

No. 765,020.

PATENTED JULY 12, 1904.

C. LEONHARDT.
POWER HAMMER.

APPLICATION FILED MAY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

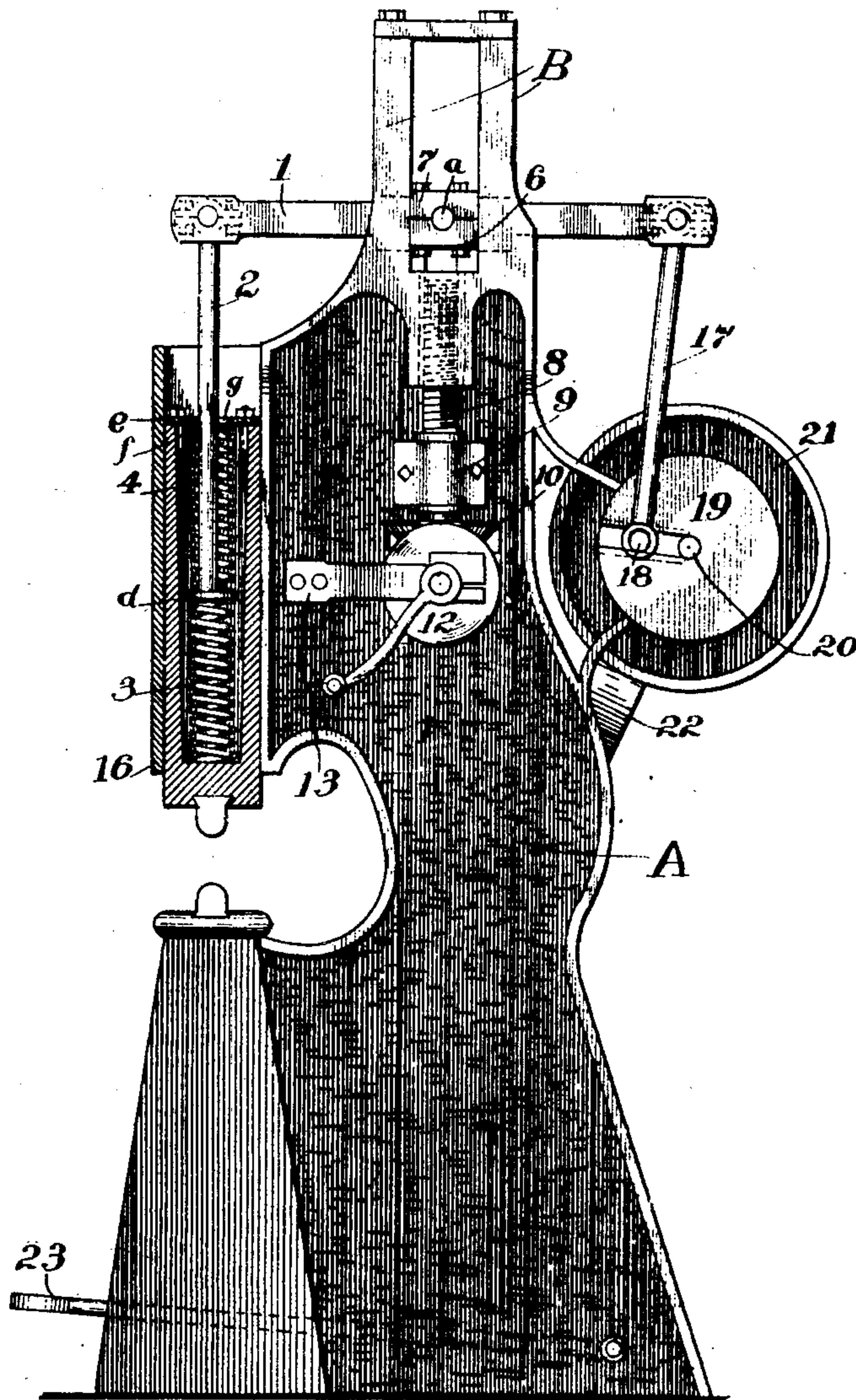


Fig. 1.

