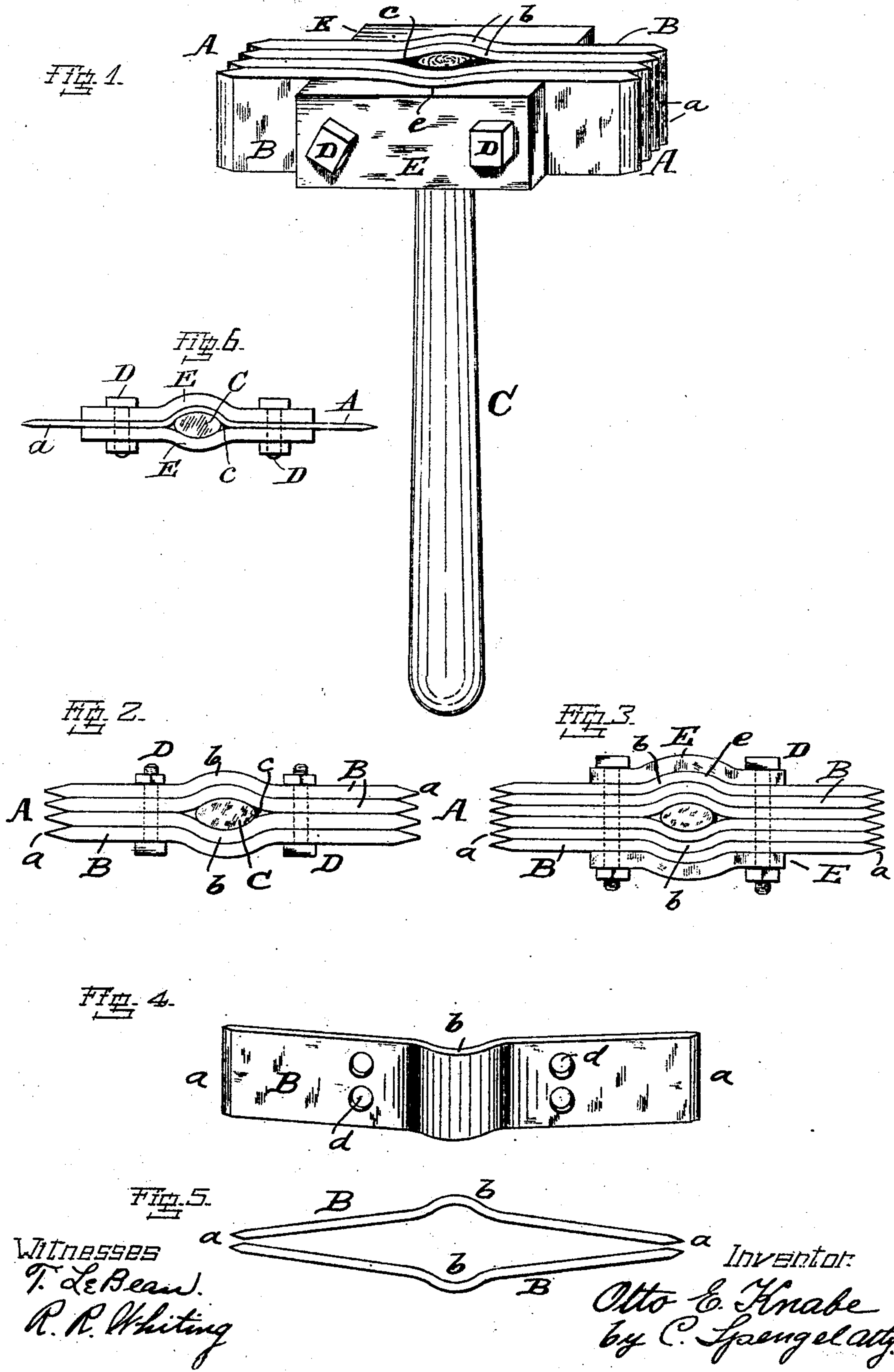


O. E. KNABE,
BUSH HAMMER.
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915,299.

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Witnesses
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UNITED STATES PATENT OFFICE.

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BUSH-HAMMER.

No. 915,299.

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To all whom it may concern:

Be it known that I, OTTO E. KNABE, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Bush-Hammers; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawing, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to certain improvements in so-called bush-hammers, being implements used principally by stone-cutters and granite workers for surfacing and dressing stone.

The invention consists of a tool which is materially simplified in construction against existing tools, the resulting advantages manifesting themselves not merely during manufacture of the tool, which is less complicated and therefore cheaper, but also later when in the hands of the users by increased efficiency and by convenience in manipulation.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its manner of use, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a perspective view of my improved bush-hammer. Figs. 2 and 3, are top-views of the head of the hammer, each figure showing a modified form. Fig. 4, shows in perspective view one of the blades of which the head is composed. Fig. 5, shows in edge-view two opposite blades. Fig. 6, illustrates possibility of a particular adjustment of the tool.

