

No. 824,277.

PATENTED JUNE 26, 1906.

W. H. BROADWAY.  
MACHINE FOR ORNAMENTING WOOD.

APPLICATION FILED MAR. 13, 1905.

2 SHEETS—SHEET 1.

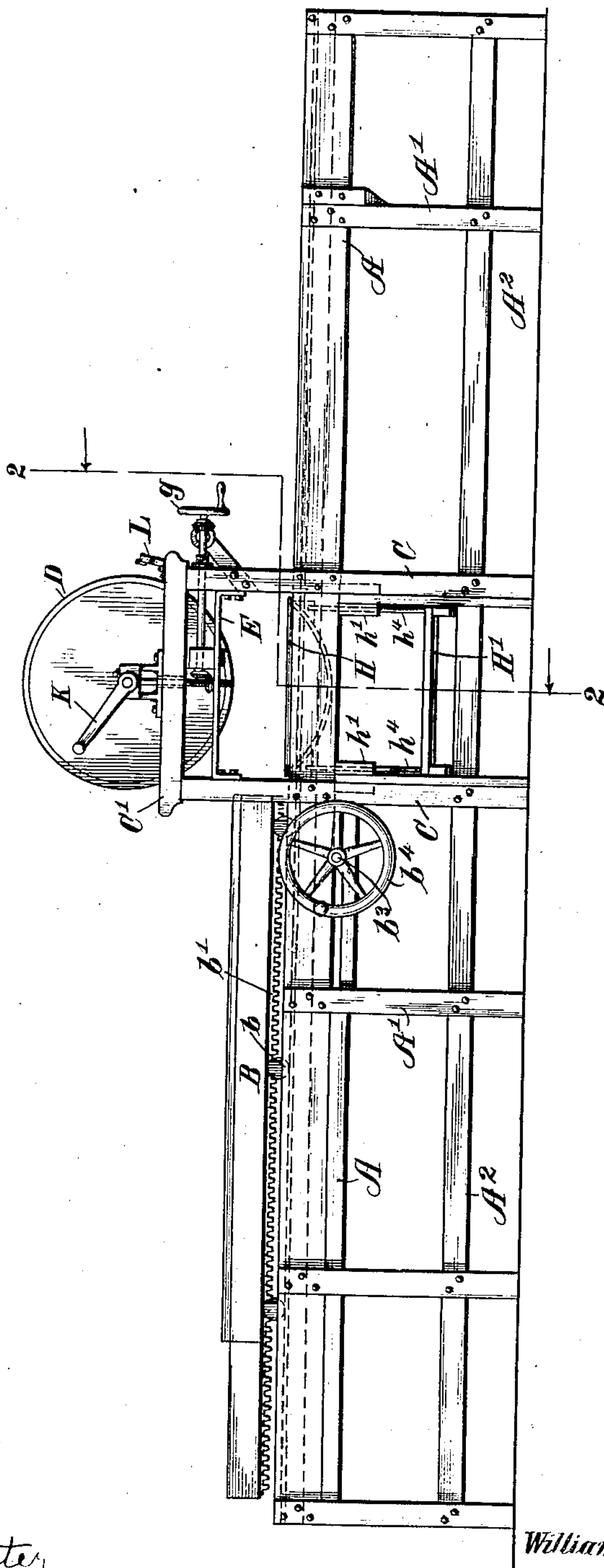


Fig. 1.

