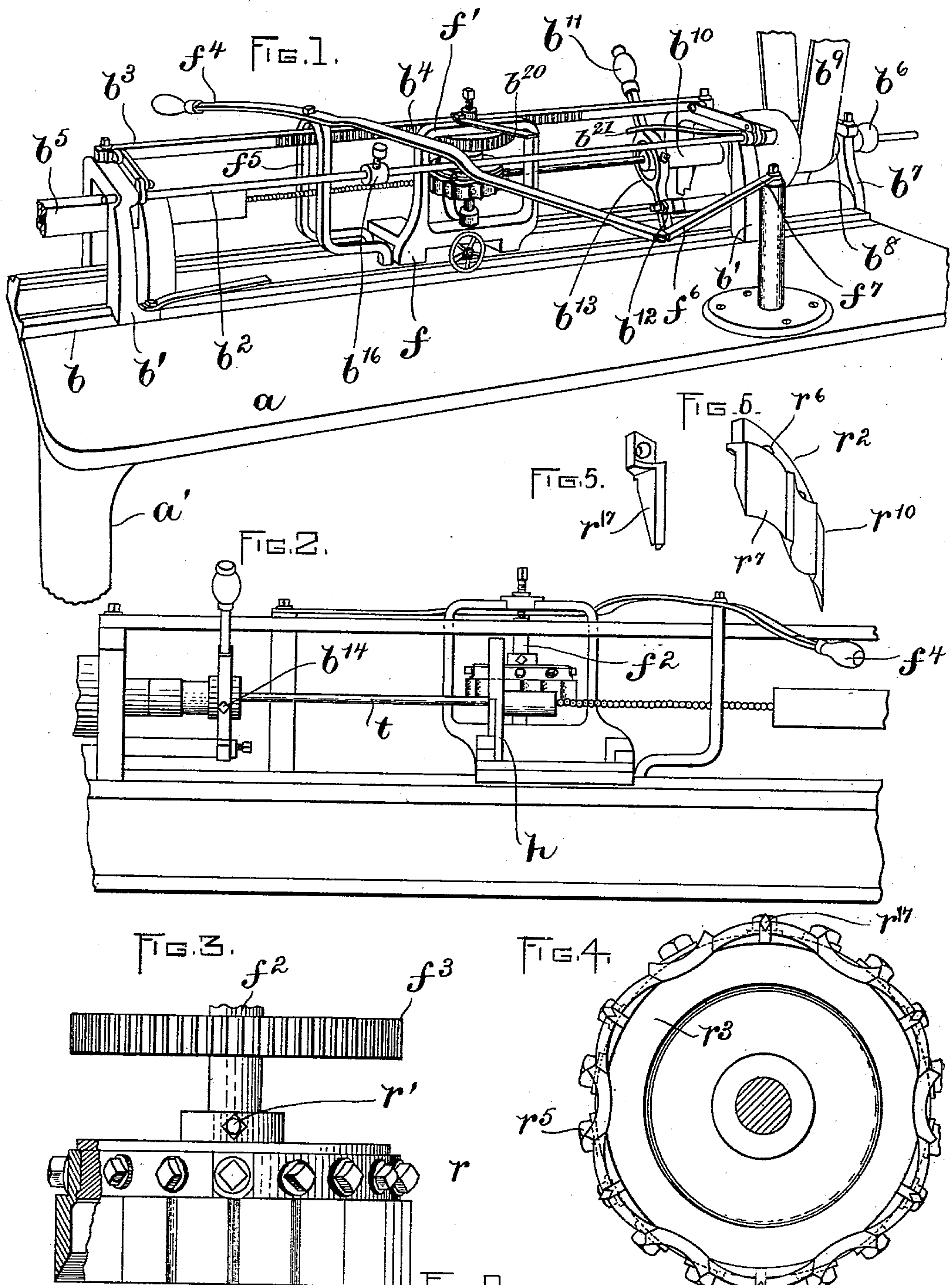


(No Model.)

