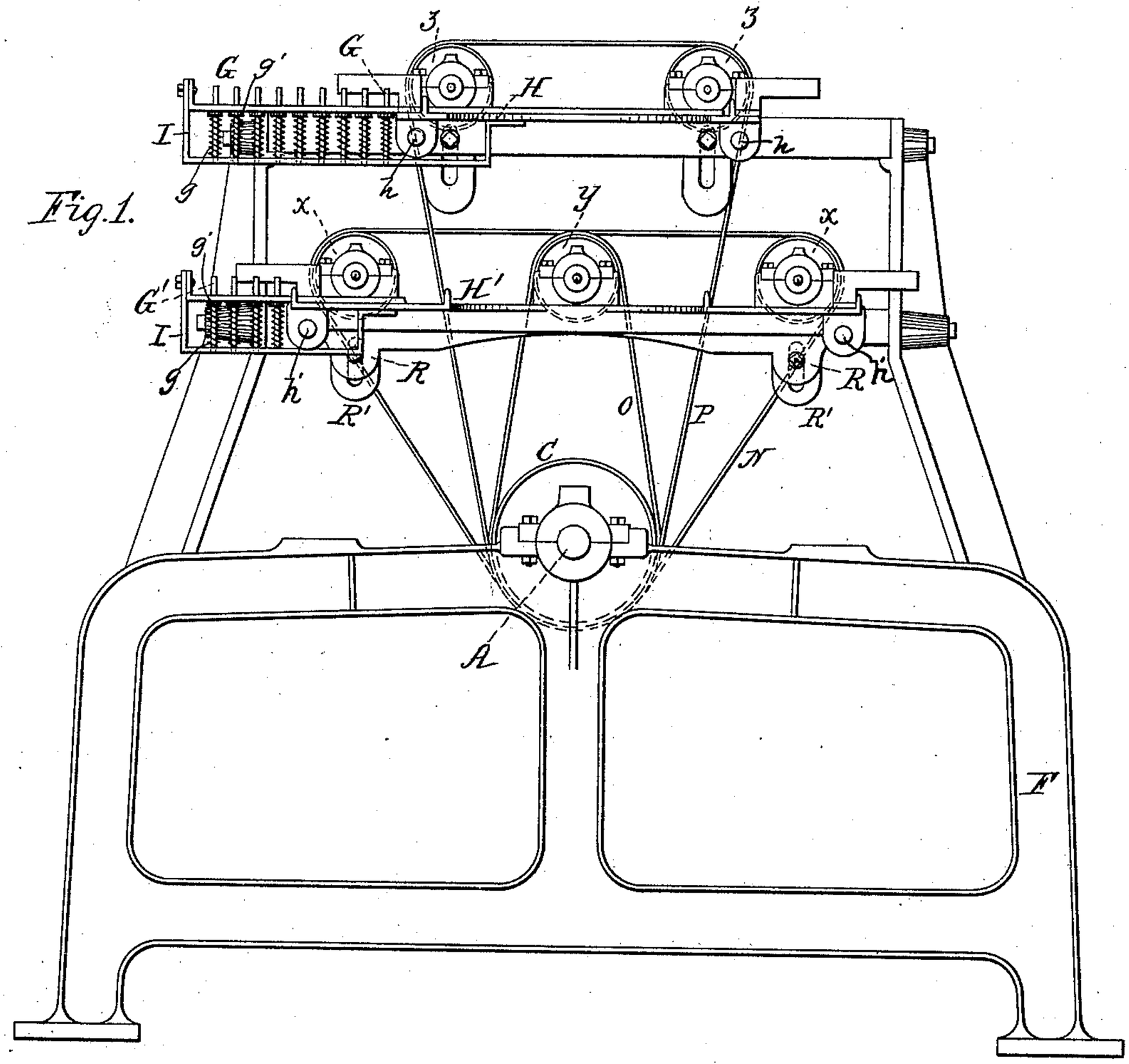
(No Model.) 3 Sheets—Sheet 1.

H. D. WILLIAMS.

DOWELING MACHINE.

