

No. 660,604.

Patented Oct. 30, 1900.

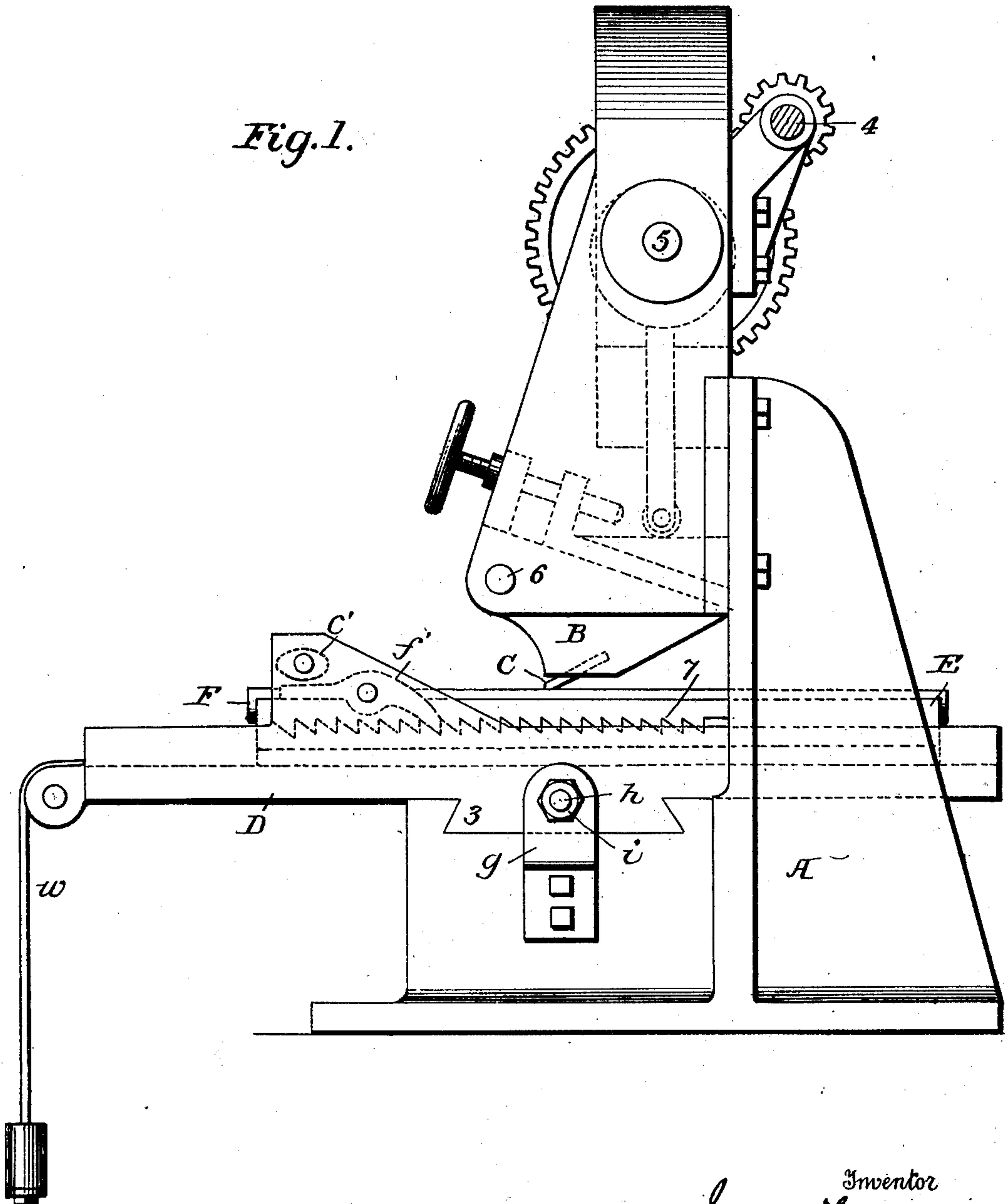
J. TURNER.
RASP CUTTING MACHINE.

