

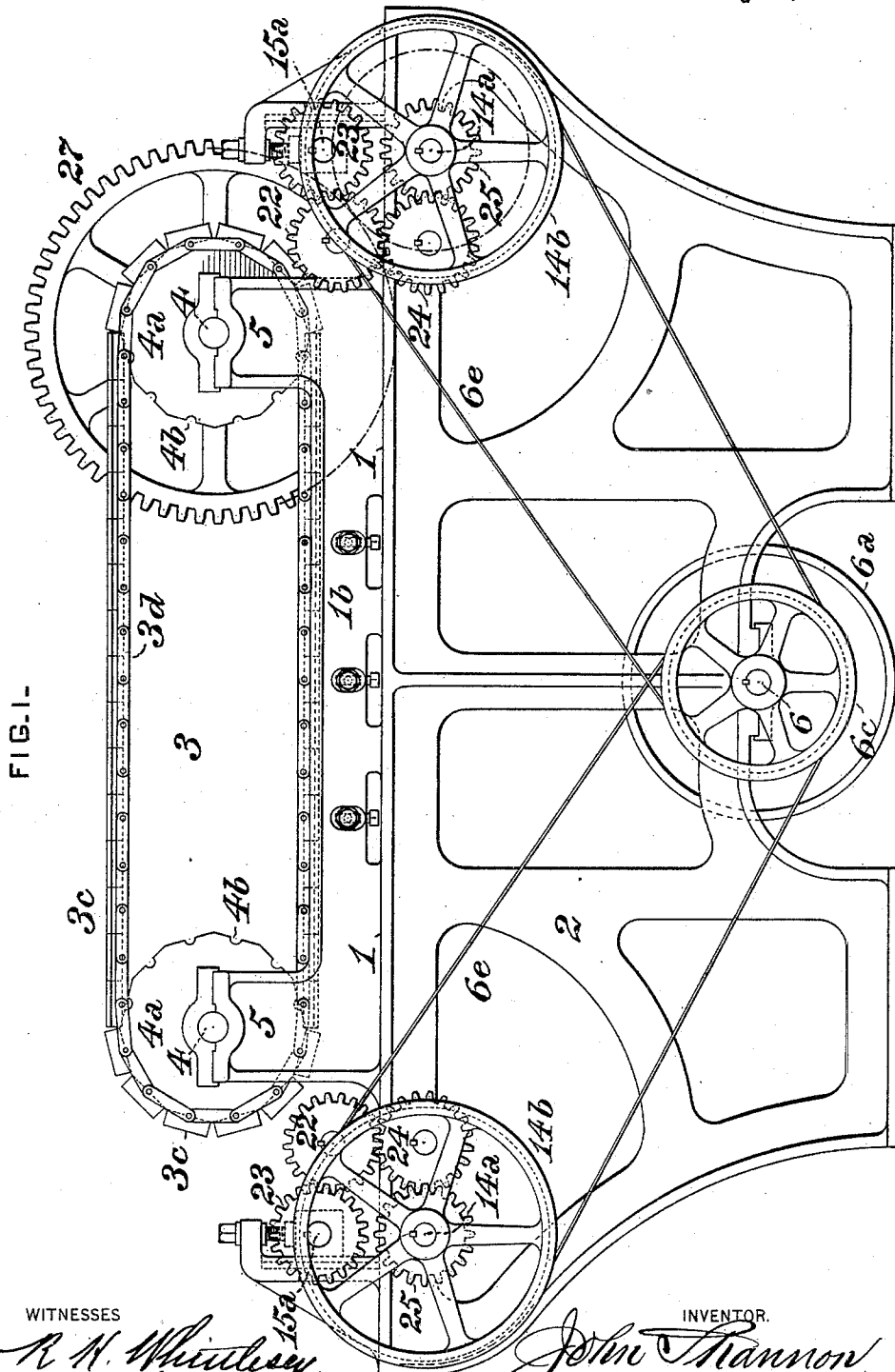
(No Model.)

5 Sheets—Sheet 1.

J. SHANNON.
WOOD GRAINING MACHINE.

No. 474,307.

