(No Model.)

W. J. TAIT.

SPIRAL FLUTING AND MOLDING MACHINE.

No. 284,512. Patented Sept. 4, 1883.

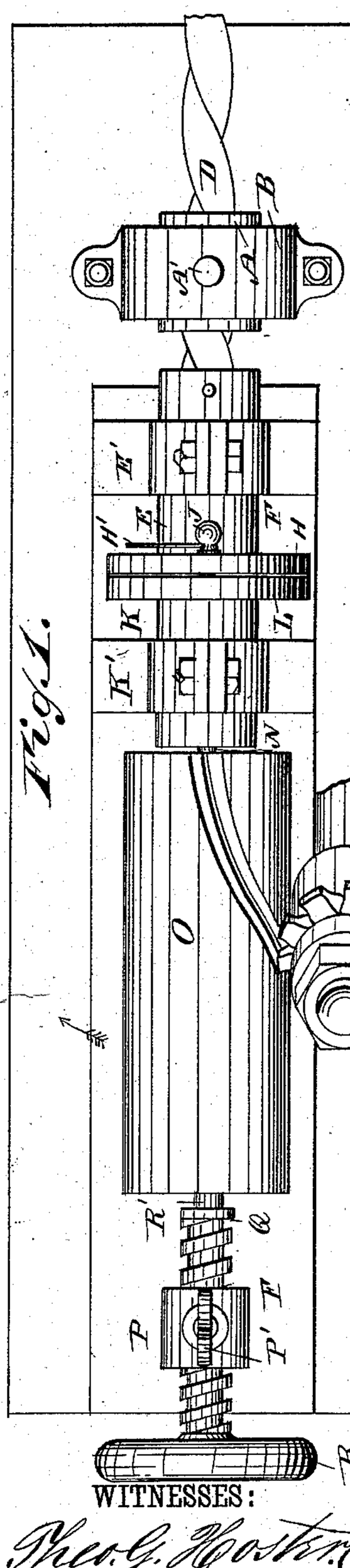

Fig. 1.

Fig. 3.

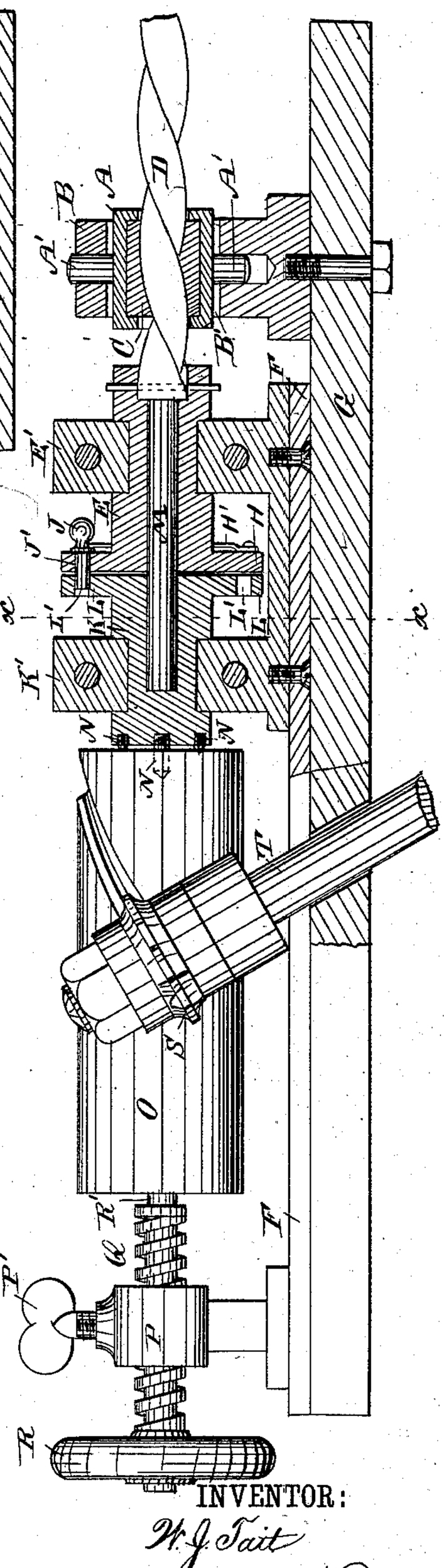

Fig. 2.

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SPIRAL FLUTING AND MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 284,512, dated September 4, 1883.

Application filed May 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. TAIT, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Spiral Fluting and Molding-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for cutting spiral fluting and moldings in banister and other rods, columns, posts, &c.

The invention consists of the combination and arrangement of parts substantially as hereinafter fully set forth and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved spiral fluting and molding machine. Fig. 2 is a longitudinal elevation of the same, parts being shown in section. Fig. 3 is a cross-sectional elevation of the same on the line *x x*, Fig. 2.