No. 383,085. Patented May 15, 1888.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

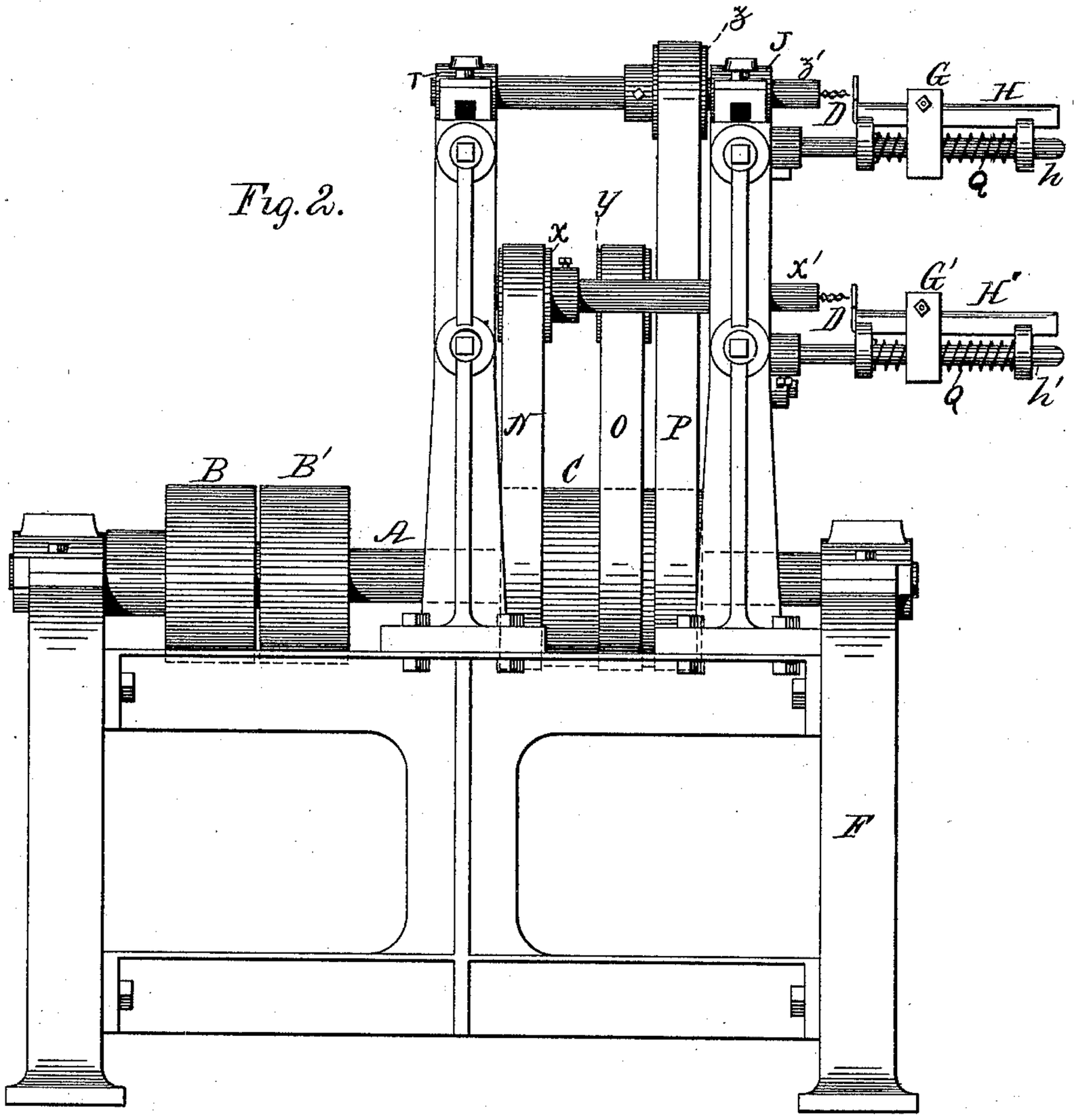
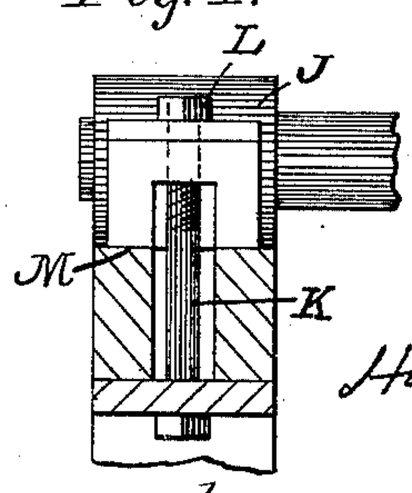


