

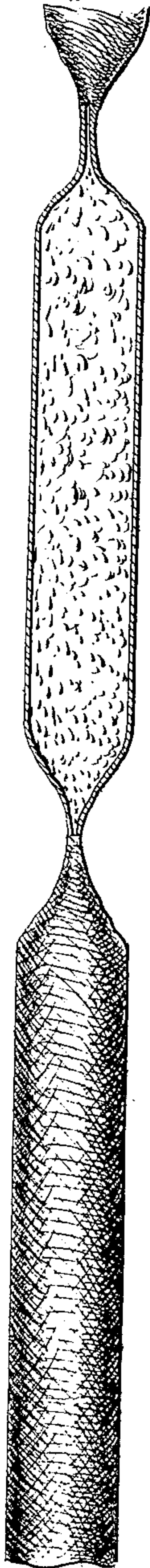
H. M. BOIES.

Packages of Powder-Charges for Blasting.

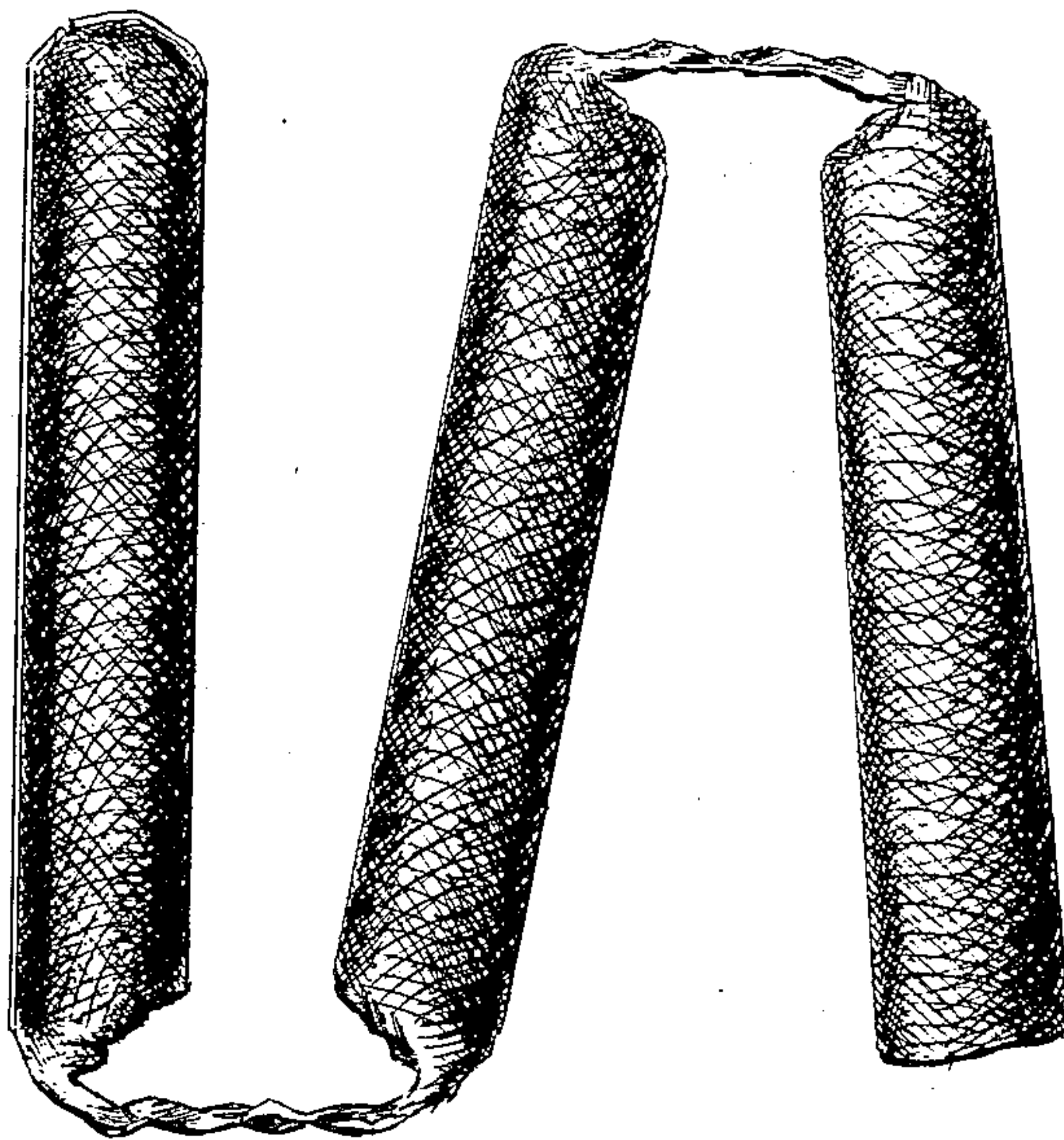
No. 144,434.