Witnesses

Milton Lenoir

Watts T. Estabrook

Inventor
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by *Vernon E. Hodge*
His Attorney

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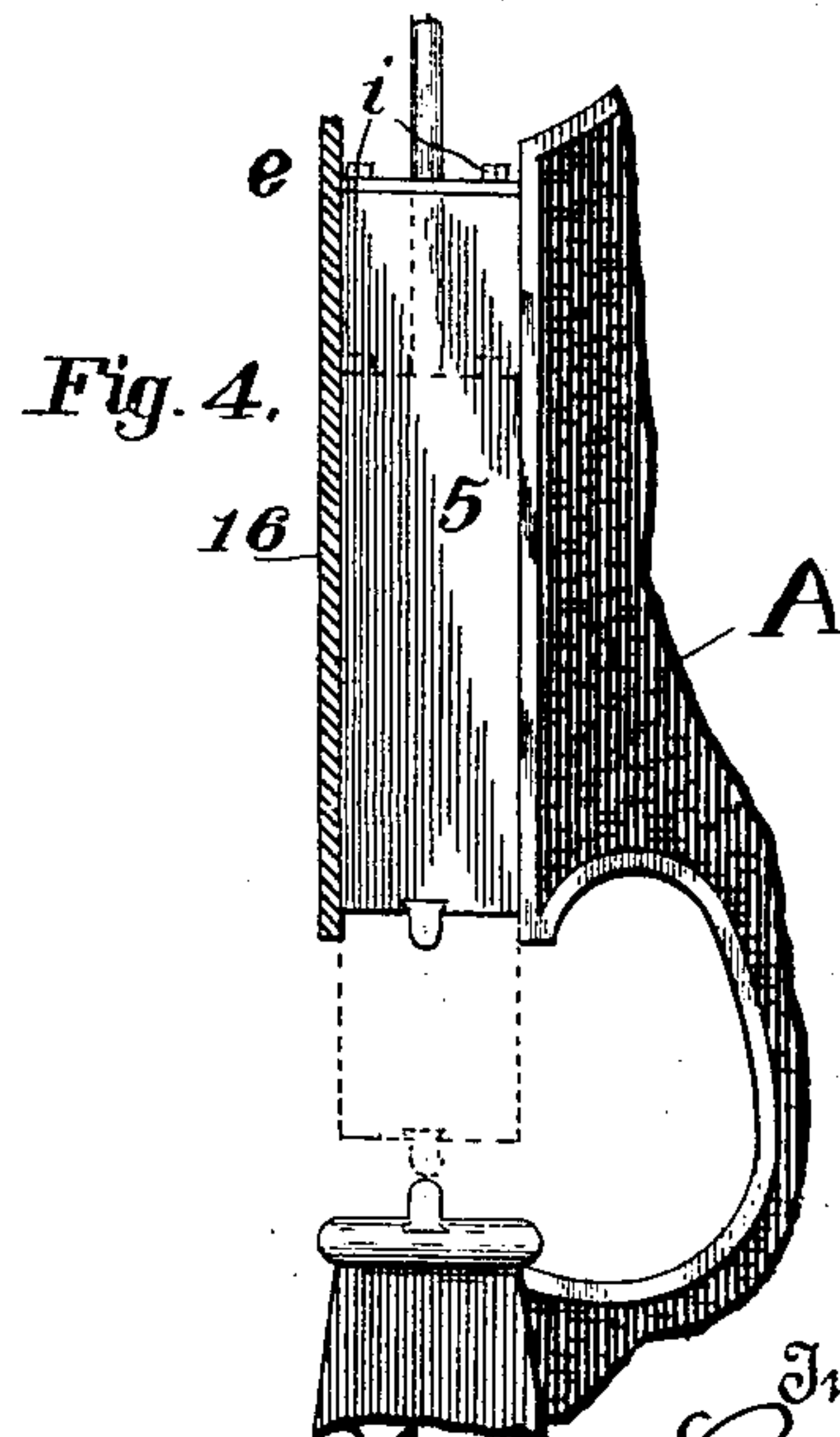
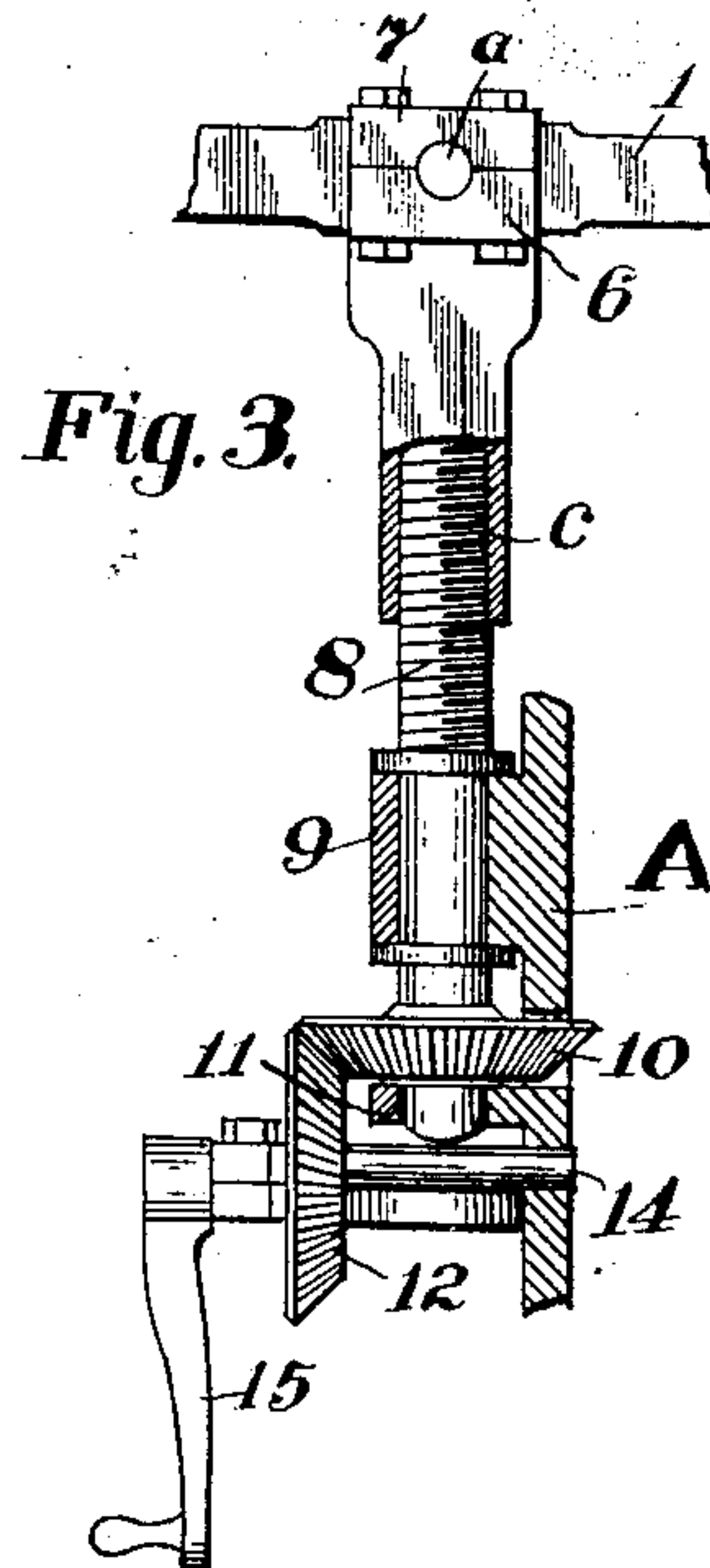
