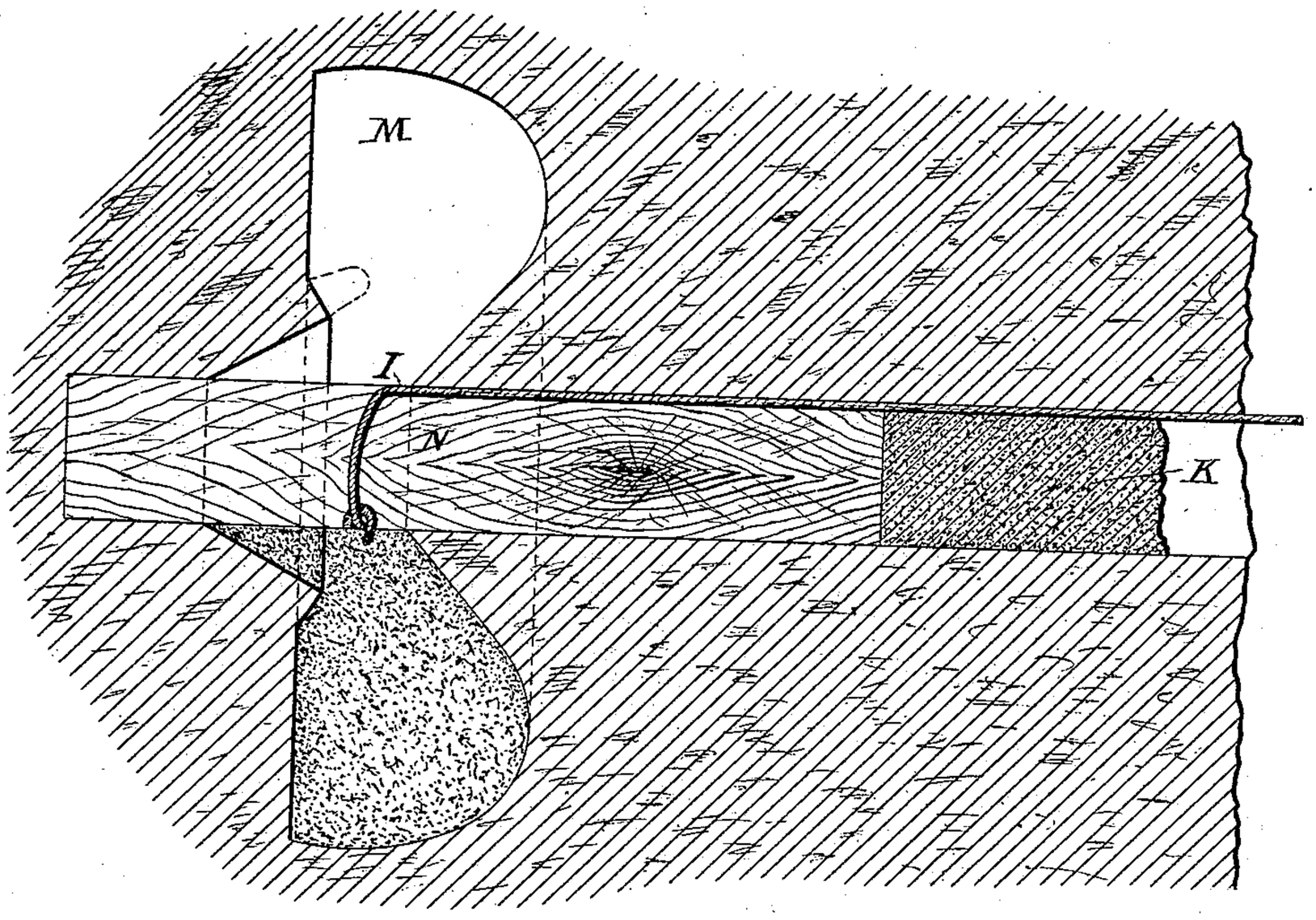
(No Model.)

L. PLOM & J. D'ANDRIMONT.

METHOD OF BLASTING.

No. 397,440. Patented Feb. 5, 1889.



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UNITED STATES PATENT OFFICE.