The hammer-head of these tools has two working-faces A A, each face composed of parallel cutting-edges *a* provided at opposite ends of flat blades B, a number of which blades are bunched together to form the hammer-head. The blades B are all of equal length, height and thickness, so that, when bunched together, their cutting-edges terminate all in flat planes which form the working-faces A of the hammer. When re-sharpening of the blades becomes necessary, each blade is treated singly, for which purpose the means holding them together are arranged accordingly to permit disconnection and separation. Various means, more or less complicated, are now in use to so hold

the assembled blades removably and separably together to form the hammer-head and also to permit attachment of a handle to the hammer-head thus formed. I provide for these two structural requirements in the most simple manner possible and without using any complicated means. Even numbers of blades are generally used, but the particular number is immaterial and for certain work, one blade only may be carried on the handle as shown in Fig. 6. All blades are curved between their ends, one half of the set for a head in one direction, and the other half in the other direction. The curves are substantially channels *b*, extending transversely across the blades from one of their longitudinal edges to the other. When the blades constituting one half of a set are being assembled, the channeled or concave portion of the outer-most blade receives the outwardly curved, or convex-portion of the blade next to it. The concave portion of this latter blade receives again the outwardly curved portion of the blade next to it and so on as best shown in the first three figures of the drawing, the blades in each of the two half sets being closely nested in each other. When the two halves of a set of blades thus nested are placed against each other, an opening *c* results between the inner-most blades of each half set, which opening receives the end of the handle C.

Fig. 2, illustrates the simplest manner of holding the two groups of a set of assembled blades together, bolts D being used for the purpose on each side of the handle-opening. There may be one bolt on each side of the center as shown in Fig. 1, or two bolts as indicated in Fig. 4, all blades being provided accordingly with bolt-holes *d*, one or two as the case may be, on each side of the channeled portion of each blade, and all so located that when the blades are assembled these openings register with each other to permit the bolt to enter and to pass through.

In Figs. 1 and 3, cheeks E are first placed against both of the outer blades of a set which cheeks are each channeled as shown at *e*, to receive the convex portion of these outer blades. These cheeks are also provided with bolt-holes which register with the bolt-holes in the blades, so that bolts D may pass through all. The blades in this case are thus clamped between these cheeks which stiffen the hammer-head, also increasing its weight where such is desired. The cheeks shown

are slightly modified against each other in the two figures. Those shown in Fig. 1, are merely channeled on their inner side, their outer side remaining straight. In Fig. 3, their thickness remains integral, the entire cheek being shaped to follow the curve of the outer blades.

The blades by preference are given more or less spring as best shown in Figs. 4 and 5, that is the two halves of a blade, on each side of its central channel, are not in line, but arranged to each other at a flat angle. As to this angular arrangement, one half of a set in a head is oppositely arranged to the other half, as best shown in Fig. 5, and with the limbs of the angle toward each other. The presence of this spring in each blade causes them to lie closely against each other when the nuts of the bolts are drawn tight and prevents the cutting-edges from shattering or vibrating.

Channels *b* in the blades are concentric with each other and may be formed in any suitable manner by means of suitable forms or dies. They may be formed singly in each blade, or those of each half set may be formed at once, thus obtaining an accurate fit. The same handle, bolts and cheeks may serve for various sets of blades and interchange is readily made. The blades resting directly against each other come always close together when drawn tight by the bolts, no matter whether they are perfect and equal as to the thickness or not. Inequalities resulting in re-sharpening of the blades for which purpose the head is taken apart, each blade being independently sharpened, are thus readily overcome.

Having described my invention, I claim as new:

1. A hammer-head composed of blades, each provided with two cutting-edges and a channeled portion between these edges, said blades being separably arranged in two separable sets, the channeled portions in each of which sets, when the blades are placed against each other, are adapted to nest and which sets are placed so that the concave sides of one set of blades are opposite the concave sides of the other set, whereby an opening results between the innermost blades of each set which is adapted to receive a handle and means to hold the assembled blades separably together to form the hammer head.
2. A hammer-head consisting of two groups each composed of individual, separably assembled blades, each of which blades has two cutting-edges, one on each one of its ends, each blade having also a channeled portion between these edges which is disposed parallel thereto and so shaped that when the blades in a group are placed against each other, they nest, and when one group is placed against the other with the channeled

portions of their innermost blades oppositely disposed, an opening results adapted to receive a handle and means to hold all blades separably against each other.

3. A hammer-head composed of two separable groups of individual blades each provided with two cutting-edges, the blades between these edges having outwardly curved portions which are concentrically fitted against each other and in one group are oppositely disposed to those in the other group, whereby an opening for a handle results between the two groups and means to hold all the blades separably assembled to form the hammer-head.

4. A hammer-head composed of two separable groups of individual blades, each blade provided with two cutting-edges and with an outwardly curved portion between these edges, said curved portions of the blades in one group increasing successively outwardly so that when fitted against each other they nest, one within the other, and when assembled, leave an opening between the innermost blades of each group which is adapted to receive a handle and means to hold these blades separably to each other.

5. A hammer-head composed of two separable groups of individual blades each provided with two cutting-edges, the blades between these edges having outwardly curved portions which are concentrically fitted against each other and in one group are oppositely disposed to those in the other group whereby an opening for a handle results between the two groups, cheeks snugly fitted against the outermost blade of each group and shaped to receive the curved portion of these blades and bolts passing through cheeks and blades to hold them separably together.

6. A hammer-head consisting of two separable groups each composed of individual, separably assembled blades, each of which has two cutting-edges one at each one of its ends, the blades being sprung outwardly between their ends, those of one group opposite to those of the other group, and bolts operating to overcome the spring in each blade and whereby all the blades are drawn flat against each other and separably held so.

7. A bush-hammer consisting of a handle, two opposite clamping cheeks fitted to the handle, one against each side thereof, cutting-means fitted between these cheeks and bolts to hold these cheeks to each other and to clamp the cutting means against one side of the handle.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

OTTO E. KNABE.

Witnesses:

C. SPENGEL,
T. LE BEAU.