R. G. GUPTILL.

DEVICE FOR CARVING AND GAINING.

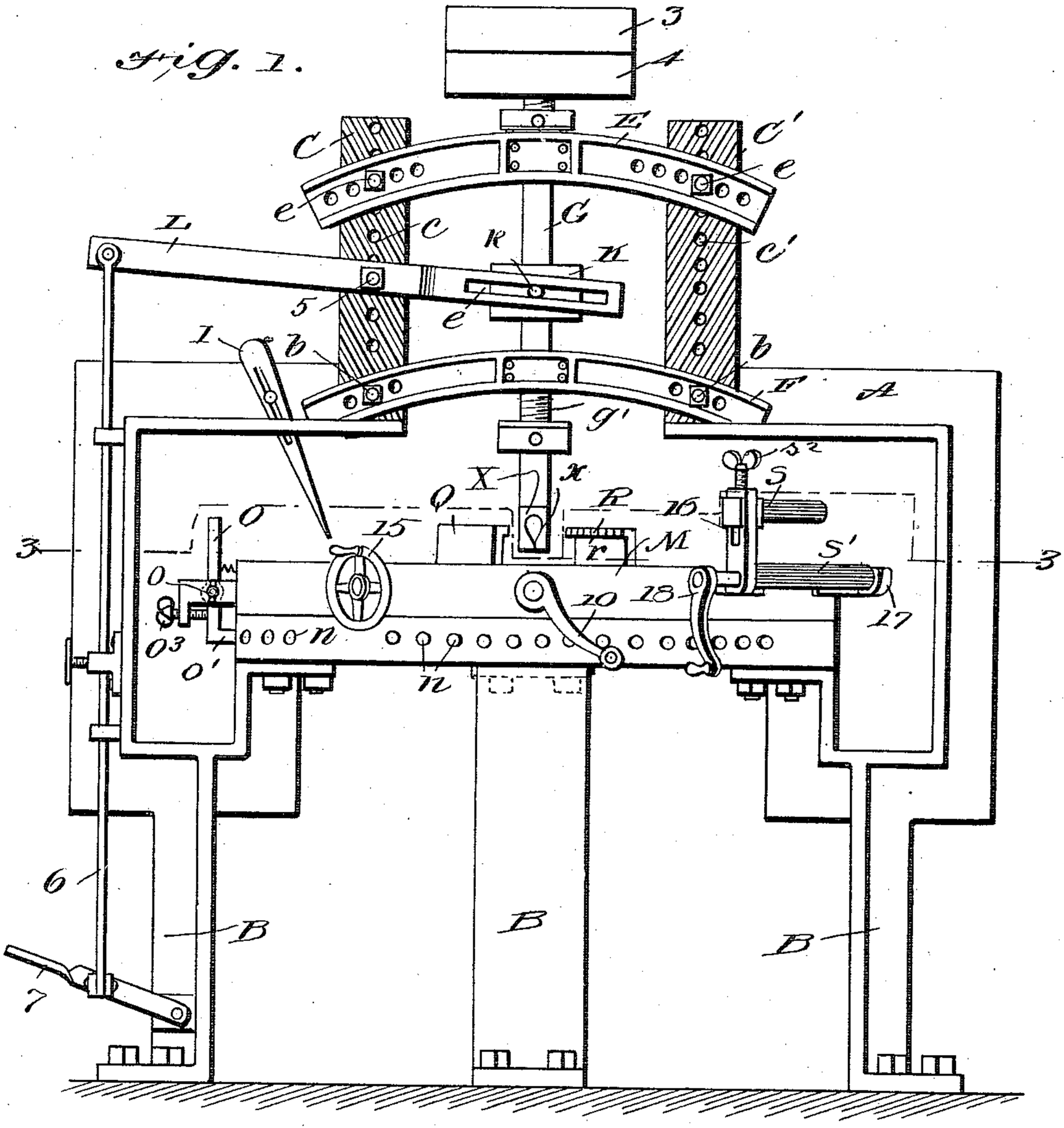
APPLICATION FILED JUNE 14, 1909.

