(No Model.) 3 Sheets—Sheet 1.

F. HANSON.

WOOD TURNING MACHINE.

No. 272,242. Patented Feb. 13, 1883.

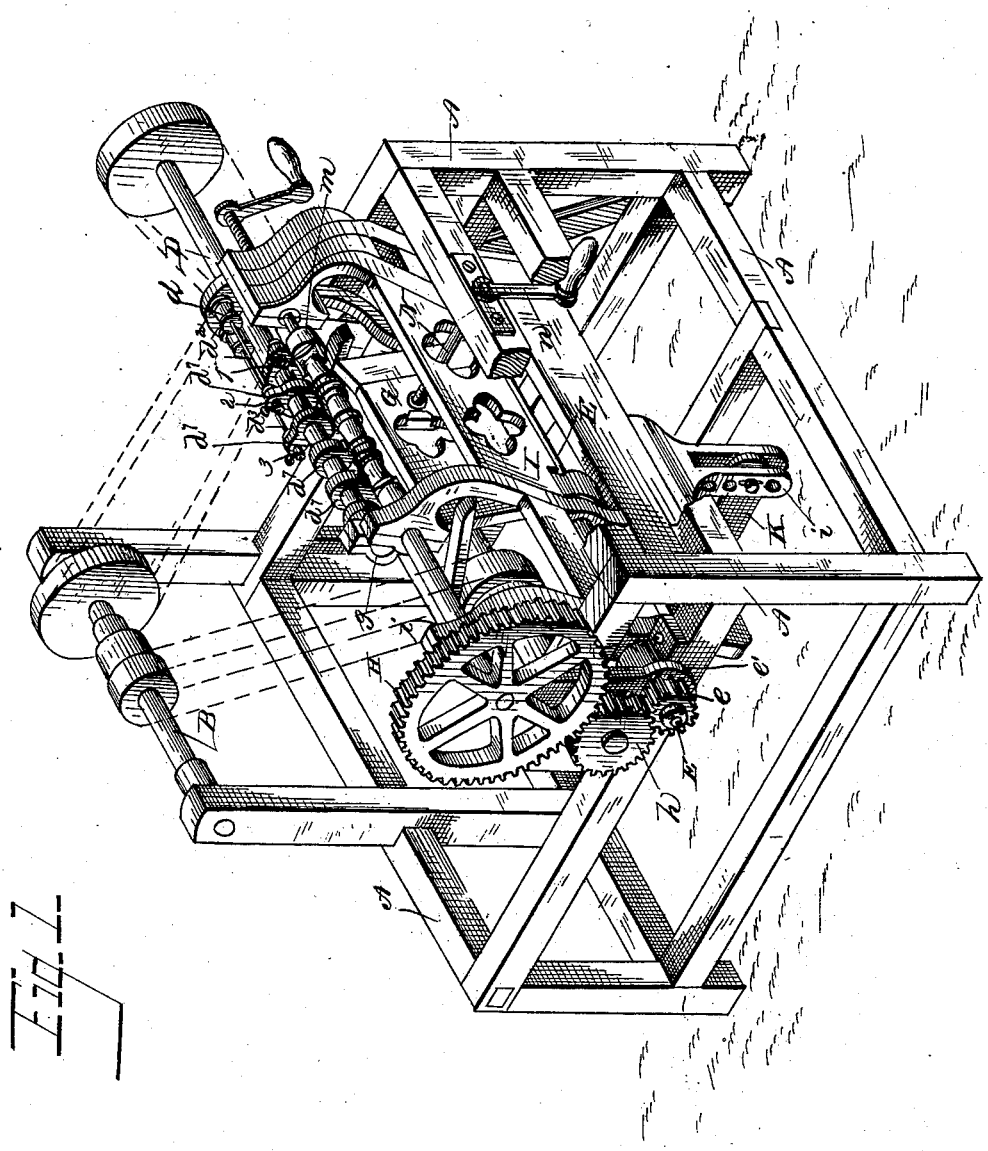

Fig. 1.