Patented May 3, 1892.



WITNESSES

R. H. Whitley
F. E. Gaither

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John Shannon
By J. Snowden Bell
att.

(No Model.)

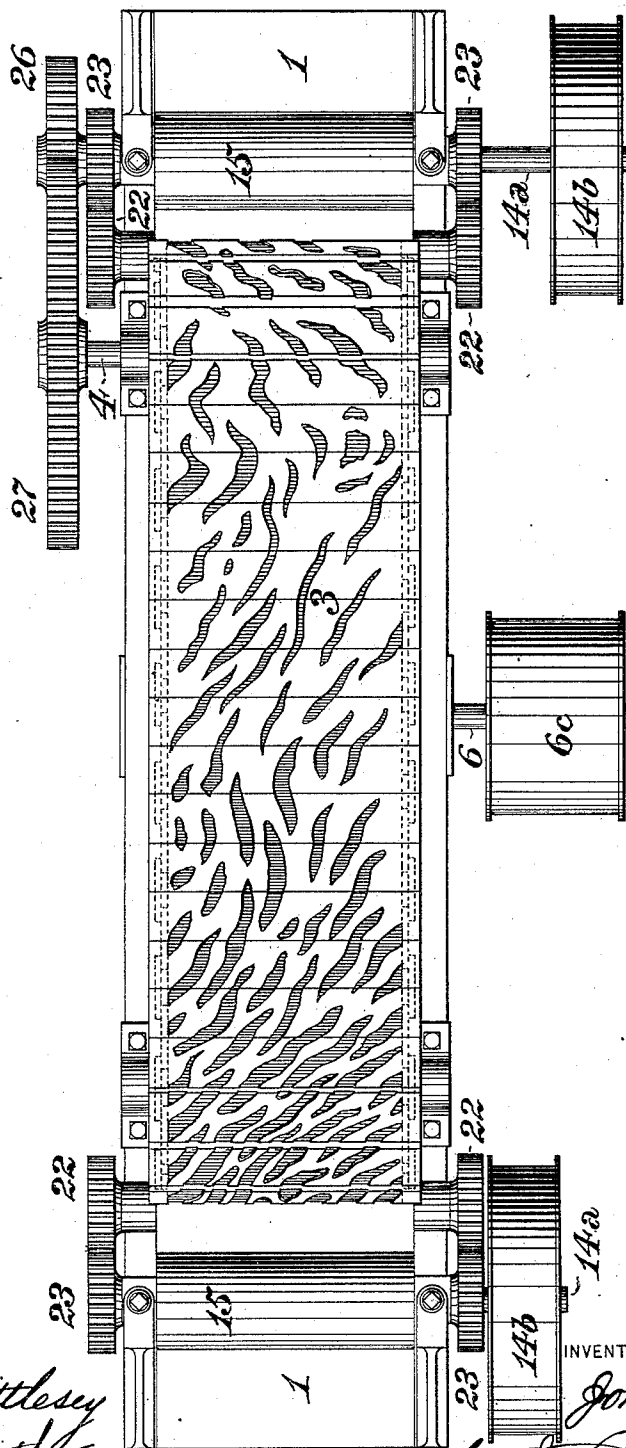
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FIG. 2.



WITNESSES.