995,454.

Patented June 20, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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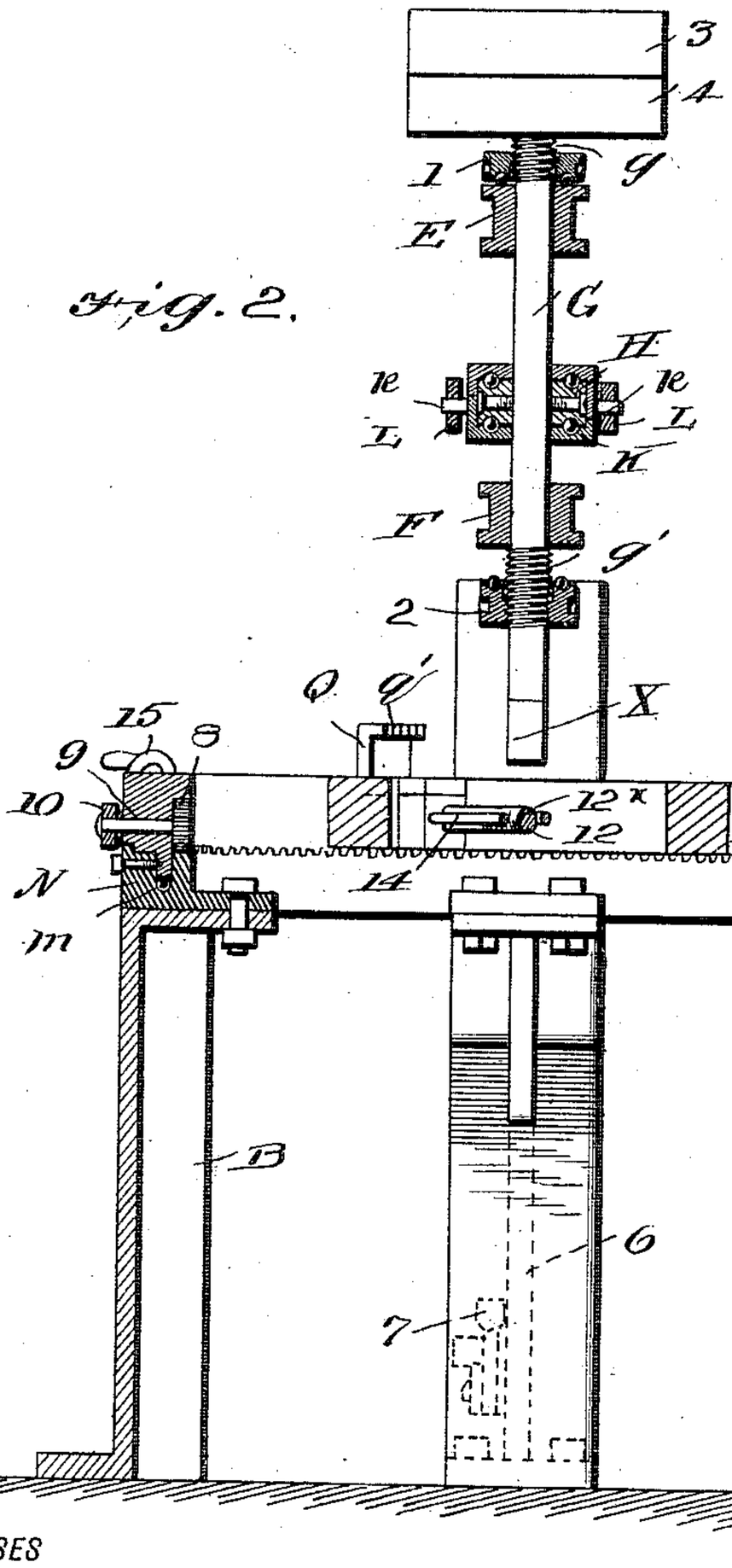
4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