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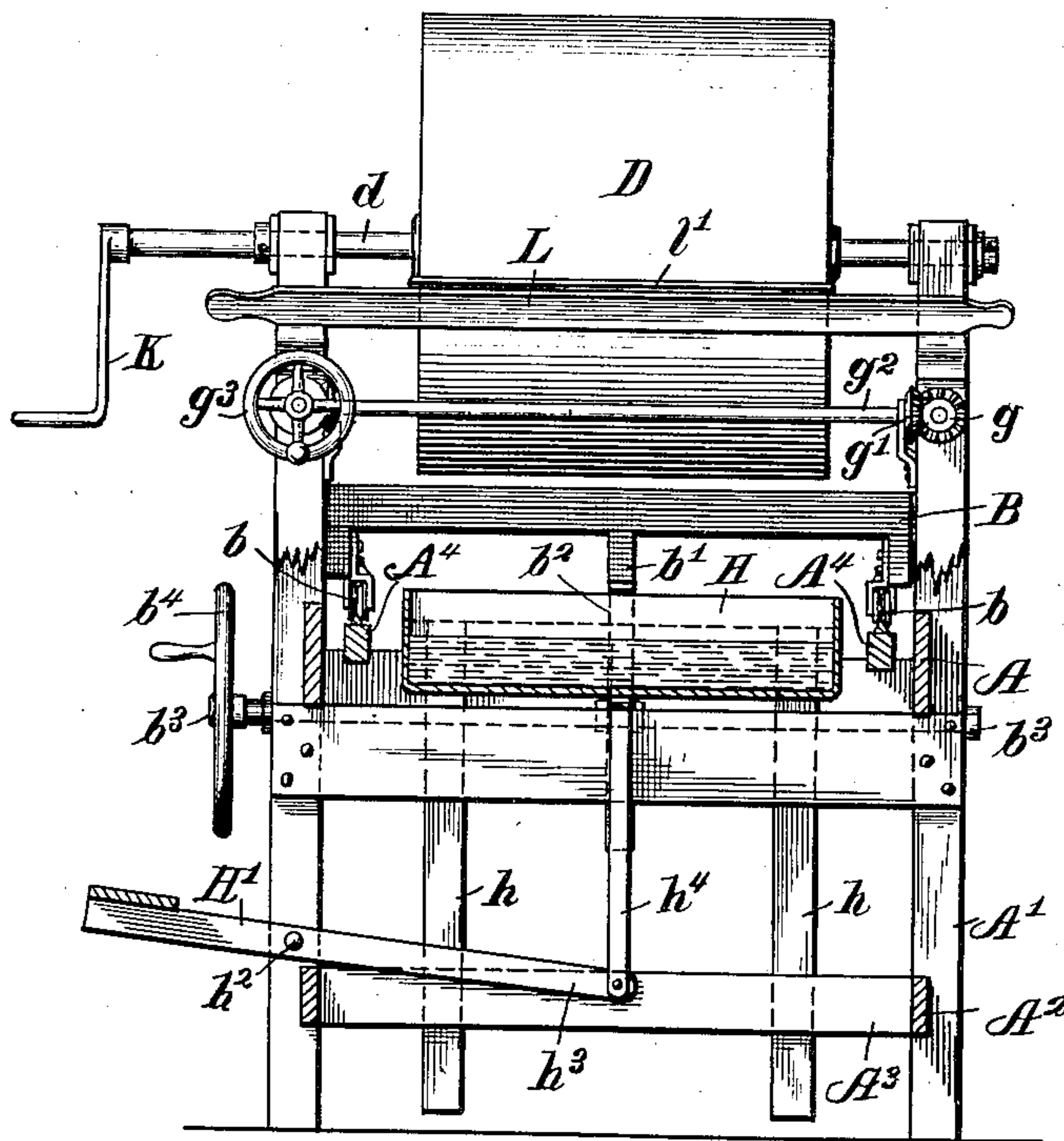


Fig. 2.

