

(No Model.)

E. H. WARD.
SHREDDING KNIFE.

No. 604,813.

Patented May 31, 1898.

Fig. 1.

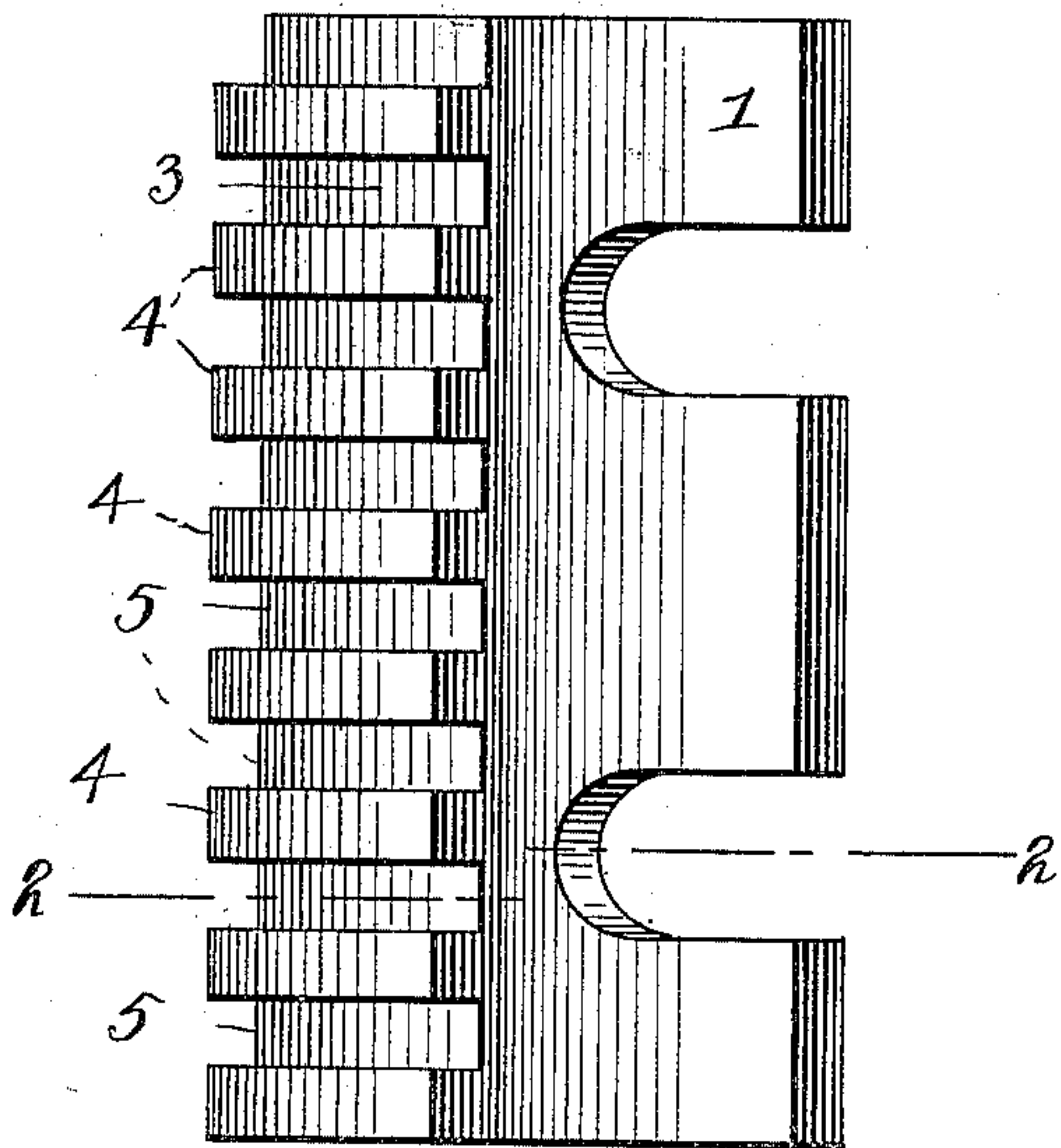


Fig. 4.

