No. 763,886. PATENTED JUNE 28, 1904.

J. HARTNESS.

TEMPLET CONTROLLED TURNER FOR LATHES.

APPLICATION FILED NOV. 16, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

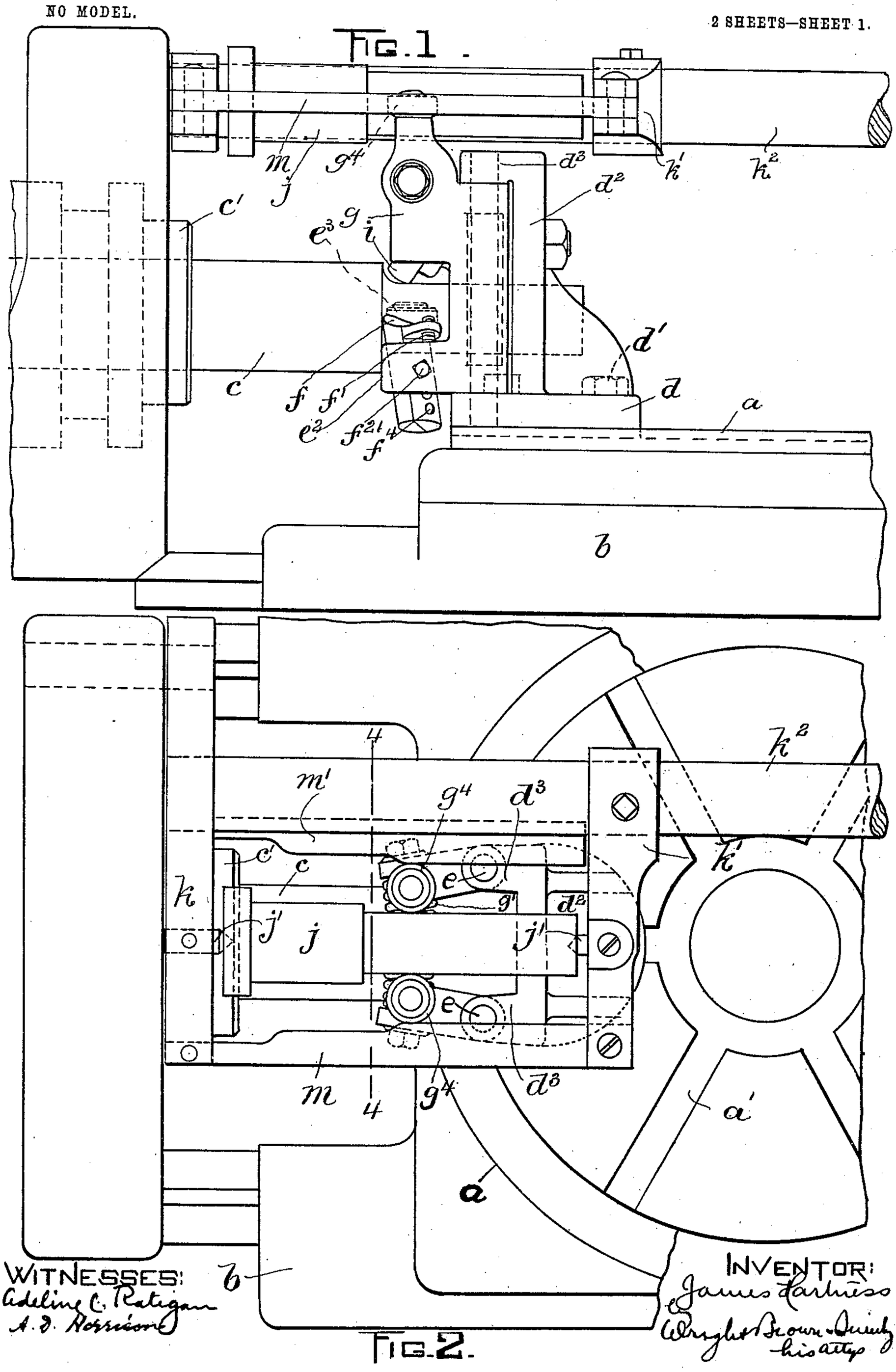

FIG. 2.

