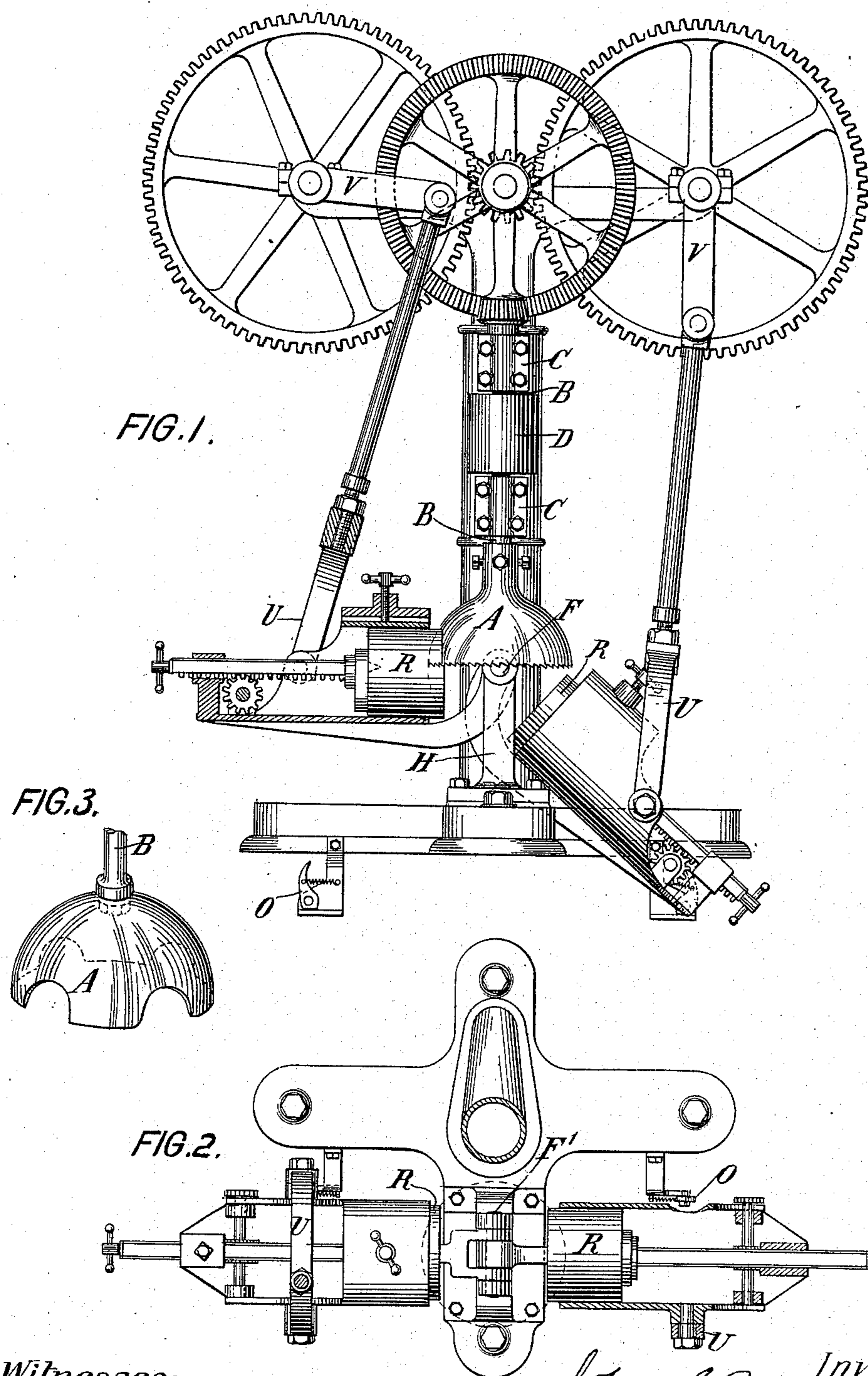


(No Model.)

J. S. PESSENGER.
CYLINDRICAL SAW.

No. 565,633.

Patented Aug. 11, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN S. PESSENGER, OF BROOKLYN, NEW YORK.

CYLINDRICAL SAW.

SPECIFICATION forming part of Letters Patent No. 565,633, dated August 11, 1896.

Application filed June 5, 1894. Serial No. 513,598. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. PESSENGER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Spherical Saws, of which the following is a specification.

My invention relates to an improvement in machines for sawing out concavo-convex plates or disks from a solid block of wood; and it consists in a hollow approximately semispherical rotary saw, in connection with means for holding a solid block of wood, and means for automatically changing the positions of said parts relatively to each other constantly until the plate or disk is cut from the block and the article completed in a single mechanical operation.

