(No Model.)

3 Sheets—Sheet 1.

G. JULIAN.

SOLE ROUNDING MACHINE.

No. 528,128. Patented Oct. 23, 1894.

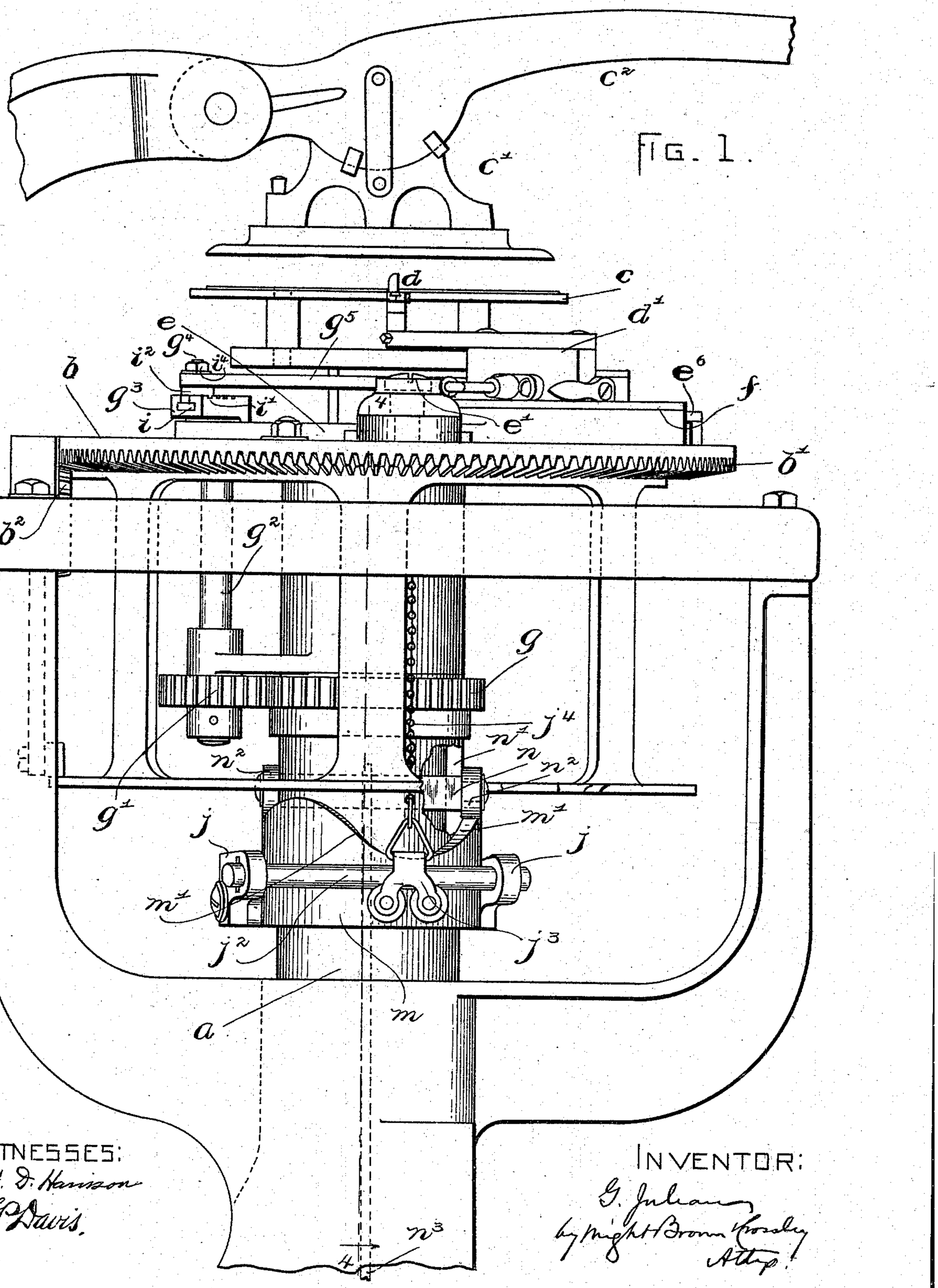

FIG. 1.

WITNESSES:

A. D. Harrison

F. P. Davis.

INVENTOR:

G. Julian

by Wright Brown Quinby & Atty's

(No Model.) 3 Sheets—Sheet 2.