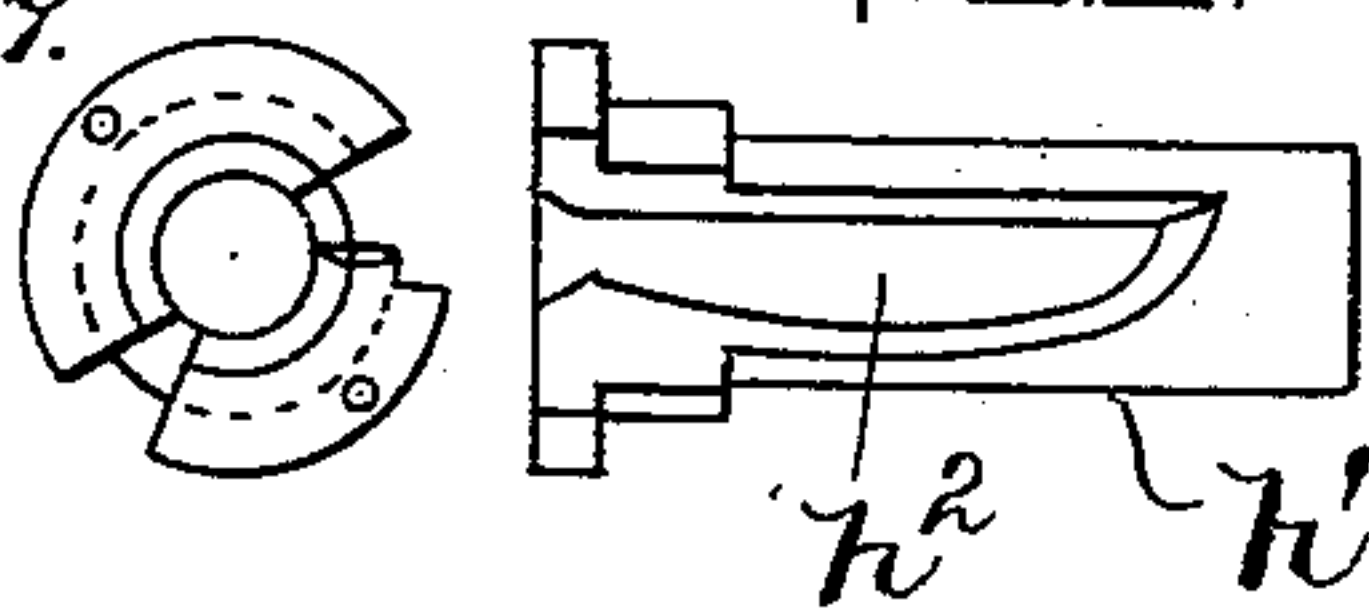
G. H. HARDMAN.
WOOD TURNING MACHINE.

No. 563,034.

Patented June 30, 1896.



WITNESSES: *Fig. 4.*
A. D. Harrison
Rollin Abell.



INVENTOR:
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UNITED STATES PATENT OFFICE.

GEORGE H. HARDMAN, OF ESSEX, CONNECTICUT.

WOOD-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,034, dated June 30, 1896.

Application filed September 27, 1895. Serial No. 563,816. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. HARDMAN, of Essex, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Wood-Turning Machines, of which the following is a specification.

This invention relates to a new and useful improvement in wood-turning machines; and it consists in the novel features of construction and relative arrangement of parts hereinafter fully described in the specification, clearly illustrated in the drawings, and particularly pointed out in the claims.

Reference is to be had to the accompanying sheet of drawings, forming a part of this specification, in which like characters are used to indicate like parts wherever they occur.

Figure 1 represents a perspective view of a machine constructed in accordance with my invention. Fig. 2 represents a side elevation thereof. Fig. 3 represents a side elevation of a cutter and the gear by which it is operated. Fig. 4 represents a top plan view of the cutter, the gear being removed. Fig. 5 represents a detail view of one of the cut-off blades. Fig. 6 represents a detail view of one of the fashioning-blades. Fig. 7 represents the end elevation of the holder. Fig. 8 represents a side elevation thereof.

a represents the bed of the machine, supported by a plurality of legs a' . Upon this bed is secured a track b , that supports standards b' in adjusted position, that are connected on one side by a rod b^2 , and on their other side by a bar b^3 , having rack-teeth b^4 .

b^5 represents a hollow support secured to one of the standards b' .

b^6 represents a hollow shaft mounted in the other standard and in an upright b^7 , secured to the other standard b' and to the bed a . b^8 represents a pulley mounted upon this hollow shaft, arranged to be driven by a belt b^9 .

b^{10} represents a chuck suitably connected to, and forming a continuation of, the hollow shaft b^6 and arranged to have a sliding engagement with said shaft.

b^{11} represents a lever pivoted at its lower end b^{12} . Midway its ends this lever is formed with a circular opening b^{13} , in which the free end of the chuck extends. Screws b^{14} in the sides of the lever, forming this opening, en-

gage a groove (not shown) in the chuck b^{10} . By means of this chuck the stock can be fed to the knife when desired, passing into the machine through the hollow shaft to the chuck, then passing to the knife, then through the support b^5 when it is desired to turn stock of a length greater than the distance between the chuck and support.

