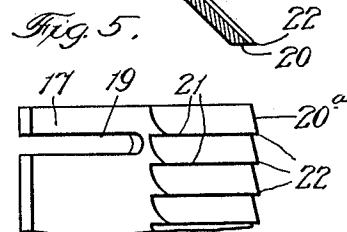
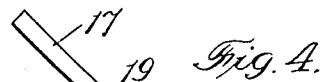
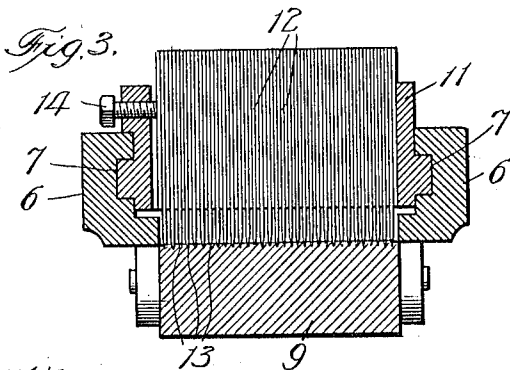
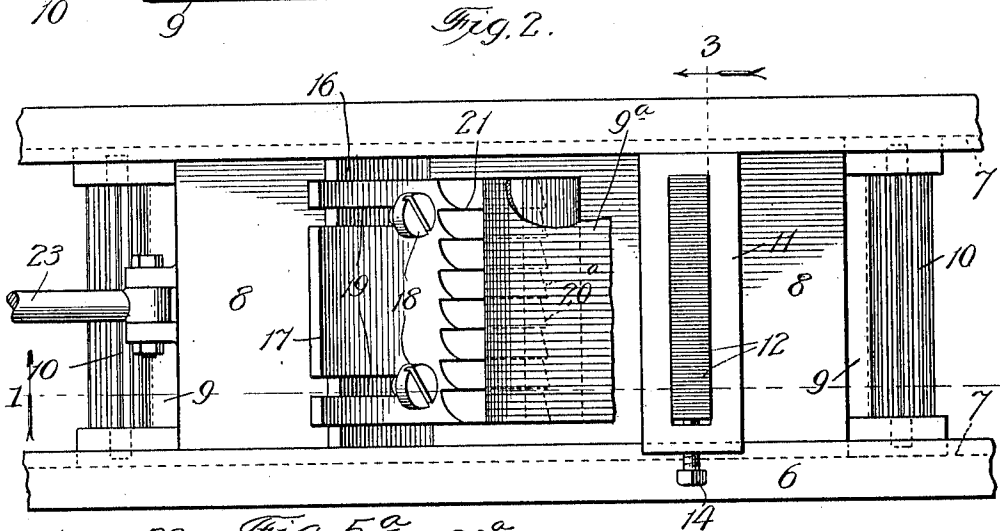


**1,020,100.**



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# UNITED STATES PATENT OFFICE.

JOHN W. KEOGH, OF CHICAGO, ILLINOIS.

EXCELSIOR-MACHINE.

1,020,100.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed January 5, 1912. Serial No. 669,615.

*To all whom it may concern:*

Be it known that I, JOHN W. KEOGH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Excelsior-Machines, of which the following is a specification.

My object is to provide an excelsior machine with cutting mechanism so constructed and arranged as not only to improve its operations when cutting against dry and seasoned straight-grained wood, but enable it to produce excelsior of good quality from wood of a character or condition hitherto generally regarded as undesirable for the purpose.

It has been the common practice heretofore in excelsior machines to provide a reciprocating cutter-frame with scoring-cutters and a straight-edged planing-knife, the former operating to produce closely adjacent parallel incisions in the surface of the block of wood and the latter operating to shave off the scored surface-portion of the block. Excelsior machines have also been operated without the employment of scoring-cutters by equipping the cutter-frame merely with a planing-blade, termed a "milled knife", having a beveled shaving edge and parallel plowing ridges in its face, as shown and described in Letters Patent No. 495,879, granted to Henry C. Cloyd, April 18, 1893. In the use of the more common machine mentioned, which employs the scoring-cutters and straight-edged shaving-knife, it is necessary that the wood operated upon shall be dry and comparatively free from knots for the production of excelsior of good quality, the reasons being that if the wood is wet it presents a spongy surface-portion which tends to yield under the pressure of the shaving-knife and interfere with the proper cutting. In thus yielding under the knife the surface of the wood is "fuzzed up", as it is called, and results, furthermore, in so disarranging the feed of the wood with relation to the movement of the knife as to clog and frequently stop the machine. In the case of cross-grained or knotty wood the shaving knife tends to crumble the wood and produce dust. If gnarly parts of the wood are wet and spongy, the straight-edged knife is apt to ride over them and thus interfere with the operation of the machine. In the use of the milled knife mentioned, without the scor-

ing-cutters, excelsior of good quality can only be produced from wood having a straight grain, for the reason that as the shaving-edge plows through the wood the sharp ridges in the face of the knife, which readily split straight-grained shavings, fail to cut whirly or cross-grained shavings, leaving the product in more or less blanket-form instead of in separate strands.

