

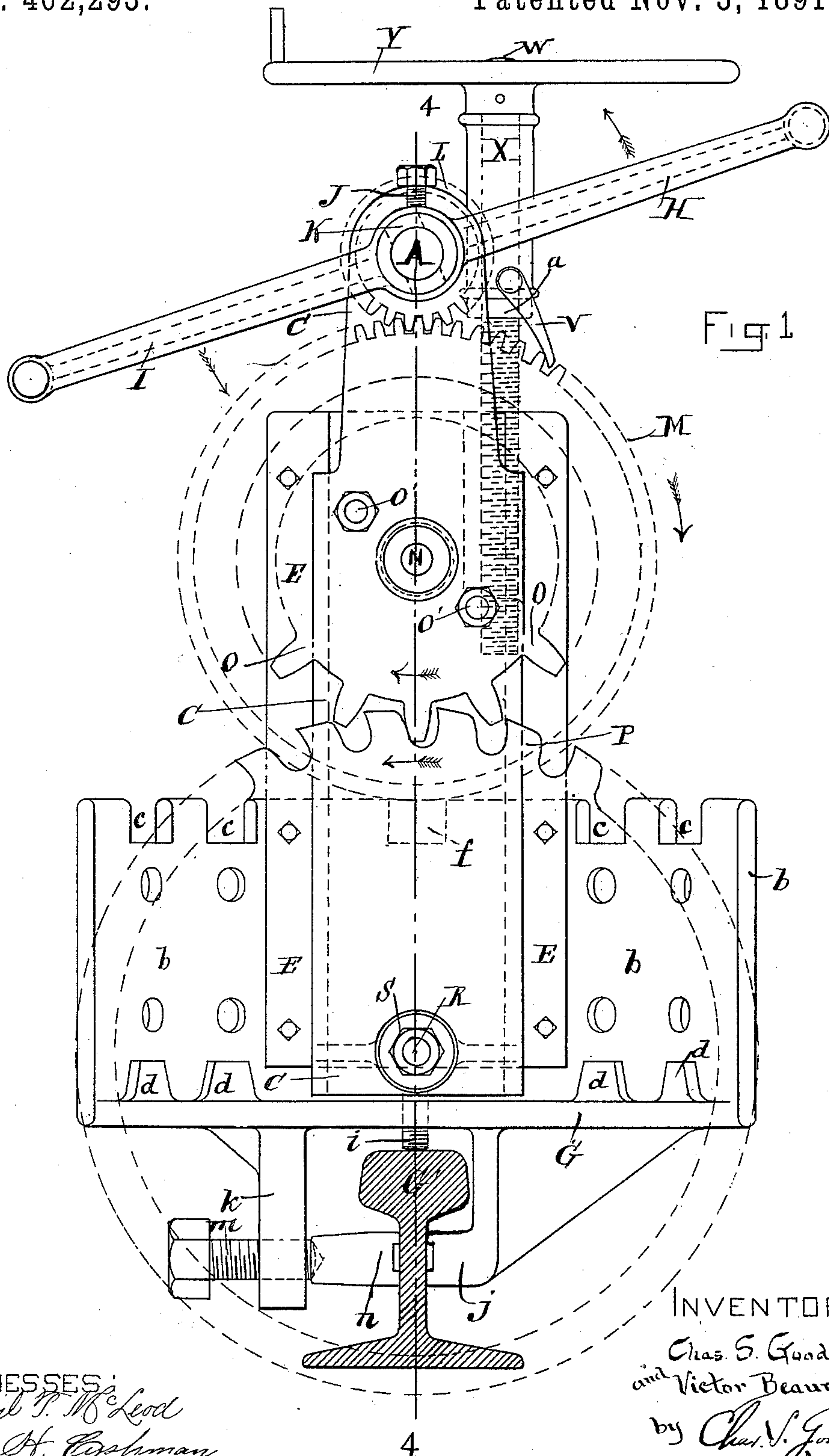
(No Model.)

6 Sheets—Sheet 1.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.



WITNESSES:
Daniel T. McLeod
Geo. H. Cushman.

INVENTORS:
Chas. S. Gooding.
and Victor Beauregard
by *Chas. S. Gooding.*
their Atty.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.

