

E. D. MISNER.
EXCELSIOR MACHINE,
APPLICATION FILED MAY 15, 1909.

956,130.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.

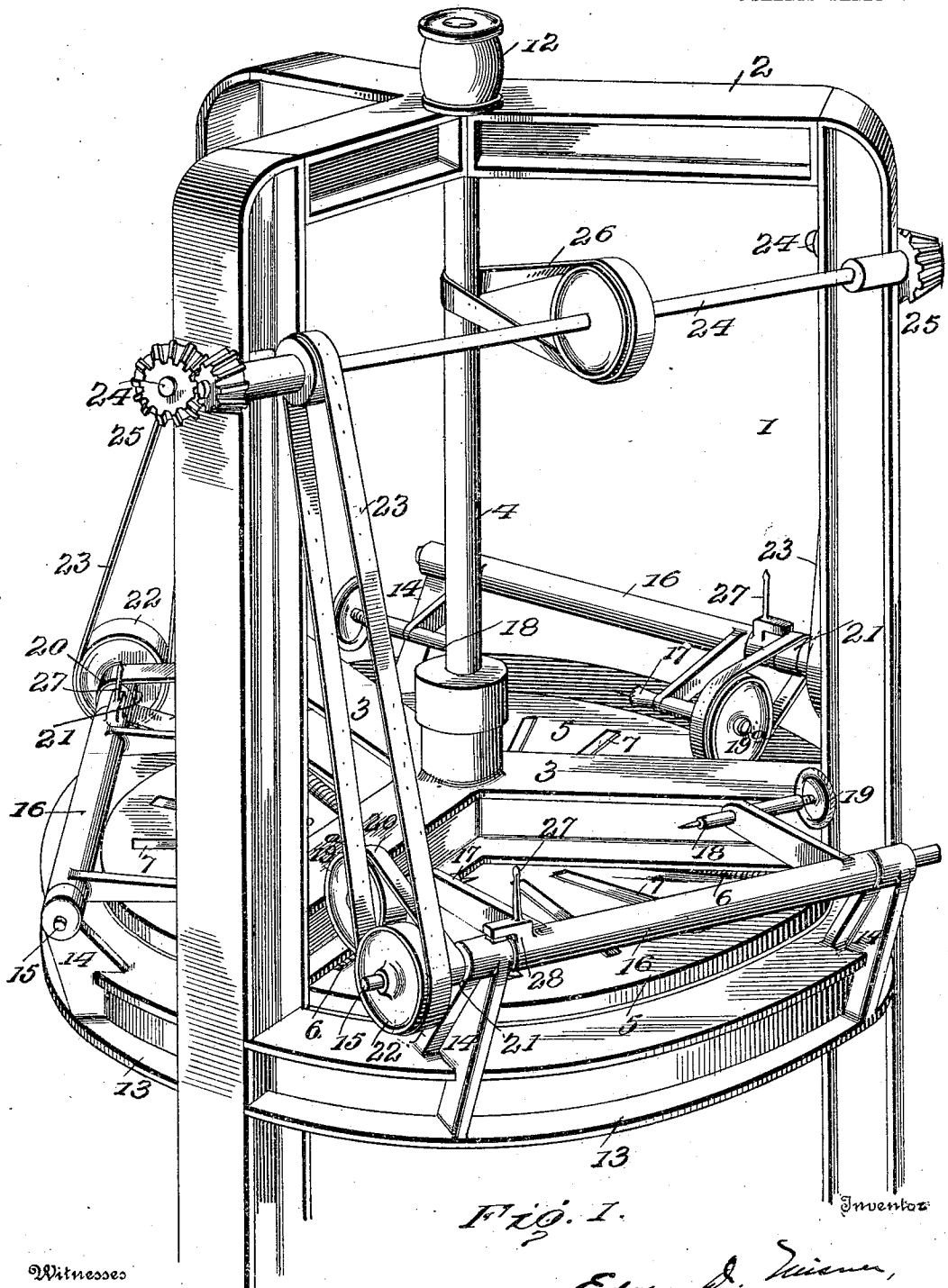


Fig. 1.

