

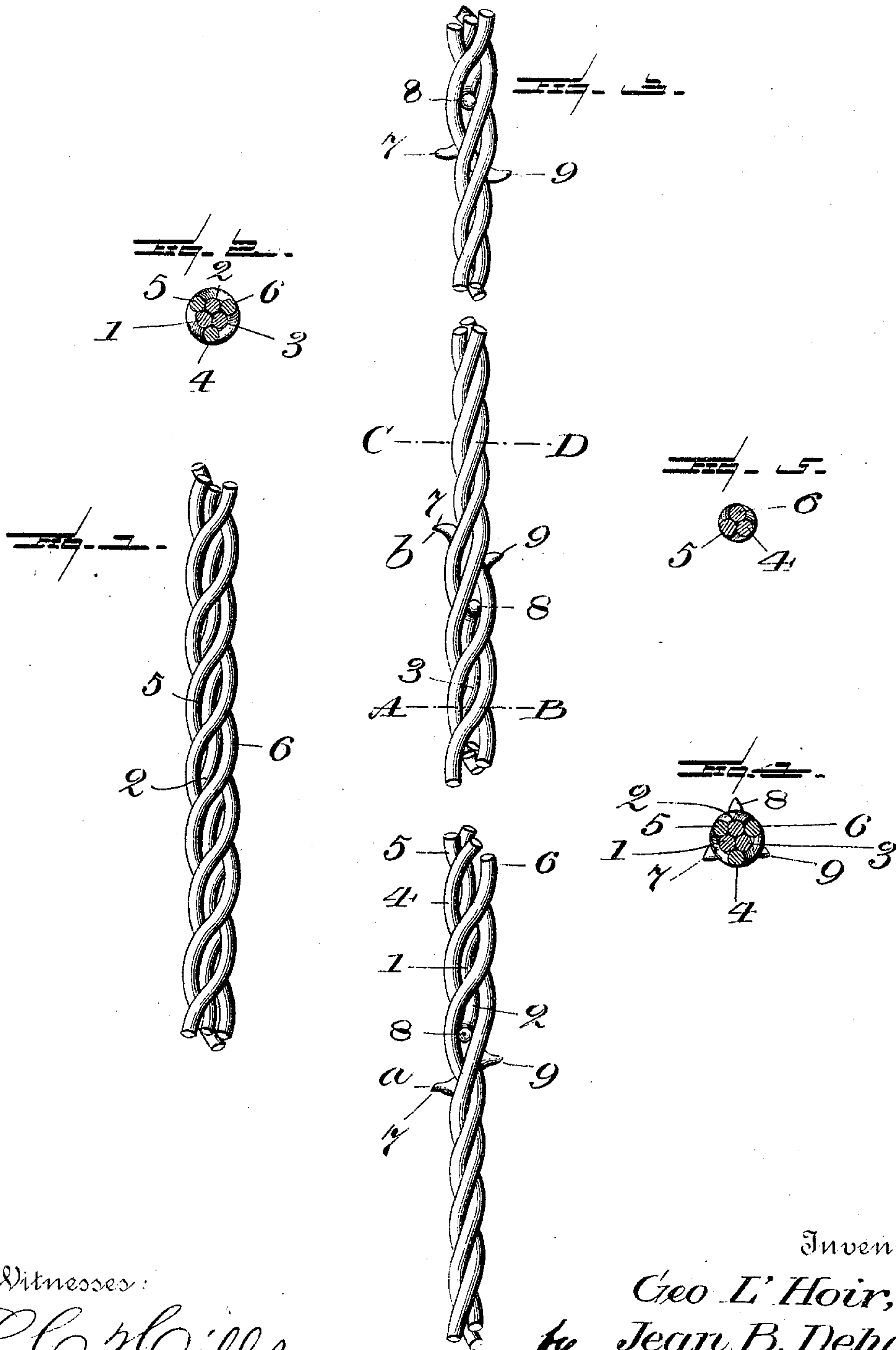
No. 640,139.

Patented Dec. 26, 1899.

G. L. HOIR & J. B. DEHAM.
STRANDED WIRE FOR CUTTING PURPOSES.

Application filed June 9, 1899.)

(No Model.)



Inventors

Geo L' Hoir,

by Jean B. Deham,

Attorneys

Attorneys

Witnesses:
L. C. Mills,
John Chalmon Wilson.

UNITED STATES PATENT OFFICE.

GEORGE L'HOIR AND JEAN BAPTISTE DEHAM, OF HORNU, BELGIUM.

STRANDED WIRE FOR CUTTING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 640,139, dated December 26, 1899.

Application filed June 9, 1899. Serial No. 719,988. (No model.)

To all whom it may concern:

Be it known that we, GEORGE L'HOIR and JEAN BAPTISTE DEHAM, subjects of the King of the Belgians, residing at Hornu, Hainaut, in the Kingdom of Belgium, have invented a certain new and useful Improvement in Wire Cables for Cutting Stone, of which the following is a specification.

