the walls of the well, as represented in Fig. 1. So soon as the tubing *l* rests on the bottom of the well, and the tubing *a* is screwed into its full length, then the upper cup and barrel *c* are pressed downward by the weight of the tubing *a*, being guided by spindle *e* onto the india-rubber, which is compelled to press out sidewise until it fills the hole completely. The cups, being cone-shaped or oval, give a large bearing to the rubber, and the stronger the pressure the more will the rubber be pressed into the cups, and perfectly-tight joints are secured. This is represented in Fig. 2.

Fig. 3 explains the failure of the cylindrical packing with flat pressure-surfaces. The heavy pressure on top presses the rubber toward the walls, but opens the joints, and the water passes through the joints and cavity of the rubber into the space below the packing.

I am aware, as above shown, that prior to my invention packings for oil-well tubing have been invented. Therefore I do not claim the packer as my invention; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In an oil-well packer, the spindle *e*, with

a solid head and grooves *f*, the same fitting on the tongues *d* of the barrel *c*, connected with the upper cup, substantially as shown, and for the purpose specified.

2. In an oil-well packer, the combination of two cone, globe, or oval shaped cups, *c* and *h*, with a globe or oval shaped piece of india-rubber, *g*, between, and a spindle, *e*, securing an opening of the size of the tubings *a* and *l*, said spindle *e* having a solid head and grooves *f*, fitting into the tongues *d* of the barrel *c*, connected with the upper cup, substantially as shown, and for the purpose specified.

MARTIN DAYHUFF.

Witnesses:
M. L. CRANFORD,
JAMES CHAMBERS.