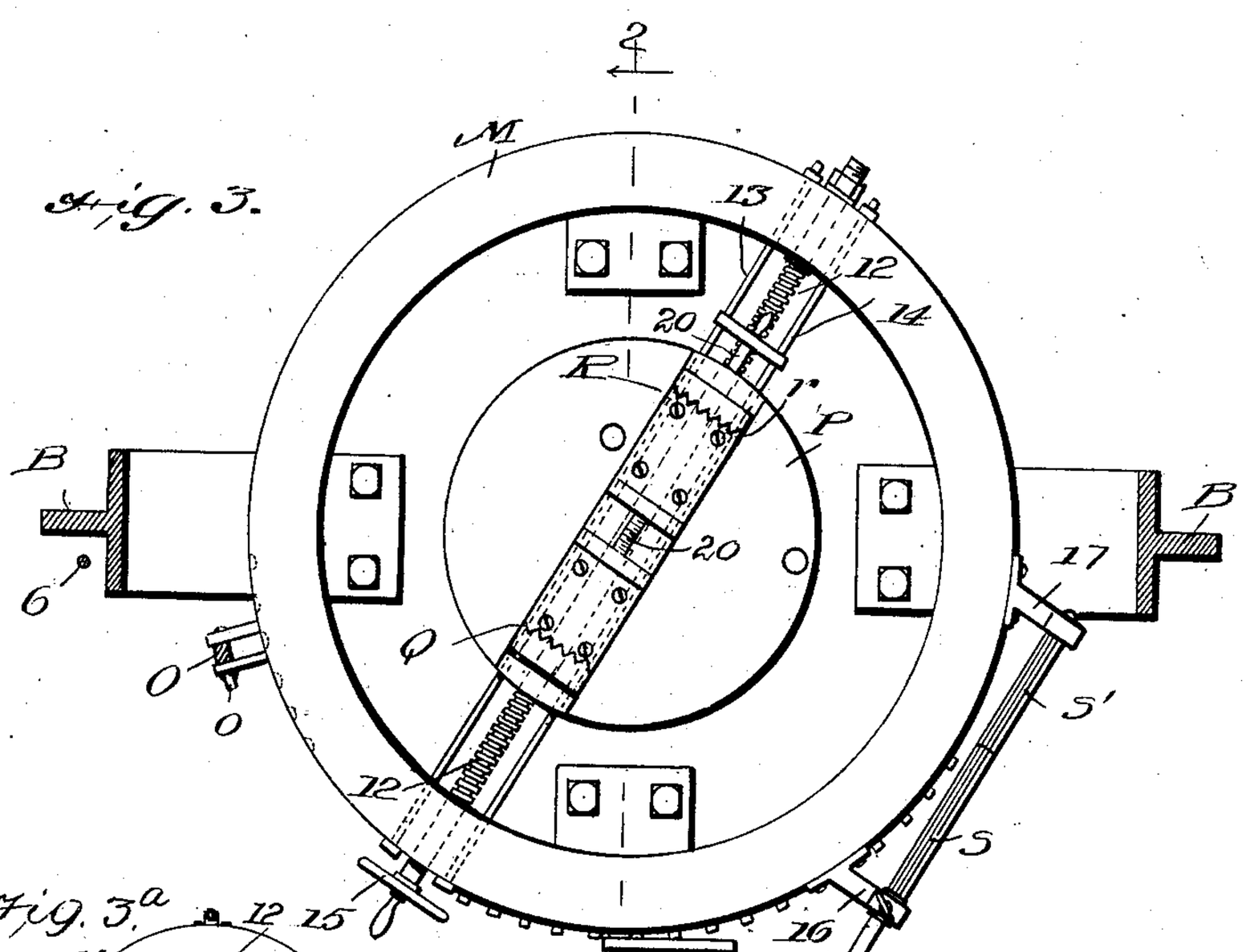


Fig. 3a.