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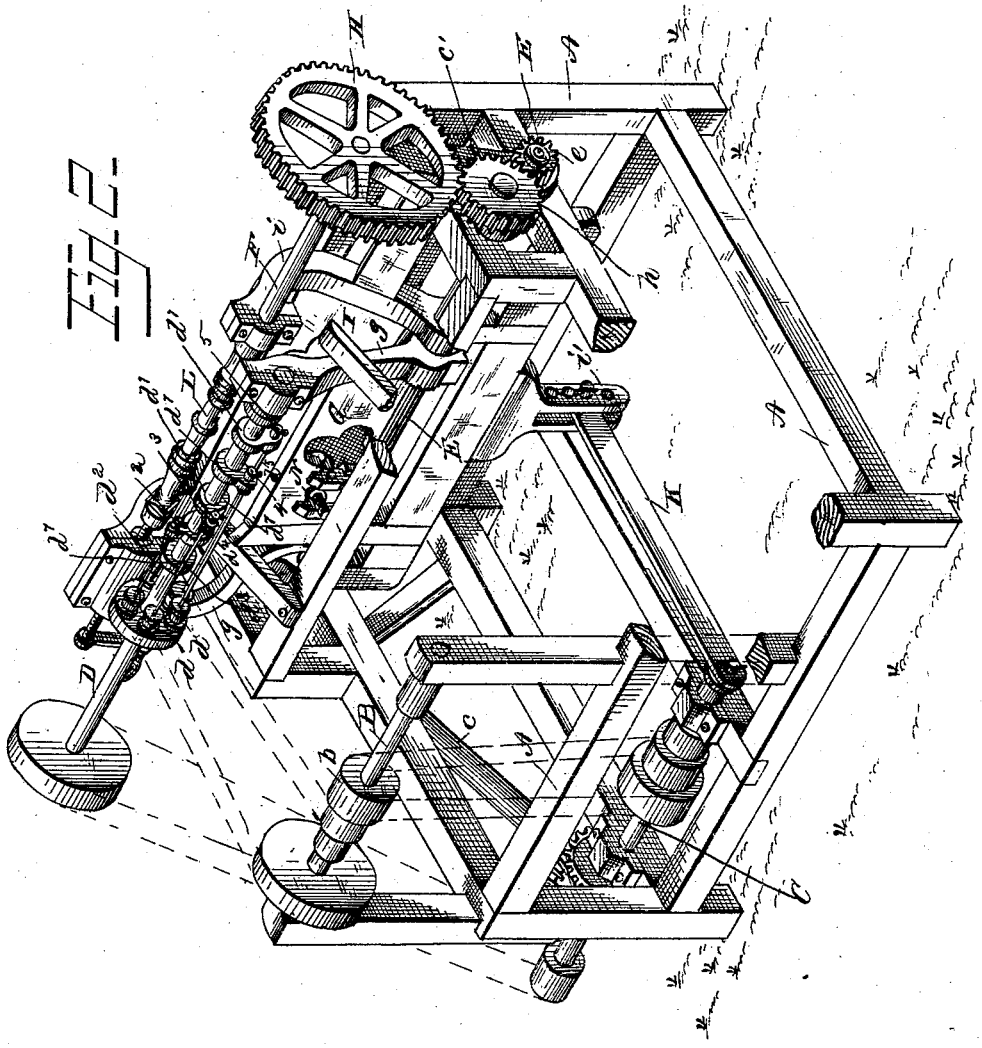

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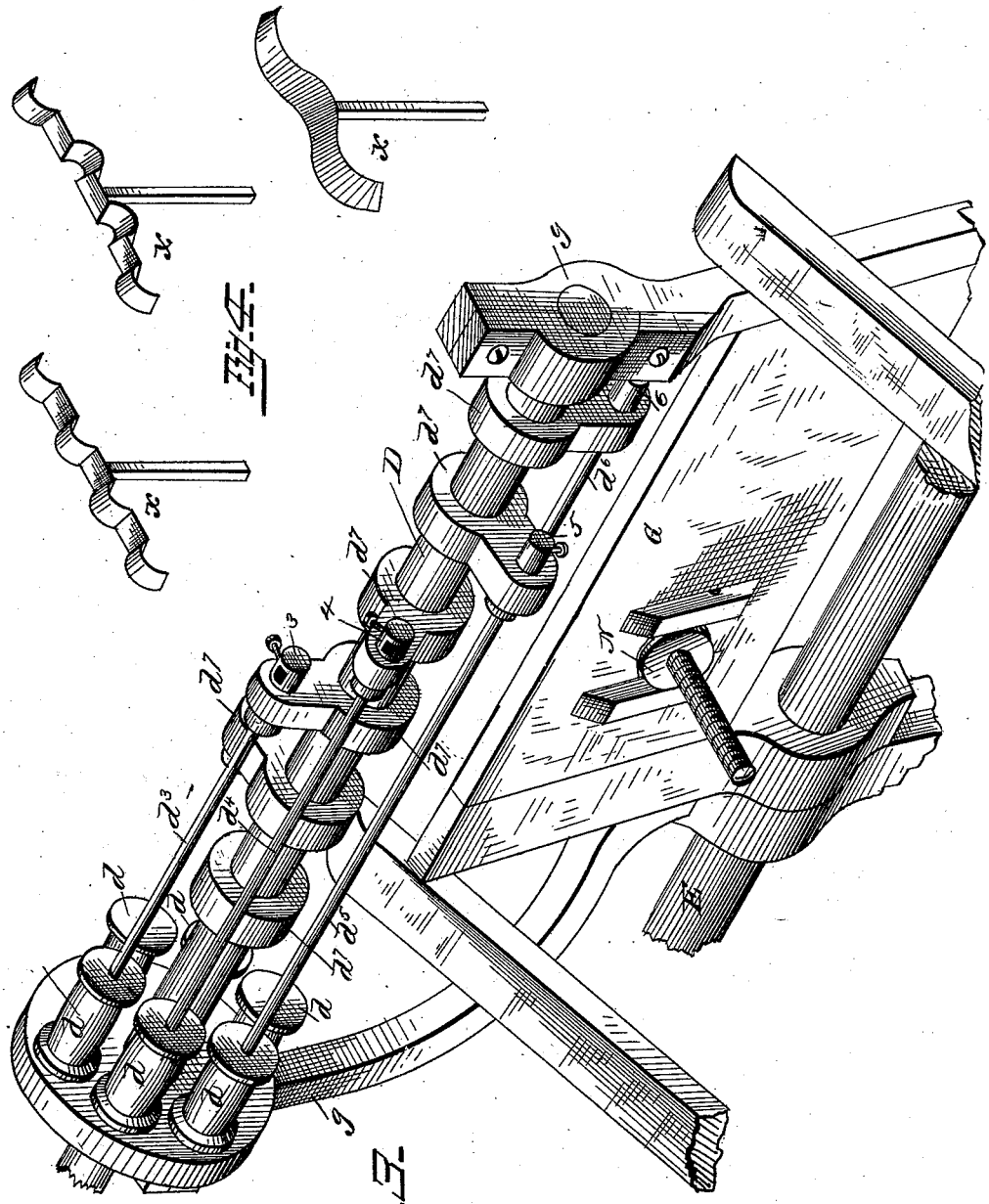