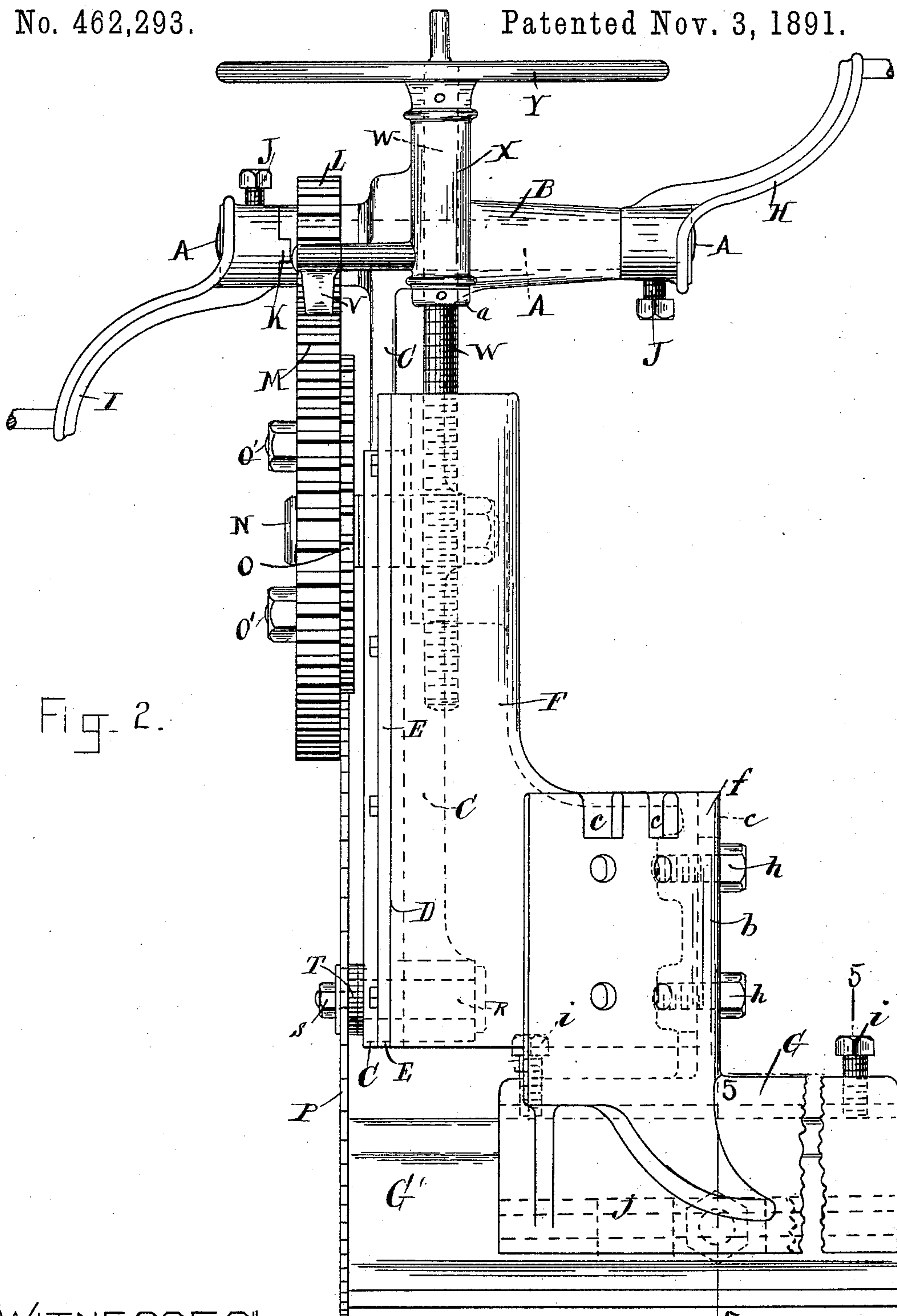


Fig. 2.

WITNESSES:
Daniel W. McLeod,
Geo. H. Carman.

INVENTORS:
Chas. S. Gooding-
and Victor Beauregard
by Chas. S. Gooding. Their
Atty.

(No Model.)

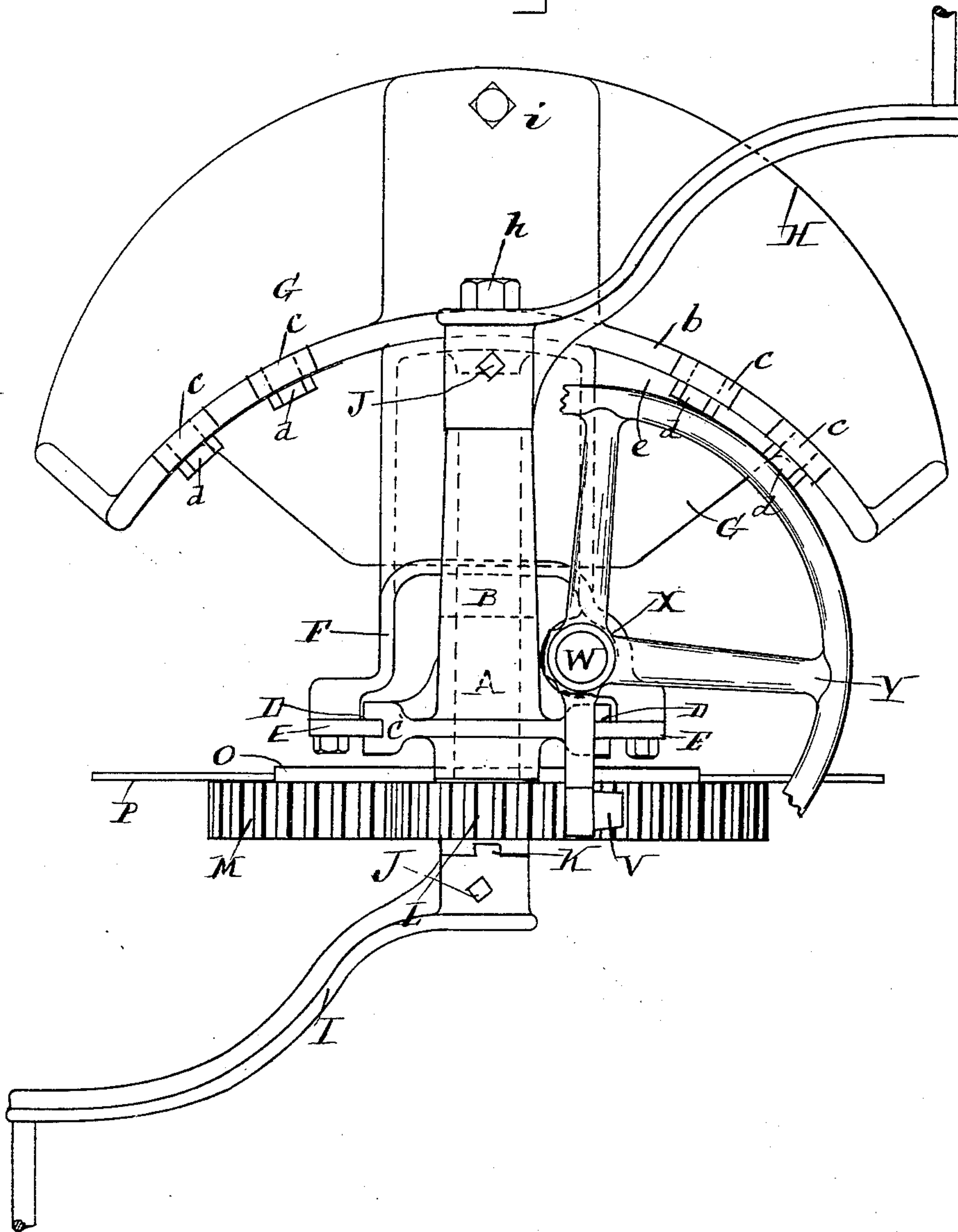
6 Sheets—Sheet 3.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.

