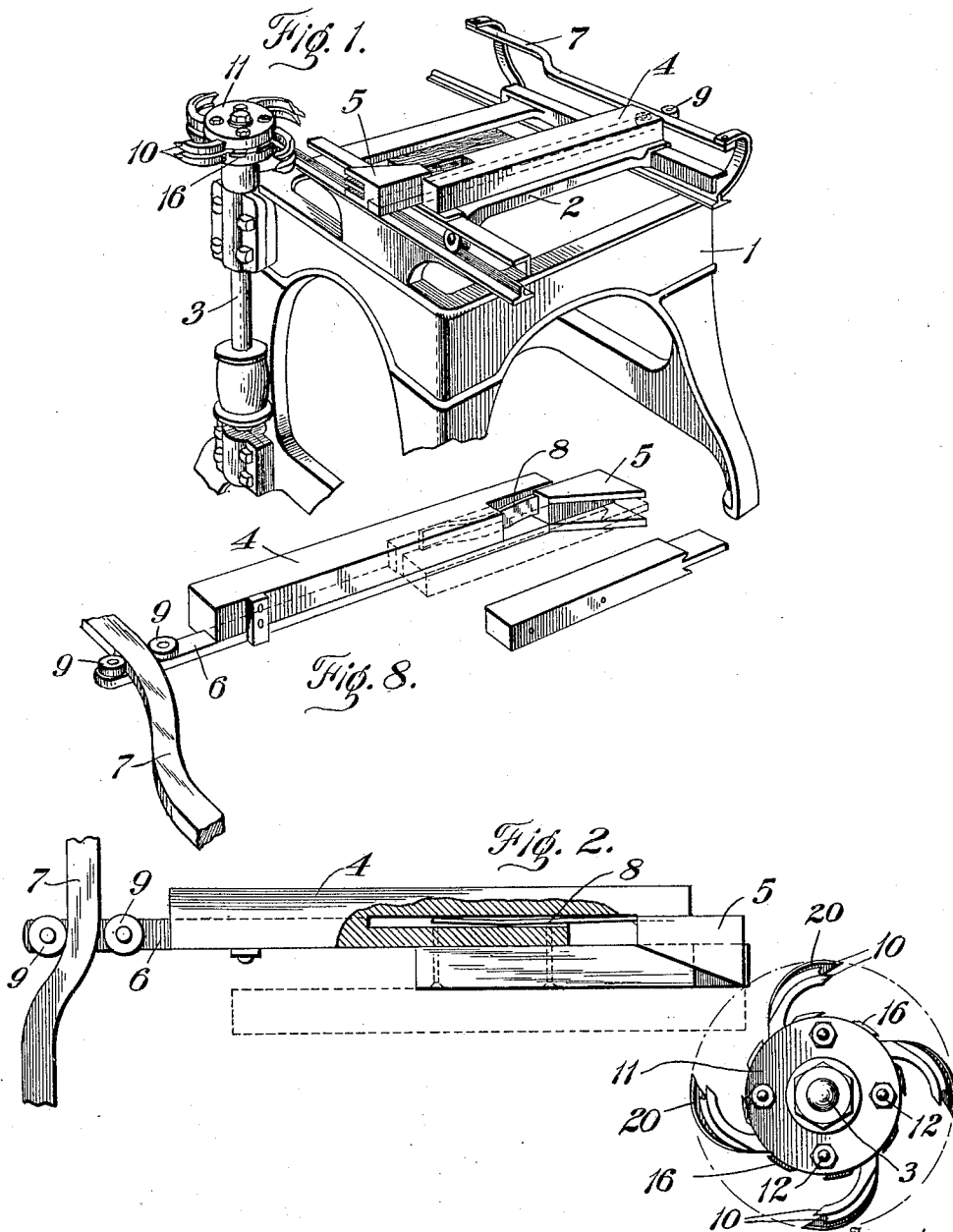


1,104,858.

J. F. WOLVIN.
WOODWORKING MACHINE.
APPLICATION FILED MAR. 26, 1911.

Patented July 28, 1914.

2 SHEETS—SHEET 1.



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Witnesses
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By