Fig. 3.

Fig. 2.

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UNITED STATES PATENT OFFICE.

FREEMAN HANSON, OF BAR MILLS, MAINE.

WOOD-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,242, dated February 13, 1883.

Application filed November 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN HANSON, a citizen of the United States, residing at Bar Mills, in the county of York and State of Maine, have invented certain new and useful Improvements in Wood-Turning 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view from the front side of the machine. Fig. 2 is a perspective from the rear side. Fig. 3 is a perspective view, showing more fully how the cutters or knives are mounted and worked. Fig. 4 are details showing in perspective some of the many forms of the cutting-edges used.

This invention belongs to that class of wood-working devices known as "carving" or "molding" machines; and the novelty in the present instance consists in the manner of mounting and operating the tools which do the cutting or carving or like work, and in the mechanism for operating the same, and in the general and special details of the novel construction and combination of the several parts, all as will now be more fully set out and explained.

In the drawings, A denotes any convenient frame, to which the mechanism is secured or attached, and in which the operating parts are suitably mounted. Power may be communicated in any convenient way, and thus the shafts, B, C, *c*, D, E, and F will be set in motion, as well as the knife or cutter sockets or several heads, 1, 2, 3, 4, 5, and 6, mounted on shaft D. The shafts B, C, and *c*, which convey the motion of the several portions, are mounted at suitable points or places on the frame-work. The shaft D is mounted in the upper ends of the bearing-arms *g* of the frame G, toward the front of the frame A, and these bearings are pivoted at their lower ends, so as to allow the frame to swing—for instance, as now shown on shaft E. The shaft E passes across the frame in a direction parallel with the shafts B, C, and D, and by its pinion *e* operates the gears H and *h*, which regulate the turning of shaft F above it. This latter shaft is mounted in bearing-arms *i*, connected with and forming part of frame I, which swings on shaft E, according as it is actuated by the pitman K, attached at any desired point to its lug *i'*. The pitman K is worked by a disk and crank-pin, as now shown, or by any suitable eccentric on the shaft C, to which it is attached.

The wood L, which is to be cut or operated on by the knives or cutting-edges, is held in proper position between the end of shaft F and a chuck, *m*, and can thus be turned at such desired rates of speed relative to the turning of the cutting-tools as may be determined by the number or size of gear or gears *h* on the connecting-arm *c'*, between shafts E and F, and by the position of the end of pitman K in the lug *i'*—that is, by the joint position or independent position of these devices, as will be hereinafter described and explained. Each of the knives or cutters X, mounted on the shaft D, is fixed adjustably by set-screw in one of the heads of on arbor fixed at one end in a pulley revolving on a shaft mounted on D, while near the other end said arbor is mounted in suitable bearing attached directly to the shaft D. This is all indicated clearly in the drawings, where d', d^2, d^3, d^4, d^5, and d^6 represent the several arbors; *d d*, &c., the several pulleys, and d^7 d^7, &c., the several bearings. The said several arbors are of different lengths, d' being the shortest, and thence they increase regularly in length to the longest, d^6. Two may be mounted, or as many as the size of the shaft will accommodate. The revolution of the shaft D will cause all the cutters or knives to have a general revolution, and the consequent regularly-recurring operation of the belt coming over the pulleys *d* will cause the several arbors to be operated in regular turn. Thus the knives or cutters will be carried around to act upon the wood at the proper moment, and at that moment be started into operation. The object of all this is of very great importance, because by means of it the wood is cut by regular progressions from one end to the other. Thus first the knife or cutter 1 does its work, the knife or cutter 2 follows, and thus till the last cutter has done its work at the other end, after which the same routine is repeated. In this way, only a very small part of the wood being acted on at any one moment, there is the very small-