Fig. 3.



WITNESSES:
Daniel T. McLeod
Geo. H. Cushman.

INVENTORS.
Chas. S. Gooding
and Victor Beauregard
by Chas. V. Gooding
their Atty.

(No Model.)

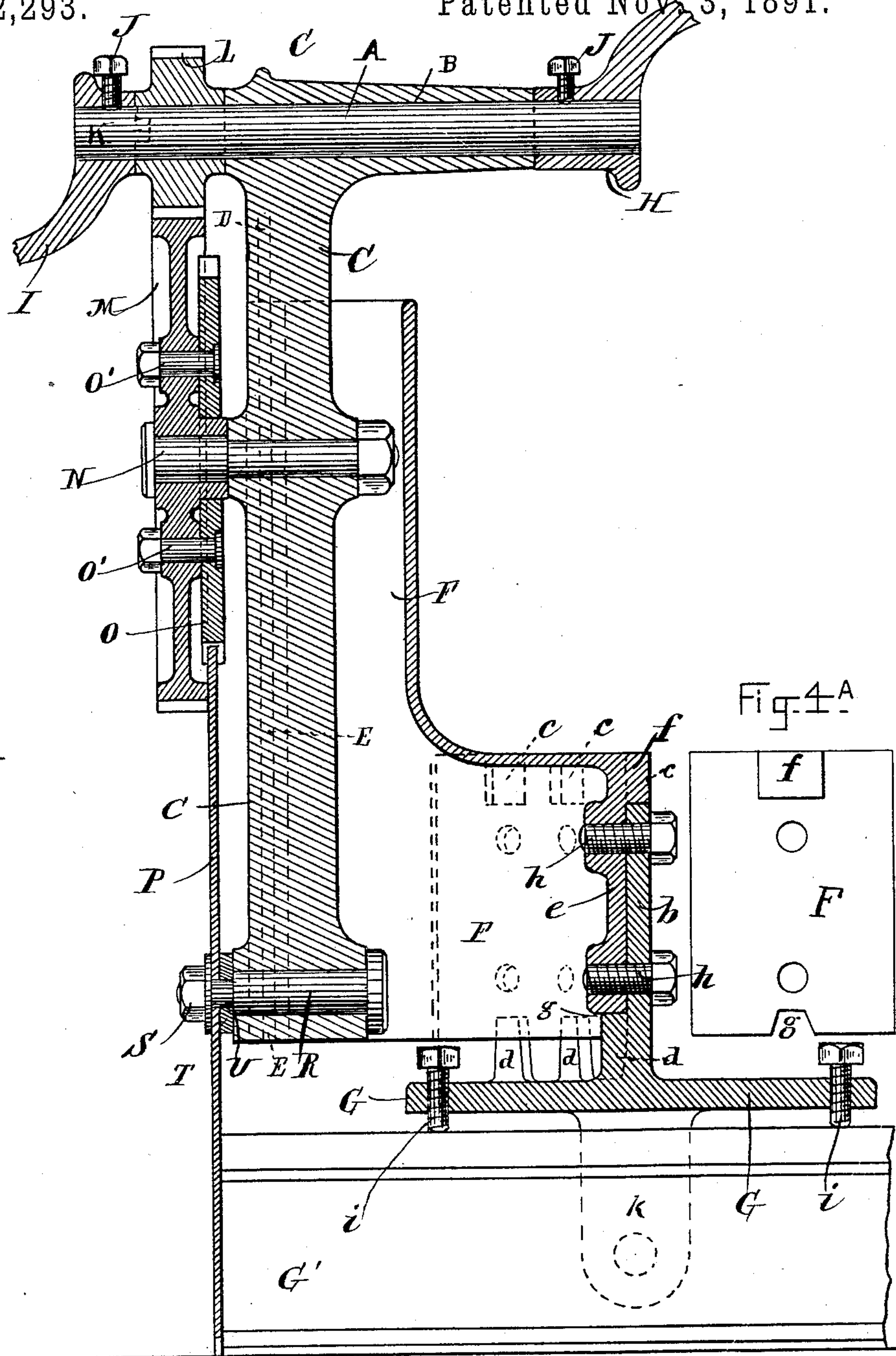
6 Sheets—Sheet 4.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.

Fig 4.



WITNESSES:
Daniel T. McLeod,
Geo. H. Cochran.

INVENTORS:
Chas. S. Gooding,
and Victor Beauregard,
by Chas. S. Gooding their Atty.

(No Model.)