Inventor

Witnesses

W. A. Williams

Francis S. Perkins

By

Edgar D. Misner,

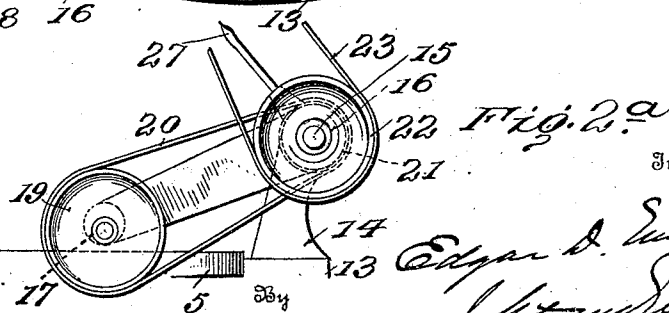
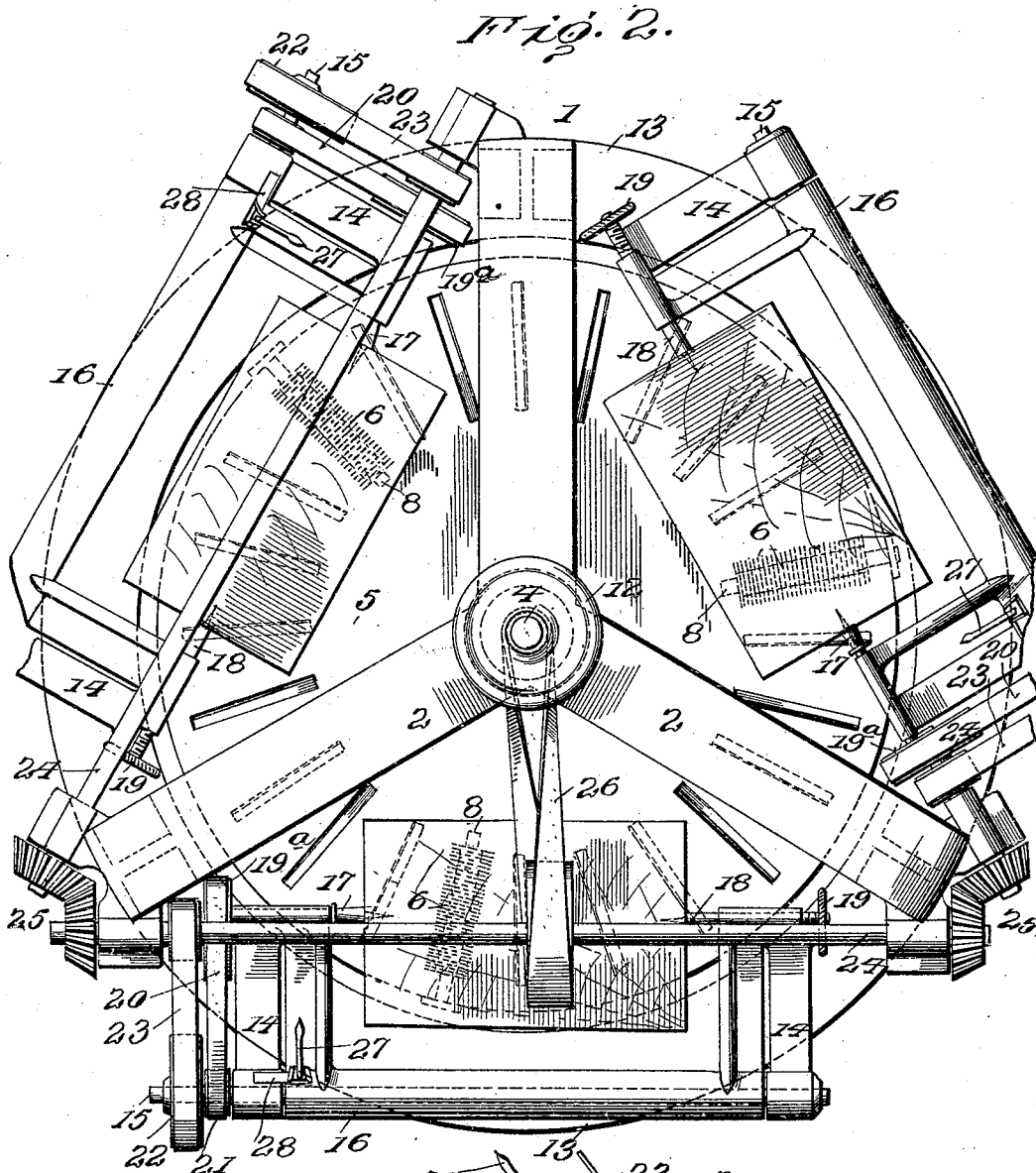
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Witnesses
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Thomas S. Hargis