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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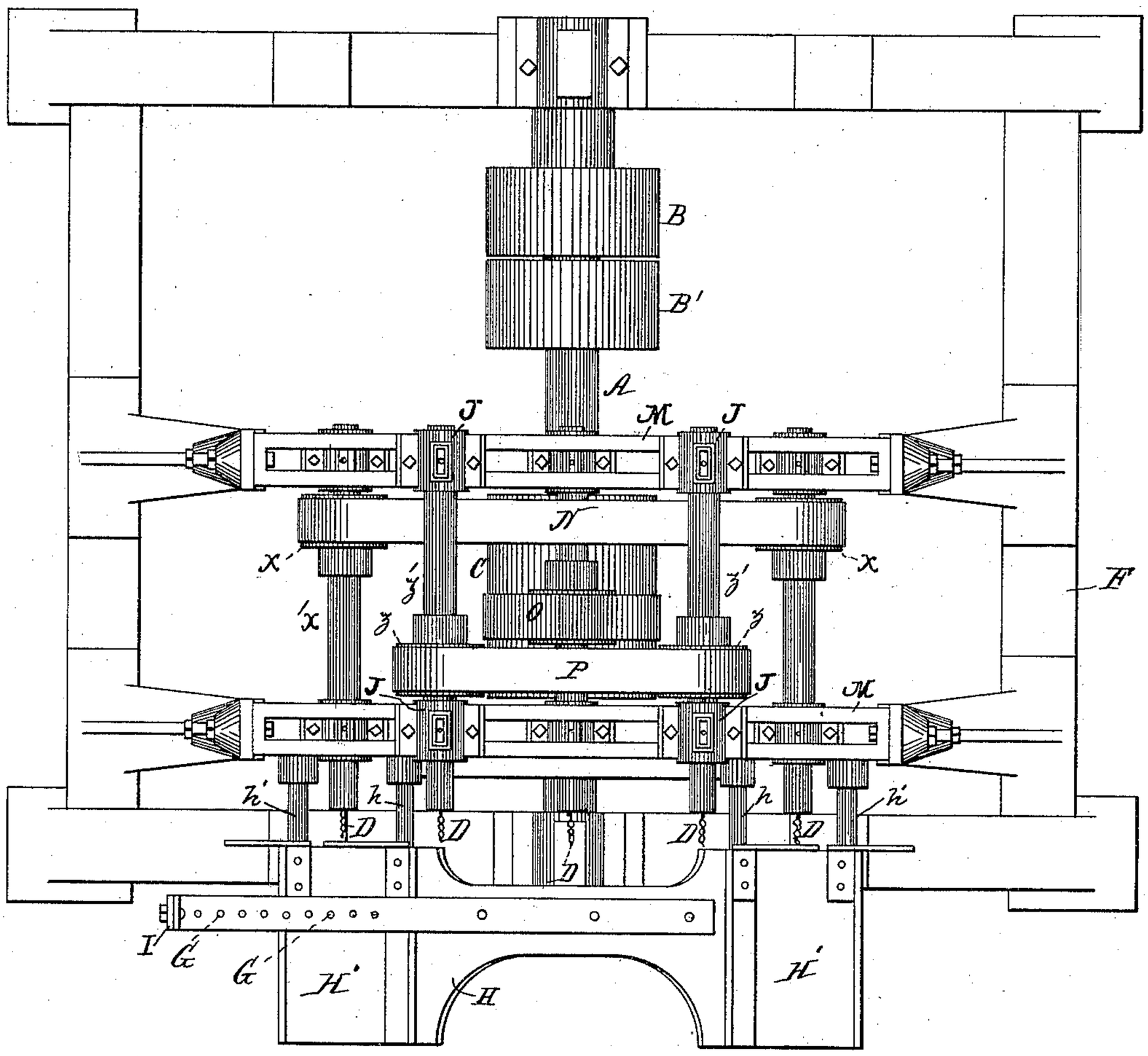
DOWELING MACHINE.

No. 383,085. Patented May 15, 1888.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HORACE DICKINSON WILLIAMS, OF CINCINNATI, OHIO.

DOWELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,085, dated May 15, 1888.

Application filed July 28, 1887. Serial No. 245,560. (No model.)

To all whom it may concern:

Be it known that I, HORACE DICKINSON WILLIAMS, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Doweling-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the statement of invention, in which—

Figure 1 is a front elevation of my invention. Fig. 2 is a side elevation of my invention. Fig. 3 is a top view of my invention. Fig. 4 is an end elevation showing attachment of bit-shaft to frame.

