

UNITED STATES PATENT OFFICE.

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METHOD OF BORING HORNS.

No. 930,747.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, EMMANUEL ETIENNE and JOSEPH DUBÉ, subjects of the King of Great Britain, residing at Sudbury, in the county of Nipissing, Province of Ontario, Canada, have invented certain new and useful Improvements in Methods of Boring Horns; and we do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a method of hollowing out or boring animal horns.

The object of the present invention is to enable the horns of deer, elk and various other animals to be bored longitudinally without splitting, chipping, or otherwise injuring the horn, and also to render such operation rapid by enabling a horn to be conveniently bored until the boring operation is completed without over-heating the drill.

The invention consists essentially in feeding to the bottom or inner end of the hole, during the operation of drilling, a mixture or solution, adapted to decompose the marrow of the horn or similarly affect the same, immediately in front of the point of the drill so as to permit the latter to proceed.

In order to disclose more clearly the various steps of the process and the order in which they are to be performed, a practical application of the process will be given by way of example. For instance:—suppose it is desired to hollow out a set of antlers, the top of each separate spike is cut off to provide a flat surface in which a bit may take hold for boring. In this cut tip, a hole of small diameter about one quarter of an inch is bored. This hole, which is too small to cause a cracking or splitting of the horn, is filled with coal oil, and the horn around it is permitted to absorb the oil or soak for from twenty-four to forty-eight hours, according to the hardness of the horn used. The soaking in or absorption of the oil by the horn softens it, and renders it more pliable or elastic, so that it will not split or chip during the subsequent boring. After the horn has been treated in this manner, the actual boring of the horn takes place. The small hole is counter-bored to increase it to the desired diameter, and it is extended down to the relatively hard marrow of the interior of the

horn. When the marrow has been reached, a solution of bi-chlorid of mercury and coal oil is fed slowly into the hole, the feeding of the solution being continued throughout the boring operation. The solution decomposes or similarly operates on the marrow of the horn immediately in front of the point of the drill, and enables the same to proceed and the boring to be continuous. The bi-chlorid of mercury is in powdered form, and the coal oil acts as a vehicle for conducting the bi-chlorid of mercury to the point of the drill or rather to the bottom of the hole. While other liquids, such as water, might be employed as a vehicle, coal oil has been found most advantageous, as it lubricates the boring tool, and lessens the friction of the same during the boring operation. The preferred solution consists of a mixture of bi-chlorid of mercury and coal oil, the proportions being approximately one quart of oil to one ounce of bi-chlorid.

The horns are of course of various degrees of hardness and consequently the proportion of bi-chlorid in the solution should vary. Accordingly the amount of bi-chlorid may range from one to one and a half ounces with very good results, one and a half ounces being used for the hardest horns, and one ounce for the least hard, intermediate proportions should of course be used for horns of intermediate degrees of hardness. If the horn is unusually hard, it may be advisable to discontinue boring at periods, allowing the horn to soak in the solution for about six hours and again resume the boring after the horn has become thoroughly soaked. The oil acts of course to render the horn elastic and to lubricate the boring tool to prevent friction during the operation of the boring, and the bi-chlorid of mercury acts to decompose and soften the hardened marrow.

When the horns are branched, as in the instance given, or have any curves or angles, the bit or boring tool will, of course, penetrate through the horns at each curve or angle. The boring made by the penetration of the bit may be used as an opening through which the boring operation may be continued in a different direction to follow the general trend of the curve or angle.

It is clear that many changes may be made without in any way departing from the field or scope of the present invention, and it is

meant to include all such within this application, wherein only a preferred process has been disclosed.

Having thus fully described our invention, 5 what we claim as new and desire to secure by Letters Patent, is:—

1. The herein described method of cutting horns, which consists in cutting into the hardened marrow and then continuing the 10 cutting into the hardened marrow while feeding into the same a solution for decomposing and softening the marrow.

2. The herein described method of cutting horns, which consists of cutting into the 15 hardened marrow and then continuing the cutting into the marrow while feeding to the same a solution of bi-chlorid of mercury and a liquid operating as a vehicle to convey the bi-chlorid of mercury into the horn.

20 3. The herein described method of cutting horns, which consists of cutting into the hardened marrow, then continuing the cutting into the marrow while feeding to the same a solution of bi-chlorid of mercury and coal 25 oil.

4. The herein described method of boring horns, which consists in first applying oil to the horn to soften the same and render the horn elastic to prevent chipping or breaking 30 during the boring operation, then boring into the horn to the hardened marrow and continuing the boring into the marrow while feeding to the same a solution containing an element adapted to decompose and soften 35 the marrow.

5. The herein described method of boring horns consisting in cutting off the tip of the horn, boring a small cavity into the cut tip, filling the cavity with oil to soften the same, boring into the tip thus softened to the 40 hardened marrow and continuing the boring into the marrow while feeding to the same a solution adapted to soften the marrow.

In witness whereof we have hereunto set our hands in the presence of two witnesses. 45

EMMANUEL ETIENNE.
JOSEPH DUBÉ.

Witnesses:

J. N. MUDEGAR,
EUGENIE FOURNIER.