WITNESSES:
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NO MODEL. 2 SHEETS—SHEET 2.

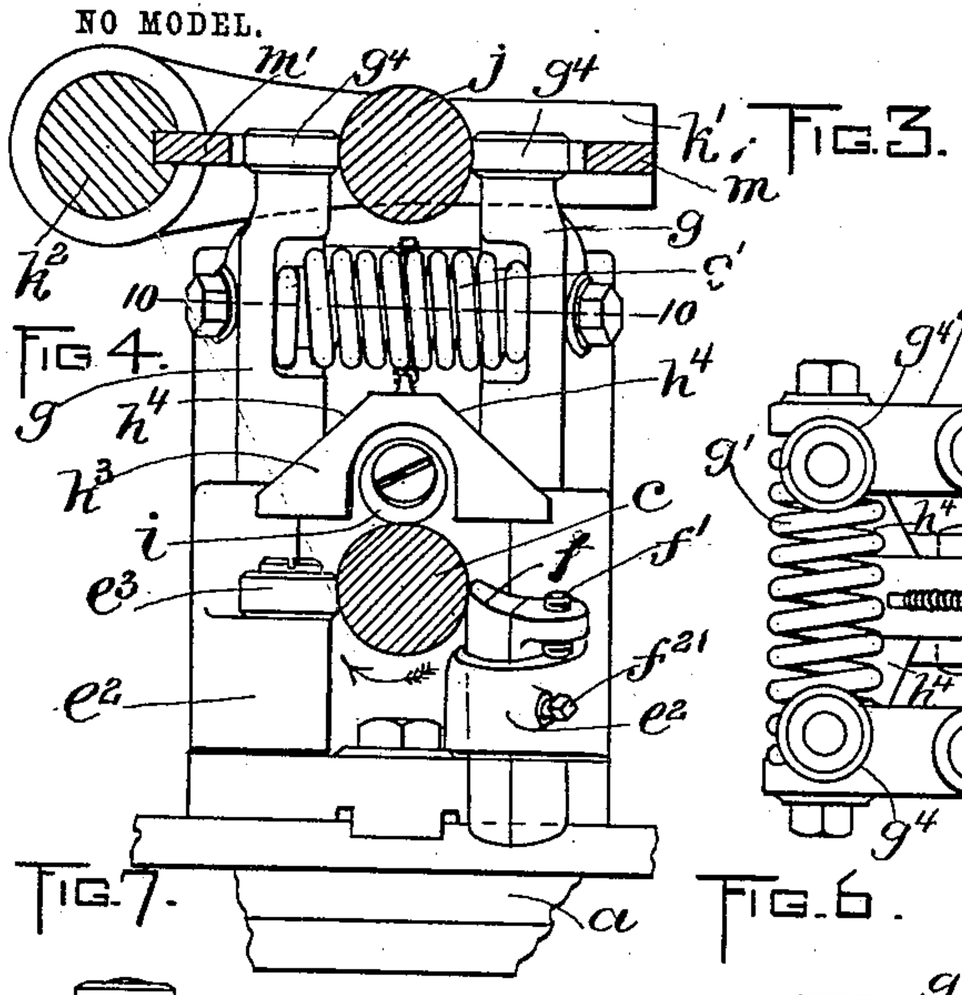

FIG. 4.