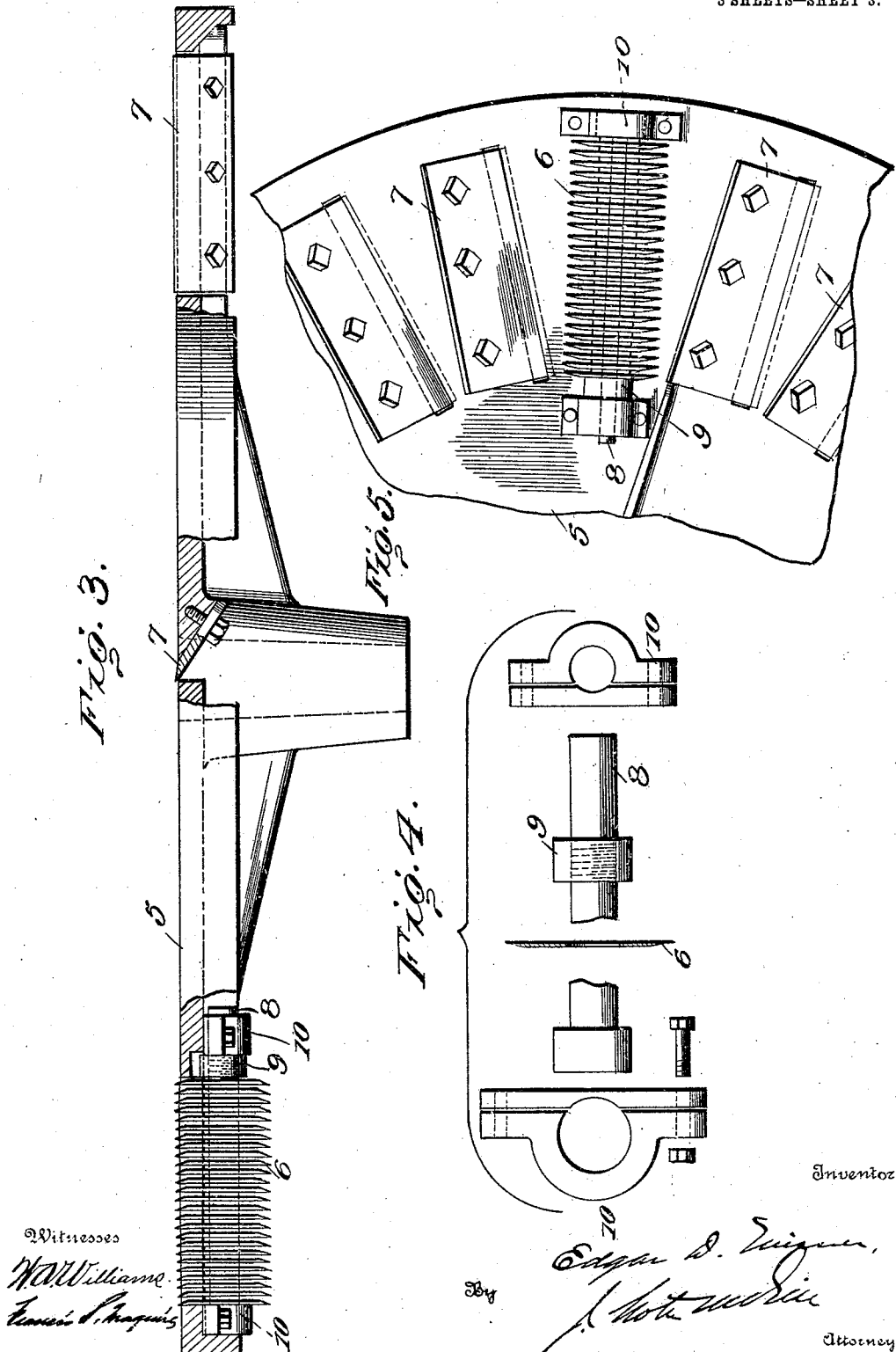
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

EDGAR D. MISNER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF TWO-THIRDS TO WILLIAM C. RENFROW, OF KANSAS CITY, MISSOURI.

EXCELSIOR-MACHINE.

956,130.

Specification of Letters Patent.

Patented Apr. 26, 1910.

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To all whom it may concern:

Be it known that I, EDGAR D. MISNER, of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Excelsior-Machines; and I do hereby 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.

The object of this invention is to so construct an excelsior machine that a maximum output may be secured with a minimum expenditure of power. In other words, by means of my invention I am enabled to produce excelsior simultaneously from a plurality of blocks each of which is utilized to the fullest possible extent.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings; Figure 1 is a view in perspective. Fig. 2 is a plan view. Fig. 2^a is an end view of one of the block supporting arms. Fig. 3 is a view partly in section of the cutting disk. Fig. 4 shows portions of the shaft and bearings of a slitter. Fig. 5 is a plan view of a portion of the cutting disk.