est, if any, danger of splitting or breaking or damaging the wood in the process of working it—an end, as all persons skilled in turning well know, most desirable to be attained.

The back-and-forth movement of the frame G, which carries the cutters or knives, may be regulated by means of the screw-shaft N and handled crank *n* in the front of the machine, operated by the workman, and in this way any one of the knives may be brought against the work and the several knives in any order desired, either in regular succession, as above stated, or otherwise.

The wood L may be rotated according to the number or position of the gear-wheels H and *h*, and also by the position of the pitman K in the lug *i'*. When this pitman is placed in the lowest hole in said lug the wood will be so offered to the cutters as to cause a concave shape to be produced, and when placed in the highest hole the cutters will produce a convex shape on the wood.

Any one of the cutters may be run alone by throwing all the other driving-pulleys out of gear, or by fixing the pulleys of all the other arbors, or by any like means familiar to one skilled in this sort of machine.

While I have shown gears, as on shaft *c*, and belts to convey the motion, I may use belts alone or gears alone, or change them in any well-known way familiar to mechanics and as shall most conveniently answer my end.

My machine is adapted for long work, as ballusters, as now shown in the drawings, on which all the knives can work; but I can, as above suggested, put in a short piece of wood adapted for one knife, or a piece adapted for two—that is, I can work any stock that can be put between the ends of shaft F and the chuck *n*, long or short.

This machine, it will be perceived, is of comparatively simple structure, when the results it attains are considered, and is not costly. It will do its designed work very rapidly and with the most saving of stock, and in the best manner.

As has been above intimated, I may put on arm *c'* any desired number and size of gear-wheels *h*, so as to change the character of the motion of the wood.

The shape of the knives or cutter X may be as shown in Fig. 4, or of any desired shape or form.

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

1. A revolving shaft having a series of revolving spindles mounted thereon, said spindles carrying cutter-heads located at different distances from the end of the main shaft, in combination with the work-carrying spindles of a lathe, substantially as described.

2. The rotary shaft D, having disk *d* and a series of brackets, d^7, secured thereto, said brackets projecting radially from the shaft in different directions and located at unequal distances from said disk, in combination with a series of spindles, d' d^2, &c., journaled at their ends in said disk, and brackets and carrying cutter-heads on their ends projecting beyond said brackets, substantially as described.

3. The combination of the revolving shaft, having a series of rotary cutter-carrying spindles mounted thereon, with the swinging frame carrying said shaft and the work-holding spindles of a lathe, substantially as described.

4. The combination of a swinging frame carrying a cutter-shaft provided with an adjusting-screw, which engages with said frame and with the main frame, with the swinging frame carrying the work-spindles, and means, substantially as described, for operating said frame from the driving-shaft, substantially as described.

5. The combination of the swinging frame carrying the cutter-shaft, having screw-rod N swiveled thereto, with the swinging frame carrying the work-spindles, said frame having arm *i'* secured thereto, pitman K, adjustably connected to said arm, and driving-shaft and crank connected to said pitman, substantially as described.

6. The combination of the swinging frame carrying the rotary shaft D, having bearings for the rotary cutter-spindles d' d^2, &c., said spindles having cutter-heads located at different distances from the end of shaft D, with the hand-driven screw N, swiveled thereto, the swinging frame carrying the work-spindle, and means, substantially such as described, for oscillating said frame from the driving-shaft, substantially as described.

7. The combination of the swinging frame carrying the rotary shaft D, having bearings for the rotary cutter-spindles d' d^2, &c., said spindles having cutter-heads located at different distances from the end of shaft D, the swinging frame carrying the work-spindles, and means, substantially such as described, for oscillating said frame from the driving-shaft, substantially as described.

8. The combination of the swinging frame carrying the cutter-shaft, having a hand-driven screw swiveled thereto, with the swinging frame carrying the work-spindles, and means, substantially as described, for oscillating the same, shaft E, upon which said frames are pivoted, and gearing from said shaft to rotate the work-spindles.

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

FREEMAN HANSON.

Witnesses:
G. W. BALLOCH,
WM. A. GARNER.