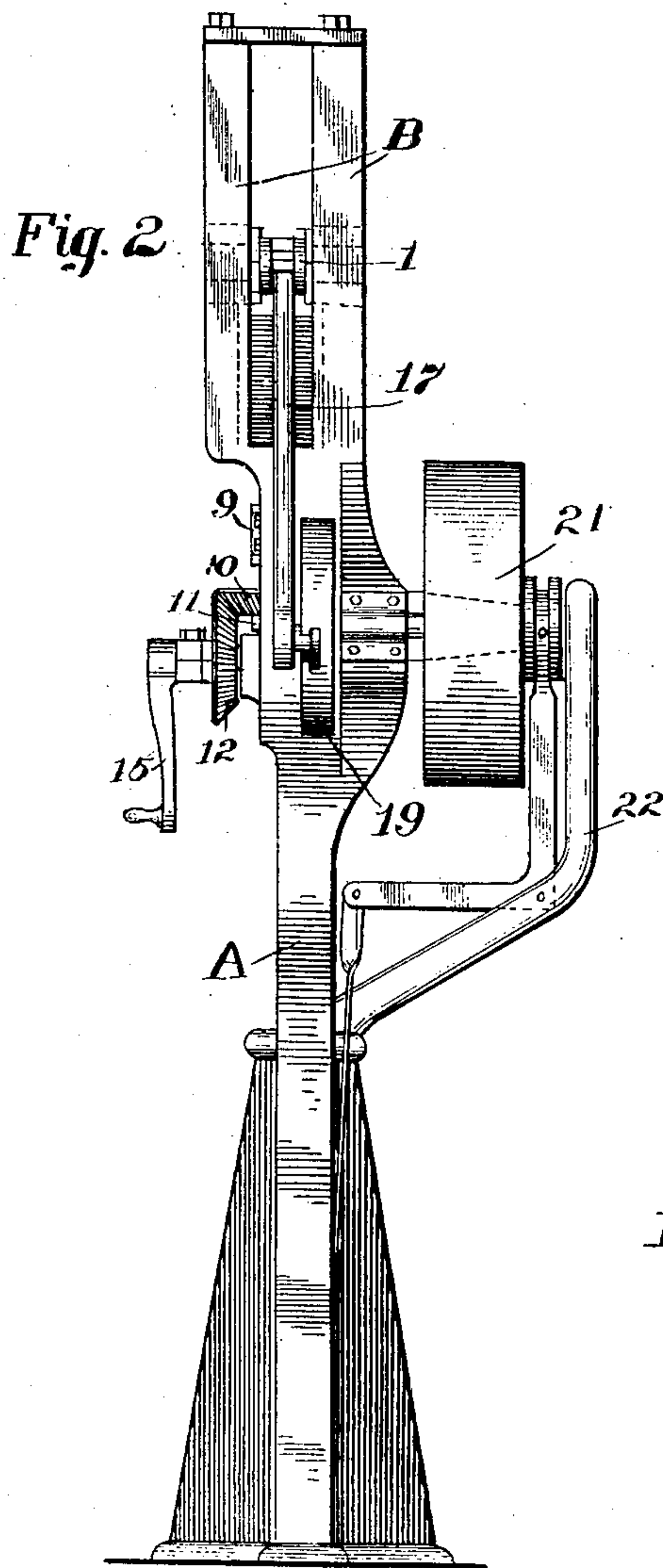
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2 SHEETS—SHEET 2.