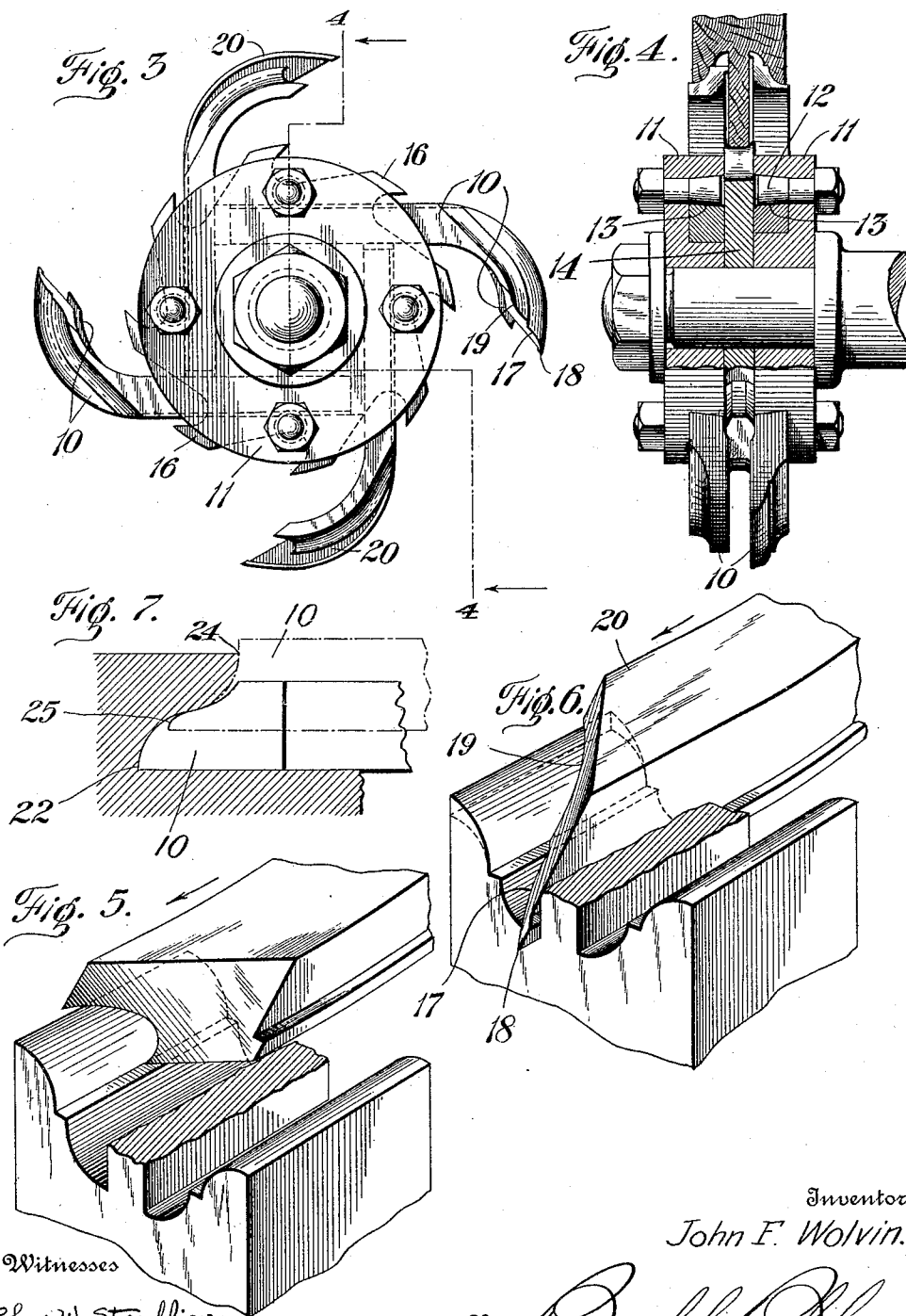
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UNITED STATES PATENT OFFICE.

JOHN F. WOLVIN, OF ST. CLAIR, MICHIGAN.

WOODWORKING-MACHINE.

1,104,858.

Specification of Letters Patent.

Patented July 28, 1914.

Application filed March 25, 1911. Serial No. 616,954.

To all whom it may concern:

Be it known that I, JOHN F. WOLVIN, a citizen of the United States of America, residing at St. Clair, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Woodworking-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

In the operation of tenoning, paneling and molding machines, the cutters as usually constructed are liable to leave a rough edge along the cut made by them and tend to splinter the work at the point where they finally leave it, because the knives are usually ground to a profile corresponding to the contour of the bead, molding, tenoning face or the like which they are supposed to form so that the heel or rear part of the cutting edge passes beyond one of the knife paths, breaking out of the work and leaving a rough margin.

This invention relates to a paneling machine or the like and more especially to an arrangement thereof whereby with the use of oppositely disposed cutters or knives arranged in the cutting head, the paths of travel of the successive knives, overlap between the margins of the cut made by the knives and whereby the knives enter the work from each exterior margin, the edge of each cutter being so disposed as to make a draw cut commencing at the face of the work and terminating at an interval from the other face. As herein illustrated, provision is likewise made for reinforcing the work at the point where the cutters clear themselves at the end of their path and prevent chips or splinters from forming at that point, although this does not form a part of the invention.

This invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in elevation of a portion of a machine that embodies features of the invention; Fig. 2 is a plan view in detail, largely diagrammatic showing the coöperation of a cutter head and a chip breaker upon the work; Fig. 3 is an enlarged view in detail of a cutting head; Fig. 4 is a view in section taken on or about line IV—IV of Fig. 3 with representation of a tenon cut or wood block; Fig. 5 is a view in detail, enlarged, of one of the cutters of a head in operative relation to a

tenon cut; Fig. 6 is a similar view of a cutter following the cutter shown in Fig. 5; Fig. 7 is a diagrammatic view illustrating the overlapping of the cutter edge arranged for an ordinary ogee. Fig. 8, a perspective view in detail of chip breaker.

