

(No Model.)

2 Sheets—Sheet 1.

F. HANSON.

TURNING LATHE FOR VARIED WORK.

No. 251,224.

Patented Dec. 20, 1881.

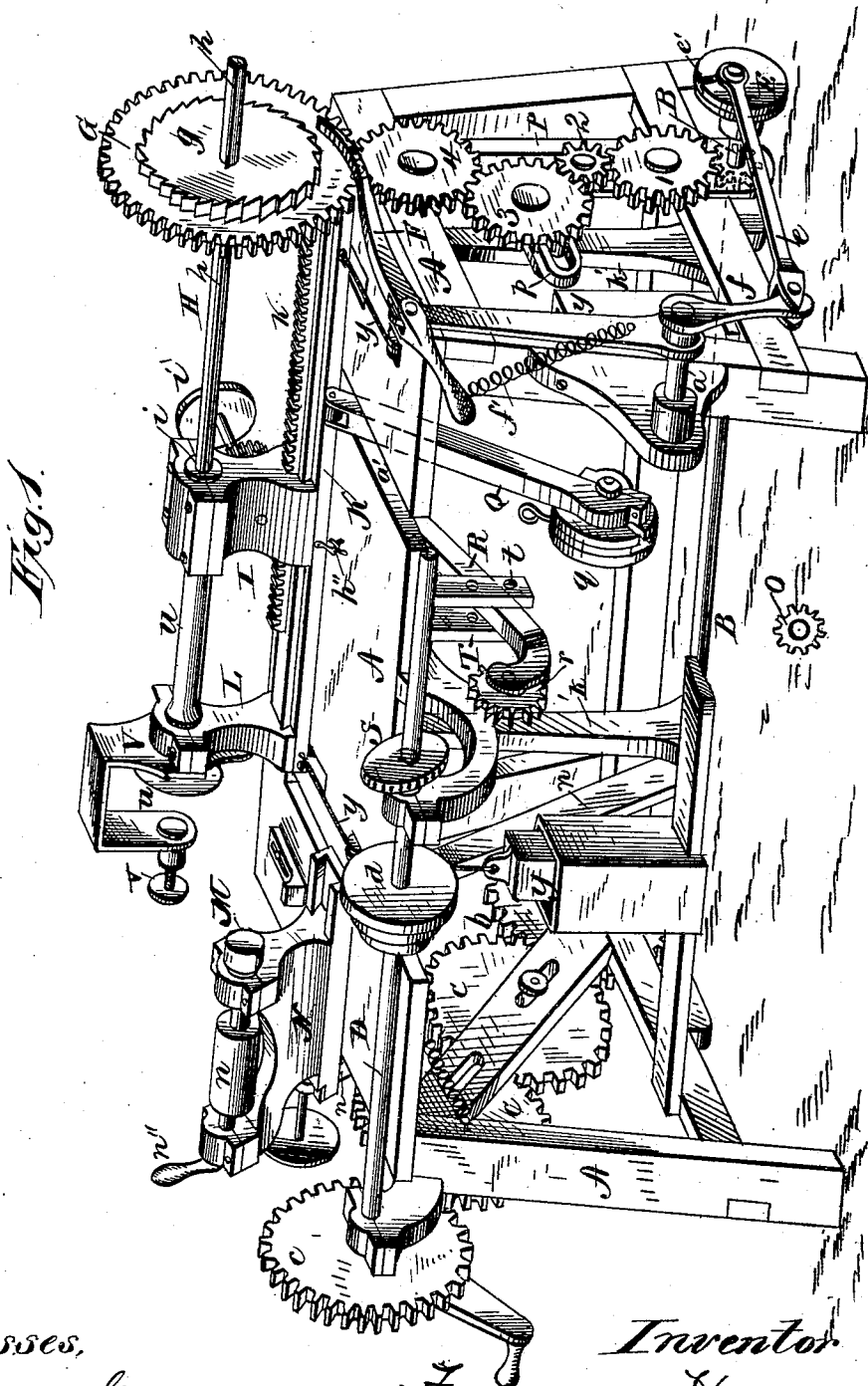


Fig. 1.

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Fig. 2.