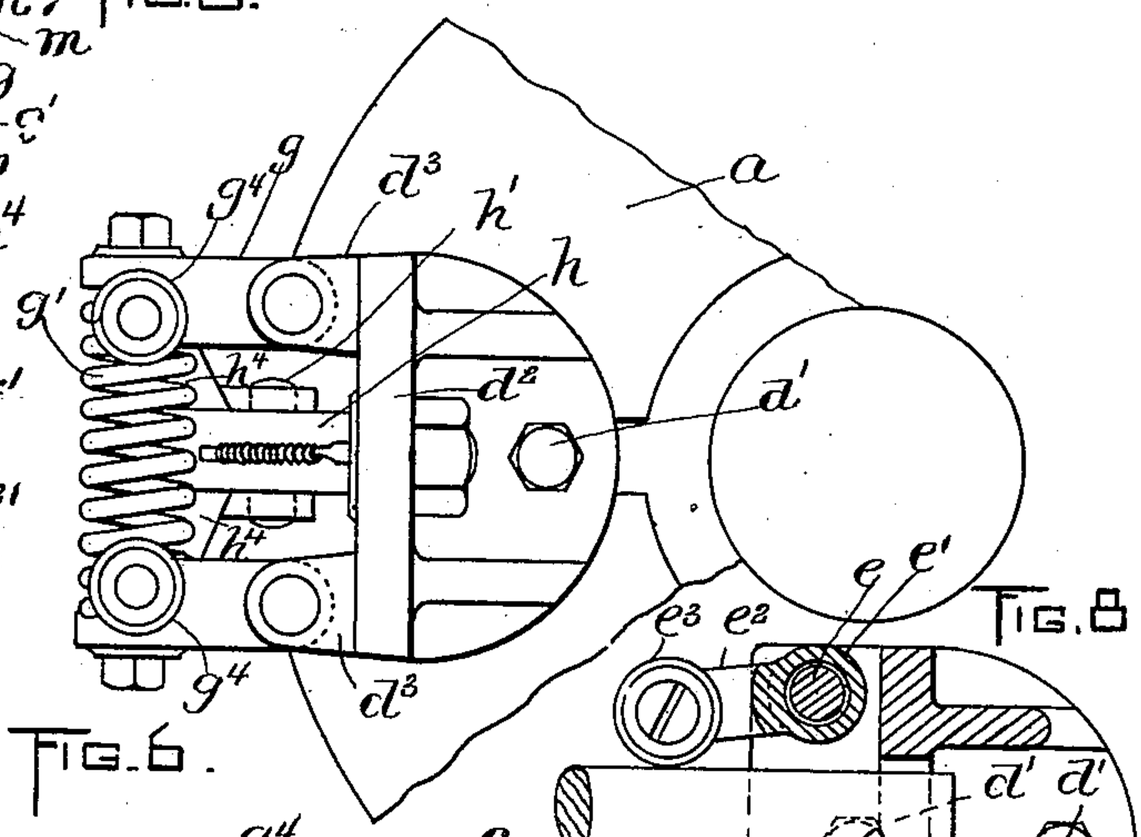

FIG. 6.

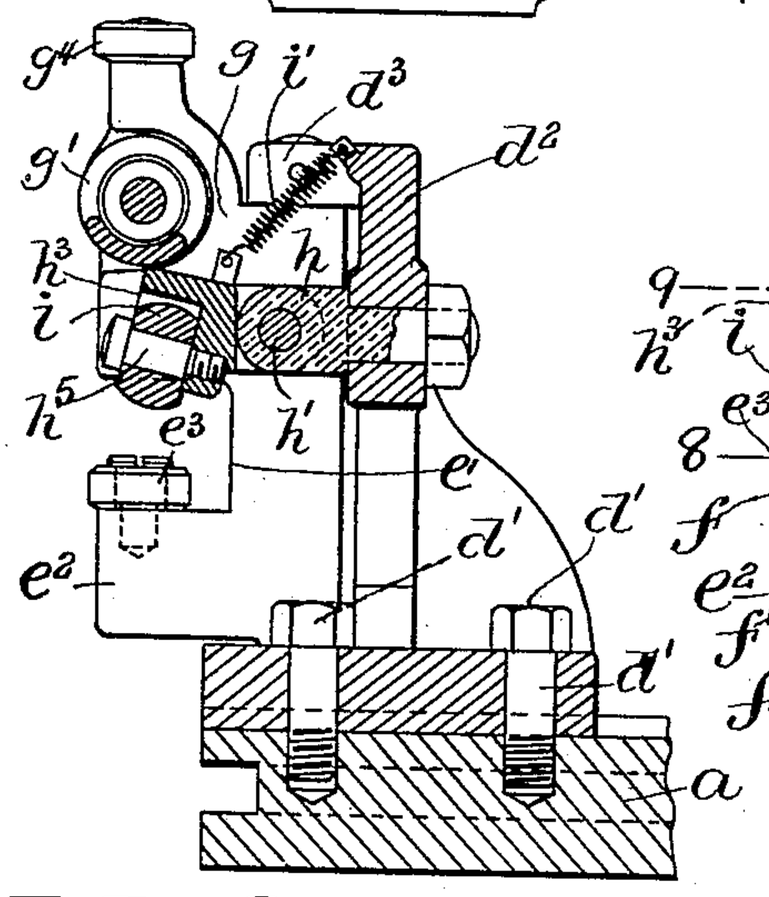

FIG. 7.