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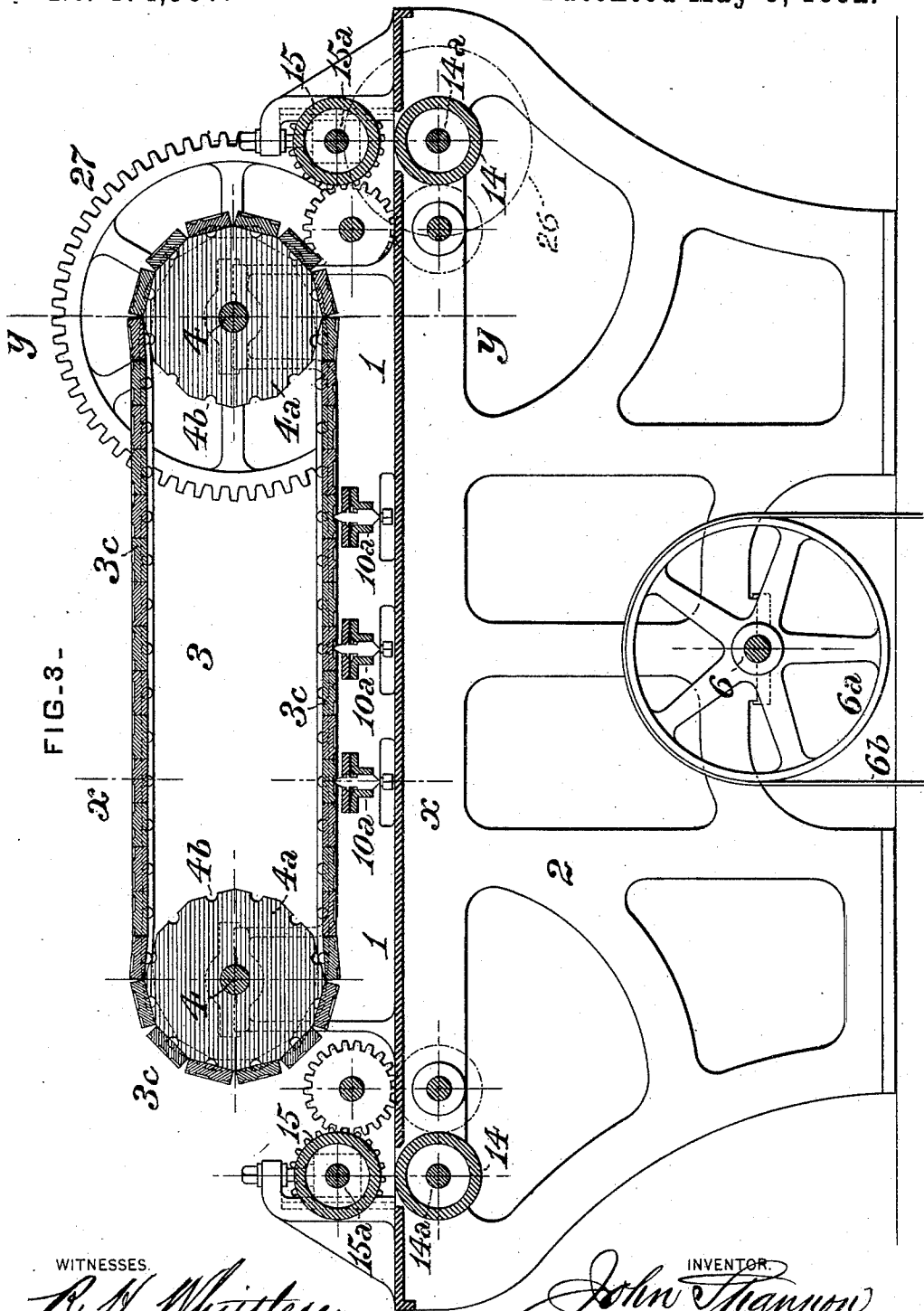
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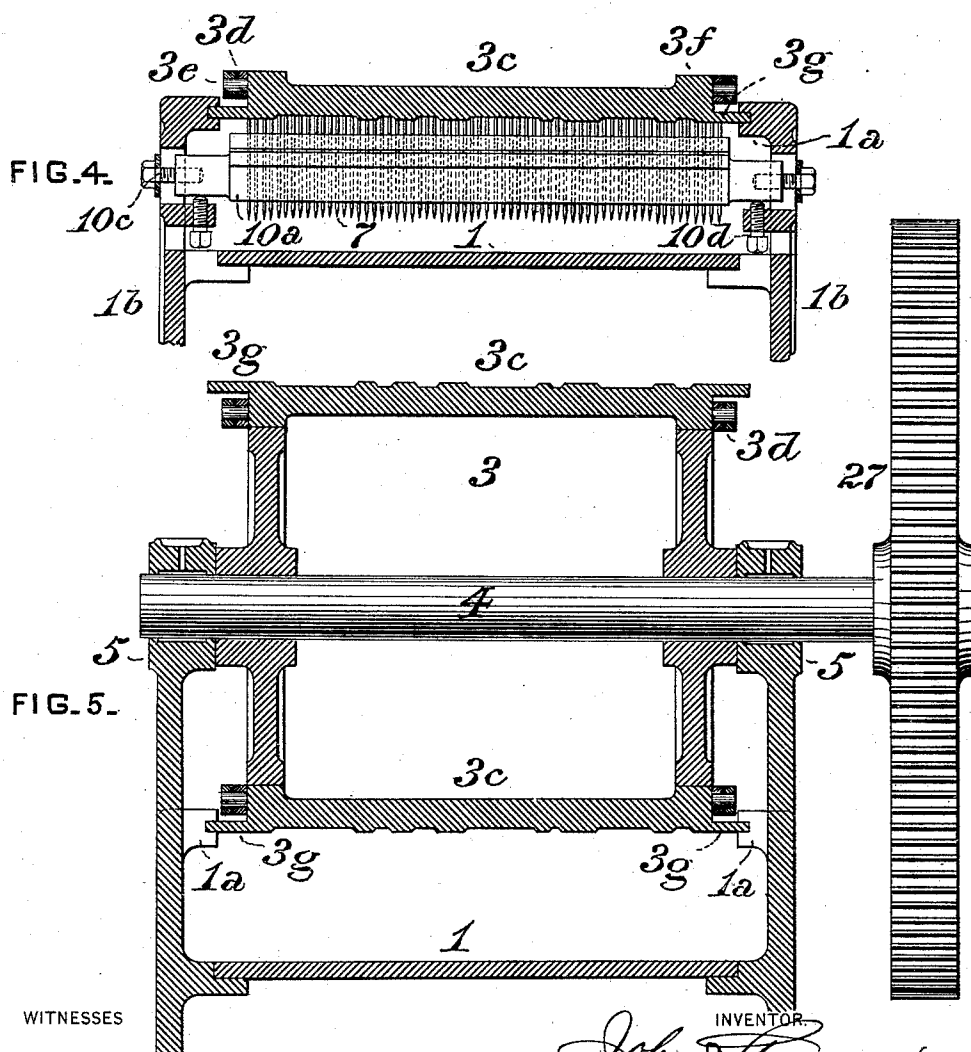
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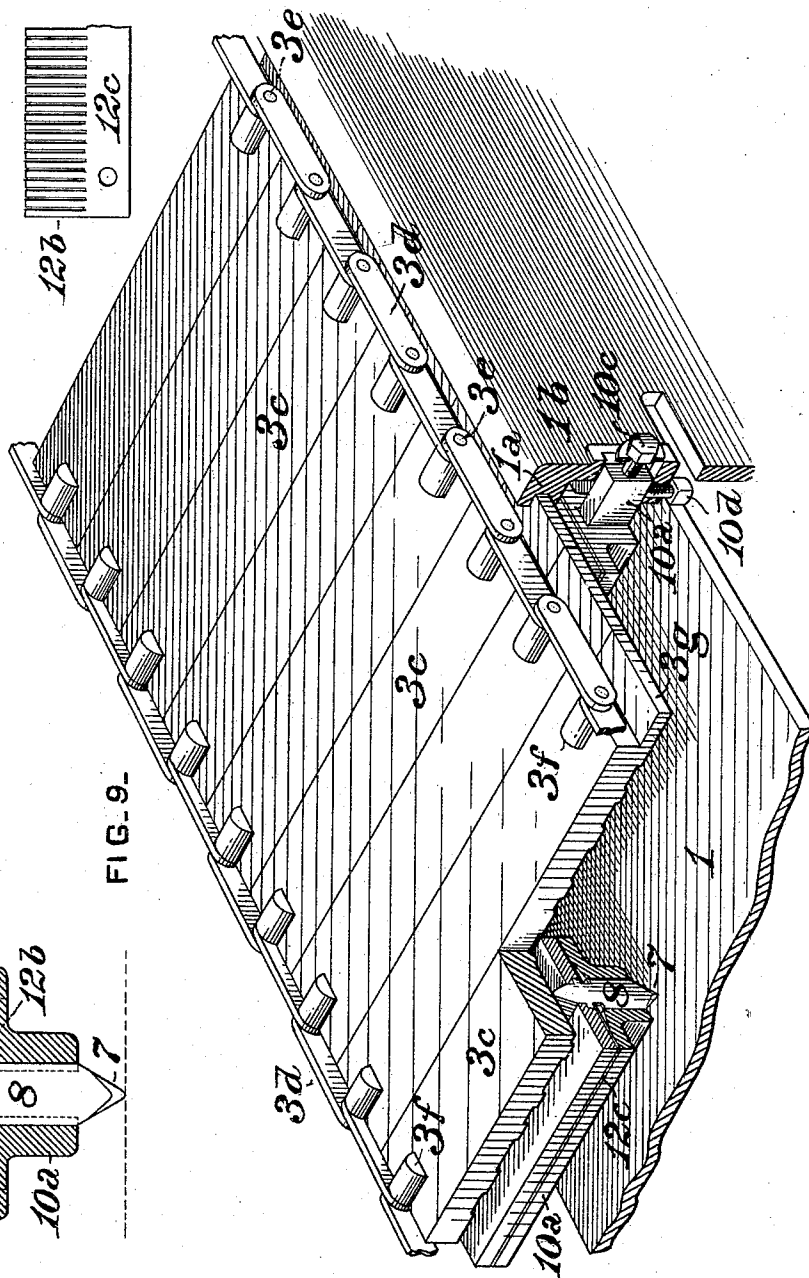
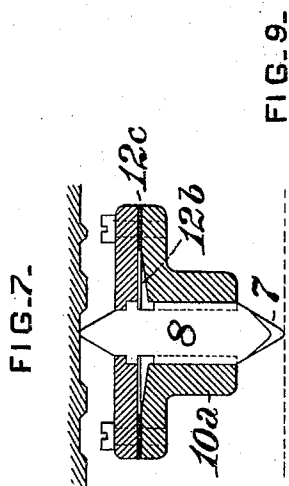
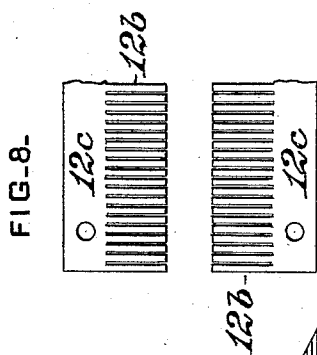
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WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN SHANNON, OF PITTSBURG, PENNSYLVANIA.