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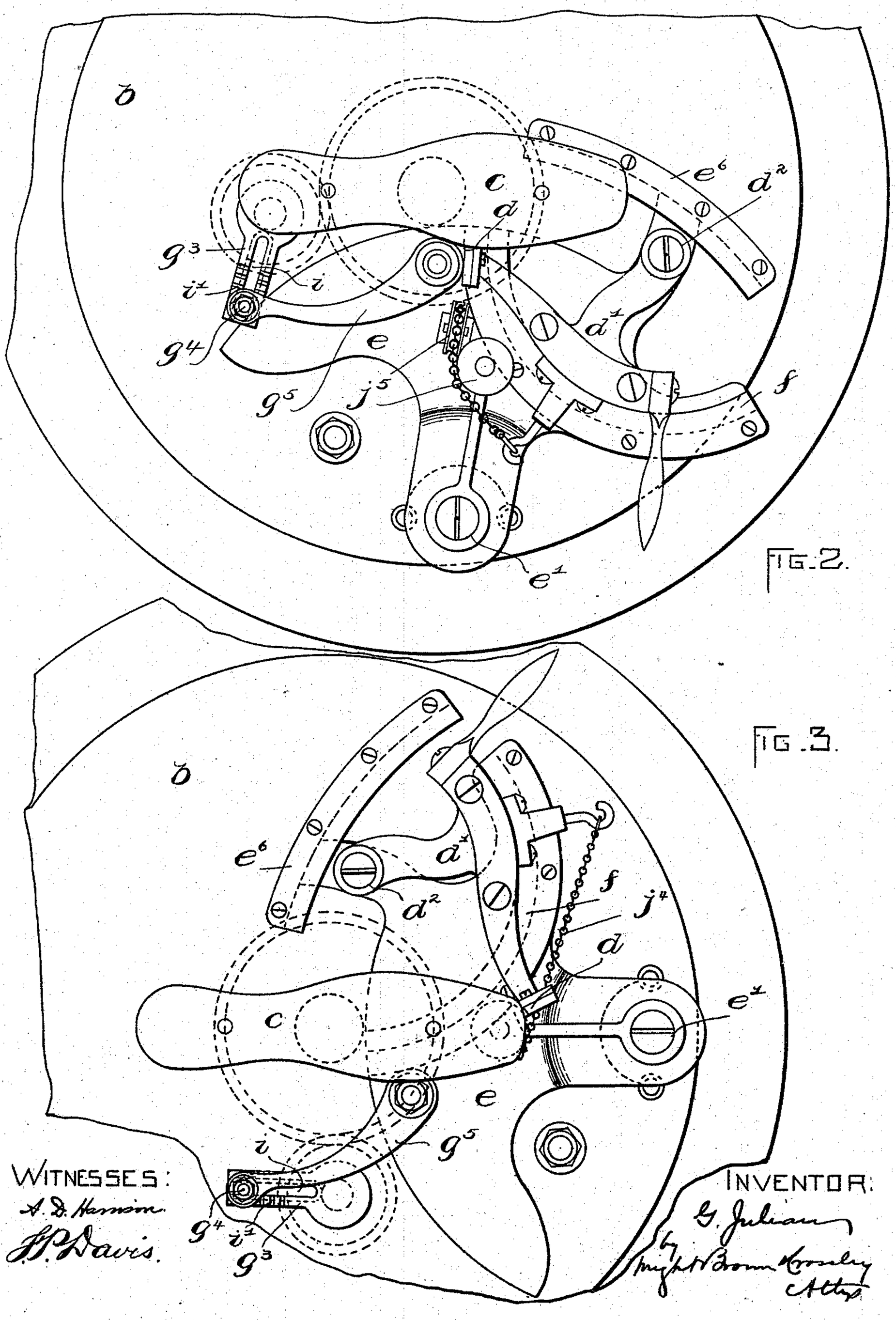

FIG. 2.

FIG. 3.

WITNESSES:
A. D. Harrison
F. P. Davis.

INVENTOR:
G. Julian
by Wright Brown Quinby & Otis
Attys

(No Model.) 3 Sheets—Sheet 3.

G. JULIAN.

SOLE ROUNDING MACHINE.