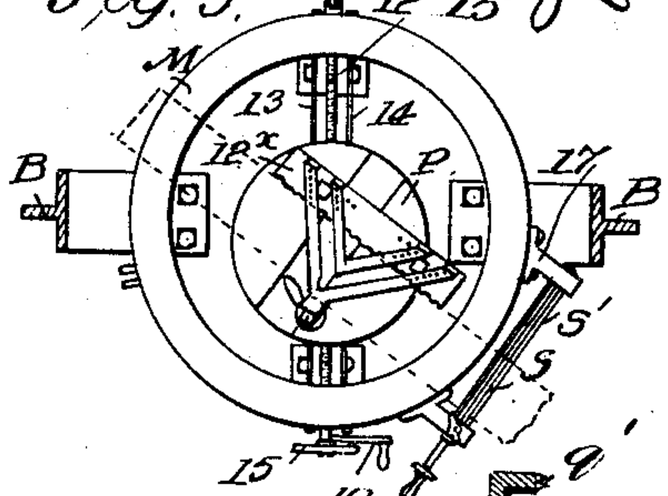
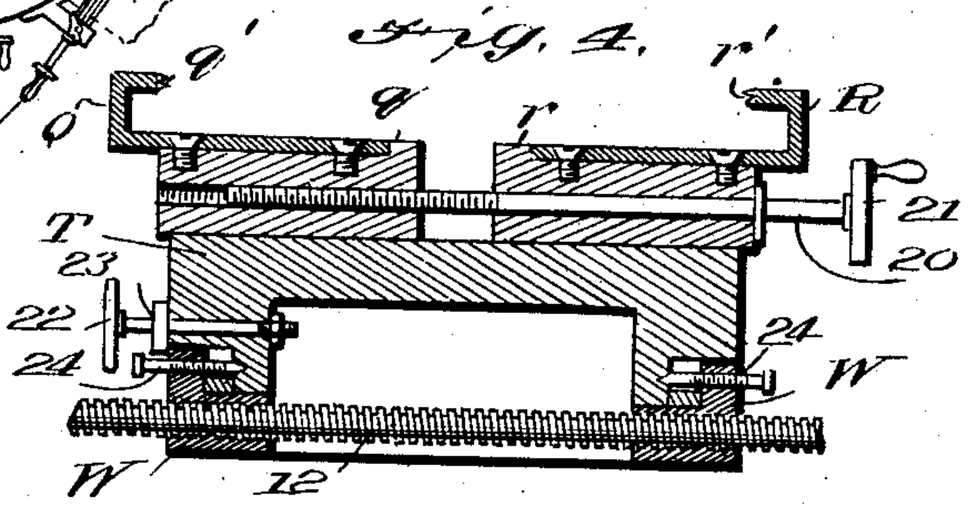