As herein indicated as one form of machine embodying the invention, a base 1 of suitable design has a feed carriage 2 arranged to carry work past the head of a cutter spindle 3 driven from any convenient source of power. The inner edge of work placed on the table bears against the chip breaker 4 having a head 5 whose points yieldingly contact with the work and are withdrawn out of the path of any cutter which may be mounted on the spindle to clear the latter as the work advances by means of a slide bar 6 that is reciprocated longitudinally by a cam track 7. The conformation of the latter is arranged to move the head 5 in correspondence to the advance of the work past the cutter. Preferably the head is yieldingly projected against the work by a spring arm 8 and the cam track is engaged by friction rolls 9 on the member 6.

A pair of cutters 10 are severally clamped in suitable bearing slots in disks 11 as by tapered pins 12 engaging the undercut or bevel faces 13 of the cutter bar bodies. The disks 11 are held in spaced relation on the spindle 3 by a central member 14 whose periphery may, if necessary, form an edging cutter as indicated in Fig. 4 with teeth adapted to trim off the edge of work passing between the pairs 10. A cutting edge shown at 17 on the cutters is oblique to their path with the point or forward extremity 18 thereof arranged to enter the work first. The rear 19 or heel of the cutting edge 17 is arranged to clear or only partially finish the surface of the cut. The cutters 10 arranged around the disks 11 alternate with the other cutters 20 whose forming edges strike the surface of the work on the other margin of the cut from the margin entered by the points 18 while their corresponding heel portions are given clearance so as not to strike the surface of the work swept by the acting portion of the other cutting tool edges. As indicated diagrammatically in Fig. 7, one of the cutters 10 has an oblique edge whose point enters the work on the margin or corner 22 of the cut while the companion knife first attacks the work at the opposite margin 24. The heel of the first tool is re-

lieved so that while it overlaps the path of the companion tool it does not act upon the surface shaped by the latter and similarly the portion 25 on the cutting edge of the other tools where it overlaps the cutting edge of the first tool is relieved so as not to reface the work done by the latter cutter. In both arrangements of the cutting edge the obliquity of the knife edge to the path of motion of the tool is such that a shearing draw cut is obtained working from the outside to the middle portion of the finished surface.

As the cutters break out of the rear face of the work the thin edge of the wood adjacent the cutter is backed by the chip breaker head 5 which may be adjusted to so closely approach the knife points that it is impossible for chips or splinters to break off from the rear face of the work.

While herein shown with only two pair of each kind of cutters in the heads it is obvious that with larger heads a plurality of cutters may be secured alternately around the periphery of the disks.

In operation a shearing cut from the outside to the middle or from both margins to the middle of the traversed surface, forms a sharp clear angle along the outer margins and effectually smooths the central portion as there is no chance there for the wood to splinter or break away. This enables very clearly defined and smooth molding and profiling of the softer kinds of wood and of wood which is irregular in density or is cross grained. The supporting of the thinner portions of the wood where the cutters work out of the rear margin likewise prevents the formation of a fin or bur or ragged margin at this point and the work when it leaves the margin is completely finished without the necessity of sand-papering or re-cutting. One of the chief features of the invention is the arrangement of alternate pairs of cutters working from the outer margins of the wood to be cut toward the middle portion so that each knife clearly incises the wood at each margin and tends to compress and solidify the grain at the outer angle of the cut instead of tearing it out and splintering it as in the usual type of cutters.

Obviously, changes in the details of construction may be made without departing

from the spirit of the invention and I do not care to limit myself to any particular form or arrangement of parts.

What I claim is:

1. In a wood working machine, an edge paneling tool comprising a spindle, a circular spacing member thereon provided with peripheral edging teeth, a pair of disks bearing on each side of the spacing member, a pair of cutters in each disk having bodies with under-cut faces that lie in bearing slots in the disks and blades projecting beyond the disks with cutting edges adapted to incise work from one outer margin thereof only, the cutting members of one disk alternating with the cutting members of the other disk, and both sets of members coöperating with the edging teeth of the spacing member to form a profile tenoning margin on work fed to the tool, and pins transversely disposed in the disk and adapted to clamp against the beveled faces of the cutters and lock the latter in the slots.

2. In a wood working machine, a tenoning and profiling tool comprising a spindle, a circular spacing member thereon provided with peripheral edging teeth, a pair of disks on the spindle against the sides of the spacing member, a pair of cutters in each disk having bodies with undercut faces that lie in bearing slots in the disk and projecting blades that have obliquely disposed profile cutting edges adapted to incise work along one outer margin thereof only, the paths described by the profile edges of the two sets of cutting members overlapping between the margins of the cutter, and the points of the entrance of the cutting edges of the work being in advance of the points of leaving the work, the disk cutters coöperating with the peripheral teeth of the spacing member upon work fed to the cutter to form the desired profile and tenon face thereon, and tapered pins transversely adjustable through the slotted portions of the disk adapted to bear against the beveled portions of the cutters and retain the latter in the slots.

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

JOHN F. WOLVIN.

Witnesses:

RALPH YERNS,
A. E. MANE.