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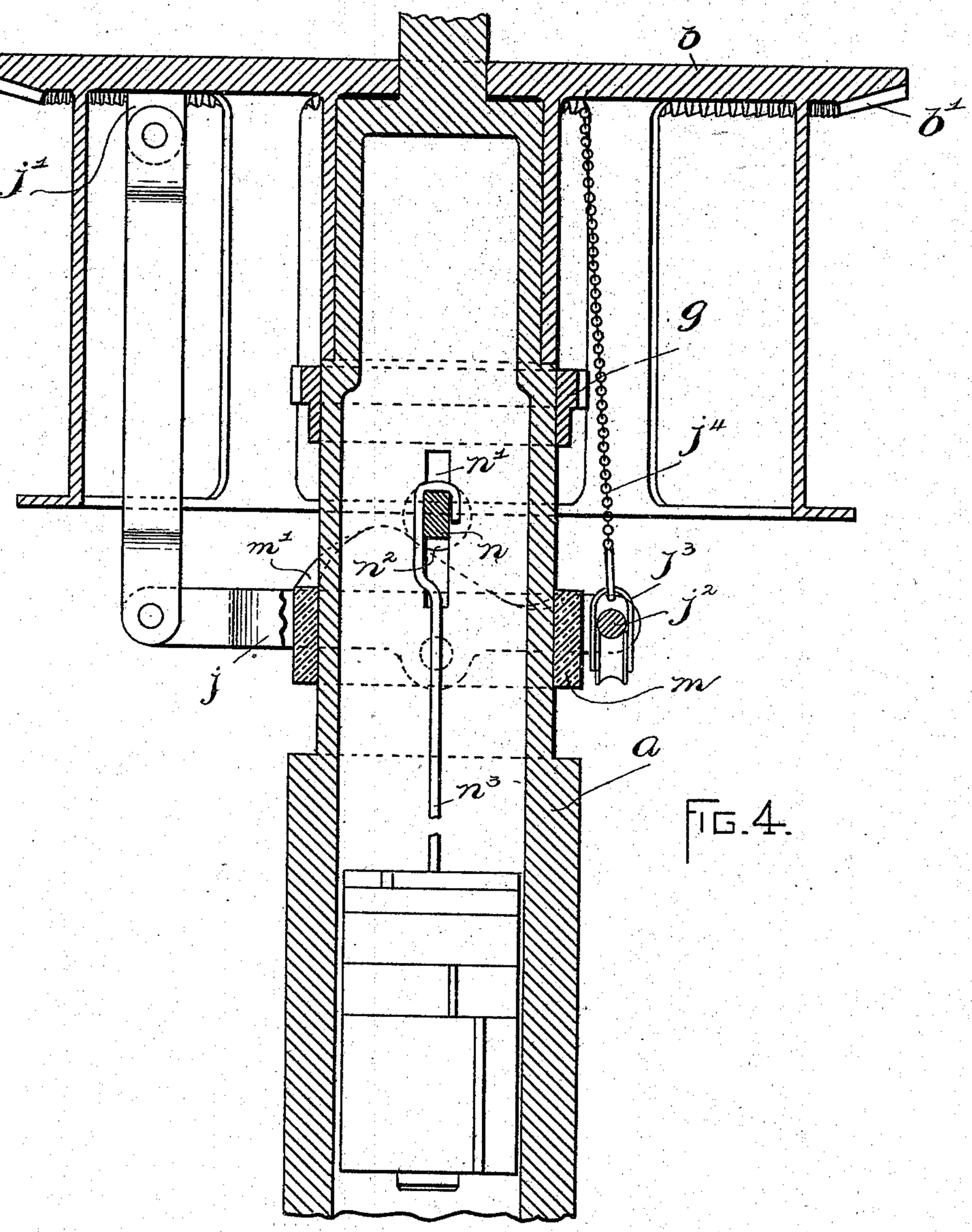

FIG. 4.

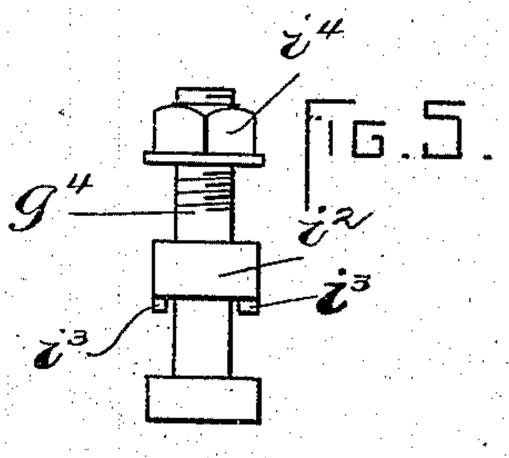

FIG. 5.