6 Sheets—Sheet 5.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.

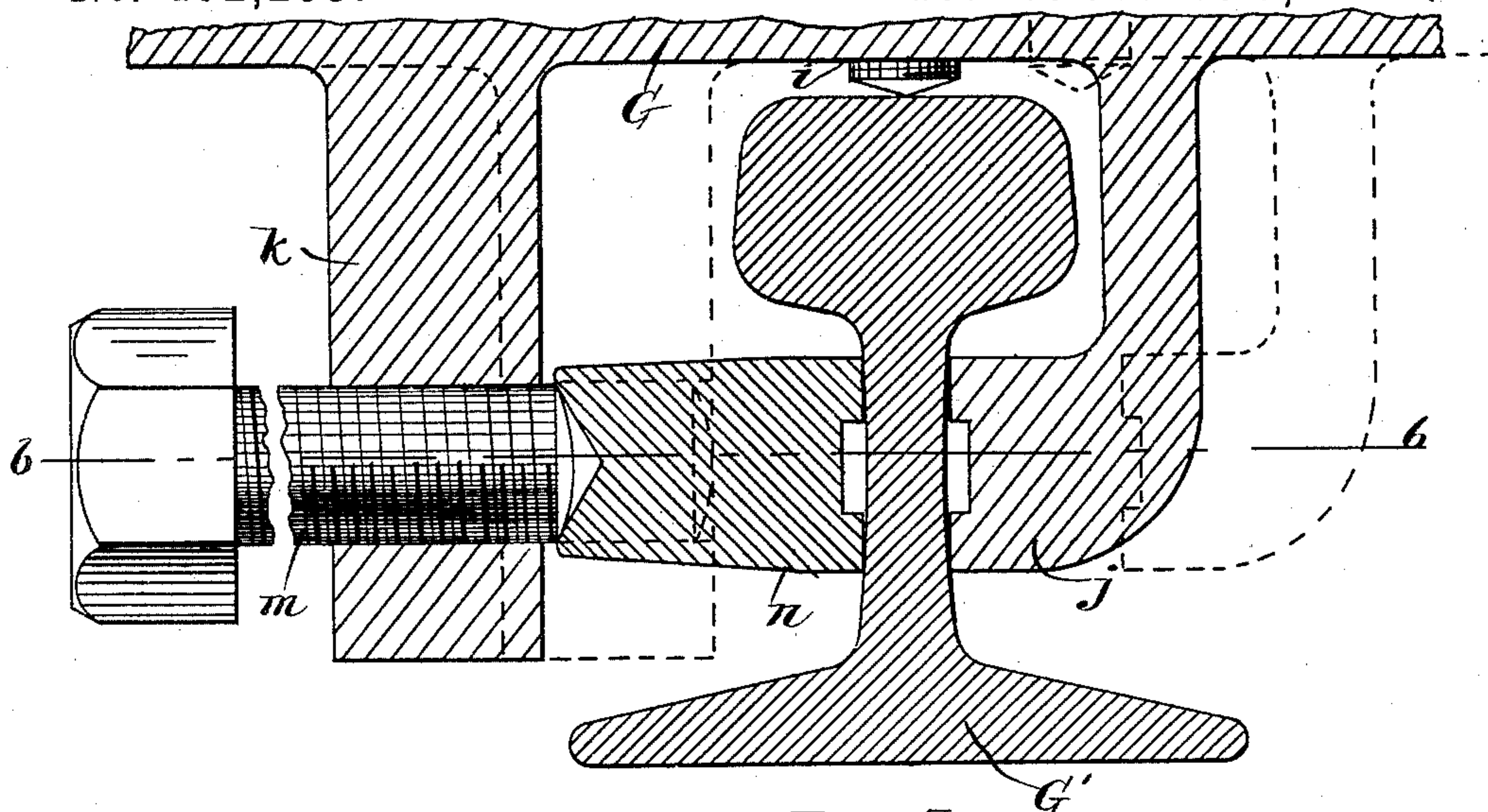


Fig. 5.