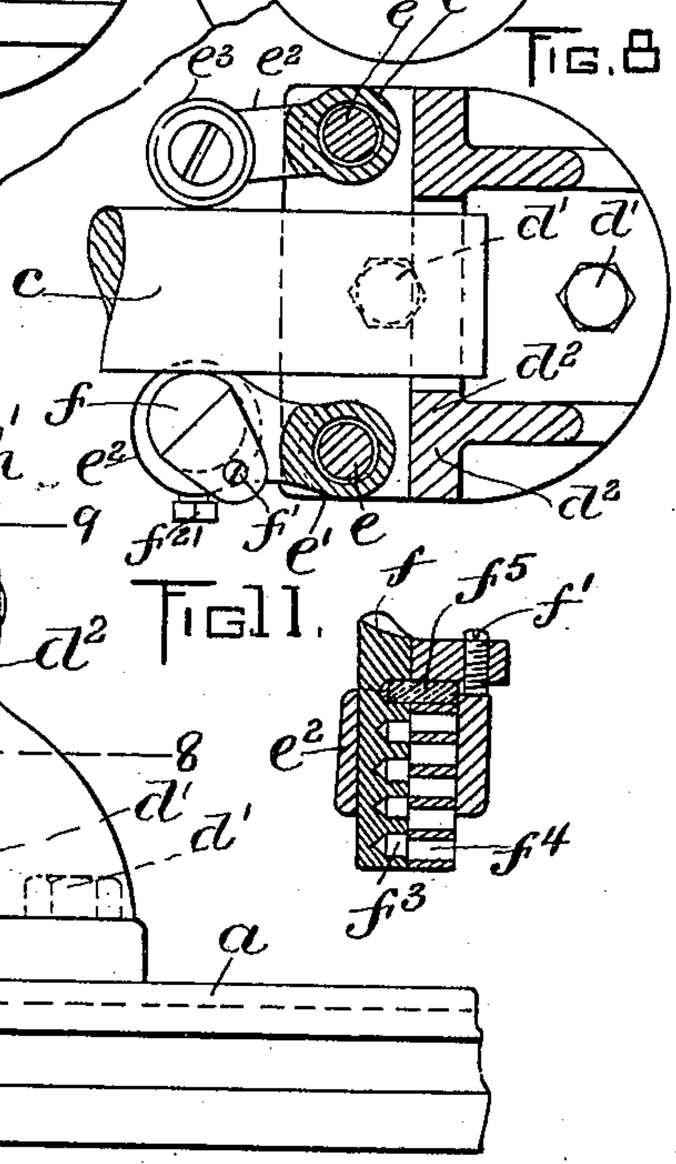

FIG. 8.

FIG. 11.

