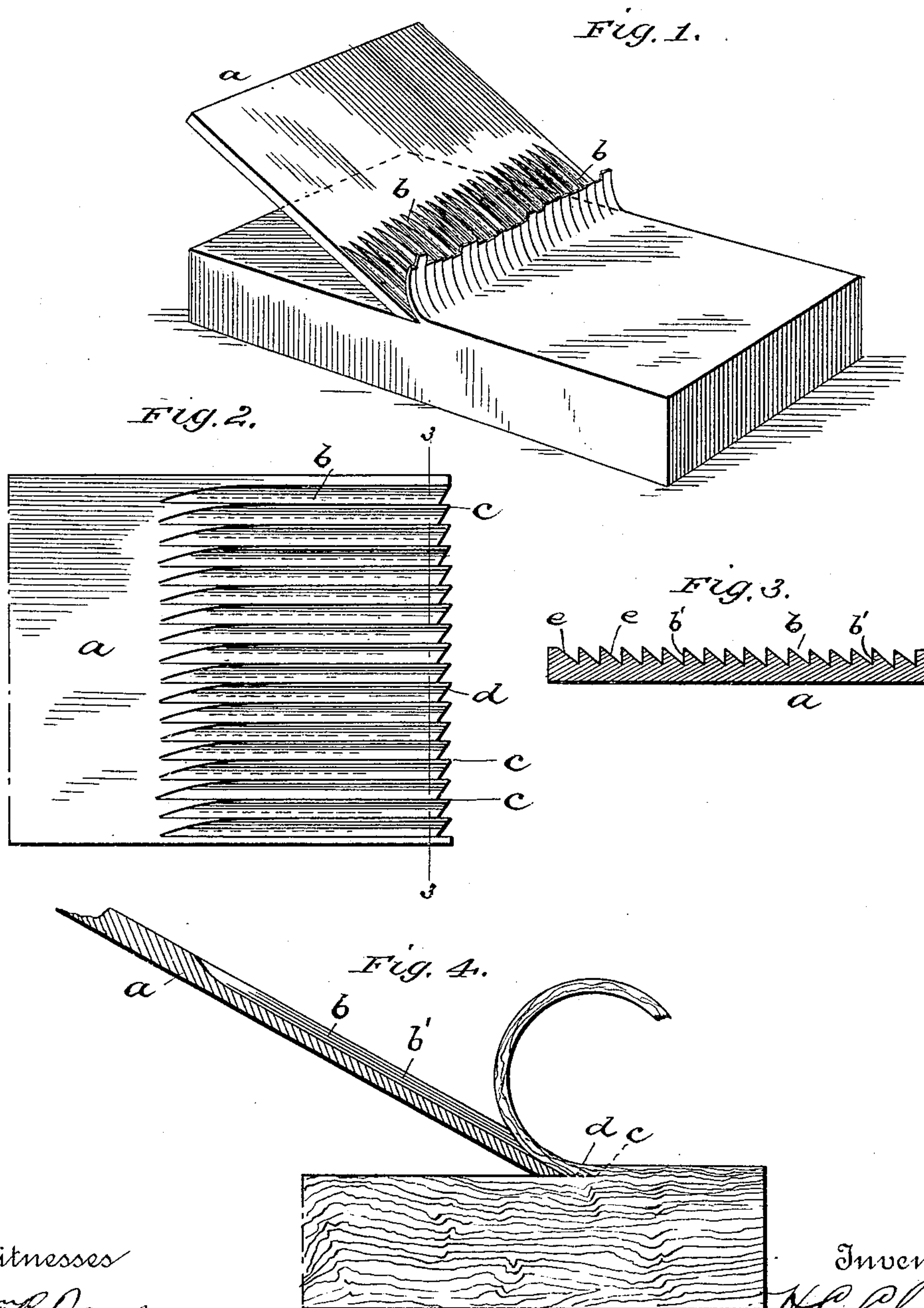


(No Model.)