WOOD-GRAINING MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,307, dated May 3, 1892.

Application filed November 19, 1891. Serial No. 412,437. (No model.)

To all whom it may concern:

Be it known that I, JOHN SHANNON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Wood-Graining Machines, of which improvement the following is a specification.

My present invention relates to wood-graining machines of the class set forth in an application for Letters Patent of the United States filed by me under date of November 26, 1890, Serial No. 372,653; and its object is to enable graining of any desired degree of closeness or fineness to be effected with speed and accuracy, and without limitation ordinarily due to thickness of the scoring-blades and of the interposed guides or division pieces.

To this end my invention, generally stated, consists in the combination of an endless traversing belt design-plate having an embossed or relieved surface and two or more scoring-blade holders, each located transversely to the line of movement of the design-plate and fitted with a series of scoring-blades abutting continuously against the embossed or relieved surface of the design-plate, also, in means for guiding the working surface of the design-plate and maintaining its normal and operative bearing upon the scoring-blades and for effecting the relative lateral adjustment of the several series of scoring-blades. The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is side view in elevation of a wood-graining machine embodying my invention; Fig. 2, a plan or top view of the same; Fig. 3, a vertical longitudinal central section; Figs. 4 and 5, transverse sections on an enlarged scale through the design-plate and guide-frame at the lines *x x* and *y y*, respectively, of Fig. 3; Fig. 6, a similar section, but taken only through one of the slats or sections of the design-plate; Fig. 7, a transverse section on an enlarged scale through one of the scoring-blade holders; Fig. 8, a plan view of a portion of one of the spring-plates, and Fig. 9, an isometrical view partly in section, showing part of the design-plate and the relation of the guides and scoring-blade holders thereto.

