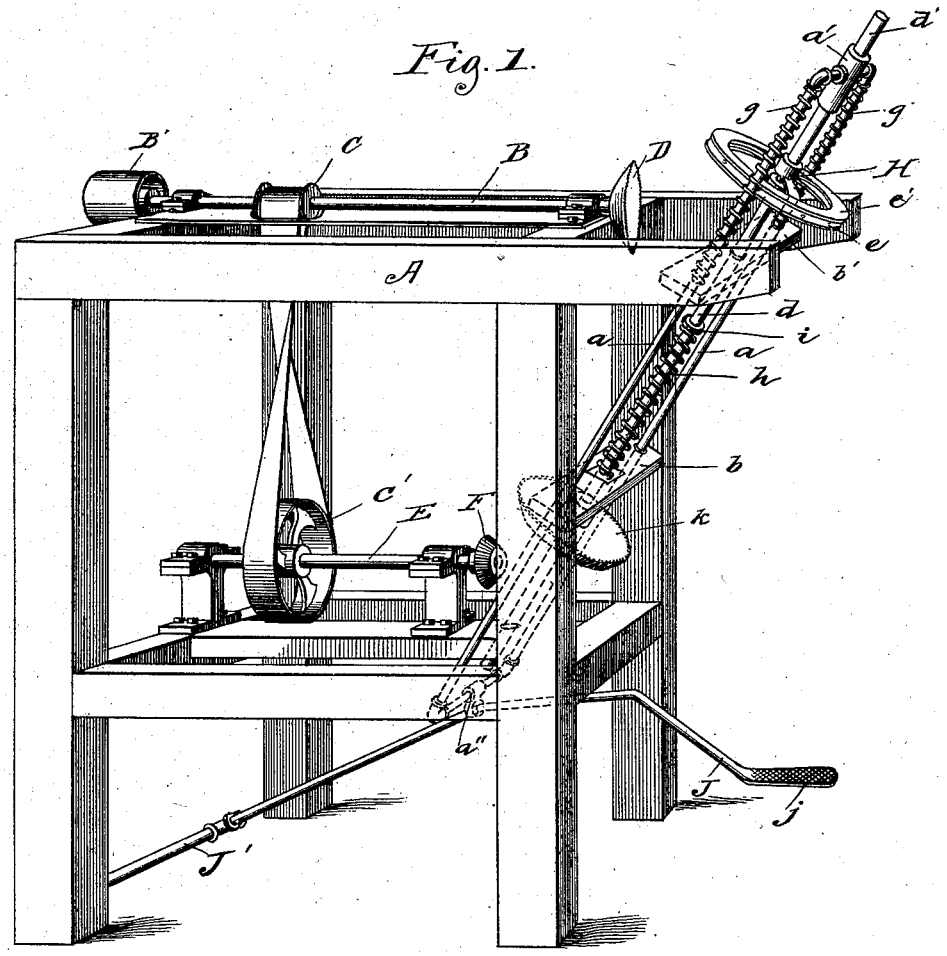
(No Model.) 2 Sheets—Sheet 1.

C. H. PHELPS.

MACHINE FOR CUTTING DISKS FROM WOOD.