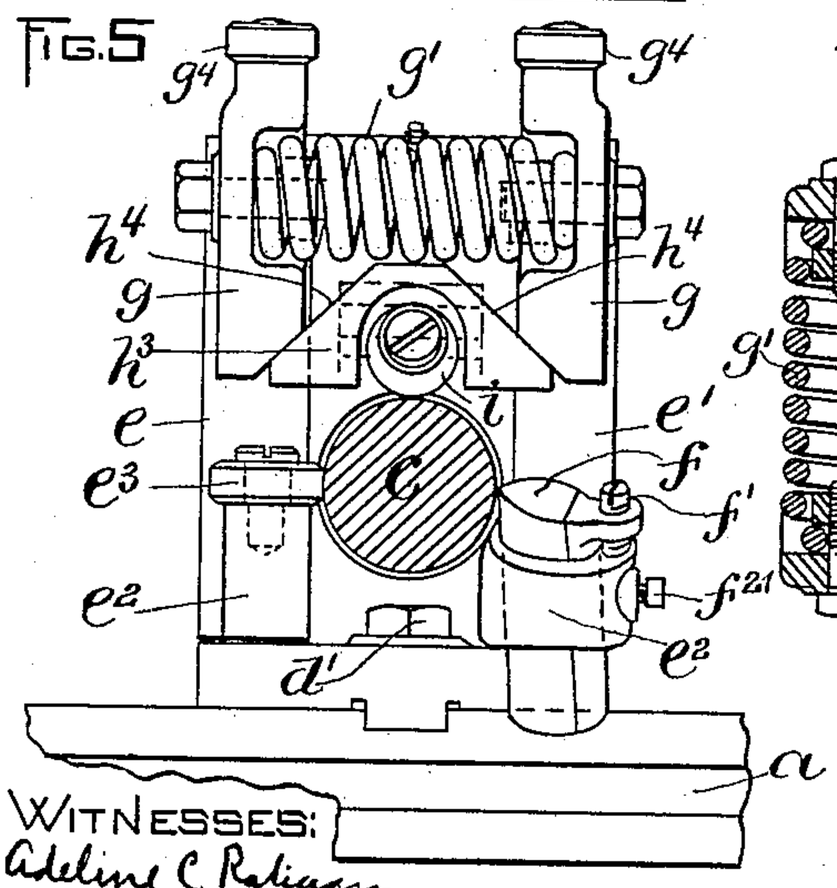

FIG. 5.

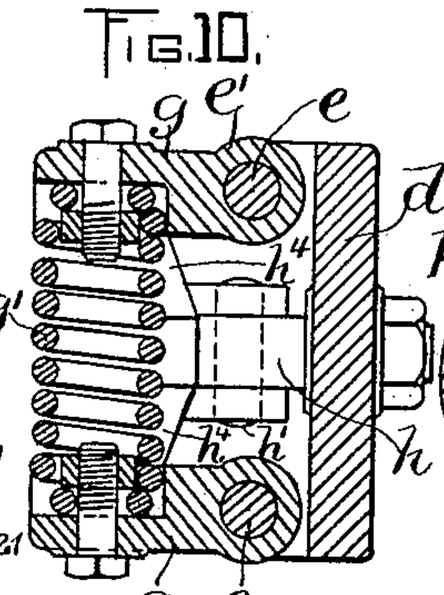

FIG. 10.

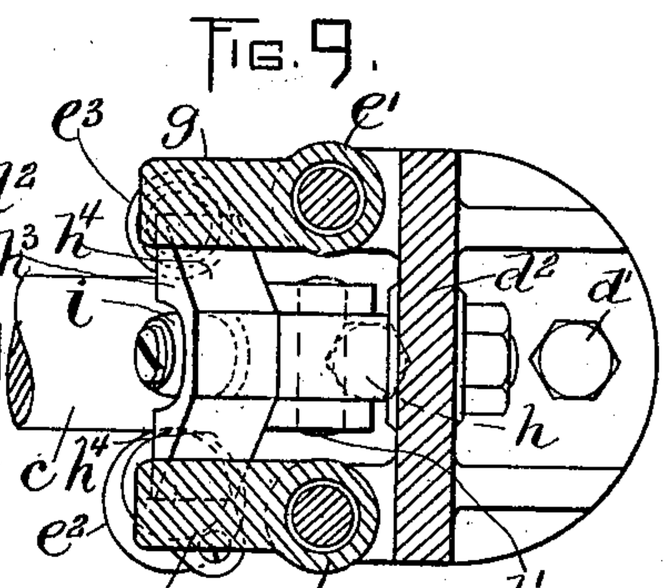

FIG. 9.

WITNESSES:
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INVENTOR:
James Hartness
by Wright Brown & Quinby
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No. 763,886. Patented June 28, 1904.

UNITED STATES PATENT OFFICE.

JAMES HARTNESS, OF SPRINGFIELD, VERMONT.

TEMPLET-CONTROLLED TURNER FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 763,886, dated June 28, 1904.

Original application filed March 20, 1901, Serial No. 52,043. Divided and this application filed November 16, 1901. Serial No. 82,551. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARTNESS, of Springfield, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Templet-Controlled Turners for Lathes, of which the following is a specification.

This invention has for its object to provide certain improvements in tools for working upon cylindrical stock, whereby the work may be shaped or finished to correspond to a templet or even a sample of the work itself.