Patented Nov. 11, 1873.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY M. BOIES, OF SCRANTON, PENNSYLVANIA.

## IMPROVEMENT IN PACKAGES OF POWDER-CHARGES FOR BLASTING.

Specification forming part of Letters Patent No. **144,434**, dated November 11, 1873; application filed October 4, 1873.

*To all whom it may concern:*

Be it known that I, HENRY M. BOIES, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Cartridge-Packages for Mining and Blasting Powders, of which the following is a specification:

Figure 1 is a side view of one of my improved packages, partly in section. Fig. 2 is a side view of the same, showing how it may be folded for transportation.

Similar letters of reference indicate corresponding parts.

Hitherto mining and blasting powders have been packed for transportation and sale in wooden or metallic barrels or kegs, containing from twenty-five to one hundred pounds, the standard keg containing twenty-five pounds. In use, it has been necessary to carry the keg to the place of operation, where its contents were exposed to damage, and all in the vicinity to danger, until, after many blasts, it has all been consumed. The drilled hole has also been charged, or the cartridge filled directly from the mass in the keg. In mines this must be done by lamp-light, with great inconvenience and danger. The kegs employed have been expensive, and when emptied become useless, thus entailing a loss upon the consumer, to remedy which disadvantages is the object of my invention.

The invention consists in packing the powder in convenient quantities in long tubes of paper, or any fabric or material of sufficient strength, rendered water-proof, if necessary, of a proper shape and size to be used as a cartridge, and of such a length in excess of the powder inside as shall allow of its being folded into a compact form, and divided for use into cartridges of any desired length or weight.

The necessity of adapting the quantity of powder in every cartridge to the work to be done by the particular blast for which it is in-

tended has hitherto prevented the preparation and sale of blasting-powders packed in cartridges for use. This difficulty is overcome by my invention.

A tube may be made, for instance, of ordinary blasting-paper, two inches in diameter and nine feet long, in which may be placed ten pounds of powder, the ends closed, and the whole made water-tight.

The tube being considerably longer than the space occupied by the powder, the latter may be separated at intervals in the tube, which can then be folded over at the point of separation for convenience of carriage.

Each cartridge tube or package may be easily marked with the size, and quantity, and brand of its contents, and when it comes to the consumer, he can measure off from either end the quantity desired for a blast, slide the powder away from this point, divide the tube, fold back the ends, and the cartridge is ready for use, proceeding in the same way until the whole package has been used. Thus the danger of preparing the cartridge over the open keg, and the liability to damage of the exposed powder are avoided, and the time and labor of making the cartridge, as well as the materials of which it is composed, are saved.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A cartridge-package, consisting of a series of charges contained in a tube of suitable flexible material, and separated one from another by suitable intervals of space, as shown and described, whereby the charges may be used successively, as required, or individually divided and used in part, as set forth.

HENRY M. BOIES.

Witnesses:

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