(No Model.)

3 Sheets—Sheet 1.

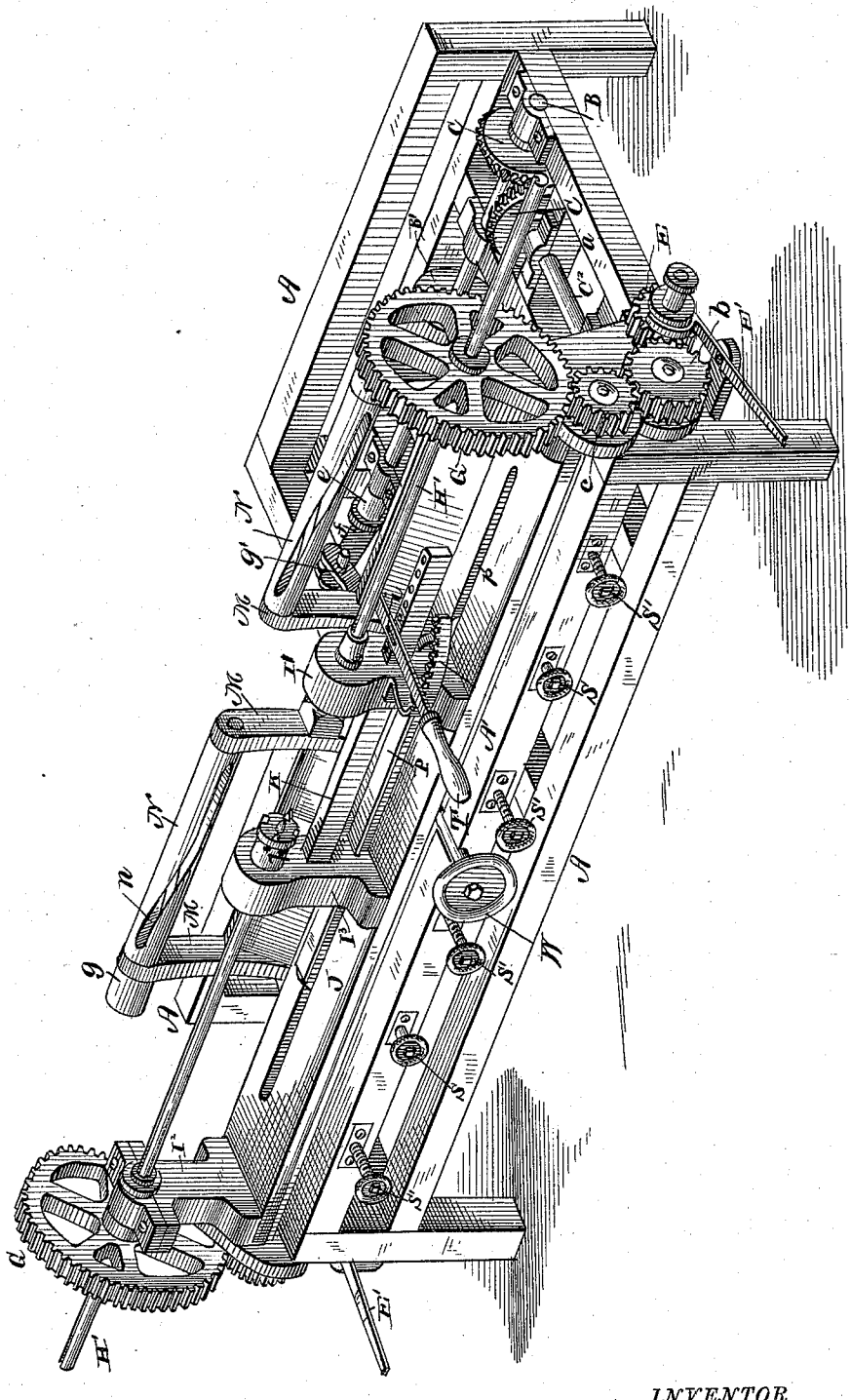
F. HANSON.

WOOD TURNING LATHE.

No. 286,810.

Patented Oct. 16, 1883.

Fig. 1



WITNESSES

F. L. Ourand

Wm A Garner

INVENTOR

Freeman Hanson.

by L. Deane.

his Attorney

(No Model.) 3 Sheets—Sheet 2.