In the practice of my invention I provide a

table or rest 1, which is preferably of metal, having its upper surface truly plane and is supported upon side frames or standards 2. The design-plate 3 upon the surface of which a pattern or representation of the design of graining which is to be reproduced, is embossed or formed in low relief in any suitable manner, is composed of a series of rectangular sections or slats 3^a, which are coupled one to another by links 3^b, engaging pins 3^c on the ends of the sections 3^a. Said sections are thereby connected in the form of an endless belt, which is fitted to traverse longitudinally above and parallel to the top of the table 1, being carried on and rotating with two end drums 4^a, fixed upon transverse shafts 4^b, which are mounted in bearings 5, adjacent to the ends of the table. Semicircular projections 3^d, formed upon the ends of the design-plate sections 3^a, engage corresponding recesses 4^b in the peripheries of the drums 4^a, one of which is rotated by the application of power, and consequently effects the longitudinal traverse of the connected design-plate sections. The movement of the design-plate is effected coincidentally with and at the same surface speed as is due to the rotation of two pairs of upper and lower feed-rolls 15 14, by which the strip of wood to be grained is fed along the table. The feed-rolls 14 are mounted in fixed bearings below the table, with their peripheries tangential to the upper surface thereof, and the rolls 15 are mounted in adjustable bearings above the table. A driving-shaft 6, mounted in bearings on the frame 2 of the machine, carries a driving-pulley 6^a, which is rotated by a belt 6^b, transmitting power from any suitable prime mover. The shaft 6 also carries a pulley 6^c and, through belts 6^c, passing around said pulley and around pulleys 14^b on the shafts 14^a of the lower feed-rolls 14, imparts rotation in similar direction to both of said shafts and rolls. Each of the shafts 14^a carries a pair of gears 25, meshing with a pair of gears 24, which in turn mesh with a pair of gears 22, and these with a pair of gears 23, fixed upon the shaft 15^a of the adjacent upper feed-roll 15. Rotation is imparted to one of the drums 4^a, around which the endless-belt design-plate passes, by means of a gear 26, fixed upon one of the lower feed-roll shafts 14^a, and engaging a gear 27, fixed

upon the shaft 4 of the adjacent drum. The proportions of the gearing are such that the feed-rolls and design-plate shall have the same surface speed. The lower part of the endless-belt design-plate 3 is held rigid and truly parallel to the surface of the table 1 during its traverse from one of the drums 4^a to the other by means of projections or flanges 3^e on the ends of the design-plate sections 3^c, said projections fitting and sliding longitudinally in guides 1^a, formed on the tops of vertical guide-frames 1^b, fixed to the sides of the table. It will be seen that the engagement of the projections 3^e and guides 1^a renders the series of design-plate sections which constitute the lower part of the endless-belt design-plate a rigid structure, preventing the sagging of said lower part and enabling it to transmit to the scoring-blades the required operating pressure.

In the machine which forms the subject-matter of my application Serial No. 372,653, aforesaid, a single series of scoring-blades set transversely to the line of traverse of the strip of wood to be grained is employed, and it will be seen that the degree of closeness or fineness of graining is consequently limited by reason of the thickness of the scoring-blades and of the guides or division-plates interposed between them. Under my present invention such limitation is removed and any desired degree of fineness of graining attained by the provision of multiple series of scoring-blades located in different vertical transverse planes in the machine, so that the spaces between the scores or incisions made by one series of blades may be scored or incised by the blades of the other series, the closeness and relation of the markings of the different series of blades being dependent upon the number and relative arrangement of the scoring-blades and of the several series of blades. To this end I provide two or more scoring-blade holders 10^a, which are fitted with the capacity of transverse and vertical adjustment in the guide-frames 1^b, the scoring-blade holders being set transversely to the line of traverse of the design-plate and the strip of wood to be grained in different vertical planes between the axes of the drums 4^a, on which the design-plate traverses. A series of scoring-blade stocks 8, having scoring-blades 7 formed upon their lower ends, is fitted to slide vertically in each of the scoring-blade holders 10^a, the stocks 8 abutting directly and continuously against the alternately raised and depressed portions of the surface of the design-plate and being reciprocated toward and from the surface of the table, respectively, by the pressure of the design-plate and by springs 12^b, formed upon spring-plates 12^c, fixed in the holders 10^a, the springs 12^b engaging notches or shoulders in the sides of the scoring-blade stocks and exerting upward pressure, by which the stocks are elevated to withdraw the points of the scoring-blades from the strip of wood which is fed beneath them