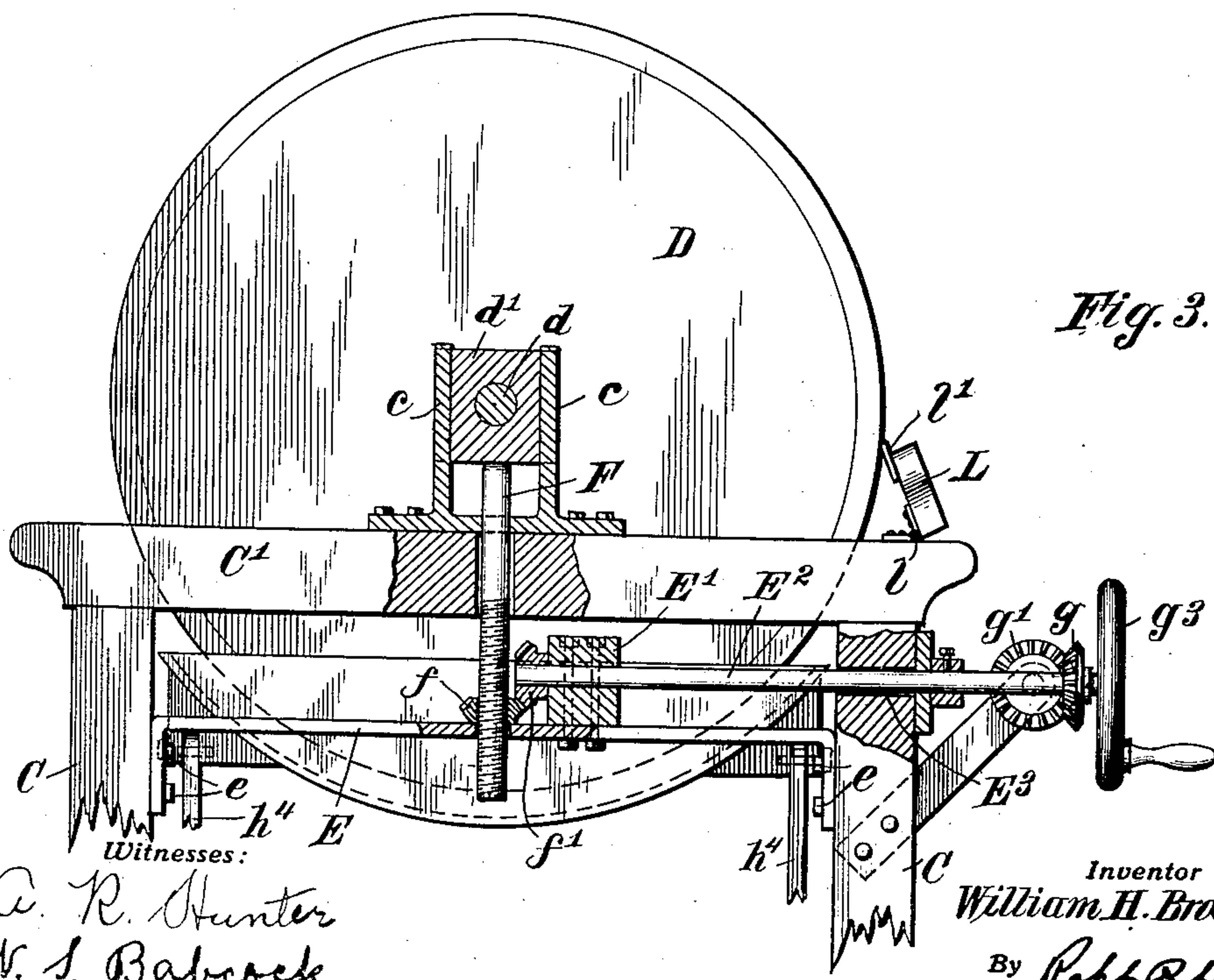


Fig. 3.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BROADWAY, OF LITTLE ROCK, ARKANSAS.

## MACHINE FOR ORNAMENTING WOOD.

No. 824,277.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed March 13, 1905. Serial No. 249,831.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BROADWAY, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented certain new and useful Improvements in Machines for Ornamenting Wood, of which the following is a specification.

The invention to be hereinafter described relates to machines for ornamenting wood and like surfaces, and more particularly to machines of this general type wherein the natural surface of one kind of wood is reproduced in imitation upon another character of wood. In this general form of machine it is essential that the roller, formed of suitable composition, shall be of such dimensions and character that the natural surface to be reproduced may be first transferred to the face of the roller and thereafter by movement of the wood to be ornamented beneath and in contact with the roller, that such surface be transferred in perfect condition to the wood under treatment. The practical efficiency of the machine, perfection of the reproduced surface, and economy of product will depend upon the relative disposition of the roller and its adjunctive devices, the accuracy and readiness with which the roller may be adjusted to its work, and the facility for cleaning and drying the surface of the roller in preparation for subsequent operations.

The object of the invention is to provide a machine of the character indicated which shall be simple in construction, efficient and accurate in operation, and wherein means are provided for readily cleaning and drying the printing-roller and adjusting it to proper operative relation to the wood to be ornamented; and the invention consists of the parts and combinations to be hereinafter described and then definitely pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a machine embodying the present invention. Fig. 2 is a transverse vertical section of the machine on the line 2 2, Fig. 1, looking in the direction of the arrow. Fig. 3 is an enlarged detail showing some of the parts in section, illustrating the printing-roller, its adjusting devices, and adjacent parts.

In the embodiment of the invention illustrated, the machine is specially adapted for the reproduction or imitation on any desired character of wooden strips or slabs of such surface as is presented by quarter-sawed oak

or analogous character of hard wood, although it is to be understood, of course, that the invention is not limited in this respect.