Witnesses

Milton Lenoir

Walter T. Estabrook

Inventor

Charles Leonhardt

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UNITED STATES PATENT OFFICE.

CHARLES LEONHARDT, OF NEW ULM, MINNESOTA.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 765,020, dated July 12, 1904.

Application filed May 29, 1903. Serial No. 159,325. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LEONHARDT, a citizen of the United States, residing at New Ulm, in the county of Brown and State of Minnesota, have invented a new and useful Improvement in Power-Hammers, of which the following is a specification.

My invention relates to an improvement in power-hammers; and the primary object is to produce a power-hammer which can be quickly and accurately gaged to accommodate metals of various thicknesses, this adjustment being effected by means of a screw which raises or lowers the walking-beam and hammer of the machine at the will of the operator by a simple turning of a crank which is geared to operate a screw.

Another object is to provide an improved method of shaping and constructing the hammer itself and a new means of fastening the hammer to the walking-beam, as well as a new and improved arrangement of springs located inside of the hammer proper, whereby to accomplish the results desired.

My invention still further consists, in connection with these objects, in certain novel features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, parts being broken away. Fig. 2 is a view in rear elevation, and Figs. 3 and 4 are details.

A represents the frame of the machine, which is preferably cast in one piece and affords support for various operative parts of the power-hammer. A walking-beam 1 is fulcrumed in the pillow-block 6 by means of the trunnions *a a*, and the boxes 7 are bolted down securely to the pillow-block to retain the trunnions of the walking-beam in their bearings, as indicated in the drawings. The pillow-block and boxes are fitted in the guide-ways B B at the top of the frame, wherein they are vertically adjustable by means of the screw 8, which is swiveled in the half-box 9, bolted to the frame, and stepped at its lower end in box 11. This screw turns in the threaded bore *c* of the pillow-block, and consequently when the screw is turned to the right the

pillow-block 6 is raised, carrying with it the walking-beam 1, and when turned to the left these parts are lowered, the extent of vertical adjustment being limited only by the length of the screw. As a simple means for accomplishing this vertical adjustment of the walking-beam a bevel-pinion 10 is keyed or otherwise secured to the lower end of the screw. A vertically-disposed pinion 12, secured to the shaft 14, intermeshes with this pinion 10 and transmits motion to it when the shaft 14 is turned, a crank 15 being provided for that purpose and the shaft 14 being supported in the bracket 13, which latter is secured to the main frame of the machine.

A rod or pitman 2 is adjustably connected with the forward end of the walking-beam at its upper end, its lower end being connected with the hammer.

The numeral 5 indicates the hammer, which may be in the form of a cylinder or, as shown in the present instance, in the form of a parallelo-piped hollowed out in the interior to accommodate the two high-tensioned spiral springs 3 and 4, the former of which is interposed between the inner end of the hammer and the head *d* on the lower end of rod 2, whereas the latter spring 4 is mounted on said rod and interposed between the head *d* and the cap *e*, this cap being provided on the under side with a shoulder *f*, which engages and holds the spring 4 in place. The hollow interior of the hammer is preferably tapered from top to bottom, as shown, the chamber having its greatest diameter at the top, whereby to permit a slight swinging movement of the pitman 2 therein and a corresponding movement of the springs as they follow the movement of the pitman. In the top of the cap is an oblong hole *g*, through which the connecting-rod 2 operates. The cap is fastened in place by means of bolts *h h* and nuts *i*, screwed thereon. When the cap is thus bolted down, it at the same time compresses the springs to a high tension. It will be readily understood that when the machine is working the springs 3 and 4 will automatically adjust the hammer to a limited extent to the thickness of the material which is being operated upon. In the case of thicker material being operated upon the springs will

give more in proportion and when thinner materials are being hammered they will give proportionately less. This hammer 5 reciprocates in a guide-box 16, provided therefor and bolted in position to the front face of the machine.

The length of strokes is regulated by the adjustment of the end 18 of pitman 17 in and out from the center of crank-wheel 19 by means of a sliding bolt which can be adjusted by a simple turning of the nut at any point between the center of the wheel and the outer edge thereof. It will be understood that the nearer the connection is to the center of the wheel the shorter will be the stroke and the nearer it is set to the outer edge of the wheel the longer will be the stroke. The limit of adjustment will depend entirely on the diameter of the crank-wheel 19. The shaft 20, upon which crank-wheel 19 is mounted, is driven by a belt through pulley 21, and a clutch 21' is designed to be operated by the treadle 23 to clutch or unclutch pulley 21 with relation to the shaft, whereby to start or stop the hammer. A bracket 22 supports the outer end of shaft 20.

It is hardly necessary to repeat the operation; but it may be briefly stated that when the operator desires to raise the hammer to accommodate metals of greater thickness it is done by turning the crank 15 to the right. By reversing it the hammer is lowered through the bevel-gears 12 10 and screw 8, the pillow-block 6, controlled thereby, carrying the walking-beam and the walking-beam the hammer. Thus a simple and at the same time powerful mechanism for the accomplishment of the purposes sought is provided.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth; but,

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

1. The combination with a frame having guides, a pillow-block movably received on the guides, and a walking-beam supported by the pillow-block, of a threaded sleeve connected to the pillow-block, a swiveled screw engaging the threads of the sleeve, and means for rotating the screw whereby to move the sleeve upon the screw.

2. The combination with a frame having guides, a pillow-block movably received on the guides, and a walking-beam supported by the pillow-block, of a threaded sleeve connected to the pillow-block, a swiveled screw engaging the threads of the sleeve, means for rotating the screw whereby to move the sleeve upon the screw, a spring-cushioned hammer connected with one end of the walking-beam, a pitman connected with the other end, a drive-shaft and means for adjusting the pitman radially with respect to the drive-shaft whereby to vary the stroke of the walking-beam.

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

CHARLES LEONHARDT.

Witnesses:

JOHN W. BOOCK,
H. F. RAABE.