It further consists in a hollow semispherical rotary saw, in connection with a block-holder, means for constantly changing the relative positions of the saw and holder, and means for feeding the block forward automatically.

The invention still further consists in a hollow approximately semispherical saw, in connection with a pair of holders, and means for automatically changing the relative positions of said holders, so that the blocks held therein are automatically fed to the saw, whereby a concavo-convex plate or disk is first cut from one block and then from the other, and each is formed by a single operation of the machine.

The invention still further consists in certain novel features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of my improved machine. Fig. 2 is a plan view of a portion thereof, and Fig. 3 is a view showing a modified form of saw.

A represents a hollow approximately semispherical rotary saw. This may have different forms of teeth, as is indicated in Figs. 1 and 3.

B is a rotary shaft revolubly supported in journal-boxes C C, connected with the frame of the machine, and at the lower end of this shaft saw A is secured in any suitable manner, as, for instance, by means of set-screws α . This shaft B is also provided with a

pulley D, around which a drive-belt (not shown) passes, whereby to impart rotary motion to the shaft.

On the upper end of the shaft B a pinion b is keyed, and through this instrumentality motion is communicated to the other parts as follows: A crown gear-wheel E is revolubly supported on a bearing E' in the upper portion of the machine-frame, and the teeth of the crown gear-wheel intermesh with the teeth of pinion b , receiving motion therefrom. A small gear-wheel G is secured to the hub or axle of this wheel E, and through it motion is imparted to two larger gear-wheels G' G², one of which is located on either side thereof. Cranks V V are secured to the shafts on which these gear-wheels are keyed, and from these cranks pitmen U U extend to the block-holders.

L L' represent these holders, two being employed, preferably. The inner ends of these holders are substantially cylindrical in form, and in this cylindrical portion the block R to be operated upon is placed, it being held moderately fast therein by means of clamp R', which is set to afford the proper frictional engagement therewith. These holders are secured on the arms L' L², which latter are hinged at point F' at the upper end of upright H'.

From the above it will be seen that the belt drives the shaft which carries the saw at a rapid speed. This shaft drives the gearing, and through the gearing and the cranks and pitmen the block-holders are alternately rocked from point F' as a center, so that the kerfs of the saw in the block are always in an arc struck from the center, and the disposition of the cranks is such that first one block and then the other is fed to the saw.

The blocks are automatically fed forward in the holders in the following manner: A rack M extends outward from the rear of each block and passes loosely through a box m m , located at the outer end of each block-holder. A short transverse shaft N' is placed in each of these holders, having a pinion n thereon which engages the adjacent rack. These shafts N' are given a step-by-step rotary movement by means of a dog O engaging a ratchet toothed wheel O' on the end of each shaft N, so that every time a holder descends

its wheel O' strikes this dog O and it is turned the distance of a tooth, thereby feeding the block forward a proper distance for another plate or disk when the block again reaches the saw. Thus it will be seen that every part is automatic and that every upward movement of a block-holder results in the complete cut of a plate or disk.

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

1. The combination of a rotary hemispherical saw, a work-support having means for intermittently advancing its work step by step, the saw and work-support having a pivotal relation with each other on an axis through the center of the sphere of the saw and approximately in a plane of the saw-teeth, and means for producing a swing of the pivoted part relative to the other part in the arc of a circle subtended by the axis of rotation of the saw, substantially as set forth.

2. The combination of a rotary hemispherical saw, two work-supports having means for intermittently and alternately advancing their work step by step, the saw and work-supports having a pivotal relation with one another on an axis through the center of the sphere of the saw and approximately in a plane of the saw-teeth, and means for producing a swing of the pivoted part or parts relative to the other part or parts in the arc

of a circle subtended by the axis of rotation of the saw, substantially as set forth.

3. The combination of a rotary hemispherical saw, work-supports having means for intermittently and alternately advancing their work step by step, the work having a pivotal relation with respect to the saw on an axis through the center of the sphere of the saw and approximately in a plane of the saw-teeth, a pair of crank-shafts and pitmen extending from said cranks to the work-supports whereby to produce the swings of the work in the arc of a circle subtended by the axis of rotation of the saw, substantially as set forth.

4. The combination with a rotary hemispherical saw, of a pair of vibratory work-supports adapted to operate in a portion of their movement in an arc coincident with that which the saw occupies and through a space equal to the distance from the axis of support of the saw to its cutting edge, measured on the surface of the saw, substantially as set forth.

In witness whereof I have hereunto signed my name, in the presence of two subscribing witnesses, May 29, 1894.

JOHN S. PESSENGER.

Witnesses:

LEONARD W. LOTT,
EMIL KLEIN.