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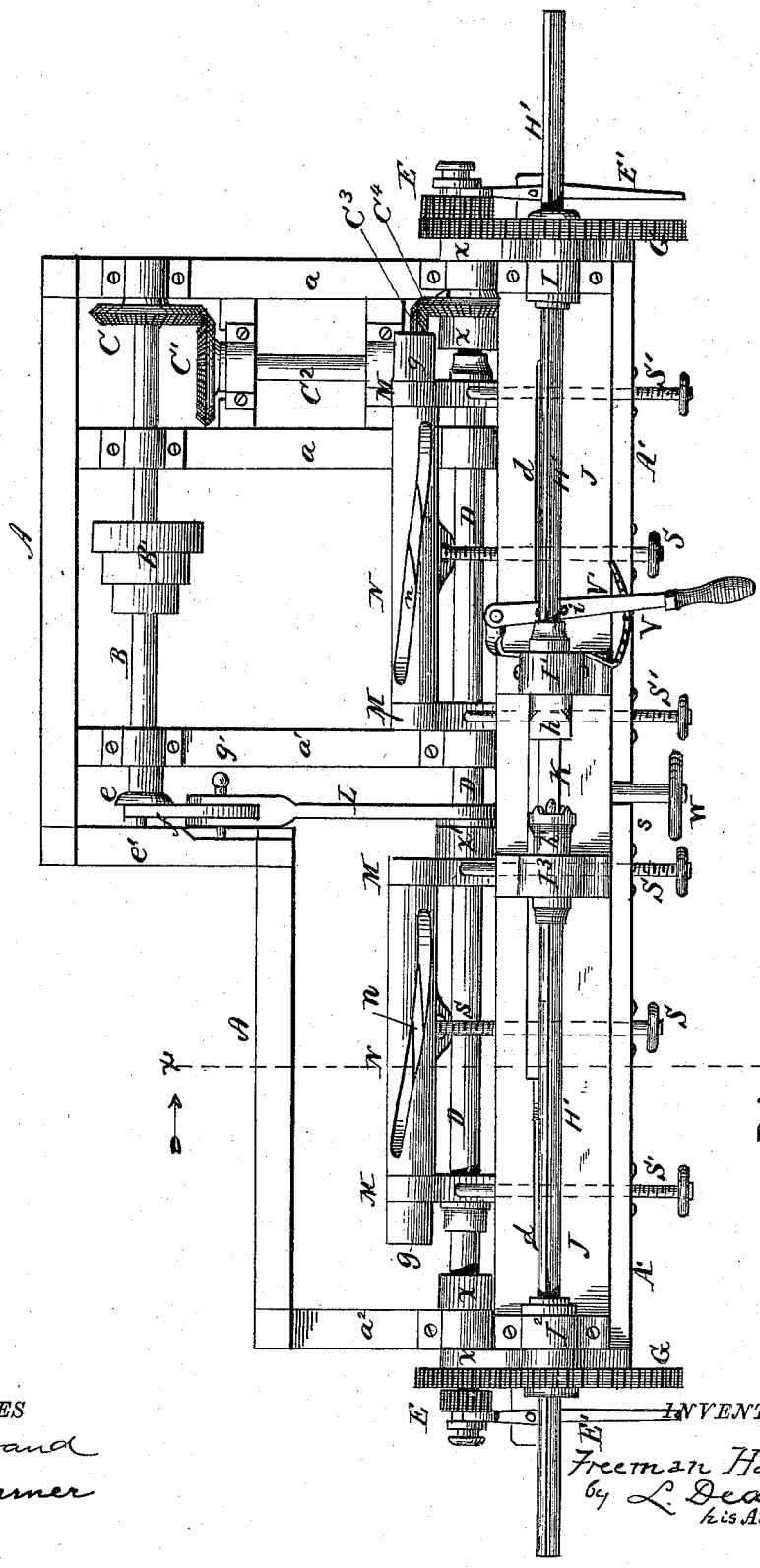

Fig. 2

WITNESSES

F. L. Durand

Wm a Garner

INVENTOR

Freeman Hanson

by L. Deane.

his Attorney

(No Model.) 3 Sheets—Sheet 3.