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

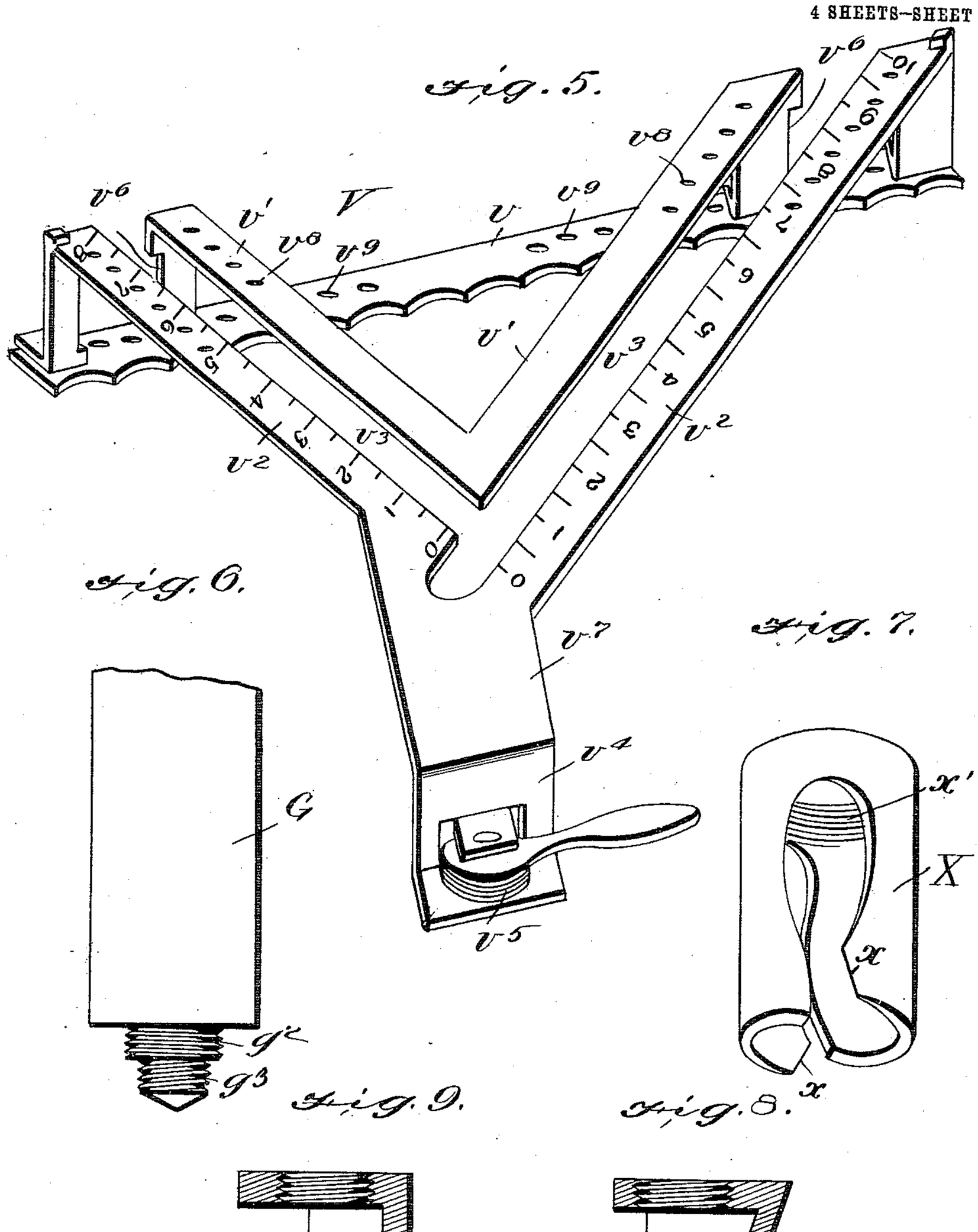
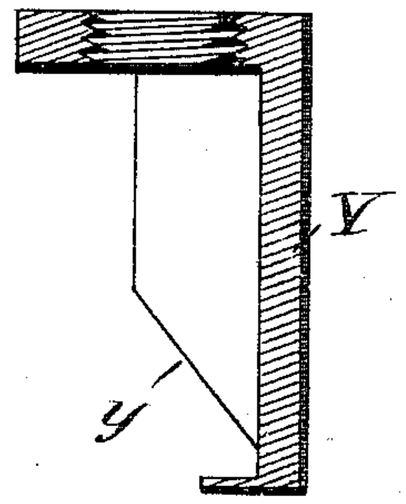


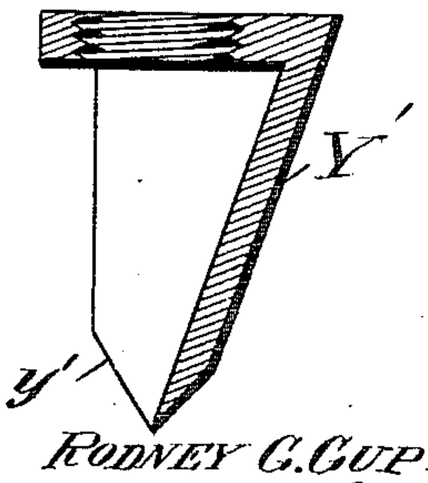
Fig. 6.

Fig. 7.

Fig. 9.