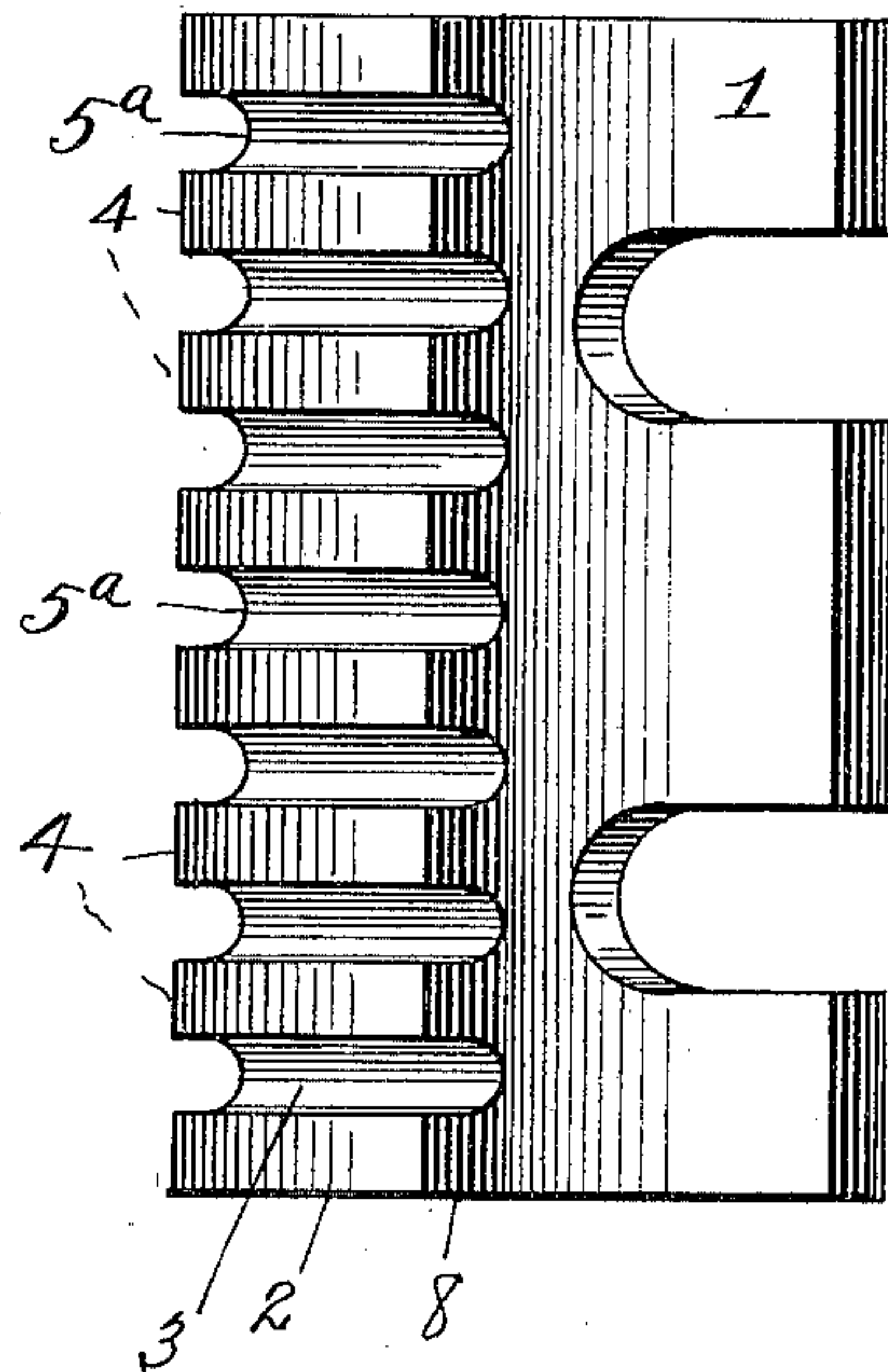


Fig. 2.