(Application filed May 11, 1899.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses

J. G. Hinkel

Arthur A. Fisher

Inventor
James Turner
by *Frederic Freeman*
Attorney

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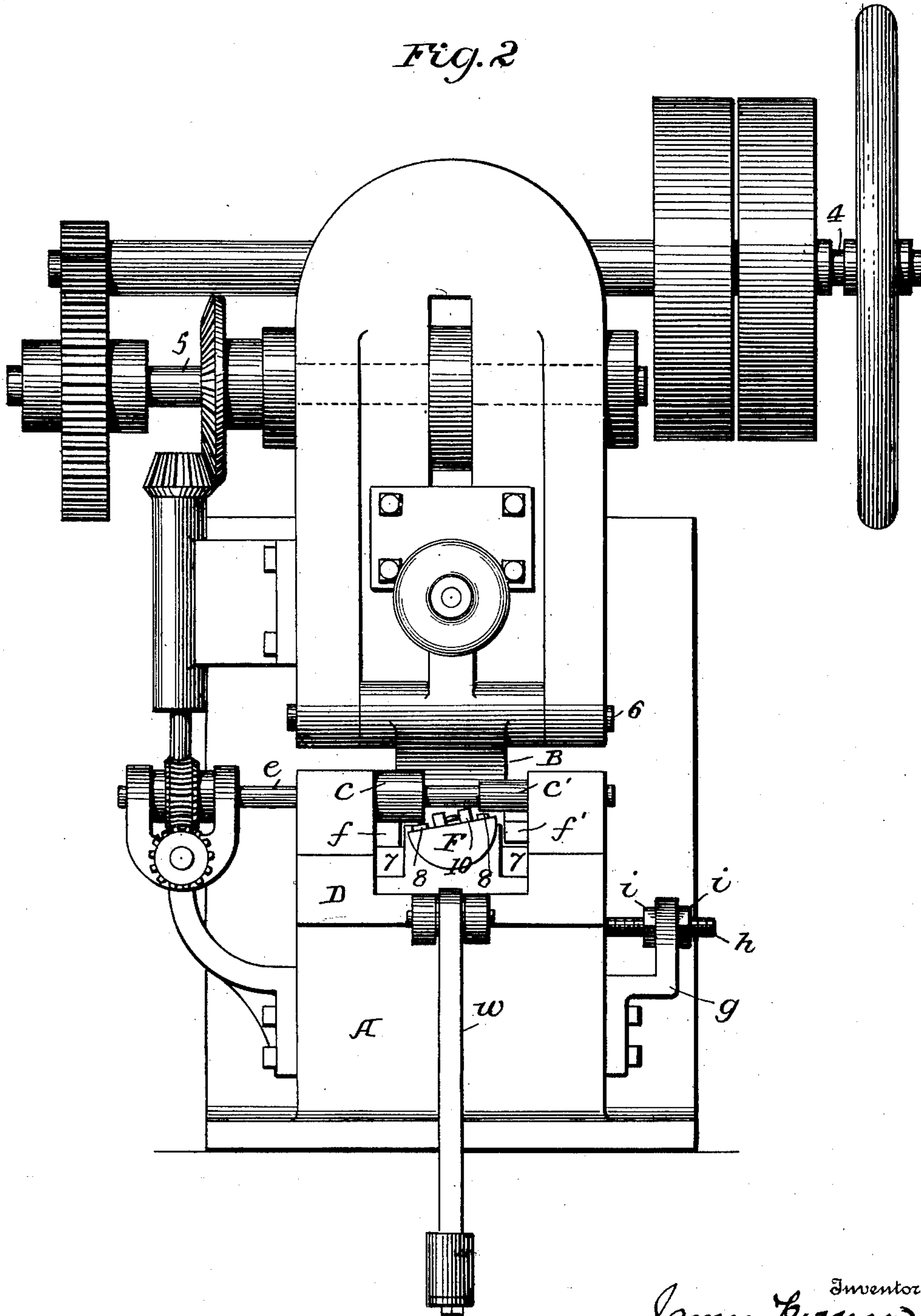
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Fig. 2



Witnesses
J. G. Hinkel
Arthur Q. Fisher

Inventor
James Turner
by *Frederic Freeman*
Attorneys

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Fig. 3.