Fig. 8.





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UNITED STATES PATENT OFFICE.

RODNEY G. GUPTILL, OF RAVIA, OKLAHOMA.

DEVICE FOR CARVING AND GAINING.

995,454. Specification of Letters Patent. Patented June 20, 1911.

Application filed June 14, 1909. Serial No. 502,005.

To all whom it may concern:

Be it known that I, RODNEY G. GUPTILL, a citizen of the United States, and a resident of Ravia, in the county of Johnston and State of Oklahoma, have made certain new and useful Improvements in Devices for Carving and Gaining, of which the following is a specification.

My invention relates to improved means for the manufacture of stair strips and for the carving and gaining of other articles, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide means by which the carving or gaining can be done by machinery without necessitating the use of the saw, hammer, chisel or bit and brace.

A further object of my invention consists in the provision of the device by which stair strips may be gained and which will permit the movement of the stair strip in any direction thereby facilitating the operation.

A further object of my invention is to provide means by which the articles to be carved or gained may be held securely in place.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings in which similar reference characters denote like parts in the several views and in which—

Figure 1 is a side view of the device; Fig. 2 is a central vertical section through the device; Fig. 3 is a horizontal section along the line 3—3 of Fig. 1; Fig. 3ª is a view similar to Fig. 3, showing a modified means for holding the work and a guide member for guiding the work toward the cutter; Fig. 4 is a detail section of the clutch mechanism; Fig. 5 is a perspective view of the guiding means; Fig. 6 is a detail view of the lower end of the cutter shaft; Fig. 7 is a perspective view of a right-handed cutter; Fig. 8 is a sectional view of a left-handed single lip cutter; and Fig. 9 is a sectional view of a left-handed angular cutter.

In carrying out my invention, I provide a main frame-work A which may be of wood or iron or any other suitable material and is provided with the legs B. At the upper part of the frame-work are two vertically extending supports C and C′ which are provided with holes *c* and *c′*. These extensions C and C′ are for the purpose of supporting the arc-shaped bars E and F which carry the stub shaft G, to which the cutter head is attached. The bars E and F are capable of being raised or lowered and are held in place by means of the bolts *e* and *f* which are adapted to pass through the openings *c* and *c′* in the upright supports.

The construction of the stub shaft and its supports is shown in Fig. 2. The shaft is threaded at *g* and *g′* to permit the attachment of the ball bearing collars 1 and 2 respectively. The upper collar 1 is limited in its movement by the bar E and the shaft G may be kept from moving upwardly by adjusting the ball bearing collar 2 so as to engage the bar F. It will thus be seen that the upward and downward movement of the shaft and hence the depth of the cut may be regulated by the adjustment of these collars 1 and 2. At the top of the shaft G are two pulleys 3 and 4, the former being the driving pulley and being attached directly to the shaft and the latter being a loose pulley.

Disposed between the bars E and F on the shaft G is a ball bearing collar H which is secured to the shaft G and around which is a casing K provided with a pin *k* arranged to enter the slot *l* of the lever L which is pivoted at 5 to the upright C and whose free end is connected by means of the link or rod 6 to a foot-lever 7 pivoted on the support B. This construction permits of the rotation of the shaft G and of its movement upward and downward when the foot lever 7 is pressed upon.

The circular support for the material to be operated upon is shown at M. By reference to Fig. 2 it will be seen that this support turns on ball bearings *m* upon a lower section N. The part M is provided with a gear 8 on a shaft 9 which has a crank 10 on its outer end for rotating the shaft. The gear 8 is adapted to mesh with a circular rack 11 on the part N so that when the handle 10 is turned the upper supporting frame M will be rotated on the lower portion N. In order to lock the parts M and N in the adjusted positions of the former, I provide a spring actuated stop O which is pivoted on the upper member M at *o* and

whose bent end o' is arranged to enter openings n in the member N; also a thumb screw o^3 to hold the stop out of engagement with N when the latter is rotated.