In carrying out my invention I provide the cutter-frame with scoring-cutters and a knife of the milled type, so constructed and arranged with relation to each other that the above-named objections are overcome.

Referring to the accompanying drawing—Figure 1 is a longitudinal section of a portion of an excelsior machine showing a holder and feeder for a wooden block and a reciprocating cutter-frame equipped with scoring-cutters and a shaving knife, the section being taken on line 1 in Fig. 2; Fig. 2, a plan view of the parts shown in Fig. 1; Fig. 3, a section taken on line 3 in Fig. 2; Fig. 4, a longitudinal section of the milled shaving-knife; Fig. 5, a broken plan view of the said shaving-knife; and Fig. 5<sup>a</sup>, an enlarged end view of a portion of the shaving-knife, showing its cutting edge.

The frame of the machine is formed with parallel side-bars 6, 6, having guide-ways 7, 7, for the reciprocating cutter-frame 8. The block of wood 9, which is to be cut into excelsior 9<sup>a</sup>, is engaged and held by serrated rollers 10, which are rotated intermittently between reciprocations of the frame 8, in a common manner, to feed the block of wood 9 a predetermined distance with each movement in the direction of the path of the cutter-frame. Forming part of the frame 8 is a holder 11 containing a series of scoring-blades 12. The scoring-blades have beveled lower ends 13 terminating in cutter-points, and I prefer to so mount them in the holder 11 that the points of the adjacent cutters extend in opposite directions, as indicated. The scoring-blades are held in adjusted position in the holder 11 by means of a set-screw 14. In the cutter-frame is a plane-slot 15 back of which is an inclined bed for the shaving-knife 17. The shaving-knife is fastened in place by screws 18, extending through slots 19 into the bed, and is provided at its lower end with a beveled shaving-edge 20. Extending from the edge 20 along the forward face of the knife or blade 17 are parallel ridges 21 presenting

sharp edges terminating at the edge 20 in the plow-points 22. By so forming the blade the shaving-edge 20 thereof presents a plurality of sections represented at 20<sup>a</sup>. The cutter-frame 8 is connected by a pitman 23 with a crank or eccentric (not shown) of a power-shaft by means of which the frame is reciprocated along a path approximating or exceeding in length the distance between the rollers 10.

The scoring points are provided of such a number and are so arranged relative to the shaving-blade 17 that a plurality of the points 13 oppose each cutting edge-section 20<sup>a</sup> and thus each of the latter, in operation, operate upon a section of the wooden block containing a plurality of scoring lines, it being preferred that there be provided at least three of the scoring-points 13 for coöperation with each cutting-edge section 20<sup>a</sup>. It will be understood that where it is desired to produce excelsior of different degrees of fineness, the number of the scoring points 13 provided for each cutting-section 20<sup>a</sup> will be varied as desired.

In operation, no matter how wet or cross-grained the block 9 may be, the scoring-points 13 will sever the wood, producing closely adjacent parallel incisions to a depth closely approximating the plane of the path of the points 22. The latter have a plowing action upon the wood, with the result that even when the wood is wet and spongy proper shaving will always be effected without any tendency of the surface-portion of the block to yield and pass beneath the knife, as is apt to happen when a straight-edged shaving-knife is employed. By providing the scoring-cutters to coöperate with the milled knife not only are long strands of uniform size produced, but the resistance of

the wood against the action of the plow-points is weakened to an extent which overcomes all danger of breaking the plow-points.

One of the advantages of my improvement lies in the fact that it is unnecessary, as has hitherto been the case, that the wood from which the excelsior is cut shall be seasoned and dry, because the fact of its being green or wet will not interfere with the proper operation of the cutters and when cut into strands the material may be dried very readily.

While I prefer to construct my improvements throughout as shown and described, they may be variously modified in the matter of details of construction without departing from the spirit of my invention as defined by the claim.

What I claim as new, and desire to secure by Letters Patent, is—

In an excelsior-machine, the combination with a block-holder and cutter-frame, one movable with relation to the other, of an inclined planing-blade mounted in said frame having a beveled sharpened edge at its forward end lying in the plane of the cut, a series of grooves in the forward face of said blade having one wall normal to the plane of the blade and the other wall slightly inclined to said plane so as to form a series of cutting edges or planing-sections parallel with each other but inclined across the plane of the cut, and a plurality of scoring-cutters for coöperation with each of said planing-sections, mounted in said frame across the path of said planing-sections.

JOHN W. KEOGH.

In presence of—

H. W. WHITNEY,  
N. J. DAVIDSON.