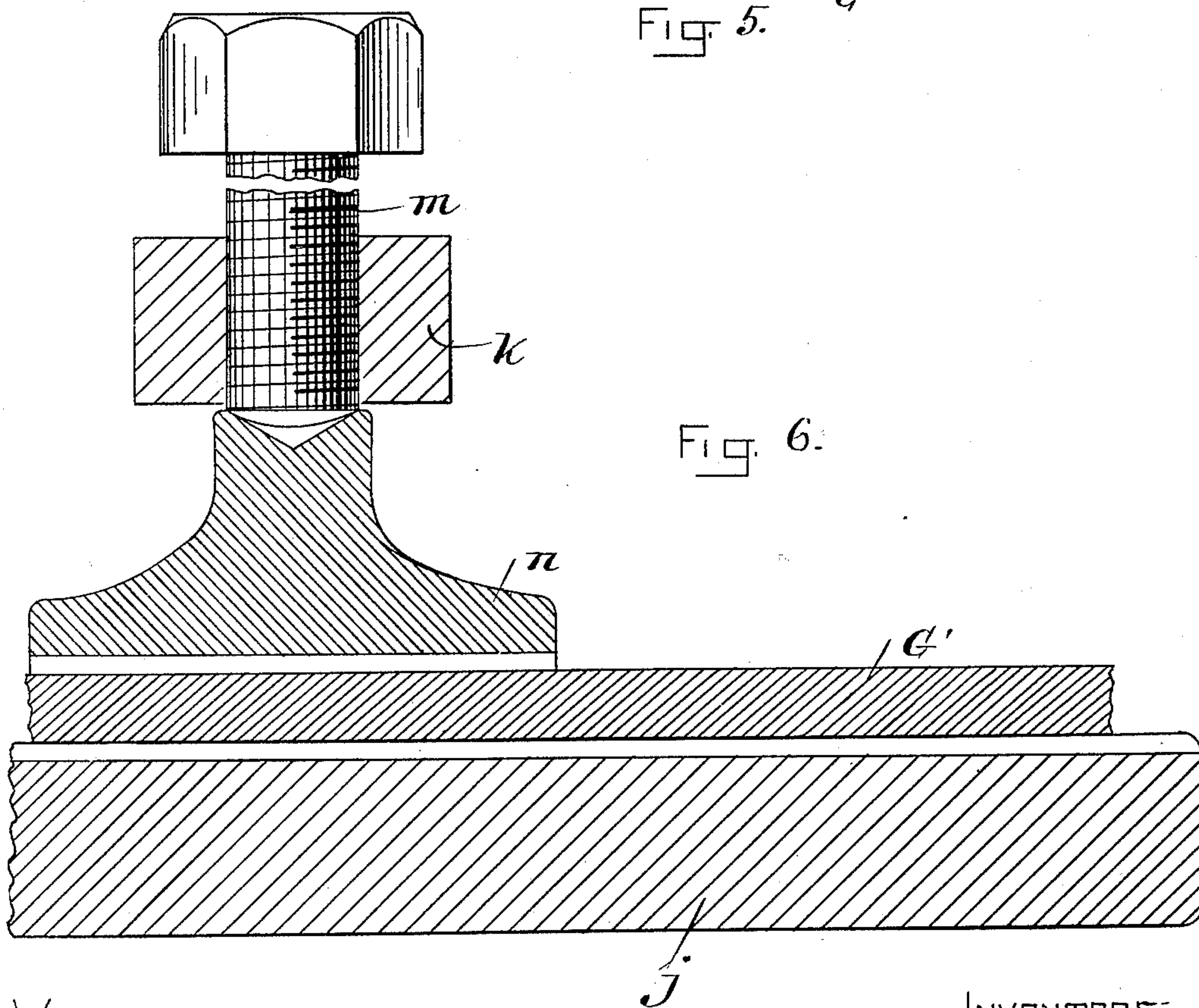


Fig. 6.

WITNESSES:

Daniel T. McLeod.

Geo. H. Cushman.

INVENTORS:

Chas. S. Gooding.
and Victor Beauregard
by Chas. S. Gooding
Their Atty.

(No Model.)

6 Sheets—Sheet 6.

V. BEAUREGARD & C. S. GOODING.
CIRCULAR SAWING MACHINE.

No. 462,293.

Patented Nov. 3, 1891.

Fig. 7.