WITNESSES:

A. D. Harrison

F. P. Davis.

INVENTOR:

G. Julian

by Wright Brown Quinby & Allyn.

UNITED STATES PATENT OFFICE.

GIDEON JULIAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO S. M. FAY, OF SAME PLACE, AND CHARLES S. HULL, OF NEWTON, MASSACHUSETTS.

SOLE-ROUNDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,128, dated October 23, 1894.

Application filed March 3, 1894. Serial No. 502,175. (No model.)

To all whom it may concern:

Be it known that I, GIDEON JULIAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole-Rounding Machines, of which the following is a specification.

This invention relates to certain improvements in sole-rounding or trimming machines, such as employed in making soles for boots and shoes.

One object of the invention is to provide less complicated and more practical and efficient means than heretofore devised for producing the desired variation in rate of travel of the knife, involving acceleration of the same over the longitudinal sides of the work, and retardation thereof when rounding the ends of the work where more or less abrupt turns are made.

Another object of the invention is to secure a better effect of the weight employed to hold the knife to the form, by insuring quicker action and thereby making the knife's travel absolutely accurate and positive.

To the above ends, the invention may be said to consist in the combination of a rotary table, a knife-carrier pivoted thereon, a fixed gear, and a planet-gear carried by the table and meshing with the fixed gear, said planet-gear having a crank which is connected with the knife-carrier.

The invention further consists in the combination of a rotary table, a pivoted knife-holder thereon, a lever carried by the table and connected with the knife-holder, a cam supported by a said lever, a bearing-piece resting on the cam, and a weight suspended from the said bearing-piece.

The invention also includes incidentals to the above, all of which are fully described hereinafter and pointed out in the claims.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 shows a side elevation of the machine. Fig. 2 shows a top plan view, with the knife at a point in its traverse of one side of the work. Fig. 3 shows a similar view, with the knife at one corner of the toe end of the work. Fig. 4 shows a vertical section on line 4—4 of Fig. 1. Fig. 5 is a detail hereinafter referred to.

The same letters of reference indicate the same parts in all the figures.

In the drawings: the letter a designates a column, which supports a rotary table b, having a bevel-gear b' formed on its under side and engaged by a driving-pinion b^2. A form c is fixedly supported above the table centrally thereof, and the leather blank is held thereon by a clamp c', which is operated by a lever c^2. The cutting-knife d is suitably supported in a holder d', which is pivoted at d^2 to a segmental carrier e, the latter being pivoted at e' to the table b. The holder is yieldingly actuated toward the form c through devices hereinafter described, so as to hold the knife to the edge of the form. The rotation of the table carries the knife around the form, which properly guides it through the work.

The knife-holder is confined and firmly guided in movement on its pivot by an arc-shaped gib f, fastened to the carrier e, and the latter is similarly confined by a gib e^6 fastened to the table.

It is found desirable in this class of machines to vary the rate of travel of the knife, in view of the shape of the product. The long sides offer opportunity for speeding the knife, whereas in turning the abrupt corners of a square toe, so called, and in rounding the heel, the cutter must be retarded, and in fact the cutter should dwell momentarily in turning the corner of the square toe. The swiveled carrier e is employed to effect the variation in speed by movement on its pivot, which in one direction accelerates the knife and in the opposite direction retards the knife. My invention is directed toward providing improved means for controlling this swiveled carrier, whereby I am enabled to make more abrupt turns than have heretofore been possible, and accelerate the knife in greater degree than heretofore.

A fixed gear g is arranged below the table and concentric therewith, and a smaller gear g' meshes therewith and is supported in a

bearing on a hub of the table so as to be carried around the fixed gear by the table, the said two gears g and g' constituting what is known as a "sun and planet" gearing. The stem or spindle g^2 of the planet-gear g' extends up through the table, and a crank g^3 is affixed to it and carries a wrist-pin g^4. This wrist-pin is connected by a pitman g^5 with the carrier e. It will be seen that the stroke of the crank in one direction tends to move the said carrier on its pivot in that direction, and the crank's stroke in the opposite direction tends to move the said carrier correspondingly.