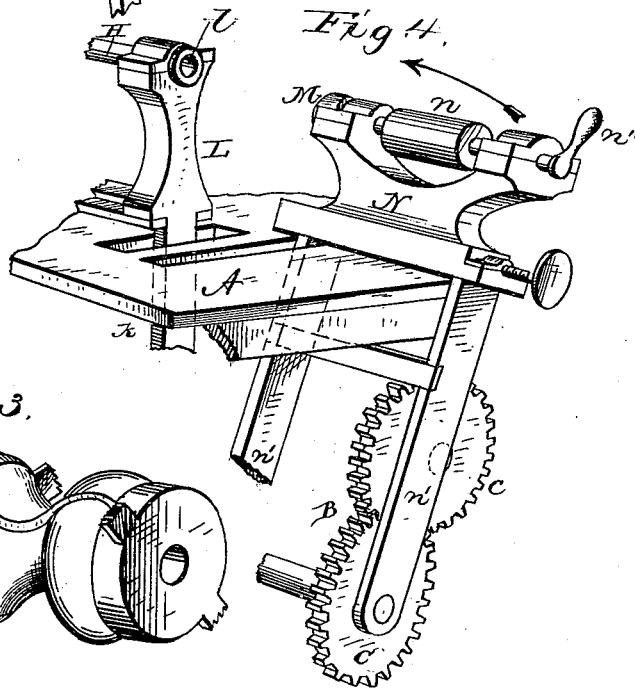
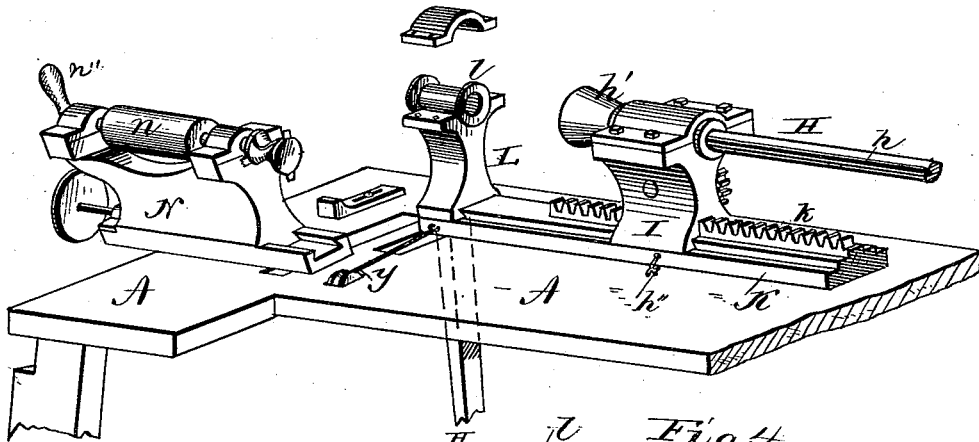


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREEMAN HANSON, OF HOLLIS, MAINE, ASSIGNOR TO GEORGE W. HANSON, OF SAME PLACE, AND ELBRIDGE GERRY, JR., OF NEW YORK, N. Y.

TURNING-LATHE FOR VARIED WORK.

SPECIFICATION forming part of Letters Patent No. 251,224, dated December 20, 1881.

Application filed September 30, 1881. (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 Turning-Lathes for Varied Work; 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 of this machine. Fig. 2 is a perspective view, showing a modification in means for holding the article to be cut. Fig. 3 is a detail view, showing a curved cutter which can be substituted for the ordinary one when desired for special work. Fig. 4 is a detail to show the swinging frame for the knife.

The object of this invention is to produce in a single device a machine that will enable the operator to do all of those kinds and varieties of turning known in the trade as "carving" and "molding;" and the novelty consists in grouping together in one main machine such parts as will enable the operator by mere interchange of said parts, or by some slight additional parts, to produce from it star and crescent work, or to make square, six-sided, or many-sided work, or oval forms, picture-frames, or blocks for tackles, and a large variety of like work which need not now be more specifically enumerated.

I will now more fully set out and explain my said invention, reference being had to the accompanying drawings, in which A denotes any suitable frame, upon and in which the machine is mounted. Centrally in the lower part of this frame, and lengthwise of it, is placed the main shaft B, which derives motion through the gear-wheel *b* at its end, which is connected with the train of gears *c*, leading up to the small shaft D, which is driven by a band over wheel *d*, connecting with any suitable power.