Referring to the drawings, 1 designates a frame of skeleton formation. It is preferably composed of a series of vertically-disposed legs or uprights, upper horizontally-arranged arms 2 radiating from a common center and connecting with the upper ends of said uprights, and a second lower series of horizontally-disposed arms 3 in vertical line with the upper series of arms, extending from a common center to the uprights. These radiating arms 2 and 3 at their common centers form bearings for a vertically disposed shaft 4 upon which is fastened a knife-carrying disk 5. In openings formed in this disk I provide slitters 6 and slicers 7. I have shown the slitters arranged equal distances apart and series of slicers intermediate the slitting knives. The slicers are in the form of cutting blades projecting upwardly through openings in the disk. Each is slightly off-set from, or at a slight angle to, radial lines through the axis of the disk so that in operating on logs or circular blocks the slicer will first act at points farther from their inner ends. The slitters are composed each of a series of circular cut-

ting disks having beveled edges and held tightly against each other on a shaft 8 by an adjusting nut 9. Each shaft 8 is mounted at its ends in bearings 10 which are detachably bolted to the underside of disk 5. Only shaft segments of the cutting disks project through oblong openings in disk 5 and when these become worn fresh segments may be presented, the shafts 8 being slightly turned in their bearings after loosening the retaining screws. Power is applied to shaft 4 from any suitable source, preferably by a belt engaging pulley 12 thereon.

Extending between and supported by adjacent uprights are three curved bars 13. Each bar carries near its ends brackets 14 which at their upper ends form bearings for a fixed shaft 15. On each shaft 15 is hung a frame 16 composed of a tubular portion through which such shaft is passed, and two laterally projecting arms having bearings at their free ends for oppositely-disposed centering devices 17 and 18. The centering device or tail piece 18 is threaded in its bearing and adjustable by turning hand wheel 19. The centering device 17 is provided with a pulley 19^a driven by a belt 20 engaging a pulley 21 loose on shaft 15. Pulley 21 is carried by a second pulley 22 also loose on shaft 15 and which is driven by a belt 23 from a countershaft 24 mounted near the top of the frame. There are three countershafts 24 connected by beveled gearing 25 so that they may all operate in unison, power being transmitted to one of them by a belt 26 driven by shaft 4. Each of the frames 16 has a handle 27 by which it may be turned on its pivot so as to throw the centering devices outwardly to enable a block to be secured in place. When the frame is thus positioned it will be held by a laterally projecting lug 28 engaging one of the brackets 14.

The described arrangement is observed at three different points around the machine so that three separate blocks may be treated simultaneously. As a block is positioned between two centering devices the respective frame 16 is turned until the block rests on the rotary cutting disk. While the latter is revolved the block is also rotated. The slits are formed in the block by slitters 6 and the fiber is shaved or sliced by the shearing like action of the slicing knives 7.

So as to insure the complete consump-

tion of each block I mount the centering devices eccentrically in the ends of the lateral arms of the swinging bracket 16. In other words, the spindles of the centering devices are set closer to the lower than to the upper edges of the laterally projecting arms with the result that the blocks will be presented to the cutters until there is practically nothing left from which excelsior may be produced. The rotary motion of the blocks against the cutting edges of the knives will enable the latter to remove the fiber from the blocks on lines practically parallel with its axis and longitudinally of the grain of the wood. It is very important that the slicing of the fiber be with the grain of the wood, since otherwise the threads will curl and break off, leaving sharp points, which are exceedingly objectionable.

I claim as my invention:—

1. An excelsior machine comprising a frame, a horizontally-disposed disk, a plurality of slitters carried by said disk, a series of slicers also carried by said disk, a series of pivotally mounted frames arranged at equal distances apart around said disk, centering devices carried by said frames for supporting blocks of wood, means for rotating said centering devices, and a series of separate shafts operated synchronously for rotating said centering devices.

2. An excelsior machine comprising a frame having a series of spaced apart uprights and upper and lower horizontal portions, a rotary horizontally disposed cutting disk, a vertically disposed shaft for such disk mounted in the horizontal portions of said frame, a series of independent pivoted frames located between said uprights, supports for said frames secured to said uprights, centering devices carried by the free ends of said frames, a series of counter-

shafts geared together and supported by said uprights, means for communicating power from said vertically disposed shaft to one of said counter-shafts, and means for transmitting power from each counter shaft to one centering device of each of the pivoted frames.

3. The combination with a vertically disposed frame having uprights, of a horizontally disposed disk having slitting and cutting knives, a main operating shaft on which said disk is mounted, a series of curved bars secured to said uprights, brackets supported by said bars, rods mounted in said brackets, U-shaped frames pivoted on said rods, each frame having a handle and a lateral projection for engaging a bracket when the frame is raised, centering devices mounted in the free ends of each frame, one centering device of each frame having a pulley thereon, a pulley loose on said rod, a belt connecting said pulleys, a series of counter-shafts driven by said main operating shaft, and means for communicating power from counter-shafts to the pulleys on said rods.

4. The combination, in an excelsior machine, of a rotating disk having slitting and cutting knives, of a pivoted frame having laterally projecting arms, centering devices mounted in the free ends of said arms, each centering device being off center or eccentric to the ends of such arms, and means for rotating the blocks of wood supported by said centering devices.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

EDGAR D. MISNER.

Witnesses:

FRANCIS S. MAGUIRE,
JOHN A. MURPHY.