H. C. CLOYD.
EXCELSIOR KNIFE.

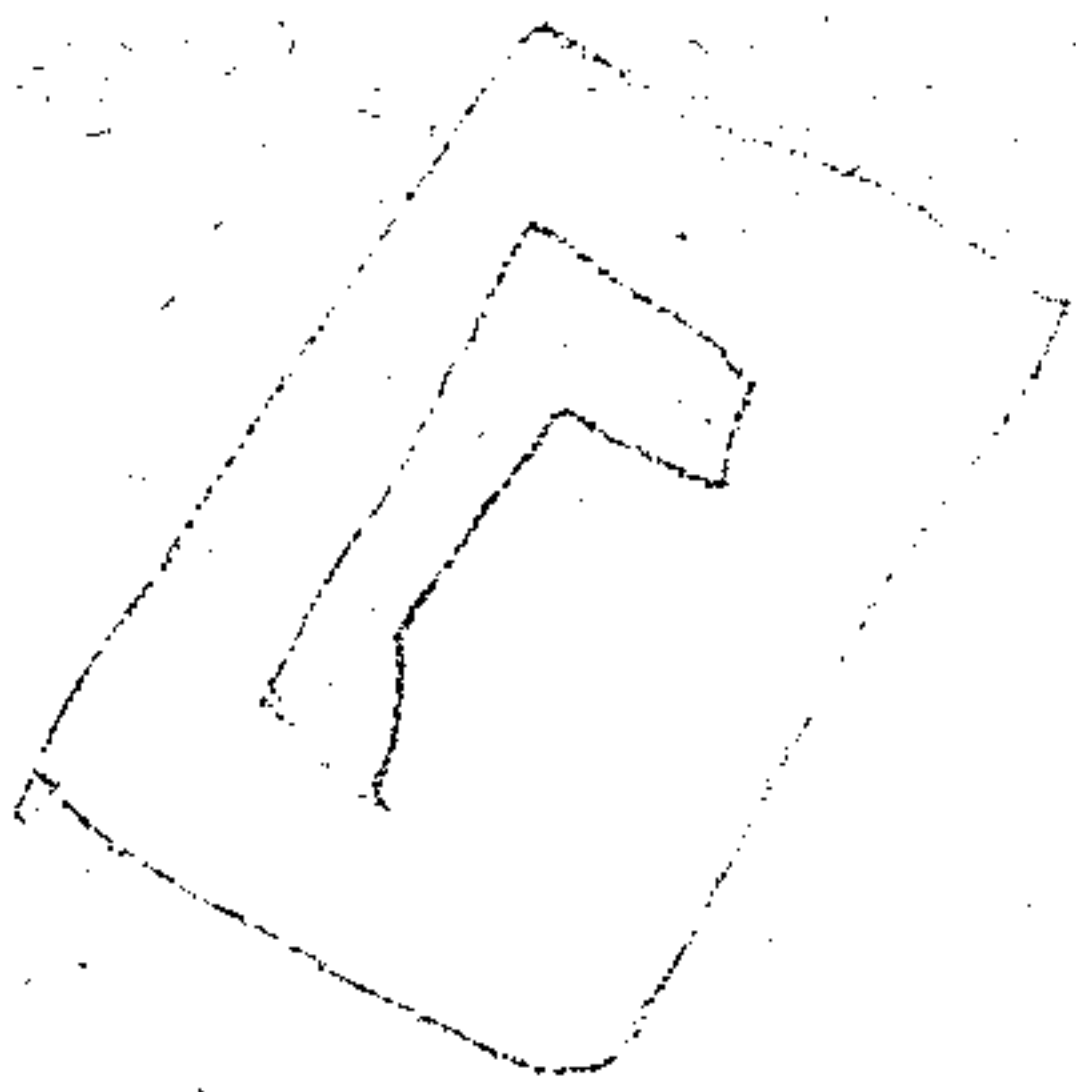
No. 495,879.

Patented Apr. 18, 1893.



Witnesses
W. R. Davis.
E. J. Cussen.

Inventor
H. C. Cloyd
By his Attorneys
Alexander Davis



UNITED STATES PATENT OFFICE.

HENRY C. CLOYD, OF UNION CITY, INDIANA.

EXCELSIOR-KNIFE.

SPECIFICATION forming part of Letters Patent No. 495,879, dated April 18, 1893.

Application filed August 6, 1891. Serial No. 401,831. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. CLOYD, a citizen of the United States, residing at Union City, in the county of Randolph and State of Indiana, have invented certain new and useful Improvements in Excelsior-Knives, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a new and improved excelsior knife, or planing iron for excelsior machines, and it has for its object to provide a knife that shall both score the wood and plane the shavings from the block, leaving a perfectly smooth surface behind the knife, thereby obviating the necessity of using either an extra scoring-knife, or a smoothing plane behind the knife, as will be more fully shown.