Another object of the invention is to provide a tool with an improved roller back-rest, likewise controlled by the templet or sample.

Referring to the accompanying drawings, which form a part of the specification, Figure 1 represents in side elevation a portion of a lathe equipped with my invention. Fig. 2 represents a plan view of the same. Fig. 3 shows the apparatus in plan view with the templet removed. Fig. 4 represents a section on the line 4 4 of Fig. 2. Fig. 5 represents a similar view with the cutter operating upon a larger piece of stock. Fig. 6 represents a side elevation of the tool. Fig. 7 represents a longitudinal section therethrough. Fig. 8 represents a section on the line 8 8 of Fig. 6. Fig. 9 represents a section on the line 9 9 of Fig. 6. Fig. 10 represents a section on the line 10 10 of Fig. 4. Fig. 11 shows the method of adjusting the cutter.

On the drawings, a represents the turret of a lathe, which is mounted to rotate upon the carriage b to bring the tools into operative relation to the work c in the rotatable chuck c'. These features are described in detail in my application, Serial No. 52,043, filed March 20, 1901, of which this is a division.

The tool consists of a base-plate d, secured by screws d' to the turret a, the location of this and the other tools being determined by radial grooves a' on the flat top of the said turret. A standard d^2 rises from the base-plate and is equipped with forwardly-projecting lugs d^3 d^3, in which and in the base-plate are mounted two shafts e e. On each of these shafts there is a sleeve e', having a forwardly-projecting arm e^2, extending in the direction of the work. On one of said arms e^2 is journaled a roll e^3, whose peripheral movement is in the direction of the axis of the stock c. In the other of said arms is secured the cutter f, which may be adjusted by a screw f' and secured after adjustment by a set-screw f^{21}. The cutter and back-rest, together with the top or back-rest to be described, constitute "work-engaging" members. The cutter is formed in two parts, one of which carries a cutting edge and the other of which is provided with a lug to receive the adjusting-screw f'. That portion of the cutter which is provided with the operative edge has a plurality of apertures f^3, adapted to be brought into alinement with any one of a greater number of apertures f^4 in the other portion of the cutter, so that a pin f^5 may be thrust through both of them. This provides a very fine adjustment when used in conjunction with the adjusting-screw f'. The sleeves e' e' are provided with two arms g g, between which is placed a strong contraction-spring g', having its end secured to said arms in any suitable way. Between the arms the standard is provided with a lug h, (see Fig. 7,) having a transverse pivot h', on which is fulcrumed a triangular wedge h^3, whose inclined sides h^4 h^4 bear against inclined faces on the arms g, as clearly shown.

Journaled upon a stud h^5 on the triangular wedge is a roller back-rest i, which is adapted to rotate upon an axis substantially parallel to the axis of the work. A spring i' tends to hold the wedge firmly in engagement with the inclined cam-surfaces of the laterally-swinging arms g g, with which the arms e^2 e^2, carrying the roll e^3 and the cutter f, move in unison. The operative edge of the cutter is arranged substantially diametrically opposite the point of engagement of the roll and the stock c, whereas the roll i is at a point substantially midway between them. The work rotates in the direction of the arrow in Fig. 4, and the resistance is therefore upward and laterally away from the cutting edge. By swinging the sleeves e' e' so that the arms e^2 move to-

ward and from each other the roll *i* is moved to a similar extent toward and from the axis of the work, so that all three of the engaging parts or members—to wit, the cutter, the roll e^3, and the roll *i*—bear with equal pressure against the work and hold it against lateral or transverse dislocation.

The templet, which may consist of a facsimile of the work to be produced, is indicated at *j* in Fig. 2. It is centered by two pins *j'' j''*, projecting in opposite directions, one carried by the end bar *k* of a tool-closing frame and the other by the bar *k'* and both secured to the shaft k^2. This shaft k^2 is adapted to be rocked by suitable mechanism, as described in my said copending application, for the purpose of moving the templet into and out of operative position with respect to the tool and the work. Normally the frame is raised so as to be out of the way; but at the proper time and in exact sequence in the operation of the lathe the frame is depressed by the rocking of the shaft k^2.