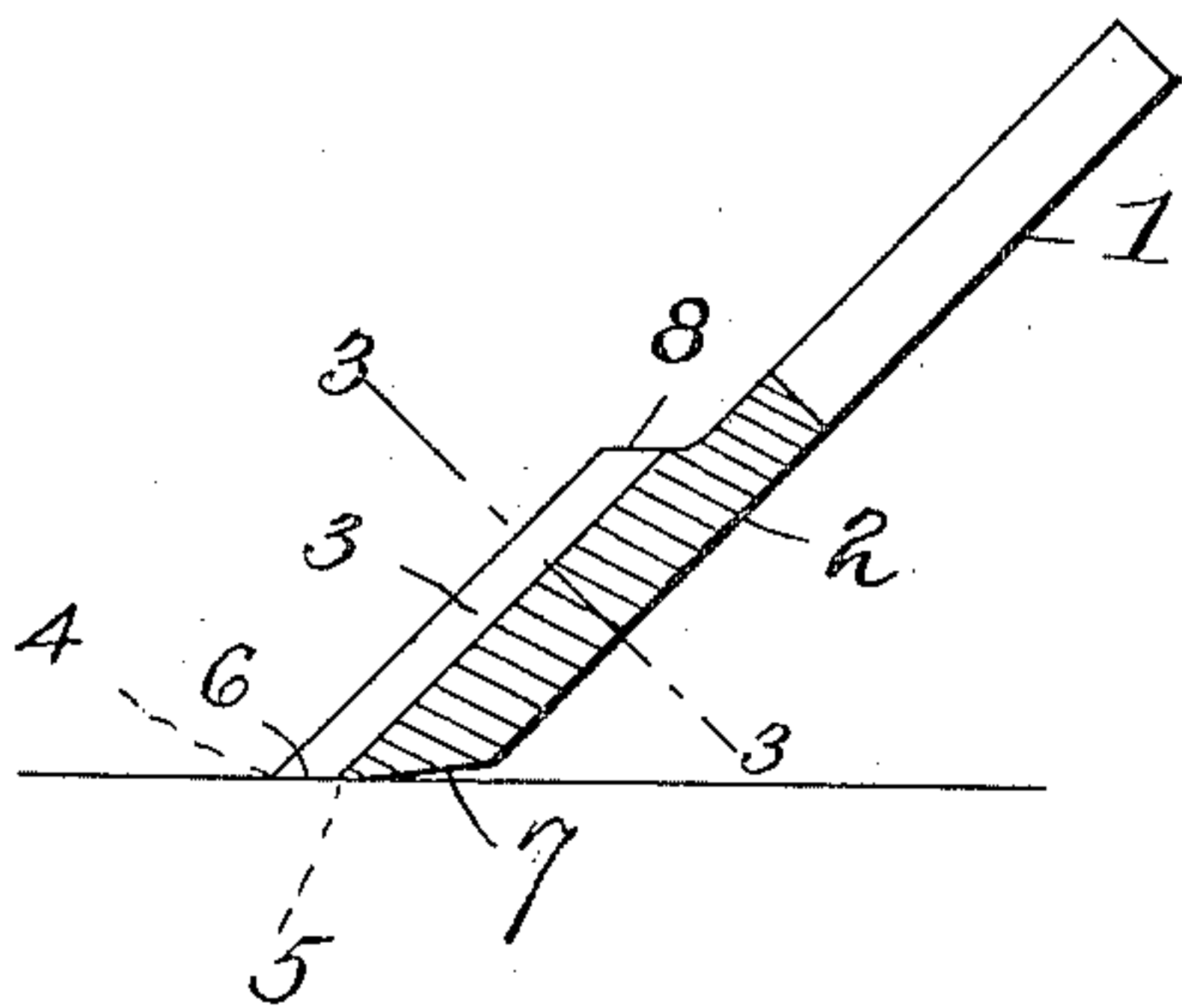


Fig. 3.