Witnesses
J. Hinkel
Arthur Q. Fisher

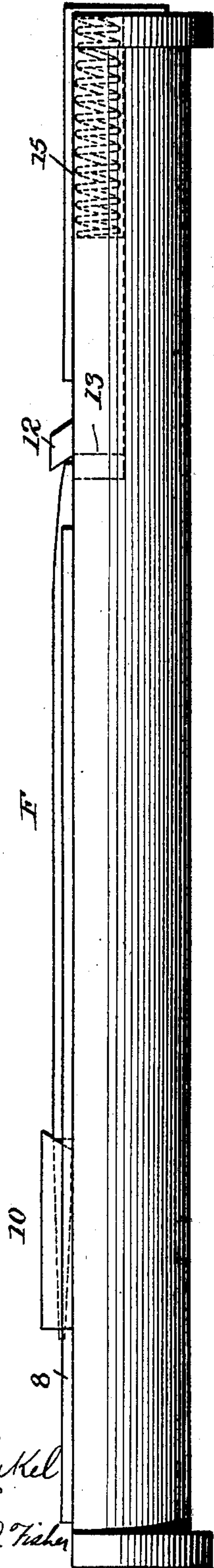


Fig. 4.

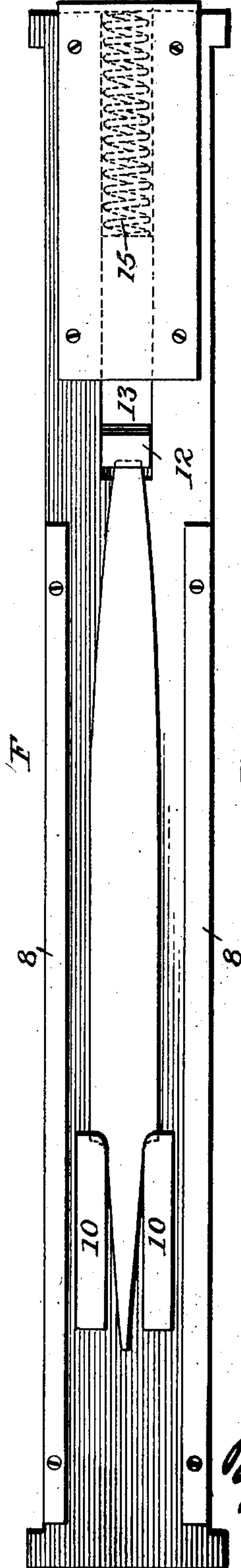
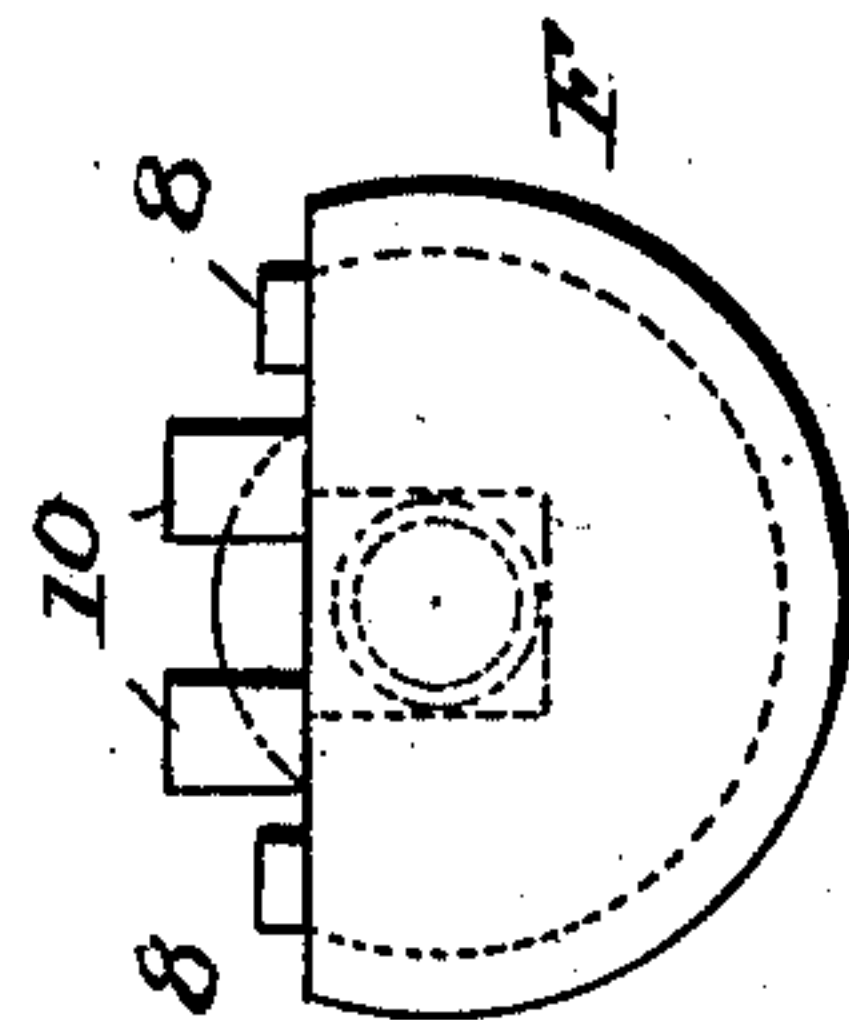


Fig. 5.