The main supporting-frame may be of any suitable construction, and, as shown, is formed of the longitudinal side pieces A, supported by uprights A'; which in turn are united longitudinally and transversely by the ties A<sup>2</sup> and A<sup>3</sup>, respectively, Figs. 1 and 2. Between the side pieces A are the tracks A<sup>4</sup> A<sup>4</sup>, extending substantially the full length of the machine-frame, and upon these the table B is supported by means of rollers b b, so that said table may be easily moved longitudinally upon said tracks. Extending from the bottom of the table B is a rack b', Figs. 1 and 2, adapted to be engaged by and be operated by a pinion b<sup>2</sup>, (dotted lines, Fig. 2,) mounted on a shaft b<sup>3</sup>, to which motion may be applied by any suitable means—as, for instance, the hand-wheel b<sup>4</sup>—whereby the table B may be reciprocated longitudinally of the supporting-frame, as will be obvious. It is to be understood, of course, that the invention is not confined to the particular means shown and described for reciprocating the table B, since any devices and driving mechanism may be employed for that purpose, as will be fully understood by one skilled in the art.

Disposed substantially midway in the length of the main frame, on each side thereof, are the roller-standards C C, extending some distance above the top of the main frame and connected by the cross-pieces C', carrying the bearing-guides c c. This frame for identification may be termed the "auxiliary" frame.

The printing-roller D, which may be made of any suitable composition adapted to receive the impression, as hereinafter described, is carried by a shaft d, mounted in bearing-blocks d' d', Fig. 3, which are movable vertically between the bearing-guides c c. Extending between the roller-standards C C below the cross-pieces C' C' are the bracket-arms E E, secured to the standards C C by suitable means, as the bolts e e, (see Fig. 3,) and preferably supporting blocks E' E', in which are rotatably mounted adjusting-shafts E<sup>2</sup> E<sup>2</sup>, said shafts being also journaled near their opposite ends in the framing, as at E<sup>3</sup>. Fixed to the bearing-blocks d' d' are the adjusting-screws F F, Fig. 3, extending downward through suitable bearings in the cross-pieces C' and a guiding-aperture in the bracket-arms E, and screw-threaded on the



adjusting-screws F F are the bevel-gears *f*. The gears *f* are seated on the bracket-arms E and between said arms and a bevel-gear *f'*, secured to the inner end of the adjusting-shafts E<sup>2</sup>, as will best be seen from Fig. 3, whereby upon rotation of the bevel-gears *f* the adjusting-screws F may be raised or lowered to properly position the printing-roller, as will be understood. In order that the adjusting-screws F at each side of the machine may be moved simultaneously and in equal amounts, I provide the other ends of the adjusting-shafts E<sup>2</sup> with bevel-gears *g* and connect them with correspondingly - beveled gears *g'*, fixed to a cross-shaft *g*, extending between the adjusting-shafts. As a means for operating the adjusting-shafts a hand-wheel *g*<sup>3</sup> may be applied to one of them. Details of the adjusting mechanism for the impression-roller may be varied, of course, within the scope of the present invention, the essential in this respect being that the impression will be provided with adjusting devices simultaneously acting on each end of said roller under hand manipulation to adjust the roller evenly and accurately with relation to the surface to be treated.

Having described the frame, the table, printing-roller, and their coacting instrumentality, it will conduce to a more comprehensive understanding of the remaining features of the invention to refer to the general operations whereby the desired impression is transferred to the wood to be ornamented. Assume, for instance, that it be desired to give the appearance of quarter-sawed oak to pine or other character of board. The quarter-sawed oak board is first fixed upon the table and worked out with a wire brush to open the grain. It is then inked and scraped off with rubber scrapers. The table and board thus prepared are then moved under the printing-roller, which has been previously adjusted to receive from the prepared board the impression desired. The prepared board is now removed and the pine or other board to be ornamented is placed upon the table, or the board to be ornamented may be placed on top of the prepared board and the table and board then moved under the roller, whereby the desired ornamental surface is transferred, so that the treated board presents an accurate resemblance to that from which the impression has been taken. In such operation it is obvious that the printing-roller is liable to become dirty to an extent that will prevent an accurate reproduction of the desired impression, and the importance of a ready means to clean and dry the printing-roller becomes obvious. This I will now explain.

Disposed normally below the printing-roller and substantially midway in the length of the machine-frame is the fluid-tank H, having guiding-pieces *h h* projecting down-