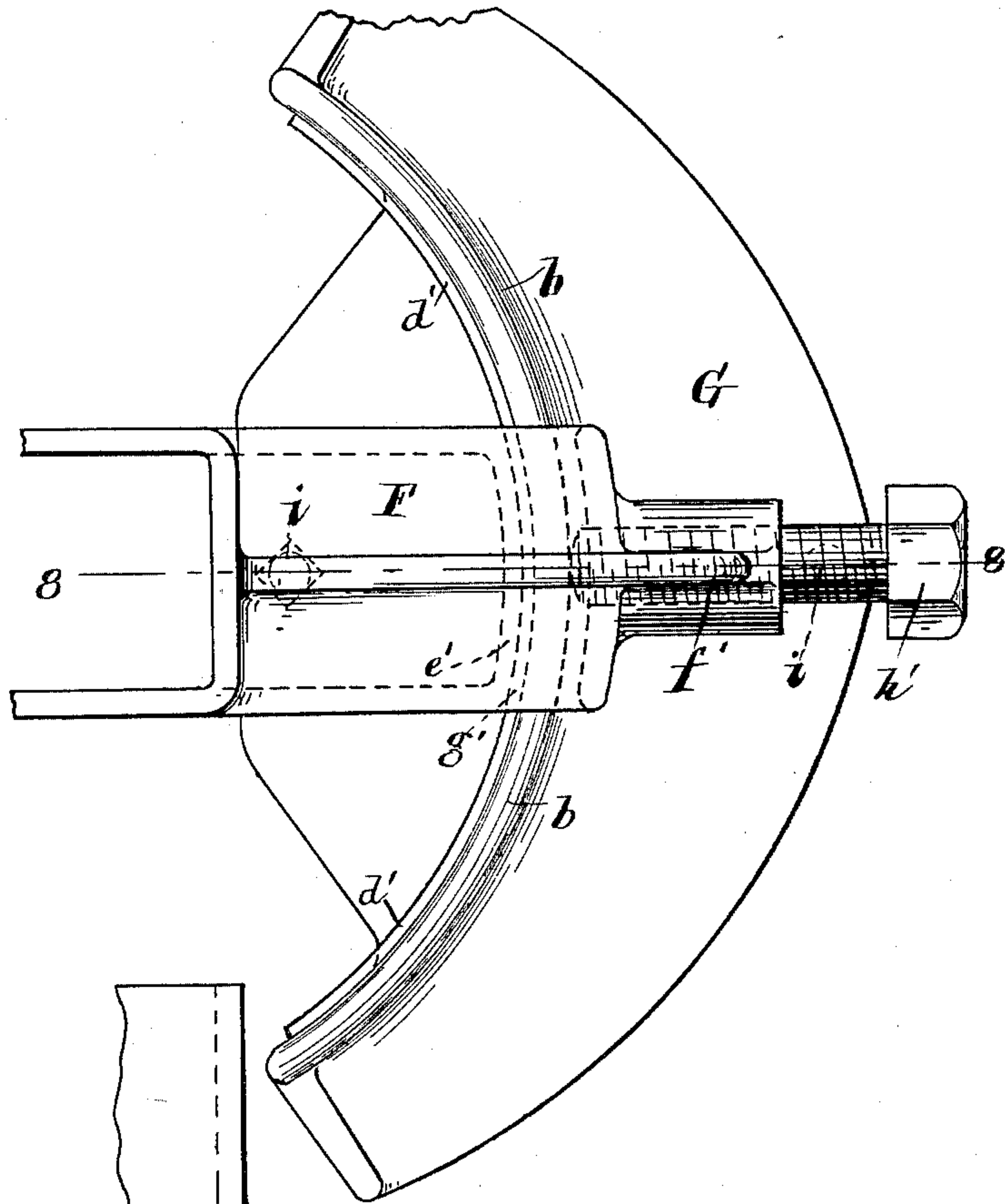
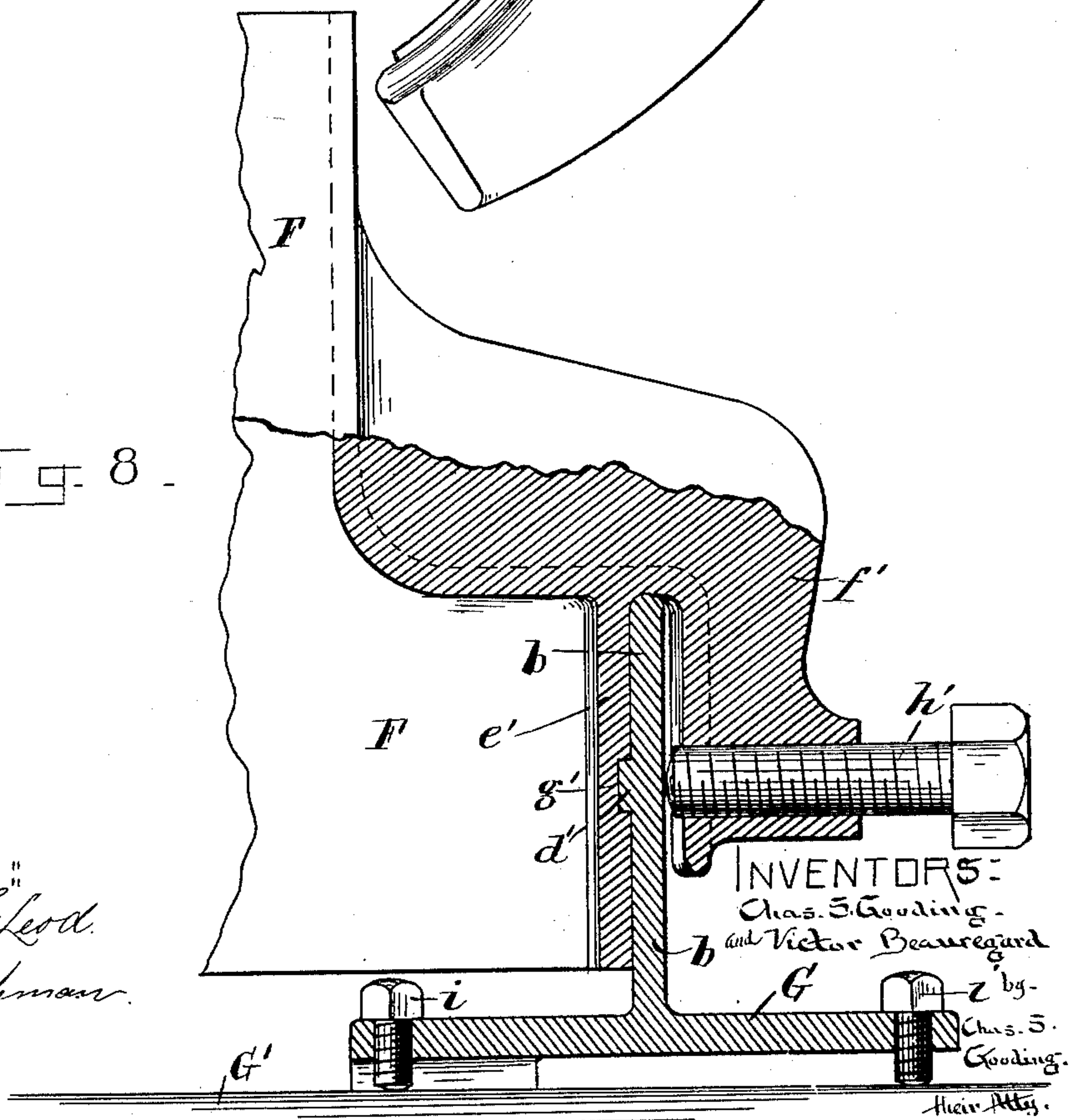


Fig. 8.



WITNESSES:

Daniel T. McLeod.

Geo. A. Cushman.

INVENTORS:

Chas. S. Gooding.

and Victor Beauregard

by

Chas. S. Gooding.

Atty.

UNITED STATES PATENT OFFICE.

VICTOR BEAUREGARD, OF BOSTON, AND CHARLES S. GOODING, OF BROOKLINE, MASSACHUSETTS, ASSIGNORS TO THE BRYANT SAWING MACHINE COMPANY, OF MAINE.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 462,293, dated November 3, 1891.

Application filed May 11, 1891. Serial No. 392,538. (No model.)

To all whom it may concern:

Be it known that we, VICTOR BEAUREGARD, residing in the city of Boston, Suffolk county, State of Massachusetts, and CHARLES S. GOODING, residing in the town of Brookline, Middlesex county, State of Massachusetts, and both citizens of the United States of America, have invented certain new and useful Improvements in Circular Sawing Machines, of which the following is a full, clear, and exact description.

The object of our invention is to produce a portable rail-sawing machine which may be quickly and firmly attached to or detached from a rail and by means of which the rail can be cut at different angles.

The invention also has for its object to produce a very powerful, accurate, and at the same time a light machine capable of being carried easily.