LÉOPOLD PLOM, OF RETINNE, AND JULIEN D'ANDRIMONT, OF LIEGE, BELGIUM.

METHOD OF BLASTING.

SPECIFICATION forming part of Letters Patent No. 397,440, dated February 5, 1889.

Application filed January 25, 1887. Serial No. 225,495. (No model.) Patented in Belgium December 23, 1886, No. 5,616; in France January 3, 1887, No. 167,827; in Luxemburg January 3, 1887, No. 783, and in England January 4, 1887, No. 129.

To all whom it may concern:

Be it known that we, LÉOPOLD PLOM, mining engineer, of Retinne, and JULIEN D'ANDRIMONT, senator, of Liege, both in the Kingdom of Belgium, have invented new and useful Improvements in Methods of Blasting, (which have not been patented to ourselves or to others with our knowledge and belief in any country except in Belgium, December 23, 1886, number of certificate, 5,616; in France, January 3, 1887, number of certificate, 167,827; in Great Britain, January 4, 1887, No. 129, and in Luxemburg January 3, 1887, No. 783,) of which the following is a specification.

Our invention relates to a method of blasting in which, in addition to forming a cylindrical bore-hole in the rock to be blasted, into which the explosive compound or other means for producing pressure is introduced, as heretofore, a considerable enlargement near the end of the bore-hole is formed, into which the explosive or other charge is introduced, so that the bore-hole, being suitably closed by tamping and the charge fired, the explosive force or pressure, instead of being expended against the sides of the cylindrical bore-hole at right angles to the axis thereof, and consequently resulting in great measure in a more crushing or pulverizing action, is exerted against the surfaces of the enlargement in a direction parallel or nearly so to the axis of the bore-hole, with the result that the mass of rock situated between the enlargement and the face of the working is blown out by the explosion, and thus the explosive force or pressure is much more effectively and economically utilized than heretofore.

We will now proceed to describe our invention with reference to the accompanying drawing, which shows a section of the bore-hole with enlargement charged with the explosive and closed by tamping.

Any suitable implement may be employed for forming the cavity, and when the cavity M has been completed the implement is withdrawn and the blasting-charge is introduced, by preference only to such an extent as to fill the lower part of the cavity M, and the fuse I is by preference fitted in a wood plug, N, being made to pass through a transverse boring thereof and knotted at the lower end, as shown. The fuse is so arranged that when the plug is inserted the point at which the fuse fires the charge will be situated at about the middle of the charge. The plug N being inserted, the hole is closed by tamping K. By inserting the plug right across the cavity M, causing it to enter a corresponding bore-hole on the other side, any tendency to blow out through the bore-hole will be prevented, as the pressure of the explosion will only be effected in a transverse direction upon the circumference of the plug and not in an axial direction.

Should other means—such as compressed gases or liquids, &c.—be employed for effecting the requisite pressure in the cavity, in place of an explosive compound, the means of introducing the same and bringing them into action would of course have to be modified accordingly.

Having thus described our invention and in what manner the same has to be carried out, what we claim is—

1. The herein-described method of blasting, which consists in forming a cavity having an outlet of smaller diameter, charging the cavity, and then fitting a plug in the outlet, extending through the cavity, whereby the force of explosion cannot be exerted longitudinally of the plug, as fully explained.

2. The herein-described method of blasting, which consists in boring a hole forming an enlarged cavity communicating with but not so deep as the bore-hole, charging the cavity, and inserting a plug into the bore-hole extending a distance in front and behind the cavity, so that the force of explosion will not be exerted longitudinally on the plug, as explained.

3. The herein-described method of blasting, which consists in forming an enlargement in the cavity and extending the bore-hole beyond said enlargement, charging the cavity, and then inserting a tamping carrying a fuse, said tamping extending into the prolongation

beyond the enlargement, as herein explained.

4. The herein-described method of blasting, which consists in boring a hole, forming an enlargement, M, around said bore-hole, charging said enlargement, inserting a plug, N, carrying a fuse and extending in front and behind the enlargement, and applying a tamping, K, over the plug, all substantially as explained.

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Witnesses:
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