f represents a carriage mounted to slide upon the track b . This carriage is formed with a vertical loop f' , and in the top and bottom of this loop is mounted the ends of a shaft f^2 . A spur-gear f^3 is secured to this shaft in position to engage the rack-teeth b^4 . A circular cutter r is secured by means of a set-screw r' upon this shaft in position to engage the stock t .

f^4 represents a lever pivoted midway its ends to an upright f^5 , secured to the carriage f . At one of its ends this lever is pivoted to the end of a link f^6 , the opposite end of this link being pivoted to the top of a standard f^7 .

b^{20} indicates an arm fast to the loop f' , and arranged to engage the adjustable stop b^{16} on the rod b^2 , and an arm b^{21} , secured to the standard b' . This construction may be used, when desired, to limit the movement of the carriage.

The cutter r is made up of one or more fashioning-blades r^2 , secured to the head r^3 of the cutter by bolts r^5 , passing through holes r^6 in the knife and into the head. The cutting edges r^7 of the fashioning-blades r^{10} are made on lines to conform to the pattern in which it is intended to fashion the stock, as is common. The knife being made in sections, I am enabled to remove the sections to sharpen them, as desired, or to replace them by different patterns. By having the cutter made up of removable sections I am enabled to employ blades with a higher degree of temper than would be possible with a solid cutter or blade, since in the latter case the blade cannot be readily got at to sharpen, except by a file. This objection to solid cutter-heads practically forbids their movement, since the temper of the said knife must be exceedingly low in order to permit its being filed.

r^{17} represents a cut-off blade secured by a bolt to the head r^3 , as in the case of the fashioning-blades. This cut-off blade is designed to be placed at the end of a fashioning-blade

or series of blades that constitute a pattern. The edge of this blade projects beyond the periphery of the fashioning-blades a sufficient distance to sever the stock that has been fashioned. I may employ one or more of these blades on the cutter according to the length of the pattern and the circumference of the head. By means of this construction I am enabled to drive the carriage the whole length of its travel without stopping to sever a particular section of stock, the cut-off blade or blades severing the stock at the end of each pattern automatically.

h represents a standard rising from the carriage f on the side opposite to that from which the loop f' is secured. This standard carries a holder h' , through which the stock t passes, as appears in Fig. 2. This holder is apertured or slotted, as at h^2 , in order to present the stock to the knife and hold the same steady against the action of the knife.

The several parts of the machine may be varied indefinitely without departing from the scope of my invention, which includes a rotary cutter made up of sections, so that they can be removed and sharpened or replaced, combined with cut-off blades, and further means for driving this cutter lengthwise of a rotating piece of stock.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. In a wood-turning machine, in combination, a framework, a hollow driving-shaft, a hollow feed-chuck slidingly engaged therewith, a carriage mounted on said framework, a rotary circular cutter mounted in said carriage and provided with cut-off blades and arranged in a position to engage the stock

held by the chuck, means for sliding said carriage, and means for rotating said cutter through the medium of said sliding means, substantially as and for the purpose set forth.

2. In a wood-turning machine, the combination, a framework, a hollow driving-shaft mounted thereon, a hollow feed-chuck slidingly connected with said shaft, a carriage mounted to slide upon said framework and provided with a hollow holder, a shaft carried by said carriage, a cutter mounted upon said shaft in a position to engage stock held by said chuck and holder, a gear mounted upon said shaft, a stationary rack-bar with which said gear engages and means for sliding said carriage, substantially as and for the purpose set forth.

3. In a wood-turning machine, in combination, a framework, means for gripping one end of a piece of stock and rotating said stock, a holder arranged to support the free end of said stock, a rotary crown-cutter provided with fashioning and with cut-off blades, arranged to engage the stock held by said holder, a carriage upon which said holder and cutter are mounted, and means for advancing said carriage, and rotating said cutter.

4. A crown-cutter, comprising in its construction, a circular head, or base, a plurality of fashioning-blades designed to form a pattern secured to said head in a plane parallel to the axis of the rotation of the latter, and cut-off blades similarly secured to said head between fashioning-blades that constituted different or duplicate patterns.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 25th day of September, A. D. 1895.

GEORGE H. HARDMAN.

Witnesses:

CHAS. HARRINGTON,
GEO. DURANT.