ward therefrom, Fig. 2, said pieces engaging suitable guides, as *h' h'*, Fig. 1, on the main frame. The purpose of these pieces *h h* and the guides *h' h'* is to insure the proper vertical movement of the tank H, as will presently appear. Pivotaly mounted on the main frame at *h*<sup>2</sup> is the foot-lever or treadle H', the inner end *h*<sup>3</sup> of which is connected to the tank H by means of the rods *h*<sup>4</sup>, so that upon depressing the foot-lever at its outer end the tank will be raised to cross the path of movement of the table B to bring it in position close to the surface of the printing-roller D, and by removing the foot from the said lever the tank will at once drop away from the printing-roller, as will be obvious. Since the table B is reciprocated back and forth beneath the roller, it is necessary that the fluid-tank shall be normally below the path of movement of the table, and it is raised and lowered across this path of movement to immerse the periphery of the roller in the fluid-tank, which may contain benzene, by means of the treadle. When the fluid-tank is thus raised, it is necessary to turn the printing-roller to subject all parts of its periphery to the action of the fluid in the tank, and as one means of doing this I may provide a hand-crank K. The cleansing action of the fluid, such as benzene or the like, in the tank thoroughly washes the surface of the roller and prepares it for the reception of another impression. Before giving it another impression, however, it is essential that the surface of the roller be thoroughly dried, to do which I provide a device which for identification may be termed a "drier." This consists of a frame L, Fig. 3, extending transversely of the machine, as shown, and having a hinged connection *l* with the auxiliary frame or cross-pieces C', so that when cleaning the roller it may be turned to have its edge *l'* bear against the periphery of the roller; but when the device is being operated to receive or transfer an impression this drier may be turned away from the roller, as will be obvious.

Preferably I form the bearing edge *l'* of leather, rubber cloth, or leather sponge or other absorbing material, so that the surface of the roller after being treated with the benzene or cleansing fluid in the tank is thoroughly dried.

It will be obvious to one skilled in the art that many changes in details of the machine may be made within the scope of my invention and that the table may be reciprocated by power devices, if desired, and the raising and lowering of the roller may obviously be effected by power through the described mechanisms.

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

1. In a machine of the character described, 130



the combination of a main frame, an auxiliary frame disposed substantially midway of the length of the main frame, a table mounted upon the main frame, means for reciprocating the table on the main frame past the auxiliary frame and to opposite sides thereof, a printing-roller mounted on the auxiliary frame above the path of movement of the table, a fluid-tank normally disposed below the path of movement of the table to permit the table to pass between it and the printing-roller, and means for raising the tank across the path of movement of the table to immerse the surface of the printing-roller therein.

2. In a machine of the character described, the combination of a main frame having tracks thereon, a table mounted upon said tracks, means for reciprocating the table, an auxiliary frame disposed substantially midway of the length of the main frame, a printing-roller carried by said auxiliary frame and disposed above the path of movement of the table, a fluid-tank normally disposed below the printing-roller and path of movement of said table, and means for moving said tank vertically to immerse the peripheral surface thereof in said tank.

3. In a machine of the character described, the combination of a main frame, an auxiliary frame disposed substantially midway of the length of the main frame, a table mounted upon the main frame, means for reciprocating the table on the main frame past the auxiliary frame and to opposite sides thereof, a printing-roller mounted on the auxiliary frame above the path of movement of the table, means for vertically moving said printing-roller, a fluid-tank normally disposed below the path of movement of the table to permit the table to pass between it and the printing-roller, and means for raising the tank across the path of movement of the table to immerse the surface of the printing-roller therein.

4. In a machine of the character described, the combination of a main frame, a table movable longitudinally thereof, a printing-roller disposed above the path of movement

of said table, a fluid-tank normally below the path of movement of the table, means for raising and lowering the tank to immerse the peripheral surface of the roller therein, and devices for rotating said roller when its periphery is in the tank.

5. In a machine of the character described, the combination of a main frame, a table movable longitudinally thereof, a printing-roller disposed above the path of movement of said table, a fluid-tank normally below the path of movement of the table, means for raising and lowering the tank to immerse the peripheral surface of the roller therein, a drying device for bearing against the periphery of the roller, and devices for rotating said roller when its periphery is in the tank.

6. In a machine of the character described, the combination of a main frame, a table movable longitudinally thereof, a printing-roller disposed above the path of movement of said table, a fluid-tank normally below the path of movement of the table, means for raising and lowering the tank to immerse the peripheral surface of the roller therein, a drying device comprising a frame hinged to the main frame and having an engaging edge adapted to bear upon the periphery of the roller, and devices for rotating said roller when its periphery is in the tank.

7. In a machine of the character described, the combination of a main frame, a table movable longitudinally thereof, a printing-roller disposed above the path of movement of the table, a fluid-tank normally below the path of movement of the table, a lever, connections between said lever and tank for raising and lowering the tank across the path of movement of the table, and means for guiding the tank during its raising and lowering movements.

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

WILLIAM H. BROADWAY.

Witnesses:

FRED L. WILCOX, Sr.,  
JOHN J. WILLIAMS.