Inventor
James Turner
By *Frederic Freeman*
Attorneys

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Fig. 7.

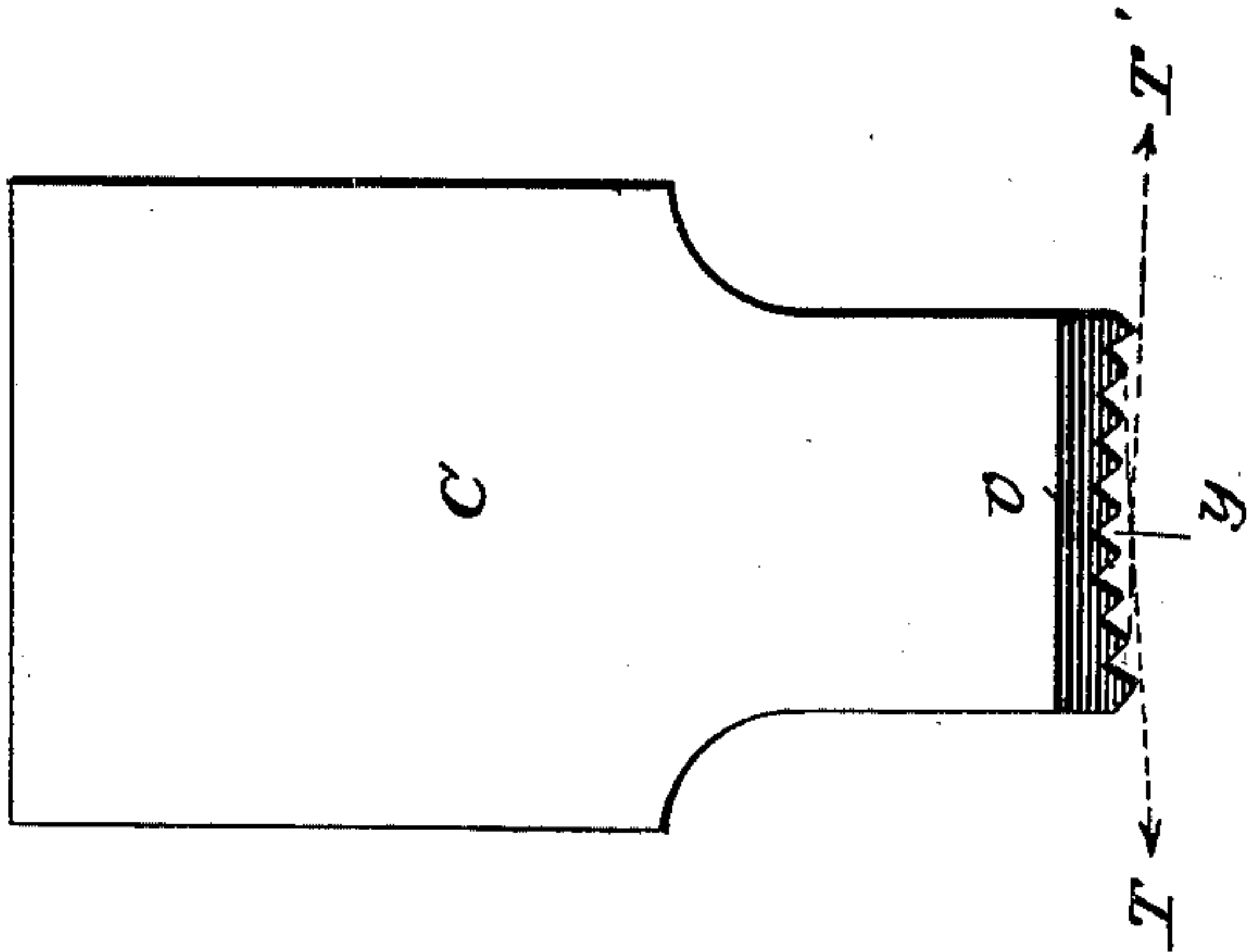


Fig. 8.