In addition to the inner templet *j* I provide an external templet *m*, secured to the ends of the bars *k k'*, there being a duplicate *m'* set in a groove in the shaft k^2. On the upper end of the arms *g g* there are two rolls g^4, which are adapted to be moved between the interior templet *j* and the exterior templets *m m'*, and as the said rolls ride along the templets the arms *g g* and e^2 e^2 are rocked back and forth from each other to adjust the cutter *f* and the roller top-rest *i* and back-rest e^3 simultaneously toward and from the axis of the work.

This turner, as shown, is used mostly for roughing cuts on shoulder-work; but it may be equally well used for finishing all kinds of work in which there are no abrupt shoulders. It has various other advantages over other forms of turners, one of which is its compactness, for it will be observed that it occupies a comparatively small space upon the turret.

I may dispense with either the interior or exterior templets, and I reserve the right to reverse the action of the spring *g'*, so that it will hold the turner open instead of closed, in which case I would employ only the exterior templets.

The characteristic difference in construction between this and other turners is in the fact that its cutter-holder and back-rest holder are pivoted on axes substantially at right angles to the axis of the work instead of parallel thereto, and this presents numerous advantages which will be apparent to those familiar with the use of lathes.

Under normal conditions when the turner is not in use the templet is elevated above the turret, where it does not interfere with the use of the other tools thereon.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A turner comprising a non-rotary support adapted for attachment to a turret, and a cutter and two independent abutments for the work all pivoted to said support on axes transverse to the axis of the work and adapted to be moved by a single instrumentality simultaneously toward and from said work-axis.

2. A turner comprising a non-rotary support adapted for attachment to a turret, a cylindrical cutter and a circular work-rest both pivoted to said support on axes transverse to the axis of the work.

3. A turner comprising a standard, two movable carriers or holders, a back-rest on one of said holders, a cutter on the other holder, and provisions including a wedge engaging both said carriers and inserted between them whereby said carriers move simultaneously an equal distance toward and from the work.

4. A turner comprising parallel pivots transverse to the axis of the work, carriers journaled on said pivots, a cutter on one of said carriers, a back-rest on the other of said carriers, and templet-engaging means on said carriers by which they are caused to move simultaneously in opposite directions.

5. A turner comprising a base, two carriers extending in the direction of the work, means for mounting said carriers on said base whereby they swing on axes transverse to the axis of the work, a cutter on one of said carriers, a back-rest on the other of said carriers, and provisions whereby said carriers may be engaged with a templet.

6. A turner comprising a base, two carriers extending in the direction of the work, means for mounting said carriers on said base whereby they swing on axes transverse to the axis of the work, a cutter on one of said carriers, a back-rest on the other of said carriers, and a spring connecting said carriers.

7. A turner comprising two carriers extending in the direction of the work and adapted to swing toward or from the work on axes transverse to the work, said carriers being separated to receive the work between them, work-engaging members on said carriers, and provisions whereby said carriers may be engaged by a templet.

8. A turner comprising two carriers extending in the direction of the work and adapted to swing toward or from the work on axes transverse to the work, said carriers being separated to receive the work between them, work-engaging members on said carriers, and a top rest controlled in position by said carriers.

9. A turner comprising three carriers pivoted on axes at right angles to the axis of the work and extending in the direction of the

length thereof, work-engaging members in the free ends of said carriers, and connections whereby said members move simultaneously in or out with relation to the work.

10. A turner comprising three carriers pivoted on axes at right angles to the axis of the work and extending in the direction of the length thereof, work-engaging members in the free ends of said carriers, and provisions, including a wedge carried by one of said carriers and engaging the other carriers, by which said members move simultaneously in or out with relation to the work.

11. A turner comprising a base, two carriers extending in the direction of the work, means for mounting said carriers on said base whereby they swing on axes transverse to the axis of the work, a cutter on one of said carriers a back-rest on the other of said carriers, and provisions whereby said carriers may be engaged by a templet.

12. A turner comprising a base, two carriers extending in the direction of the work, means for mounting said carriers on said base whereby they swing on axes transverse to the axis of the work, a cutter on one of said carriers, a back-rest on the other of said carriers, and templet-engaging members on the said carriers.

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

JAMES HARTNESS.

Witnesses:
J. W. BENNETT,
D. S. BROWNELL.