F. HANSON.

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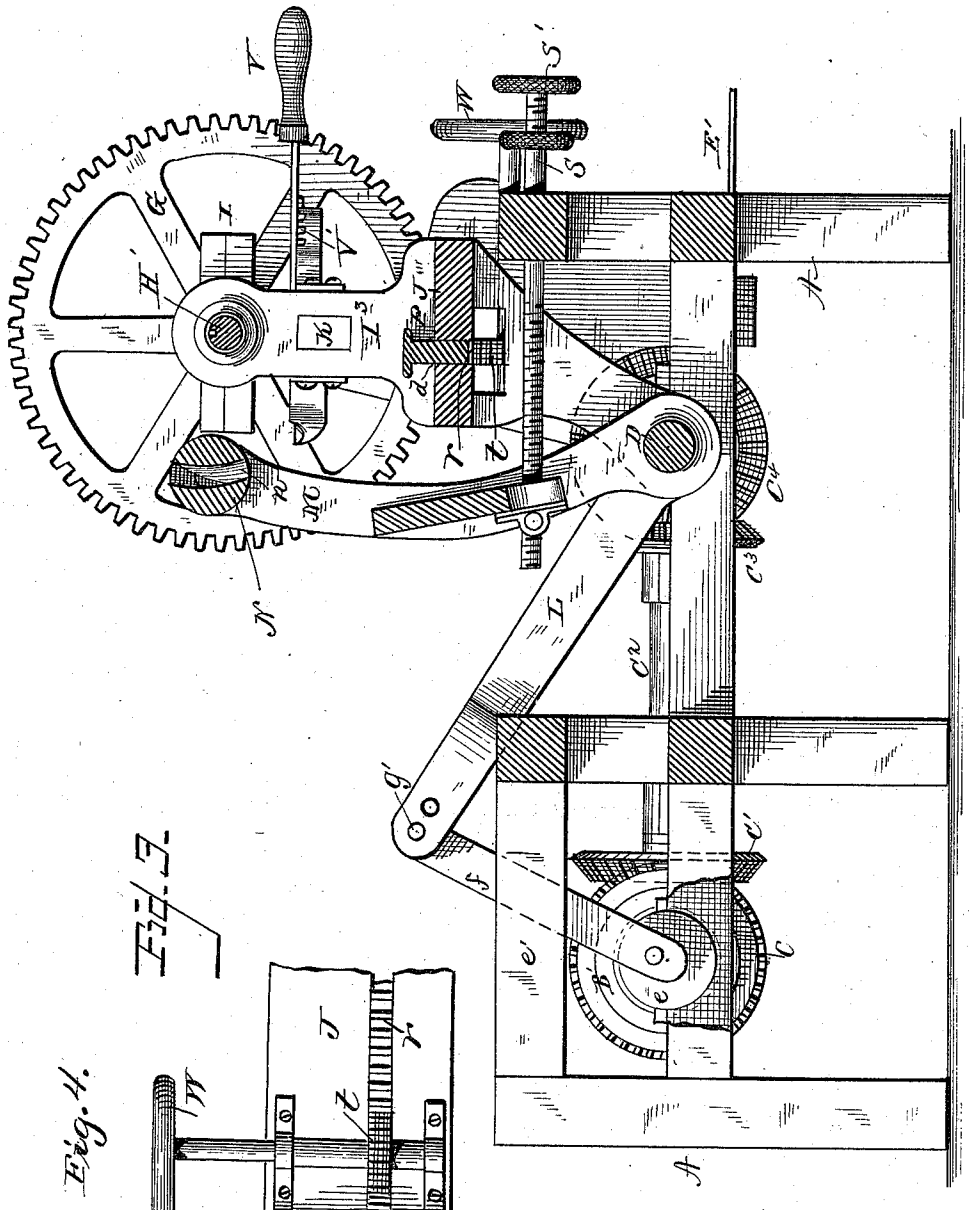

Fig. 1.