20 The invention consists in forming in the front or upper surface of the knife a series of peculiarly shaped parallel grooves whereby the abovementioned results are accomplished; all of which will be more fully hereinafter described and pointed out in the claim appended.

30 In the accompanying drawings Figure 1 is a perspective view showing the operation of my improved knife. Fig. 2 is a plan view of the knife. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2, and Fig. 4 is a vertical sectional view showing the knife cutting a shaving from a block of wood.

35 Similar letters of reference indicate corresponding parts throughout the several views.

I am aware that planing irons having grooves on their upper surfaces for the purpose of obviating the necessity of separate scoring devices, have been used, but these knives are objectionable in that they leave a grooved surface behind them in the block of wood from which the excelsior is cut, and furthermore, the grooves of said knives are square or rectangular in shape, requiring the maximum expenditure of power to operate the knives, and producing a torn or ragged shaving, there being no scoring or splitting of the wood previous to cutting the shaving, (it being practically gouged from the block,) thereby destroying its elasticity, a property very desirable, and necessary in excelsior. My knife is designed to overcome these difficulties, produc-

ing a clean-cut shaving, and giving to it a helical form, thereby retaining all its elasticity; making said shaving by a positive draw cut; and dividing or separating the shavings before they are cut from the block, thereby producing said shaving with a minimum of power.

Another advantage of my knife is, that it leaves a perfectly smooth surface after each operation.

The advantage of having a smooth surface for the knife to operate on is obvious, it being desirable to have the shavings of a uniform thickness. It is manifest that if the knife has a smooth surface to operate on at every stroke, all the shavings will be uniform in size.

40 In the construction shown, I provide in the upper surface of the knife *a*, a series of parallel grooves *b*. The said grooves extend as far as it is intended to wear the knife, or they may extend the whole length of the blade, and they are approximately V-shaped, having one of their sides *b'* vertical or perpendicular to the surface of the knife. The knife is beveled on its under side, at the desired angle, to form the cutting edge, in the usual manner. The said beveling to form the cutting edge of the knife, produces, on my knife, what appears in plan to be a saw-toothed edge as shown in Fig. 2 of the drawings, the points *c* of the teeth being the highest points of the grooves. The knife is adjusted in the cutter-head of an excelsior-machine so that the entire cutting edges *d* of all the grooves are in the same horizontal plane, the cutting edge of each groove starting at the point *c*, and inclining rearwardly, as shown in Fig. 2, until it reaches the straight side of the next tooth, thus forming a continuous cutting edge, in a horizontal plane across the blade. The points of the teeth extending forward of the inclined cutting edge, act as scorers, dividing or splitting the wood, so that each cutting edge cuts a separate shaving, the rearward inclination of the edge, causing it to operate with a draw cut. The inclined sides *e* of the grooves cause the shaving to take a side-wise motion, which, in addition to the curling or convolute shape given to the shaving by the planing iron, causes the shaving to take a helical form, which is very desirable in excelsior.

The operation of my knife will perhaps be better understood if likened to that of an ordinary plow, or rather a series of plows, the points of the teeth or cutters forming the
5 plow-point or share; the inclined side of the groove the mold-board, and the vertical side of the groove forming the land-side.

It will be readily understood from the foregoing, that my knife will do the maximum
10 of work with the minimum expenditure of power, and that it may be used in any excelsior-machine, singly or in series.

Having thus fully described my invention, what I claim, and desire to secure by Letters
15 Patent, is—

An excelsior-knife having its lower end beveled on its under side, and a series of longitudinally-parallel grooves which form a serrated-like surface upon the upper face of the

knife, each serration or groove having one of
20 its two walls formed straight and extending the full depth of the grooves, at right angles to the surface of the knife, and the other wall extending in approximately a straight line
25 from the lower or inner edge of the straight wall to the outer or upper edge of the next straight wall, whereby each groove will have a horizontal and a vertical cutting edge which when properly adjusted will cut the shaving
30 of the desired shape and leave the surface of the board practically smooth, substantially as described.

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

HENRY C. CLOYD.

Witnesses:

JAMES B. ROSS,
S. R. BELL.