Referring now to Fig. 3 it will be seen that there is an inner frame portion which I denote in general by P comprising the upper part T and the lower part W. This frame is carried upon the rods 12, 13 and 14. The rod 12 is journaled in the part N and is threaded from journal to journal with a right-handed block threaded screw, which fits snugly in the threads of the lower section W of the inner frame portion P, see Fig. 4. This screw operates to drive the frame P back and forth at will.

The upper part of the frame portion P is slotted to provide a runway for the clutch members Q and R. These clutch members are mounted on blocks q and r respectively which have openings through which the rod 20 extends. The block Q is threaded to engage threads on the rod 20 so that the block may be drawn toward or forced away from the block R thereby closing or separating the clutch members Q and R. The latter are provided with teeth q' and r' which are arranged to engage the article to be carved or gained. The upper part T of the inner frame P may be clamped to the lower part W by means of the handwheel 22 and the clamping blocks 23 or it may be permanently locked by means of the screws 24 which extend through the lower member W and are adapted to engage the upper member T as clearly shown in Fig. 4.

In order to support a board or other article to be carved I provide the rollers S and S′ which are secured in bearings 16 and 17 respectively. The lower roller S′ is supported by the bearings on each side while the upper roller S is journaled in the movable bearings provided with an adjusting screw s^2 in order to conform to the thickness of the plank. This construction permits the entrance of a board of considerable width. The lower roller S′ may turn by a handle 18.

The cutter head proper is shown in Figs. 7, 8 and 9. In Fig. 7 I have shown a double edge cutting head X in which it will be seen that the cutting edges x are curved outwardly. The head is threaded at x'. The cutting head X is arranged to be secured to the lower end of the stub shaft G. The latter is provided with two threaded portions on its lower end g^2 and g^3. The former is adapted to receive the form of head shown in Fig. 7 while the latter is arranged to receive the heads shown in Figs. 8 and 9 in which the cutting lip y and y' is arranged to revolve in the opposite direction. Figs. 8 and 9 show two modifications Y and Y′ of the cutter heads, either of which may be used, or various modifications of these shapes to suit the necessary demand. These cutters must be made from tooled steel $\frac{1}{4}$ inch thick by one inch wide at least, tempered to a light straw color.

Referring now to Fig. 5, I have shown therein a guide V by which stair gains may be cut. This guide consists of a base strip v to which are attached the L-shaped members V′ and V² respectively. The space v^3 between these strips forms the guiding slot. The strip v^2 has an extension v^7 provided with a downwardly depending flange v^4 bearing an eccentric clamping member v^5 with sharp corrugations thereon $\frac{1}{16}$ of an inch apart to prevent its slipping on the plank. In order to permit the entrance of the cutter head, I notch away the bent portions of the strips v' and v^2 at v^6 which prevents any injury being done to the cutter head. The guide V may be bolted directly to the inner frame portion P as shown in Fig. 3ª by means of bolts which pass through the holes v^9. These bolts are removed when working in soft wood such as pine, cypress etc. and the guide rail with its plank may be pushed by hand in any direction desired. An adjustable indicator is shown at I in Fig 1. This indicator is in the form of a pointer as shown in Fig. 1. It is mounted on the main frame A of the device, and may be swung inwardly or outwardly and may be raised or lowered. In using the indicator, the lower end is set immediately above one of the lines of the pencil pattern on the board, at the beginning of the cutting of the gain. When the board is moved to the next gain, the pointer, which has been left in its locked position, indicates the precise distance to which the board must be moved in order to bring the cutter in correct position for cutting the succeeding gain. After the indicator is once set it can be left in position until all of the gains are cut.