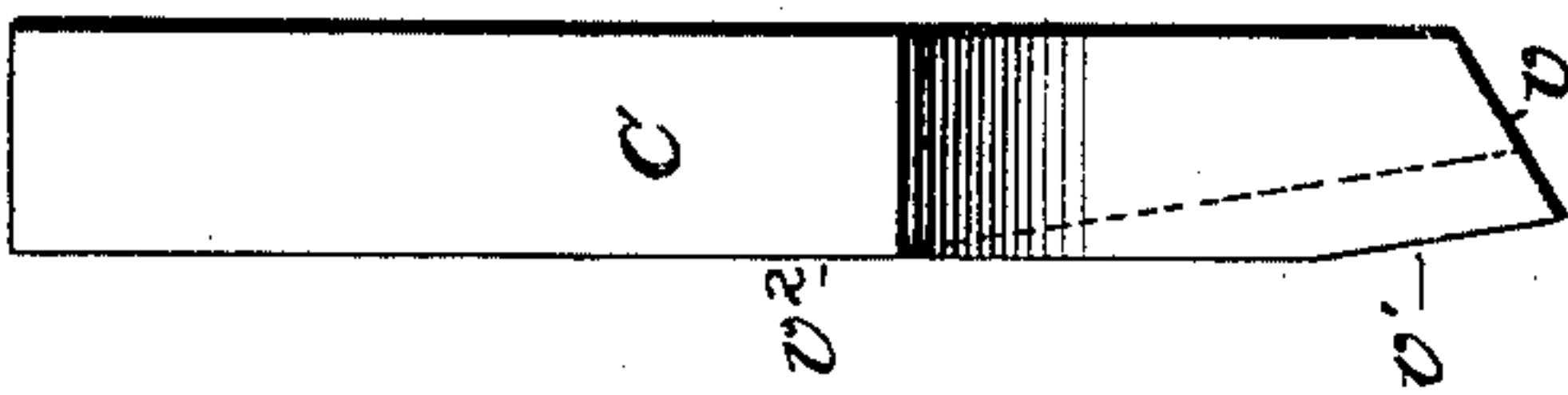


Fig. 6.