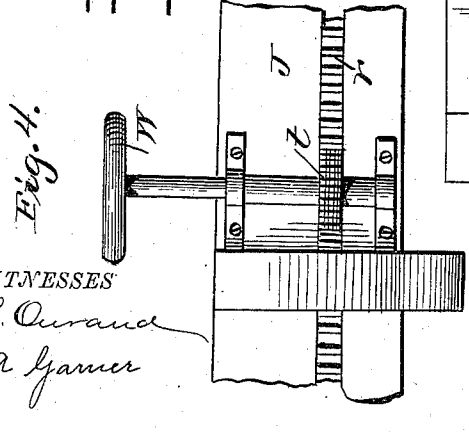

Fig. 4.

WITNESSES
F. L. Ourand
Wm. A Gamer

INVENTOR
Freeman Hanson.
by L. Deane.
his Attorney

UNITED STATES PATENT OFFICE.

FREEMAN HANSON, OF HOLLIS, MAINE.

WOOD-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 286,810, dated October 16, 1883.

Application filed May 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN HANSON, a citizen of the United States, residing at Hollis, 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 of the machine for cutting, carving, and molding wood. Fig. 2 is a top view of the machine. Fig. 3 is a section taken vertically and transversely through Fig. 2 in the plane indicated by dotted lines *x x*. Fig. 4 is a bottom plan in detail, to show the rack and its operating mechanism.

This invention relates to improvements on machinery which is designed for cutting, carving, and molding wood; and it consists, generally, in a vibrating frame bearing the chucks for holding, adjusting, and rotating the pieces of wood to be cut, also in adjustable cutter-bearing heads, and also in many devices belonging to the above parts and necessary to the proper performance of their work, all of which will be fully understood from the following description when taken in connection with the annexed drawings, in which—

A designates the rectangular frame of the machine, which is adapted to contain the several operative devices which I am about to describe.

B designates the main driving-shaft, which receives rotation from any convenient prime motor acting through the medium of a belt applied on one or the other of the cone-drums B′, keyed on said shaft. This main shaft has its bearings in journal-boxes, which are secured upon horizontal transverse beams *a a a′* of the main frame. A beveled spur-wheel, C, is keyed on one end of the driving-shaft, which wheel engages with a corresponding wheel, C′, keyed on one end of a shaft, C^2, on the opposite end of which is keyed a wheel, C^3, corresponding in diameter and pitch to the wheels C C′, and which engages with a similar wheel that is keyed on a shaft, D, extending the entire length of the main frame A, and having its bearings in boxes on the four transverse beams *a a a′ a²* thereof.

On the ends of the long shaft D pinion spur-wheels E E are applied, so that they are endwise adjustable by means of shifting-levers E′ E′, for the purpose of throwing them out of and into gear with spurred idlers *b*, which engage with similar wheels, *c*, and which in turn give rotation to large spur-wheels G G, that are applied on shafts H′ H′ by means of feathers and grooves, so that while said wheels G G will turn their shafts the latter are allowed free endwise movement, for a purpose hereinafter explained.

On one end of a shaft, H′, is a rocket-chuck, *h*, and on the end of the other shaft is a spurred chuck, *h′*, between which chucks the wood bolts or sticks to be cut, carved, or molded are confined.

One of the shafts H′ has its bearings in standards I I′, and the other in standards I^2 I^3. The two standards I I^2 are rigidly and permanently secured to the extremities of a transversely-rocking bed, J, and the two intermediate standards, I′ I^3, are movable on said bed. The standard I′ is secured to a slide or guide way, P, having a head, and endwise movable in a slot, *p*, through the bed J by means of a rack, *r*, and a pinion, *t*. The rack *r* is secured to the bottom of the guideway P, and the pinion *t* is keyed on the shaft of a hand-wheel, W, which shaft has its bearings on the bottom of the rocking bed J, and is arranged at the middle of the length thereof and allowed to drop into a notch, *s*, in the breast-beam of frame A when the bed J is in a horizontal position. (Shown in Fig. 2.)

K designates a horizontal connecting-bar, which is screwed to the standard I^3 and passed freely through the standard I′; and T designates a hand-lever, which is pivoted to a short bracket of standard I′, provided with a tooth for engaging with a toothed segment, V′, fixed to said standard, and also with a pin, *i*, which is passed through a slot in lever T, and adapted to enter one or the other of numerous holes made in the top of the bar K. The bar K and the pin *i* connect the two standards together, so that they can be moved together in a longitudinal direction by turn-

ing the hand-wheel W. By manipulating the hand-lever T, the standard I², with its chuck *h'*, can be caused to approach or recede from the standard I' and its chuck. By these means stuff of different lengths to be carved, turned, or molded can be easily confined between the two chucks, and the stuff can then be moved longitudinally on the bed J by simply turning the hand-wheel W.