In using the device for the gaining of stair steps, the clutch members Q and R are removed from the device by running them out of their respective slides and the guide V is bolted to the top of the frame P in the manner shown in Fig. 3ª, so that when the plank is run in, it may lie between the eccentric v^5 and the teeth on the opposite base strip v. The marked portion of the plank is adjusted in position underneath the slots v^3 in the guide and is clamped in its position by means of the eccentric v^5 in the manner already explained. The top and bottom portions T and W of the frame P are secured together by means of the hand wheel 22, while the bars M and N are locked together by means of the spring actuated stop O. The cutter is now set for the depth of the gain by adjusting the ball bearings 1 and 2, the former limiting the downward movement of the shaft and the latter limiting the upward movement, as already explained. The cutter which has been located

at one end of the guide member V is now started, and in its rotation cuts the material from the plank. The frame P is moved so that the revolving cutter is kept in the guide slot by means of the handle 15. When the corner of the L is reached, the parts M and N are released as well as the parts W and T of the frame P. Now, by turning the handle 10, the circular support M and the lower part W of the frame P are rotated, while the plank may be held in its original position. In this instance, the rotation is 90°. The parts are then locked as before and by means of the handle 15 the cutter is made to operate. In order to make a clean cut, the operation may be reversed, and the cutter made to return back to its original position by a movement of the board and the guide member which holds it. The board may then be freed and run in to the next gain, and the operation may be repeated.

In carving, the clutches Q and R are used, as shown in Fig. 3, while the guide V is removed. The material to be carved is clamped between the jaws of the clutches Q and R by forcing these jaws together through the movement of the hand wheel 21 and screw 20. The operator now grasps the handle 10 with one hand, and the handle 15 with the other, while with the lever 7 he has control of the upward and downward movement of the cutter. Thus, he may rotate the article to be carved, run it back and forth by means of the handle 15 and make a deeper or a less deep cut by bearing on the foot lever 7. Of course, the ball bearing collars 1 and 2 must be adjusted so as to permit the free movement of the shaft and its cutter within limits.

I claim:—

1. In a device for gaining and carving, a stationary frame, a work support carried by said frame, said work support comprising an annular lower part secured to the frame and an annular upper part rotatably carried on said lower part, a pair of feed rollers carried by said annular upper part, guide rods carried by said upper part, a threaded rod carried by said upper part between said guide members, a supporting member carried by said guide rods and arranged to be moved relatively to said annular members by means of said screw, and a clamping device having teeth arranged at right angles to said feed rollers for securing the work.

2. In a device for gaining and carving, a stationary frame, a work support carried by said frame, said work support comprising an annular lower part secured to the frame and an annular upper part rotatably carried on said lower part, an inner supporting member movable relatively to said annular members, an L-shaped slotted guide member secured to said inner supporting member, and means carried by said guide member for clamping material to be worked.

3. In a device for gaining and carving, a stationary frame, a work support carried by said frame, said work support comprising an annular lower part secured to the frame and an annular upper part rotatably carried on said lower part, an inner supporting member movable relatively to said annular members, an L-shaped slotted guide member secured to said inner supporting member, means carried by said guide member for clamping material to be worked, a stub shaft carried by said frame and having a cutter adapted to enter the slot in said guide member, and means for raising and lowering said cutter.

4. In a device for gaining and carving, a stationary frame, a rotatable stub shaft carried thereby, means for raising and lowering said stub shaft, a cutter carried by said stub shaft, a movable annular work support carried by said frame, said annular work support comprising a lower annular member and an upper annular member movable relatively to the lower annular member, an inner supporting member relatively movable to said annular work support, a slotted guide member adapted to receive said cutter head, and means for locking the upper annular work supporting member to the lower annular work supporting member.

5. In a device for gaining and carving, a stationary frame, a rotatable stub shaft carried thereby, a foot lever for moving the stub shaft vertically, a rotary cutter carried by said stub shaft, means for adjustably securing said lever to said frame for varying the vertical movement of the stub shaft, a movable annular work support carried by said frame, said annular work support comprising a lower annular supporting member and an upper supporting member movable relatively to said lower member, an inner supporting member movable relatively to said annular work support, a slotted guide member adapted to receive said cutter head, and means for locking the upper annular work supporting member to the lower annular work supporting member.

RODNEY G. GUPTILL.

Witnesses:
J. G. HOSTETTER,
R. I. WILKINSON.