Our invention relates to an improved construction of stranded wire adapted for cutting rock and like hard bodies—as marble, granite, and the like—in the manner of a saw, the object of the present invention being to enable such wires to be used for cutting softer rock and like bodies than they have hitherto been capable of doing on account of the powdery fragment of same tending to form a greasy paste which covers the wire and prevents its proper cutting action. According to our invention, therefore, we provide a form of wire which is adapted for cutting not only hard bodies, as aforesaid, but also softer bodies—such as coal, soft stone, and the like.

In the accompanying drawings, Figure 1 is an elevation of a portion of our improved wire broken away to show the strands better. Fig. 2 is a section on line A B, Fig. 1. Fig. 3 is an elevation of a modified form of wire broken away in two places to show the strands. Fig. 4 is a section of Fig. 3 on line A B, and Fig. 5 is a section of Fig. 3 on line C D.

The wire illustrated in Figs. 1 and 2 consists of a body formed of three strands 1, 2, and 3 twisted together and of a cover formed of three strands 4, 5, and 6, each one of the latter occupying one of the helicoidal spaces comprised between two of the wires forming the body. In the spaces between the strands 4, 5, and 6 gather during the work the fragments resulting from the sawing and which are in this manner carried away out of the groove in the rock or the like. When the rock is very soft, these fragments become so numerous that the spaces in question are no longer sufficient to hold and remove them, and in this case the form of wire represented in Figs. 3, 4, and 5 best meets the requirements. This form of wire is a combination of a helicoidal wire of the new form, Figs. 1 and 2, and of a helicoidal wire of the old type, which at the present time is in common use for cutting purposes. As will be seen, it is formed of a suc-

cession of alternating parts composed of six strands and of three strands, the respective lengths of which are determined by the nature of the material or rock which the wire is intended to cut. The three-stranded portion forms the body of the wire and is continuous, but at points the strands are opened out to inclose three further strands, making the six-stranded enlarged portion. This six-stranded portion is shown from the point *a* to the point *b*, Fig. 3, where, it will be seen, it is composed of a helicoidal body formed of three strands 1, 2, and 3, around which the main strands 4, 5, and 6, which are here opened out, are wound, each of which occupies, as will be seen from Fig. 4, one of the helicoidal spaces formed along their windings by the strands 1, 2, and 3, so that the wire is here similar to that shown in Figs. 1 and 2. At the end of each of the six-stranded portions the strands 1, 2, and 3 may be turned toward the outside, if desired, so as to form there three points 7, 8, and 9, projecting slightly, or these three points may be formed in a similar manner to the points employed in barbed wire, as by twisting in separate wires, the points of which project slightly, or by inserting pointed pieces of metal. The working part of this improved helicoidal wire is that comprised between the points *a* and *b*, which as it travels along forms the cut or groove in the rock. In the spaces between the strands 4, 5, and 6 the fragments resulting from the sawing operation will partly settle, the object of the points 7, 8, and 9 when employed being partly to bore and to clean the groove. After the portion *a b* the thinner portion formed by the strand of three threads engages with the groove. This latter portion passes without any appreciable friction, while the fragments from the rock accumulate around it and are subsequently driven from the groove under the forcing action of a fresh portion *a b* of the wire, which enters the groove, like the preceding one, under intense friction—that is to say, it fills up the whole width of the groove.

Experience shows that the helicoidal wire as formed and represented in Figs. 3, 4, and 5 is suitable even for sawing coal in the interior of coal-mines, and will thus allow of the mechanical cutting up in form of strata, which is an end that has long been desired to

be attained, but up to the present, as far as our knowledge goes, has not been possible.

The application of the improved wire may even be extended to the cutting of roads and
5 the excavation of levels in mines.

Although the figures represent helicoidal wires, the number of strands of which is three or six, it should be understood that this number may be varied at will without departing from the principle of our invention,
10 and also that the strands may be of other sections than circular, and that the number of projections contained in the portion having six threads of the specimen shown in Figs. 3,
15 4, and 5 may be different from that shown.

What we claim is—

1. A wire cable for cutting stone composed of a stranded central portion having points sticking outwardly therefrom, and strands
20 wound around the said central portion allowing the points to project between the coils of the outer portion, substantially as described.

2. A wire cable for cutting stone composed

of strands of wire, wound together, central portions upon which the said strands are
25 wound at intervals, and points projecting from the said central portions between the strands of the outer portions, substantially as described.

3. In a wire cable for cutting stone, the
30 combination with an outer portion composed of strands wound together; of inner portions also composed of strands having points projecting therefrom, the said inner portions being placed at intervals within the said outer
35 portions, with the points projecting between the strands of the said outer portion; substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing
40 witnesses.

GEORGE L'HOIR.

JEAN BAPTISTE DEHAM.

Witnesses:

F. DE PAUW,

G. ALESQUIN.