The bed J, which I have been describing, is rigidly connected to five arms, *x x x x x'*, all of which are allowed to oscillate on the shaft D, above referred to. This oscillation of the bed J and its arms is caused by means of an arm, L, which is made fast to the hub of the arm *x'* at one end, and adjustably connected by its other bifurcated end to a pitman, *f*, which is applied to a wrist-pin, *e'*, eccentrically applied to the face of a disk, *e*, that is keyed on one end of the main driving-shaft B. By changing the pin *g* into the different holes through the connected ends of the pitman *f* and arm L, the throw of the bed J can be shortened or lengthened.

N N designate two cutter-heads, which may be cylindrical or of any other shape, and which are slotted obliquely, as shown at *n*. These cutter-heads have their end bearings in arms M, which can be vibrated freely on the shaft D by means of screws S, that are tapped through rocking nuts on the connecting-bars of each pair of arms M M. The screws S are applied to the breast-beam of the main frame, so that they are not allowed to receive endwise movement, and they have hand-wheels applied to their outer ends.

S' are stop-screws, which are provided with hand-wheels and tapped through the breast-beam of the main frame A, so that when the cutter-heads N are properly adjusted by means of the screws S the stop-screws S' can be adjusted against the arms of the cutter-heads, so that these arms will be rigidly held in place after they are properly adjusted.

On the outer end of the short shaft of each cutter-head N, I secure a pulley, *g'*, which is belted to a pulley on a line-shaft overhead or at any convenient place. The cutter-heads can thus be rotated.

It will thus be seen that the cutter-heads are adjustable up to and from the stuff that is held between the chucks *h h'* on the vibrating bed J. I thus adapt the machine to a variety of work in carving or molding irregular forms.

It will also be seen that I can operate on a piece of wood with the cutters of one cutter-head, and then finish the article with the cutters of the other cutter-head without removing the article from between its clamps or chucks.

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

1. In a wood-working lathe, the combination, with an automatic vibrating bed receiving vibration from the main driving-shaft, of longitudinally-adjustable rotary chucks adapted to hold the wood to be cut, rotary cutter-heads which are adjustable up to and from the said chucks, and stops for holding said cutter-heads when adjusted, substantially in the manner and for the purposes described.

2. In a wood-working lathe, the vibrating bed, the adjustable chucks which are independently or together longitudinally adjustable by means of a hand-lever and rack, and a hand-wheel screw and rack, substantially as described.

3. In a wood-working lathe of the character herein described, a vibrating rotary chuck-carrying bed, means for vibrating this bed and the chucks, means for rotating the chucks and giving to them endwise movement, rotary cutter-heads which are adjustable up to and from the chucks, and stops for rigidly fixing the cutter-head arms, all substantially as described.

4. In a wood-working machine of the character herein described, the combination of the chuck-bed, supported by vibrating arms, with the cutter-heads, also supported by vibrating arms, both series of arms having their bearings on a single rotary shaft, D, substantially as described.

5. In a wood-working machine of the character herein described, the longitudinally-adjustable connected chucks, the perforated bar K and its toothed lever and rack which connect these chucks, the guideway P for their standards, and the slotted automatically-vibrating bed J, with adjustable cutter-heads, substantially as described.

6. In a wood-working machine of the character herein described, the combination of fixed but adjustable cutter-head-carrying arms, their rotary bearing-shaft D, the vibrating chuck-carrying bed J, the supporting-arms therefor, also having their bearings on said shaft D, the vibrating arm L, also having its bearings on this shaft, and secured rigidly to one of the arms of the said bed, and the pitman-rod connection between arm L and an eccentric wrist-pin on the collar of the driving-shaft, all constructed and adapted to operate substantially as described.

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

FREEMAN HANSON.

Witnesses:
WILLIAM GARNER,
E. J. SWEET.