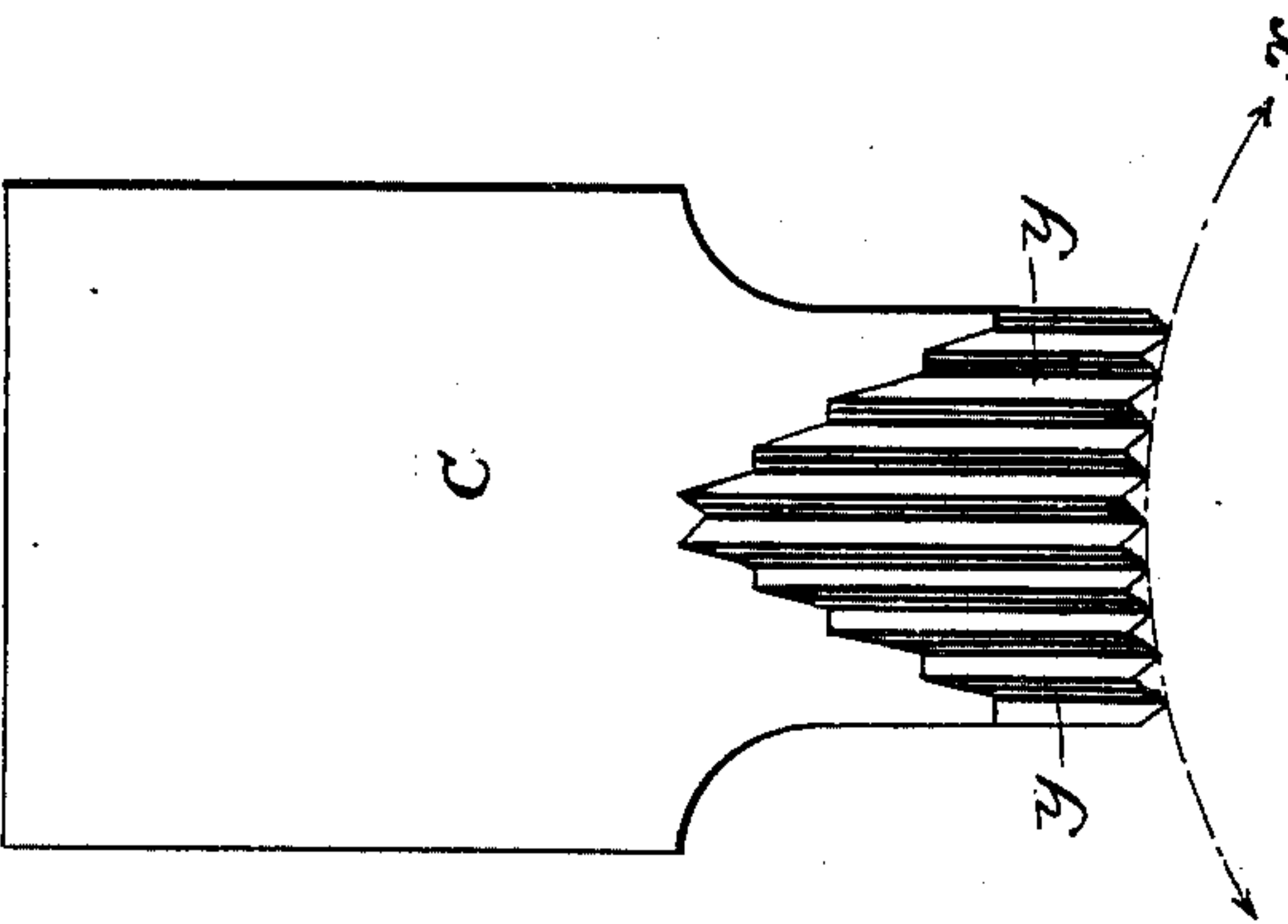


Fig. 9.



Witnesses

J. Hinkel

Arthur A. Fisher

Inventor

James Turner

by Loren Freeman

Attorneys

UNITED STATES PATENT OFFICE.

JAMES TURNER, OF PATERSON, NEW JERSEY, ASSIGNOR TO JAMES DWIGHT FOOT, OF NEW YORK, N. Y.

RASP-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 660,604, dated October 30, 1900.

Application filed May 11, 1899. Serial No. 716,431. (No model.)

To all whom it may concern:

Be it known that I, JAMES TURNER, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Rasp-Cutting Machines, of which the following is a specification.

My invention has for its object to raise the teeth of rasps upon the curved surfaces of rounded blanks without the loss of time and expense incurred in ordinary methods of cutting; and to this end my invention consists of a cutting-machine constructed as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a rasp-cutting machine embodying my improvements. Fig. 2 is a front elevation. Fig. 3 is a side view, enlarged, of a blank-carrying bed. Fig. 4 is a plan view of Fig. 3. Fig. 5 is an end view of Fig. 3. Fig. 6 is a face view of the cutter looking in one direction. Fig. 7 is a face view looking in the opposite direction; Fig. 8, an edge view, and Fig. 9 an end view. The frame A of the machine is suitably constructed to support a table D, which may be immovable, but preferably is laterally adjustable, a dovetailed projection 3 of the table fitting a corresponding recess in the base, and a threaded rod *h*, projecting from the table through a bracket *g*, secured to the base and carrying nuts *i i*, which may be loosened to permit the lateral adjustment of the table and then brought to bear against the bracket to hold the table in position. The upper part of the frame has bearings for the driving-shaft 4 and for the counter-shaft 5, from which motion is imparted to a tool-holder B, pivoted at 6 and carrying a tool C, in the form of a gang-punch, adapted to form a series of teeth transversely across the blank at each reciprocation of the tool or punch, all substantially as in the apparatus set forth in Letters Patent granted to me February 8, 1898, No. 598,585, and not necessary, therefore, to be particularly described.

Upon the table D and beneath the tool-holder B slides a carrier E, to which is connected a strap *w*, passing over a pulley and supporting a weight, while pawls *f f'* alternately engage racks 7 7 of the carrier, so as

to allow the latter to move with a step-by-step movement under the action of the weight, the pawls being alternately lifted by means of cams *c c'*, upon a shaft *e*, and operated as set forth in my aforesaid Letters Patent.

In the apparatus of my aforesaid Letters Patent the parts were constructed with special reference to operating upon flat blanks and could only be employed in cutting curved or rounded blanks by operating upon each blank throughout its length once for each row of teeth required to be raised in the blank, resulting in a slow production of rasps and the high cost of manufacture. To avoid these objections, I make use of the improved features which I will now describe.