The fixed or "sun" gear g has twice as many teeth as the "planet" gear, and hence the latter makes two complete revolutions in describing its orbit about the fixed gear. The relative location of the form c and the knife-controlling parts is such that the knife traverses the longitudinal sides of the form during the crank's stroke which moves the carrier in the same direction that the table carries it, and hence accelerates the speed of the knife; whereas the knife turns the ends of the form during the crank's stroke in the reverse direction to that in which the table moves, and hence retards the carrier and consequently the knife.

The crank's throw may be varied to suit different forms which may be used, the construction here shown for accomplishing this being as follows: The crank has a longitudinally-extending T-shaped groove i, and the wrist-pin has a correspondingly-formed head engaging said groove. The crank is formed on either side of the slot with a series of notches i', and a collar i^2 on the wrist-pin has lugs i^3 for engagement with the notches. (See Fig. 5.) A nut i^4 on the pin provides means for locking the pin at different adjustments.

It will be seen that my arrangement does away entirely with the cam which has heretofore been employed to control the swiveled carrier.

As hereinbefore stated, my invention contemplates, in addition to the above, improved means for holding the knife up to the form, and these will now be described. A forked lever j is pivotally connected at one end with a bearing j' on the under side of the table, and its arms extend on opposite sides of the column a, and their ends are connected by a rod j^2, which is embraced by a roller-provided traveler j^3, the latter being connected by a chain j^4 with the knife-holder d, and the chain passing over suitably-arranged pulleys j^5. A similar arrangement is shown in a former patent, granted to me February 17, 1891, No. 446,686, and in the construction there shown, the lever carries a ring, which is designed to move longitudinally and to rotate on the central column; and another ring rests upon it but is non-rotatable, and carries a cross-piece from which a weight is suspended. In this arrangement, the weight moves up and down, as the knife follows the form, the downward movement taking place when the knife traverses the shank of the form. I have found that, under this arrangement, the tardiness of the weight is objectionable, and have therefore devised a construction which overcomes this difficulty. A collar m loosely surrounds the column a, and has trunnions which journal in the arms of the lever j, and the upper surface m' of said collar is given an undulating cam-form, there being two diametrically opposite depressions and corresponding rises. A cross-bar n extends through slots n' in opposite sides of the column, and its protruding ends are provided with rollers n^2, which rest on the cam m'. A weight is suspended by a rod n^3 from the said bar n. It being understood that the collar m rotates around the column with the table, it will be seen that a proper relative location of parts will cause rises in the cam-surface to act on the rollers when the knife moves into the shank-portions of the form, and depressions in the cam permit the outward movement of the knife. The cam takes up the up-and-down motion of the weight which would otherwise occur, so that there is little if any movement of the weight.

The co-action of the cam and the weight effects a prompt and positive adaptation of the knife to the contour of the form.

It is evident that the invention here disclosed is capable of embodiment varying more or less from that here illustrated, and hence is not limited in this respect.

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

1. A sole-rounding machine, comprising in its construction a rotary table, a knife-carrier pivoted on the table, a stationary gear, and a planet-gear carried by the rotary table and meshing with said fixed gear, said planet-gear having a crank which is connected with the knife-carrier.

2. A sole-rounding machine, comprising in its construction a rotary table, a knife-carrier pivoted on the table, a stationary gear, a planet-gear carried by the rotary table and meshing with said fixed gear, said planet-gear having a crank, and a pitman connecting the knife-carrier and the said crank and adjustably connected with the latter.

3. A sole-rounding machine, comprising in its construction a rotary table, a knife-holder pivoted thereon, a lever carried by the table and connected with the said holder, a cam carried by said lever, a bearing-piece resting on the cam, and a weight suspended from said bearing-piece.

4. A sole-rounding machine, comprising in its construction a supporting column, a rotary table, a pivoted knife-holder thereon, a lever pivoted to the under side of the table and

embracing the column, a flexible connection between the lever and the knife-holder, a cam encircling the column and supported by the lever, a cross-bar extending through the column and bearing on the cam, and a weight suspended from the said cross-bar.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of December, A. D. 1893.

GIDEON JULIAN.

Witnesses:

ARTHUR W. CROSSLEY,

F. P. DAVIS.