No. 381,947. Patented May 1, 1888.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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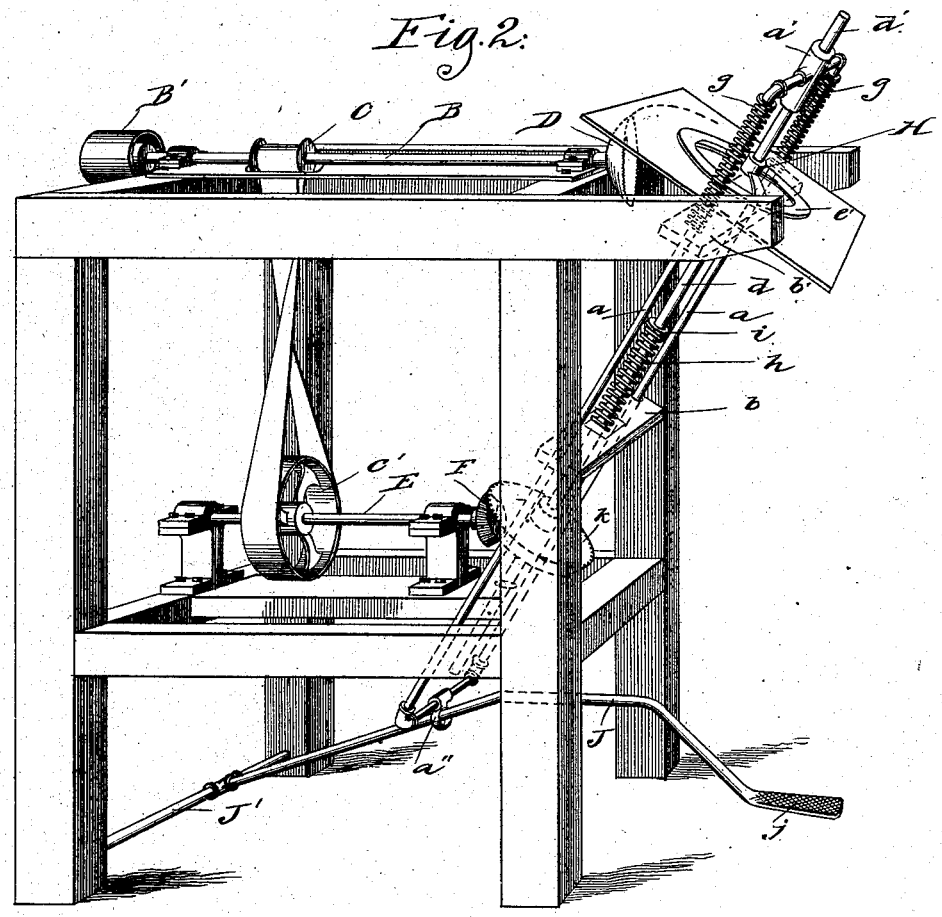
Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. PHELPS, OF CHICAGO, ILLINOIS, ASSIGNOR TO GIBSON, PARISH & COMPANY, OF SAME PLACE.

MACHINE FOR CUTTING DISKS FROM WOOD.

SPECIFICATION forming part of Letters Patent No. 381,947, dated May 1, 1888.

Application filed February 23, 1888. Serial No. 264,978. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. PHELPS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and Improved Machine for Cutting Disks from Wood for Can-Heads, &c., which I desire to protect by Letters Patent of the United States, of which the following is a specification.

My invention relates to mechanism for automatically feeding the boards in cutting wooden disks to a concave saw. Heretofore the operation of cutting disks from wood has been a slow one, involving manipulation of the boards in the operation of feeding. With my mechanism I secure rapidity as well as accuracy of work.

In the accompanying drawings, making part of this specification, Figures 1 and 2 are perspective. In the former the mechanism is shown as when not employed. In the latter the position of the adjustable mechanism is shown as in operation and with a board or blank grasped therein and in contact with the saw.

A suitable supporting structure, as A, for example, is provided, upon which is rotatably mounted a shaft, B, having at one end a pulley, B′, through which to receive motion, and at the opposite end a concave saw, D, the shaft occupying a horizontal position and the saw rotating in a vertical plane with its teeth directed at an angle thereto. From a pulley, C, on shaft B power is transmitted through a pulley, C′, to a shaft, E, beneath shaft B. On one end of shaft E, corresponding in direction to the position of saw D, is provided a beveled friction-gear, F.