The carriage E is provided with a longitudinal curved channel adapted to the curved under face of a blank-holder F, to the upper flat face of which the blank having a rounded upper face is secured, and the axis about which the blank-holder F rocks coincides with the center of a circle corresponding substantially to the curvature of the face of the blank.

The tool C, which is set in the tool-holder B at an angle, as shown, has an operating end which is curved to correspond with the curvature of the face of the blank. Thus, as shown in Fig. 6, the operating end of the tool has a series of cutting points or edges, which coincide with the curved line *x*. This tool may be constructed in any suitable manner, but, as shown, has parallel V-shaped ribs *y y*, extending to the lower inclined face *v*, the outer face *v'* being at an angle to the face *v*, as best seen in Fig. 8.

The holder or bed F has side ribs 8 8, and the cams *c c'* are extended over these side ribs, so that as the shaft *e* rotates first one cam and then the other will be brought into action and bear upon and rock the bed, and the shaft *e* is so rotated that the bed will be rocked in one direction or the other after each operation of the cutting-tool. As a result of these constructions and operations the blank will be carried to one position T, Fig. 7, prior to one operation of the tool and then to the other position T' prior to the next operation, so that at each operation the teeth will be raised entirely across the blank; but those raised at one operation will be intermediate of those

at the preceding operation, but further forward upon the blank, which is thus cut step by step, and the rasp is completed by carrying the blank longitudinally once beneath the
5 cutter.

While I have shown the bed as having a curved lower edge and rocking in a curved channel, it may be supported or pivoted in any suitable manner, so as to tilt to carry the
10 blank laterally first to one position and then to another, and different means than those shown may be employed for rocking or tilting the bed and other means than those described may be employed for feeding the bed
15 or its carriage longitudinally.

It will be seen that by using a laterally-adjustable table the blank can always be set in proper position beneath the tool.

Any suitable means may be employed for
20 securing the blank to the bed F. One means is best illustrated in Figs. 3, 4, and 5, and consists of lugs 10 10, having beveled faces, against which bears the butt of the blank near the tang, while an inclined lip 12 engages and
25 overhangs the point of the blank, the said lip 12 projecting from a slide 13, fitting a recess in the bed and pressed toward the blank by a spring 15, confined in said recess.

Without limiting myself to the precise construction shown, I claim—

1. The combination of a reciprocating holder carrying a cutter with an operating end curved to coincide with the curvature of the blank to be cut, and a blank-carrying bed supported to rock upon an axis coincident with
35 that of the curve of the blank, substantially as set forth.

2. The combination of a reciprocating holder carrying a cutter with an operating end
40 curved to coincide with the curvature of the blank to be cut, a blank-carrying bed rocking upon a longitudinal axis, and means for tilting it after each operation of the cutter, substantially as set forth.

3. The combination of a reciprocating holder carrying a cutter with an operating end curved to coincide with the curvature of the blank to be cut, a blank-carrying bed rocking upon a longitudinal axis, and means for
50 tilting it after each operation of the cutter

and for holding it positively in its tilted position, substantially as set forth.

4. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step
55 by step longitudinally after each reciprocation of the tool, a bed carried by said carrier, and means for tilting it to one side after each reciprocation of the tool, substantially as set forth.
60

5. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step
65 by step longitudinally after each reciprocation of the tool, a bed carried by said carrier, and means for tilting it to one side after each reciprocation of the tool and for holding it in position after tilting, substantially as set forth.

6. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step
70 by step longitudinally after each reciprocation of the tool, a bed carried by said carrier with a curved face adapted to a curved channel in the carrier, and means for tilting it to one side after each reciprocation of the tool, substantially as set forth.
75

7. The combination in a rasp-cutter, of a sliding carrier, a rocking bed supported thereby, a reciprocating tool-holder, means for acting on the bed to carry it in one direction, racks and pawls for securing a step-by-step movement of the bed, and cams arranged to act both on the pawls and on the rocking bed,
80 substantially as set forth.
85

8. The combination with the bed for holding the blank, of bearings for the tang end of the blank and a retainer for the tip end consisting of a slide with a lip and a spring for
90 pressing the lip against the blank, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES TURNER.

Witnesses:

JOHN F. KERR,

FLORENCE M. WESTHOVEN.