when and during the periods in which the depressed portions of the design-plate are brought opposite to the bearing points or faces of the stocks 8 thereon. The scoring-blade holders are set so that the scoring-blades of the several holders shall be alternated in position transversely, and the transverse adjustment of the holders to maintain the proper relation of the different series of blades is effected by means of set-screws 10^c, engaging threads in the ends of the holders 10^a and bearing against the guide-frames 1^b. Vertical adjustment of the holders is provided for by set-screws 10^d, engaging threads in the guide-frames and bearing against the lower sides of the scoring-blade holders.

I claim as my invention and desire to secure by Letters Patent—

1. In a wood-graining machine, the combination of a table or rest, an endless-belt design-plate having an embossed or relieved surface and fitted to traverse above the table, two or more scoring-blade holders, each located in a plane transverse to the line of movement of the design-plate, and a series of scoring-blades fixed upon stocks which are fitted to move toward and from the table in each of the scoring-blade holders, and which abut directly and continuously against the surface of the design-plate, substantially as set forth.

2. In a wood-graining machine, the combination of a table or rest, an endless-belt design-plate having an embossed or relieved surface and fitted to traverse above the table, two or more scoring-blade holders, each located in a plane transverse to the line of movement of the design-plate, devices for effecting the adjustment of the scoring-blade holders transversely to the line of movement of the design-plate, and a series of scoring-blades fixed upon stocks which are fitted to move toward and from the table in each of the scoring-blade holders and which abut directly and continuously against the surface of the design-plate, substantially as set forth.

3. In a wood-graining machine, the combination of a table or rest, an endless-belt design-plate having an embossed or relieved surface and fitted to traverse above the table, two or more scoring-blade holders each located in a plane transverse to the line of movement of the design-plate, devices for effecting the vertical adjustment of the scoring-blade holders, and a series of scoring-blades fixed upon stocks which are fitted to move toward and from the table in each of the scoring-blade holders and which abut directly and continuously against the surface of the design-plate, substantially as set forth.

4. In a wood-graining machine, the combination of a table or rest, an endless-belt design-plate having an embossed or relieved surface and fitted to traverse above the table, guiding devices for maintaining the rigidity of the part or side of the endless-belt design-plate nearest the table, two or more scoring-

blade holders each located in a plane transverse to the line of movement of the design-plate, and a series of scoring-blades fixed upon stocks which are fitted to move toward and from the table in each of the scoring-blade holders and which abut directly and continuously against the surface of the design-plate, substantially as set forth.

5. In a wood-graining machine, the combination of a table or rest, an endless-belt design-plate having an embossed or relieved surface and fitted to traverse above the table, drums carrying the ends of said endless-belt design-plate, feed-rolls and driving mechanism for effecting the traverse of a strip of wood to be grained upon the table, driving-gearing imparting rotation to one of the car-

rying-drums of the design-plate at such rate of speed as to substantially equalize the surface speeds of the design-plate and feed-rolls, two or more scoring-blade holders each located in a plane transverse to the line of movement of the design-plate, and a series of scoring-blades fixed upon stocks which are fitted to move toward and from the table in each of the scoring-blade holders, and which abut directly and continuously against the surface of the design-plate, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN SHANNON.

Witnesses:

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R. H. WHITTLESEY.