The invention has relation to improvements in doweling-machines; and it consists in the combination, with one driving-shaft operating five or more braces, which hold the doweling-bits, of a vertically-adjustable table or tables adapted to receive different thicknesses of wood and furnished with movable gages.

Similar letters of reference in the several drawings denote same parts of machines.

In the annexed drawings, A is the main driving-shaft, having the ordinary tight and loose pulley, B and B′, and having the long pulley C adapted to have the belts N O P, which operate the pulleys *x y z*, which are fixed on the bit-shaft adapted to receive and operate the doweling-bits D. The adjustable tables H and H′ have supporting bars or brackets *h h′* attached to and moving with the adjustable tables H and H′ and the adjustable gages G G G′ G′.

My machine is constructed so that two of the pulleys, *z*, are arranged on an upper plane, so that the bits operated by them act in combination with a table, H, and gages G and G, and three of the pulleys, *x* and *y*, are arranged on a lower plane under the upper plane, so that the bits operated by them act in combination with a table, H′, and gages G′ and G′. The pulleys *x*, *y*, and *z* are fixed to the shafts of the bits. The shafts are adjustable laterally. Reference being had to Figs. 3 and 4, it will be seen that the frame F is iron and hollow where the shafts have their bearing, and that the bearings J may slide along said frame or ways M, being held, when desired, firmly in position by the bolt K and nut L. (Shown fully in Fig. 4.)

The tables H and H′ are adjustable vertically by means of the slotted ears R, which are part of said table, and the slotted ears R′, which are part of the iron frame A, and a nut and bolt working in said slots, as shown in Fig. 1.

The gages G G and G′ and G′ are arranged at the sides of the tables H and H′ in a frame, I, so that the proper distances may be obtained at once by placing the wood to be worked against the same. The gages are movable vertically, having an ordinary spiral spring, *g*, about them set on the bottom of the gage-frame I and against a shoulder, *g′*, on the gage, so that the upper ends of the gages are always elevated above the frame, and by a slight pressure of the wood to be worked, which is laid upon it, any gage not needed to accommodate the different lengths can be lowered to a level with the gage-frame and the next gage used.

To operate the machine, the belt N is passed around the long pulley and over the pulleys *x*, *y*, and *z*. The belt O is passed around the long pulley and over the pulley *y*. The belt P is passed around the long pulley and over the pulley *z* and *z*. Said pulleys *x* and *x* *y* and *z* and *z* are rigidly fixed on the shafts *x′* *y′* and *z′* and *z′*, adapted to receive the doweling-bits D. These belts N O P may be adjustable in length; or different sizes may be employed when this is required by the adjusting of the sliding boxes. The wood to be worked, being placed on the table with one end pressing against the gages G and G or G′ and G′, is moved against the doweling-bits. The tables H H′ move against the spiral spring Q on the support *h h′* in approaching the bits, and are retracted by said spring when they are moved back.

My invention is an improvement on other doweling-machines, in that the gages act automatically, the tables are raised and lowered at will to suit the thickness of the wood, and the braces and bits are so arranged that the distance between them can be changed at any time to accommodate all sizes of barrel-heads.

Heretofore in making the heads for the large packages for the wine trade—such as hogsheads—it has been necessary to measure accurately the position for the doweling-pins, as it is a peculiarity of that trade that the pins should occupy an unvariable position in reference to the circumference of the head and be of

a definite number according to the diameter. This, before the invention of my machine, required the accurate finding of the proper position of the doweling-pins and the forming of the holes by a single bit. Before my invention there has been no machinery by which the boring of dowel-holes at one operation for packages was practicable.

I claim—

1. In a doweling-machine, the combination of the vertically and horizontally adjustable tables arranged one above the other, spring-gages mounted in a suitable frame thereon, said gages being adapted to be operated by the weight of the wood to be bored, and adjustable bits arranged to operate above said tables, substantially as shown and described.

2. In a doweling-machine, the combination, with the adjustable tables H H′, vertically-movable gages G G′, mounted in suitable supports on said tables, of adjustable bit-shafts arranged above the tables and adapted to operate upon the wood placed upon said tables, substantially as shown and described.

The foregoing specification of my invention signed by me this 27th day of June, A. D. 1887.

HORACE DICKINSON WILLIAMS.

Witnesses:

P. J. CADWALLADER,

F. A. HOPKINS.