In the drawings, Figure 1 is a front elevation of the machine of our invention attached to a rail. Fig. 2 is a side elevation. Fig. 3 is a plan. Fig. 4 is a vertical section, line 4 4, Fig. 1. Fig. 4^a is a view in detail and a rear elevation of a portion of the frame supporting the saw. Fig. 5 is an enlarged vertical section, line 5 5, Fig. 2, of the means to clamp the frame supporting the saw to the rail to be sawed and of the rail. Fig. 6 is an enlarged horizontal section, line 6 6, Fig. 5. Fig. 7 is a modification in construction of the frame supporting the saw, as will hereinafter fully appear. Fig. 8 is a section and part elevation, line 8 8, Fig. 7.

In the drawings, A is the main or driving shaft of the machine, and it turns in a bearing B of the upper part of a sliding frame C, forming one part of the saw-supporting frame. This sliding frame C has two grooves D D on its opposite vertical edges, engaging and sliding upon vertical plates or guides E E, bolted to a frame F, making with a base G, to which it is secured, the other part or remainder of the saw-supporting frame, and the base G is clamped firmly to a rail G', to be sawed by means and all in a manner as hereinafter fully described.

The shaft A is rotated by means of handles H I, which are secured to it at its opposite ends by means of set-screws J J. The hub of

the handle I has lugs K on its opposite sides, fitting correspondingly-shaped recesses of the hub of a pinion gear-wheel L, itself loose on but attached to the shaft through the handle I, as stated, and all so that by means of either or both handles not only is the shaft A rotated, but also said pinion gear-wheel L. The pinion gear-wheel L meshes a larger gear-wheel M, turning on a horizontal stud N, fastened by a screw-nut to the vertical sliding frame C. On this gear M is fastened by bolts O' O' a disk gear-wheel O, having teeth of a form suitable to mesh with the teeth of and to drive a circular saw P, which also has its teeth of suitable form therefor, and otherwise as in the invention of Victor Beauregard and described in his application, Serial No. 371,268, for Letters Patent.

The circular saw P is fastened on a headed stud R by a screw-nut S' and a collar T, the former binding the saw to the collar T, and it in turn to the shoulder U on the stud R, and the head of the stud to the sliding frame, but all so that the stud can turn freely in its bearing of the sliding frame C and with the saw as the saw is driven by the rotation of the meshing gear-wheel O.

V is a gravity stop-pawl pivoted on the sliding frame C and in position to engage the teeth and at the upper side of the gear-wheel M, all so as to allow the gear to be rotated in the direction indicated by the arrow, but to prevent its rotation in the opposite direction, thus preventing contact of the teeth of the gear-wheel O with and dulling of the cutting-edges of the saw-teeth, as also injury of the gear-teeth, it being understood from the drawings, as also by reference to the application aforesaid, that the saw is driven by contact of its driving and meshing gear-wheel O with the back edges of the saw-teeth. It is evident that by turning the handles H I the shaft A, to which said handles are attached, and also the pinion L, gear M, and disk-gear O are severally rotated and all in the respective directions indicated by the arrows applied to each, respectively.

The sliding frame C and circular saw and the driving mechanism for the saw carried by said frame are as one raised and lowered by the turning of a vertical rod W in the bear-

ing X of the frame C, (it being held against endwise movement thereon by a hand-wheel *y* at one end and a collar *a* at the other end thereof, both fastened to the rod W,) and in a screw-threaded bearing of the frame F, on which the frame C slides, the rod W being suitably screw-threaded therefor. By rotating the hand-wheel Y, and according to the direction in which it is rotated, the screw-rod is screwed into or out of its screw-threaded bearing of the frame F, and thus the sliding frame C and the circular saw P and means for driving the saw are correspondingly moved—that is, lowered or raised, being severally raised by the collar *a* and lowered by the hand-wheel as the rod is rotated, as stated. By the downward movement of the saw, as stated, the saw at the same time being rotated, obviously the saw as it cuts is fed to its work—for instance, the cutting through a rail—and on completing its said work by the then upward movement of the saw, as stated, the saw is brought into position for cutting another rail, all as hereinafter more fully appears.

To cut by the saw a rail at different angles as to its length, the relative positions of the frame F, making one part of the saw-supporting frame, and base G are changed, it being here observed that the base G of said frame is attached to the rail to be sawed, as hereinafter explained. This change in relative position of the frame F and base G obviously changes correspondingly the position of the saw relatively to the rail, and so the saw can be presented to the rail at different angles. To accomplish this result two arrangements of parts are shown, one in Figs. 1 to 4, inclusive, and which allows the saw to be placed either at a right angle or at an angle of sixty degrees, or an angle of forty-five degrees, to the length of the rail. In this arrangement the base G is provided with a semicircular vertical flange *b*, having at its upper edge or side downwardly-extending notches or openings *c c c* and at its lower sides lugs *d d d*, upwardly extending, and the frame F is provided with a vertical flange *e*, of suitable shape to fit into the semicircular flange *b* of the base and having a lug *f* to fit into a notch *c* of the flange *b* and an opening or notch *g* to fit over a lug *d* of the base. The flange *e* of frame F is attached to the flange *b* of base G by headed screw-bolts *h h*, the flange *e* of the frame having holes suitably located to admit of this attachment in all positions of adjustment, as above stated, of the frame F and base G. Furthermore, as to this arrangement the frame F and base G are shown as adjusted and fastened together, so that the saw stands at a right angle to the length of the rail, securing, of course, a cutting by the saw of the rail at right angles to its length. If desired to cut the rail at an angle of sixty degrees to its length, the attaching-bolts *h h* of frame F and base G are removed and the frame F