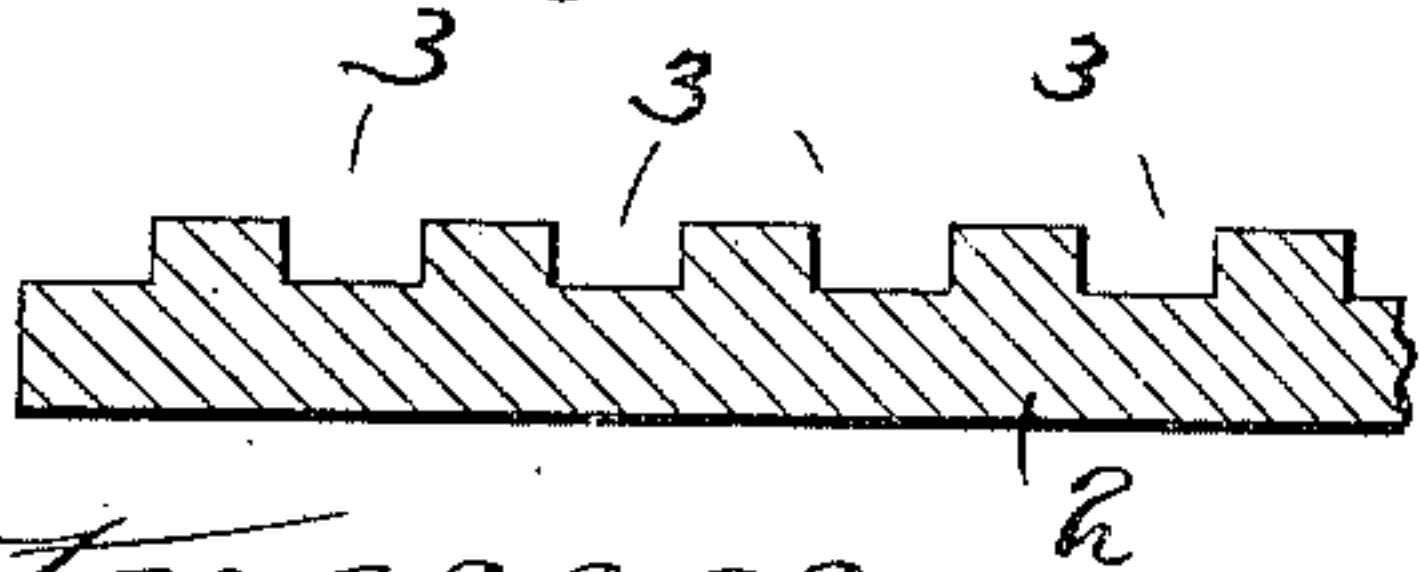
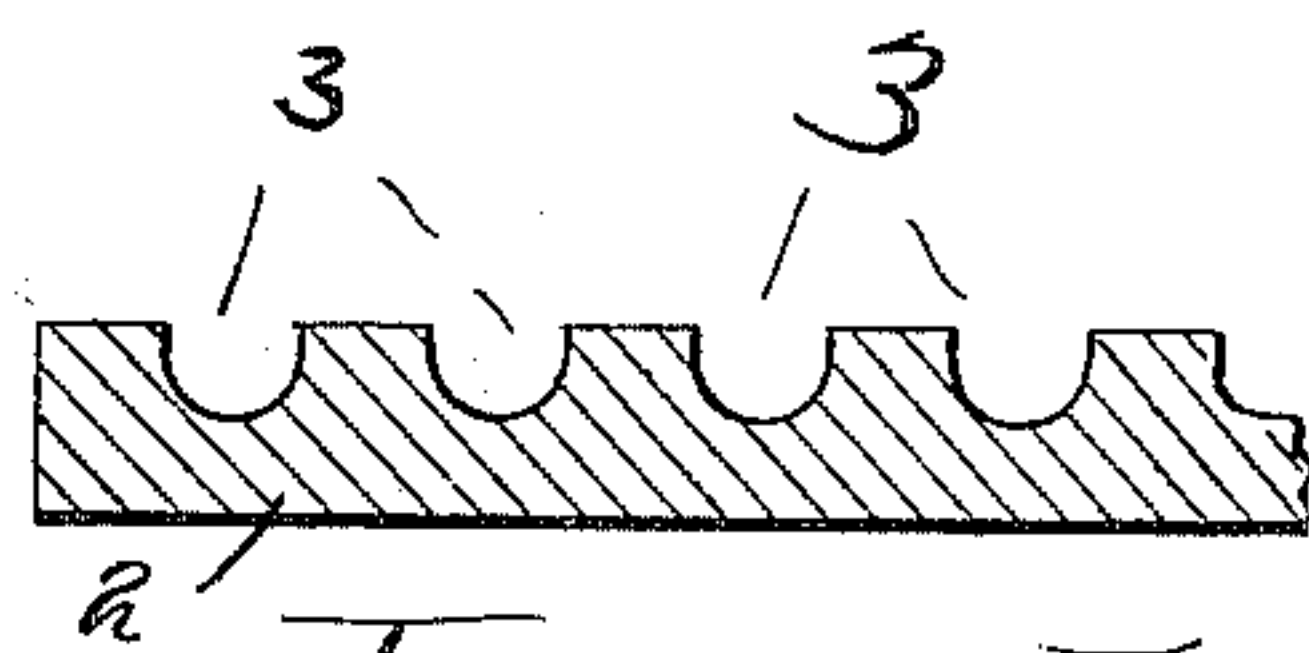


Fig. 5.



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UNITED STATES PATENT OFFICE.

EZRA H. WARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHN W. KEOGH, OF
SAME PLACE.

SHREDDING-KNIFE.

SPECIFICATION forming part of Letters Patent No. 604,813, dated May 31, 1898.

Application filed September 20, 1897. Serial No. 652,335. (No model.)

To all whom it may concern:

Be it known that I, EZRA H. WARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shredding-Knives, of which the following is a full, clear, and exact specification.