A nut, A, is provided with top and bottom pivots, A′, by means of which it is pivoted in a block or casing, B, in such a manner that it can swing in the horizontal plane on the said pivots. The opening B′ in the casing, in which opening the nut is contained, is larger than the nut, so that the nut can be moved vertically a short distance. The nut is provided with a spiral aperture, or contains a block, C, of Babbitt metal, in which the spiral aperture is formed. A spirally-twisted blade or rod, D, passes through the spiral opening in the nut, and has one end fastened to one end of a short shaft, E, journaled in a standard or bearing, E′, secured on a base-plate, F, resting on and adapted to slide on a table, G. The shaft E is provided at the end opposite the one to which the spiral rod D is fastened with a disk, H, to which a spring, H′, is fastened, in the end of which a pintle, J, is fastened, which passes through an aperture, J′, in the disk. In a standard or bearing, K′, also secured on the base-plate F, a short shaft, K, is journaled, which is provided on one end with a disk, L, adjoining and facing the disk H, which disk L is provided with a series of apertures, L′, or recesses arranged in a circle in such a manner that the pintle J can pass into the said apertures. A rod, M, held in the shaft E, is connected with the twisted rod or blade D and passes loosely into the shaft K, for the purpose of holding the shafts E K centrally in corresponding positions. The shaft K is provided, on the end opposite the one provided with the disk L, with a series of spikes, N, which can be forced into one end of the rod O, to be fluted or molded. On that end of the base-plate F, opposite the one on which the standards E′ K′ are fastened a bearing, P, is fastened, through which a screw-spindle, Q, passes, which is provided on the outer end with a hand-wheel, R, and on the inner end with a point, R′, or an analogous device adapted to be forced into the end of the rod O. The block B is secured on the table G. The cutter S, which is of any desired shape, according to the section of the fluting or molding desired, is mounted on an inclined rotary shaft, T, the said shaft being inclined in such a manner that the plane of the cutter will be parallel with the longitudinal axis of the spiral groove at the point at which the cutter cuts into the rod. The shaft T is journaled in suitable journal-boxes secured to the frame of the table. The bearing P is provided with a binding-screw, P′, for locking the screw-spindle Q in position.

The operation is as follows: The rod O, to be fluted or molded, is held centrally between the screw-spindle Q and the shaft R, and the base-plate F is moving in the direction of the arrow *a′*, so that the cutter S can cut into the rod. The disks H L are locked together by means of the pintle J, which is held in one of the apertures L′, so that the shaft E can turn the shaft K. The base-plate F is then moved by hand in the direction of the arrow *b′*, and thereby the spiral blade or rod D will be drawn through the spiral opening in the nut or in the block C, and will be rotated while moving in the direction of the arrow *b′*. Thereby a spiral movement will be given to the shafts E K and rod O. As the rod O moves spirally past the cutter S, a spiral groove will be cut into the rod. When a groove is finished, the base-plate F is moving in the inverse direction of the arrow *a′* to disengage the cutter from the rod, and then the base-plate is moved back in the inverse direction of the arrow *b′*. The pintle J is withdrawn from the aperture L′, in the disk L, and the shaft R and the rod O are turned independently of the shaft E the distance

the grooves are to be apart. The disks are locked together again, and then the base-plate F is moved back in the direction of the arrow *a'*, and another groove is cut, and so on. The pintles A' permit of swinging the base-plate F in the direction of the arrow *a'* and the reverse of this direction. The vertical play of the nut A is provided in view of possible irregularities in the rod O.

I am aware that it is old, broadly, to employ a shaft adapted to hold one end of the rod to be turned, together with another shaft attached to a spiral guide-rod or blade, and devices to lock the two shafts together.

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

1. In a spiral fluting and molding machine, the combination, with a spiral rod or blade connected with a device for feeding the rod to be fluted or molded, of a nut pivoted at the top and bottom and provided with a spiral aperture, through which the spiral rod or blade can pass, substantially as herein shown and described, and for the purpose set forth.

2. In a spiral fluting and molding machine, the combination, with the spiral rod or blade D, of a rod-holding device connected with the said rod or blade D, the nut A, pivoted at the top and bottom in a block or casing, B, and provided with a spiral aperture, through which the blade or rod D passes, substantially as herein shown and described, and for the purpose set forth.

3. In a spiral fluting and molding machine, the combination, with the spiral rod or blade D, connected with devices for holding the rod to be fluted or molded, of the nut A, provided at the top and bottom with pivots A', and of the block or bearing B, having an aperture, B', larger than the nut A, which is pivoted in the block, the nut A, having a spiral aperture, through which the blade or rod D passes, substantially as herein shown and described, and for the purpose set forth.

4. In a spiral fluting and molding machine, the combination, with the spiral rod or blade D, of the pivoted nut A, the block C, of Babbitt metal, contained in the nut, and of a device for holding the rod to be fluted or molded, which device is connected with the rod or blade D, substantially as herein shown and described, and for the purpose set forth.

5. In a spiral fluting and molding machine, the combination, with the shaft K, adapted to hold one end of the rod O to be fluted or molded, the disk L, formed in one end of the shaft K, and provided with apertures L' or recesses, the shaft E, provided with a disk, H, the spring H' on the same, and the pintle J on the free end of the spring, substantially as herein shown and described, and for the purpose set forth.

6. In a spiral fluting and molding machine, the combination, with the sliding base-plate F, of devices for holding the rod O to be fluted or molded secured on the plate, the spiral blade or rod D, secured to the devices for holding the rod O, and the pivoted nut A, provided with a spiral aperture, through which the said spiral blade D passes, substantially as herein shown and described, and for the purpose set forth.

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