When it is designed to use this machine for star and crescent work the wheel E is fixed fast to the outer end of the shaft B by set-screw or otherwise, and its arm *e* has an irregular throw, graduated by the position its end has in the

slot *e'* in said wheel. This arm is jointed at its other end to the arm *f* of the pawl F. This pawl-arm is pivoted on the short arm *a*, extending out from the frame A, and the end of the pawl is adapted to engage on the teeth *g* on the side of gear-wheel G. The spring *f'* at the outer end of F aids in holding the point of the pawl F in contact with the teeth *g*. When operated in this way the shaft H, fixed by a spline, *h*, centrally in the wheel G, is moved precisely the time and with the length of movement desired by regulating the arm *e* in slot *e'*. This shaft is fastened in like way at its other end in the spool *i*, which revolves in the top of the carriage I, and is secured thereto in any proper way. This carriage can be moved to and fro along the horizontal track *k* on the upper part of the machine by hand-wheel *i'* and suitable cogs working in the rack fixed on frame K. The seat *h'* at the end of the shaft H, when the machine is doing star and crescent work, will hold one end of the wood to be cut while the other passes through the spool *l* in the top of standard L, which standard is fixed to frame K. The frame is now held fast by means of hasps *h''*, or in any convenient way.

The cutter or knife M is fixed on a proper shaft supported in bearings in the swinging frame N, supported on bars or legs *n'*, which are pivoted upon shaft B, and is operated in any usual way. It is driven by band passing over the pulley *n*. There is nothing in the present connection essentially new in said frame, and it need not now be more fully described. The throw of the pawl, as above described, will serve to give the proper motion to the wood and cause the knife, which is operated at proper times and in the proper way by the workman by means of the handle *n''*, to cut out the desired shape or form.

When, now, it is desired to transform the machine into one capable of doing many-sided work, commonly known in the trade as "carving," such as square, six-sided, &c., the set-screw fastening wheel E to the shaft B is released and cog O fixed to this end of the shaft inside of E. When the shaft B moves the cog O acts on the train of gear-wheels above 1234, and through these on the wheel G, and thus drives shaft H and revolves the wood to be cut,

which is properly fixed to the end of said shaft, as above described. The hasp *h''*, holding the frame K when pawl and ratchet work was being done, is now disengaged, and the frame K is free to swing on its supports *h'*, which are pivoted to the main shaft B. By proper interchange of the gear-wheels 1, 2, 3, and 4, or the cog O, any desired movement can be communicated to the shaft H. Any of these gear-wheels can be fixed on the end of shaft B, and the order of the others made as desired, up or down the track P in which they are fixed, or in the offset *p*. This vertical track is attached at its upper end to the frame K, and at its lower end to the shaft B, and thus has the same swinging motion when the machine is doing the present class of work as the frame K. The swing-arm Q, which is pivoted at one end to frame K, and can be easily moved up or down in slot *a'* of the upper part of A, is now brought up and its wheel *q* fixed to the end of shaft D. The throw of this arm will be regulated by fixing its outer end close to or away from the center of wheel *q*. By means of said arm thus attached, this proper swinging or vibratory movement is imparted to the frame K while the operation of cutting or carving is going on, and since the wood to be cut is held in supports on this frame K, it is evident that this motion serves to change regularly the position or face of the wood offered to the knife.

When oval picture-frames, tackle-blocks, and such work is to be done, the wheel of the swing-arm Q is removed from the shaft D, and the arm has the position below the table of the frame A shown in the drawings, and the swing-arm R is brought up, the cogged teeth of the wheel *r* on its outer end mesh with the cogs of the oval wheel S on the shaft D. This arm is attached at its inner end to the frame K, and is held up, when its wheel is brought into position for work, by pin *t* in frame I, through which the arm swings. The revolution of the oval wheel S will give the proper movement to the frame K to insure the product

of the work above described. In this latter class of work it will be necessary to attach the spindle U at the end of shaft H, which, passing through the cap of L, has on its outer end the holding end *u*. The arbor V, attached to the top of L, is provided with a set-screw, *v*, and is adapted to hold the work while being cut or carved.

The cutter X, which is designed to make carved work, can be substituted at pleasure for the ordinary cutter, M.

If desired, the counterbalance-weights may be used to steady the swinging of the frame K.

The details of the operation of the several parts of this machine need not here be more fully explained, as they are very familiar to all who are acquainted with this class of machines, and because the points of novelty now claimed relate more particularly to the combination of parts and the condensation into a single organism of a large variety of machines. In this way I have produced a device that can be cheaply made, is very strong, and is able to do efficiently every detail of the various kinds of work above described.

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

A wood-working machine in which are combined the following elements or parts: a train of gears at each end of the main driving-shaft, a frame to hold the wood to be cut, molded, or carved and having a revolving spindle, a cutting-knife on a swinging frame, an oval cog-wheel on the band-wheel shaft, a swinging arm with wheel for many-sided work, a swinging arm with wheel for oval work, and a pawl and ratchet for star and crescent work, substantially as described.

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

FREEMAN HANSON.

Witnesses:

C. S. DRURY,

GEORGE CORNELL.