

(No Model.)

C. C. BROOKS.

HAY KNIFE.

No. 386,183.

Patented July 17, 1888.

Fig. 1.

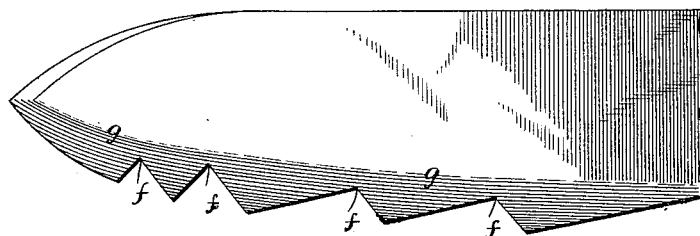


Fig. 2.

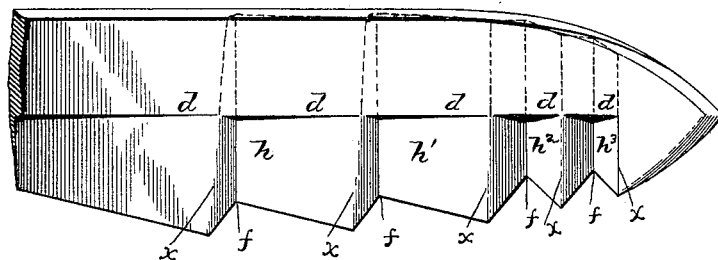


Fig. 3.

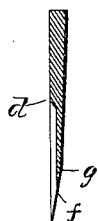
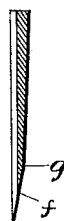


Fig. 4.



Witnesses,

*Albert Spedden.*  
*J. S. Hopkins.*

Inventor,

*Chapin C. Brooks,*

By his Attorney,

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# UNITED STATES PATENT OFFICE.

CHAPIN C. BROOKS, OF HALLOWELL, MAINE.

## HAY-KNIFE.

SPECIFICATION forming part of Letters Patent No. 386,183, dated July 17, 1898.

Application filed October 18, 1887. Serial No. 252,706. (No model.)

### *To all whom it may concern:*

Be it known that I, CHAPIN C. BROOKS, a citizen of the United States, residing at Hallowell, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Hay or other Knives; and I do declare the following to be 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in blades for hay or other knives; and it has for its object to provide a blade with grooves terminating in V-shaped or angular teeth.

With these ends in view the invention consists in the novel construction of the teeth, as will be hereinafter more particularly described, and pointed out in the claim.

In the accompanying drawings, to which reference is had and which fully illustrate my invention, Figure 1 represents the smooth or plain side of a section of the blade, showing a straight bevel extending from the heel to the point and from the points of the teeth as high as indicated by line *g*. Fig. 2 represents the obverse side of a section of the blade, showing the serrations or angles of the teeth, the central or longitudinal line *d*, and grooves in the blade as high as that line. The full lines continued by dotted lines show the grooves made the full width of the blade. Figs. 3 and 4 are detail views in cross-section, showing the blade partially and fully grooved.

As shown in Fig. 2, the grooves have beveled sides and run transversely the whole width of the blade; or, if preferred, the blade may be grooved only about one-half its width, limited as indicated by the longitudinal line *d*. The grooves may be of any distance apart. If both sides of the grooves are beveled at the same angles, the teeth will be uniform in size and shape, and both cutting-edges of a tooth will present the same angles. Thus it will be seen that the shape of the teeth will vary according to the depth of the grooves and the distance between them.

By grinding the blade on the beveled side

only in sharpening the entire edge of each tooth becomes extremely sharp, owing to the peculiar form of the beveled grooves, whereas in a blade of the ordinary kind only part of the edges of the teeth become sharp—mainly near the point. In grinding these teeth their identity is not lost as the metal wears away, whereas in other blades of ordinary construction the teeth soon disappear and the edge wears smooth. The edge is ground to a straight instead of to a rounding bevel. In the manufacture of these blades the beveled grooves may be stamped in a piece of metal of suitable size, or may be ground out, the angles and teeth thus formed being in either case constructed as shown.

The advantages which a blade thus constructed presents over other serrated hay-knives and other blades heretofore used is that it requires a less expenditure of power in cutting various material, and that the entire edges of the teeth are sharp and will cut hay, &c., easier than a blade with a smooth edge or a blade with teeth, a part of the edges of which are left dull.

I am aware that hay-knives with teeth formed from grooves have been invented and manufactured; but in such knives the grooves have been arranged diagonally across the blade and for the purpose of holding the knife to its work. A knife with teeth thus arranged works well only when held nearly perpendicular, cutting downward, for the weight of the person using it must be thrown upon the handles, because, as the diagonal grooves constantly hold the edge to its work, great strength is required in its use. The work of a knife so constructed is confined mainly to the forward thrusting motion, because the effect of the grooves in holding the edge to its work when cutting with the thrusting or forward movement of the blade is the very reverse when drawing the knife backward. This fact, combined with the peculiar angle of the longer or back edge of the teeth, makes it impossible to cut with a backward motion. The transverse arrangement of the grooves in my knife is such as to avoid the very effect sought to be accomplished by the arrangement in the knives with diagonal grooves.

By my invention I obtain teeth which are two-edged, cutting as well on the backward as

on the thrusting stroke. This is of great value when, as is frequently the case, it is desirable to cut into a mow or bale of hay in a horizontal direction, because the necessary outlay of strength is distributed between the forward and backward movement of the knife, whereby the end sought is obtained with less fatigue to the person using the knife, and, it is believed, in a shorter space of time, than with a knife having teeth formed from diagonally-arranged grooves.

In the case of knives having teeth formed from diagonally-arranged grooves it will be observed that only the front edges of the teeth are used in cutting. The length of the front edge can only be about one-sixth of the length of a tooth, so that in point of fact only about one-sixth of the entire blade of the knife is actually used in cutting hay, while in my knife both the front and back edges of the teeth from the heel to the point of the knife are utilized. Even on the downward stroke or thrust it accomplishes superior work by reason of the greater length of cutting edge presented, and this superiority as regards speed is not obtained at the expense of a greater amount of strength.

The use in my knife of a straight instead of a round beveled edge is of special importance, because only an expert can grind a knife with

a round beveled edge, while a novice may grind a knife with a straight beveled edge, and in half the time it takes to grind the former.

Another advantage which my knife possesses is that the size and strength of the teeth, combined with their double edges, make it adaptable to cutting peat, cornstalks, cane, ensilage in silo, and all other materials of a coarse character, which cannot be done to advantage with a blade having small teeth.

What I claim is--

A blade for hay or analogous knives, having teeth, the plain or smooth side of the blade being ground to a straight bevel at or near the cutting-edge, as shown, in combination with angular grooves on the opposite side, arranged transversely to the length of the blade, forming two edged teeth, the two angles of the cutting-edges of each being substantially of the same length, whereby as the blade is ground or sharpened on the straight beveled side only the identity of the teeth is preserved, substantially as and for the purpose specified.

In testimony whereof I affix my signature at Hallowell, Maine, September 28, 1887, in presence of two witnesses.

CHAPIN C. BROOKS.

Witnesses:

BERTRON A. HUNT,  
G. H. SAXBY.