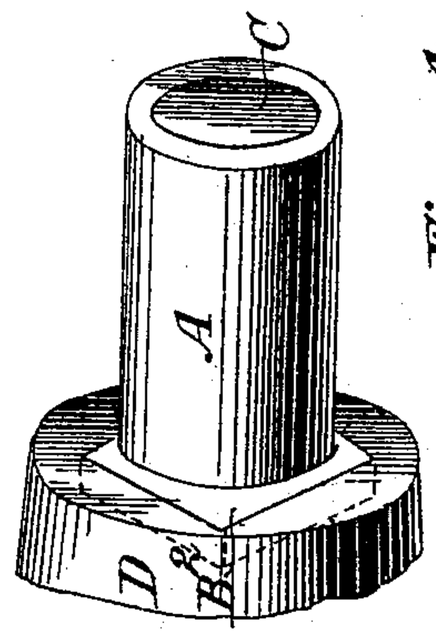
(No Model.)

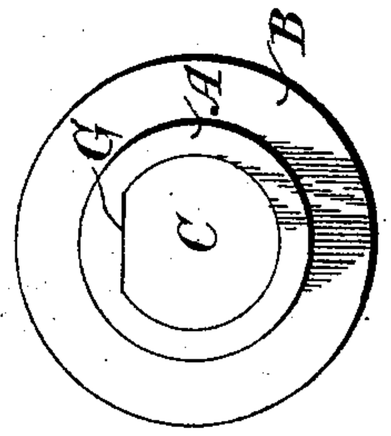
J. HUNT.

PROTECTOR FOR SHAFTING.

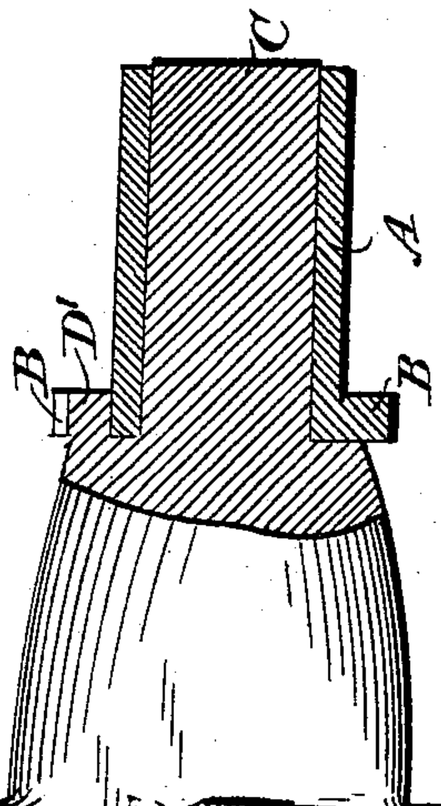
No. 516,489. Patented Mar. 13, 1894.



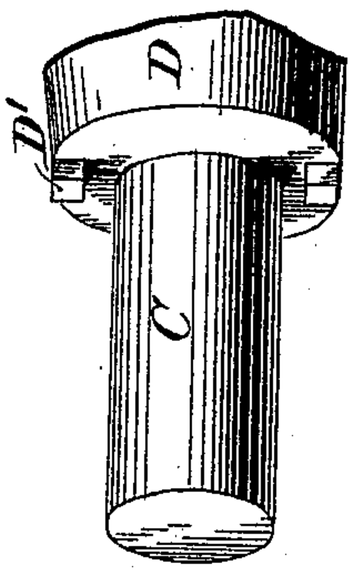
—Fig: 4.—



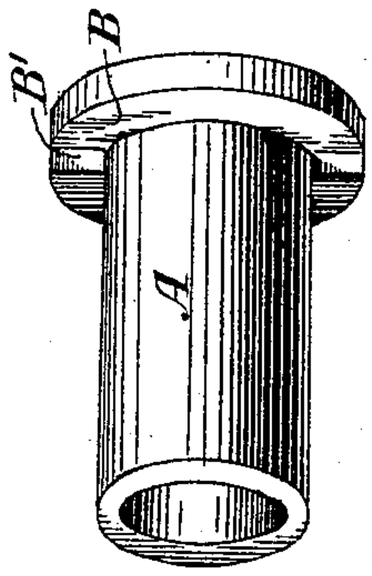
—Fig: 5.—



—Fig: 1.—



—Fig: 3.—



—Fig: 2.—

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PROTECTOR FOR SHAFTING.

SPECIFICATION forming part of Letters Patent No. 516,489, dated March 13, 1894.

Application filed August 14, 1893. Serial No. 483,058. (No model.)

To all whom it may concern:

Be it known that I, JOHN HUNT, machinist, a subject of the Queen of Great Britain, and a resident of Nicholson Street, Carlton, in the Colony of Victoria, have invented a certain new and Improved Thimble or Cylindrical Protector for Shafting or Spindles of Machinery, of which the following is a specification.