A frame, which as a whole is designated H, is provided as a basis for the adjustable mechanism, and consists of parallel rods *a a*, that are properly separated from each other, a journal-bearing, *a′*, secured between the horizontally-terminating upper ends of the rods, and a joint, *a″*, connecting the lower ends of said rods. This frame structure, for convenience and economy in the matter of construction, is formed of pipe connected at the bends by pipe-couplings. Rods *a a* are held in an inclined position by guide-pieces *b* and *b′*, attached to the supporting structure, in which apertures are provided as bearings for said rods, whereby longitudinal movement of the latter is permitted. Centrally of and parallel to rods *a a* is a shaft, *d*, having longitudinal movable and rotatable bearings in apertures in the cross-pieces *b* and *b′*. On the upper end of this shaft is mounted the lower of two annular plates, *e* and *e′*. Shaft *d*, between the two cross-pieces, is provided with a collar, *i*, and surrounding said shaft, with its upper end bearing against said collar and its lower end bearing on cross-piece *b*, is a spiral spring that serves to keep the shaft normally raised. A front shaft, *d′*, is journaled in bearing *a′*, and prevented from longitudinal movement therein by a collar, or by any desirable means. Surrounding rods *a* and *a* above and resting on cross-piece *b′* are spiral springs *g g*, the upper ends of which bear against the shoulders of said rods and serve as flexible supports to give the frame and shaft *d′*, with the disk *e′*, a normally raised position. On shaft *d*, beneath cross-piece *b*, is a friction bevel-wheel, *k*.

A treadle-rod, J, pivotally connected at J′ and provided with a foot-plate, *j*, is attached to the lower end of frame H, by which the latter may be depressed. The normal position of plate *e′* is sufficiently above plate *e* to permit the insertion of the piece blank or board to be operated upon. Depression of the frame by means of the treadle compresses springs *g g* and brings plate *e* down to clamp the board or blank, and upon further depression of the frame spring *h* yields, permitting the descent of the frame and shaft *d* until, as shown in Fig. 2, the bevel-gear *k* is brought in contact with bevel-gear F, coincident with which the board is brought into contact with the saw. This contact of the beveled gear serves to rotate shaft *d*, and the friction of the blank, which is provided for by spurs on the inner faces of plates *e* and *e′*, if necessary, transmits the movement to the upper shaft, *d′*, the blank being thus rotated and a circle of its area thus presented progressively to the saw. By releasing the treadle the frame and shaft, with the plates, are again elevated by the action of the springs. The plate *e′*, being lifted a distance somewhat greater than the lower plate, releases the wooden piece. The radius of a circle cut is determined by the inclination of the teeth to the

axis of the saw, and upon this inclination is also dependent the angle at which the blank should be presented to the saw to produce a true disk, and due to this a variation of the shaft *d* from a line parallel to the line joining the saw and pulley may be necessitated.

My invention is not limited in scope to the details of construction, but embraces the general plan or adaptation of a movable inclined frame that may be brought to engage the blank with the saw simultaneously with contact of the gear and mechanism for producing such contact and springs for effecting a reverse movement.

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

1. In a machine for cutting disks from wood, the combination, with a rotatable shaft carrying a concave saw, and a second rotatable shaft carrying a bevel-gear, the position of the saw and bevel-gear with relation to each other being such that a line joining them will form an acute angle with the shaft carrying the saw, of a rotatable and longitudinally-movable shaft parallel to said line and opposite the ends of the shafts, actuated in one direction by spring-pressure and provided with a clamp-plate and beveled gear, a frame longitudinally movable co-operating by a spring-pressure with the said shaft and carrying a shaft in line with the first-named longitudinally-movable shaft, provided with a clamp-plate contiguous to and coacting with the clamp-plate of the other shaft, said frame and shaft having mechanism provided for forcing them in opposition to the spring action, substantially as set forth.

2. In a machine for cutting wooden disks, the combination, with the saw D and the gear F, rotatably mounted on separate shafts and occupying positions with relation to each other, substantially as described, of the frame H, shaft *d* within said frame, having thereon gear *k* and clamp-plate *e*, a shaft, *d'*, supported in the frame in alignment with shaft *d* and having provided at its end the clamp-plate *e'*, springs for actuating the frame and shaft in one direction, and a treadle, J*j*, for operating the frame and shaft in opposition to the spring.

3. In a disk-cutting machine, the combination of shaft B, concave saw D, shaft E, beveled gear F, inclined frame H, shafts *d* and *d'*, clamp-plates *e* and *e'*, respectively, on said shafts, beveled gear *k* on shaft *d*, springs *g g* and *h*, and treadle J, substantially as set forth.

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Witnesses:
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