My invention relates more particularly to knives for shredding wood for the purpose of producing excelsior, and the improvements have especial reference to the construction or formation of the cutting edge, whereby a cheaper and more efficient knife may be produced and one which may be more readily and accurately sharpened and whereby also the resulting product will be of an improved and superior character.

One of the objects of my invention is to produce straight curled shreds or excelsior strands, as contradistinguished from spiral or twisted strands, without the necessity of slitting the wood in advance of the plane, whereby a superior product may be produced without the use of the objectionable slitting-knives.

Another object of my invention is to produce a knife of such form that it may be readily sharpened without altering the character of its cutting edge and will produce a number of shreds or strands the sum of whose widths will equal the entire width of the path traversed by the knife and without the necessity of employing slitting-knives in advance of the planing-knife heretofore used.

More specifically stated, the object of my invention is to produce a single knife with a plurality of planing edges arranged in substantially parallel lines with reference to the longitude of the knife and with the ends of one edge in line with the edges of the paths traversed by the others, whereby the material between such paths will be entirely removed and the surface of the wood traversed by the knife left in a smooth or plain condition.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference

to the accompanying drawings and more particularly pointed out in the claim.

In the said drawings, Figure 1 is a plan view of one form of my improved knife, showing it in the position in which it is used. Fig. 2 is a vertical sectional view thereof, taken on the line 2 2, Fig. 1. Fig. 3 is a transverse sectional view taken on the line 3 3, Fig. 2. Fig. 4 is a plan view, similar to Fig. 1, of a slight modification in the form of the inner cutting edge; and Fig. 5 is a transverse view thereof, taken across the grooves in Fig. 4.

All of the above views are of course drawn to an exaggerated scale for the sake of illustration.

1 represents the stock of the knife, having any suitable means whereby it may be attached to the operative parts of the machine, (not shown,) and 2 represents the body portion thereof. Formed in the body portion are a number of upright grooves or channels 3, which extend through its lower edge, so that in plan view there appears two series of cutting edges 4 5, arranged in substantially parallel lines extending longitudinally of the knife or across its line of travel, and the edges 4 5 alternately skipping spaces equal to the length of the edge in the other line, so that the ends of each of the edges 5 will be contiguous to or in line with the edges of the paths of the cutting edges 4, and as a consequence when the knife is moved along with the edges 4 foremost the material skipped between the edges 4 will be removed by the edges 5 and the board or wood left in a smooth condition ready for another passage of the knife thereover.

The lower edge of the body portion 2 or the cutting edge of the knife is ground off on a bevel 6, so that the knife may set at a proper angle to facilitate its cutting, and such bevel brings both edges 4 5 into close contact with the surface of the board or other material to be shredded, and as a consequence the two edges 4 5 cut to the same depth or are in the same cutting plane; but I find it very desirable to grind along the lower edge of the knife a second bevel 7, which is started just in the rear of the edges 5 and carried upwardly to the rear side of the knife-body, as clearly

shown in Fig. 2, to give the knife clearance in its travel and make the rear edge sharper while the blade is still presented to the work, so that both edges may cut to the same level, 5 the angularity of the bevel 7, however, being exaggerated for the sake of illustration.

In order that the channels 3 may be formed with facility in the body portion 2 of the knife, the front side of such body portion is provided 10 with an enlargement or thickened, so as to form a shoulder 8, whereby the grooves 3 may be milled straight through.

The form of my invention shown in Figs. 4 and 5 differs from that shown in Figs. 1 to 15 3, inclusive, only in the formation of the inner cutting edges 5^a, which are here shown as semicircular, the outer cutting edges 4 being the same as in Fig. 1.

With a shredding-knife thus constructed 20 it will be seen that the cutting edges being presented at right angles or transversely to the line of movement of the knife the shavings or shreds formed thereby will be straight as regards the vertical plane and curled after 25 the fashion of a watch-spring, as contradistinguished from a spiral or twisted shaving. It will also be seen that the character of the

cutting edges 4 5 5^a enables them to be ground with great facility, it simply being necessary to grind the lower edge of the knife on the two 30 bevels 6 7 by any ordinary or usual means, and repeated grinding cannot alter the character or shape of the cutting edges nor reduce the distance between the front and rear lines of edges if the grinding is properly performed 35 in the manner described.

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

As a new and useful article of manufacture 40 a knife for the purpose described having its forward side provided with upright grooves or channels constituting the edges 4 arranged at right angles to the line of movement of the knife and at short intervals apart, and a sec- 45 ond series of edges arranged to the rear with respect to said edges 4 and in a plane therewith, and the bevels 6 7 formed along the lower edge of said knife, substantially as set forth.

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