This invention has been devised for the purpose of affording the public with a protector against wear and tear of shafting or spindles in machinery generally and applies most particularly to the underground pulley spindles of cable-tramways.

It has been found in the past that the constant friction and action of dust, water and grit wears away the journals or revolving spindles of underground cable-tramway pulleys, while in ordinary machinery the wear and tear on spindles particularly those of a small diameter is found to be considerable. Now my invention has been devised to obviate the wearing away of such spindles and consists in the employment of a closely fitting collared thimble or cylinder placed over the spindle. The protector is constructed in the form of a cylinder terminating at one end in a collar, or flange, of increased diameter, which is intended to butt against the hub of the wheel. This collar or flange is provided with one or more bites or indents in its periphery, said bites or indents being for the purpose of fitting to and engaging with plugs or pins of metal set on the face of the said hub of the wheel.

In order that my invention may be the better understood reference may be made to the accompanying drawings in which—

Figure 1 shows a view (partly in section) of my new or improved thimble or cylindrical protector attached on and to the spindle and hub of a wheel. Fig. 2 is a front elevation of my thimble or cylindrical protector. Fig. 3 is a view showing the plugs or teeth on hub; Fig. 4 an alternative form of construction of the collar or flange—while Fig. 5 is an alternative form of construction of both the shaft or spindle and the thimble or cylindrical protector.

In the drawings "A" is the thimble or protector constructed (as aforesaid) in the form of a cylinder, "B" being the collar or flange at end of same in which bites or indents "B′" are provided. "C" is the spindle on which the hub "D" is centered, "E" being the spokes of the pulley wheel or other revolving object. "D′" are plugs or teeth of metal which fit into the indentations "B′" in such a manner as to cause the collar or flange "B" to rotate synchronously with the hub "D."

Fig. 4 illustrates an alternative construction of the flange "B^2" from which it will be seen that the plugs "D′" and indentations "B′" may be dispensed with, and in their place the flange or collar "B^2" may be constructed of a square form, in which case the end face of the hub "D" will have provided upon it an indented square box to receive and rotate the square flange "B^2." I have shown this particular figure in order to illustrate an alternative form of construction of the flange "B^2," but in practice the construction of the said flange "B^2" may be varied to any shape or design so that when fitted to the face of the hub "D" it may be rotated synchronously by the movement of the said hub "D." If preferred the shaft or spindle "C" may be of a square section or otherwise shaped, as at Fig. 5 from which illustration it will be seen that a flat "G" is provided or cut on the shaft or spindle "C," the cylindrical protector being shaped so as to meet this alternate construction.

The *modus operandi* of my invention is as follows:—Presume that my protector is to be employed in connection with revolving underground pulleys of cable tramways. Preferably, but not arbitrarily, I employ the thimbles or protectors in the arrangement shown in Fig. 1 of the drawings, and it will be seen from a glance at this figure that when the spoke "E," hub "D" and shaft "C" revolve, the thimbles or protectors "A" will revolve therewith in the bearings provided for the purpose, the rotatory persuasion being communicated from the pins or plugs "B′" to the thimbles or protectors "A" and it will be seen that all wear and tear usually borne by the spindle "C" will be inflicted on the thimbles or protectors "A." These latter are easily removable and replaceable so that an attendant may in a short space of time replace any worn thimble or protector with a fresh one in

a few minutes, and thus obviate the necessity of removing the whole pulley or wheel and inserting therein a new spindle or shaft at a considerable loss of time and money. The bearings must of course be of a sufficiently large diameter to admit the increased diameter of the protector and I prefer to construct the bearings of a harder metal than the protector so that the removable protector may take the effect of wear and tear. The rotatory plugs "D'" would not be required were a construction similar to that shown on Figs. 4 and 5 employed, as the rotation of the shaft "C" would carry with it, by reason of the formation "G," the thimble or protector "A," or the hub "D" would carry with it, when rotated the square flange "B^2."

I would here point out that my invention is not alone applicable to the spindles of underground cable-tramway pulleys, as a glance at the drawings will illustrate to the practiced mind that my protector can be employed to any rotating shafting. I prefer that the diameter of flange "B" (see Fig. 1) should slightly exceed the diameter of the hub "D" to enable a tap or blow of a hammer to be given it so as to quickly remove it along, and off, the spindle "C" when required so to do.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The combination with a metallic wheel hub and the journals projecting at its ends, of removable thimbles slipped over the journals and each having a flange and an interlocking connection between each sleeve-flange and the end of the hub to cause the sleeve to rotate with the hub, substantially as specified.

Signed this 1st day of July, 1893.

JOHN HUNT.

Witnesses:

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