then raised and placed with its lug *f* in a notch and with its notch *g* over a lug, in both instances next to those represented in the drawings, on which the bolts *h h* are replaced, and, being screwed up, the frame is made fast to the base. If desired to cut the rail at an angle of forty-five degrees, the frame F is released and raised, as has been just explained, and its lug *f* placed in a notch and its notch *g* over a lug, in both instances next to those used for an angle of sixty degrees, and on which the frame is made fast to the base, as before. By this arrangement, obviously, the machine is limited in its capability of cutting the rail to certain fixed angles. It is, however, most desirable that the machine should be capable of cutting the rail at any angle to its length from ninety degrees to forty-five degrees, or thereabout, and either more or less, and to that end the other arrangement, Figs. 7 and 8, is provided, it being the most preferable, and, in fact, although shown in views by itself, it forms specifically part of this invention. In this arrangement the vertical flange *b* of the base G has a horizontal tongue *d*, fitting a corresponding groove *g'* of a vertical flange *e'* of the frame F. The frame F has a dependent lug *f'* outside of its flange *e'*, and this lug has a set-screw *h'*, which, being screwed against the vertical flange *b* of the base, draws the vertical flange *e'* of the frame F against said flange *b*, and thus the frame F is firmly held in place on the base G. It is evident from this construction that with the set-screw *h'* loosened the frame F can be moved horizontally around on the base G, and thus the angle of direction of the saw as to the length of the rail changed within given limits, as may be desired, and, when changed, fixed firmly in said position by tightening up the set-screw *h'*.

In sawing rails fixed in position it is found best in attaching the machine for sawing it—as, for instance, the machine described—to the rail that the machine should rest on the top or tread and grip the web of the rail on its opposite sides, all without reference to the base of the rail, as thereby all interference between the devices of the machine to fasten it to the rail and the spikes fastening the rail to the cross-ties is avoided. Again, it is necessary that varying thicknesses of the tread portion of the rail should be provided for; and, further, it is very important that the machine should be adapted to be secured to and unfastened from the rails most quickly and readily. To accomplish these several advantages the base G of the frame supporting the circular saw is shaped to extend comparatively for some considerable distance along and across the tread of the rail, and at its opposite end portions it has adjustable screw-threaded bolts *i' i'* to bear and rest on the tread of the rail, and by turning these bolts in and out of the base the base can be accommodated to varying thick-

nesses of treads and also to varying heights of it from the base and heights of the web of the rail.

j n are two pieces or blocks at opposite sides and at a bearing against the web of the rail. Both blocks j n , as compared with the base G , are of considerable length, and, as shown, the block j is in one piece with and dependent from the base, and the block n is separate or loose from the base. These bearing-blocks in the position stated are bound against the web of the rail by properly turning up a set and headed screw-bolt m , threaded in a dependent lug K of the base against the loose block n , whereby the loose block is forced forward and the other block is drawn toward and both made tight against and secure upon the rail.

The clamp of the rail of the blocks j n , as above stated, is released by properly turning the screw-bolt m , and in order that this, as also the clamping, may be done quickly and readily the bearing end of said bolt is made conical and the loose block has a seat for it of corresponding shape, by all of which but a comparatively slight turn of said screw-bolt in either direction is required.

To place the machine in position, drop its base over the rail and then move it laterally and bring its clamping-block j against the web of the rail, on which insert the loose clamping-block n , and then turn up the screw-bolt m and clamp the base to the rail.

To remove the machine from the rail, turn the screw-bolt m so as to free the loose clamping-block, on which move the base laterally and lift it from the rail.

The position of the base of the machine dropped over the rail and either to be then moved laterally and clamped, as stated, or to be removed from the rail is shown in dotted lines and the position of the base clamped to the rail by full lines, Fig. 5.

What we claim, and desire to secure by Letters Patent, is—

1. The combination, with a frame in parts adapted to be moved vertically one upon the other, and means held on one of said parts to clamp the frame to and unclamp it from a rail, of a vertical circular saw held and free to rotate, and means held on and adapted to rotate the saw on the unclamped part of said frame, substantially as described, for the purposes specified.

2. The combination, with a frame in parts, two of which are adapted to be moved vertically one upon the other and one made in two parts adapted to be rotated horizontally

upon each other, and means held on said rotating parts to fasten them to and release them from each other, and also other means to clamp one of them and thereby the frame to and unclamp it from a rail, of a vertical saw-blade held and free to rotate, and means held and adapted to rotate the saw on the unclamped part of the vertically-movable parts of said frame, substantially as described, for the purposes specified.

3. The combination, with a frame in parts adapted to be moved vertically one upon the other, and means which are held on one of said parts to clamp the frame to and unclamp it from a rail, and consisting, essentially, of blocks on opposite sides of the web of the rail, a device or devices to force and hold said block against and to secure the release from the sides of the web of the rail, of a vertical circular saw held and free to rotate, and means held and adapted to rotate the saw on the unclamped part of said frame, substantially as described, for the purposes specified.

4. The combination, with a frame in parts adapted to be moved vertically one upon the other, and means which are held on one of said parts to clamp the frame to and unclamp it from the rail, and consisting, essentially, of blocks on opposite sides of the web of the rail, a device or devices to force and hold said blocks against and to secure the release from the sides of the web, and a set-screw to bear on the tread of the rail, of a vertical circular saw held and free to rotate, and means held and adapted to rotate the saw on the unclamped part of said frame, substantially as described, for the purposes specified.

5. The combination, with a frame in parts, two of which are adapted to be moved vertically one upon the other and one made in two parts relatively adapted to engage and to permit of the rotation horizontally of one upon the other and to be made secure against movement, and means held on said rotating parts to fasten them to and release them from each other, and also other means to clamp one of them and thereby the frame to and unclamp it from a rail, of a vertical saw, substantially as described, for the purposes specified.

In testimony whereof we have hereunto set our respective hands in the presence of two subscribing witnesses.

VICTOR BEAUREGARD.
CHAS. S. GOODING.

Witnesses:

ALBERT W. BROWN,
DANIEL T. MCLEOD.