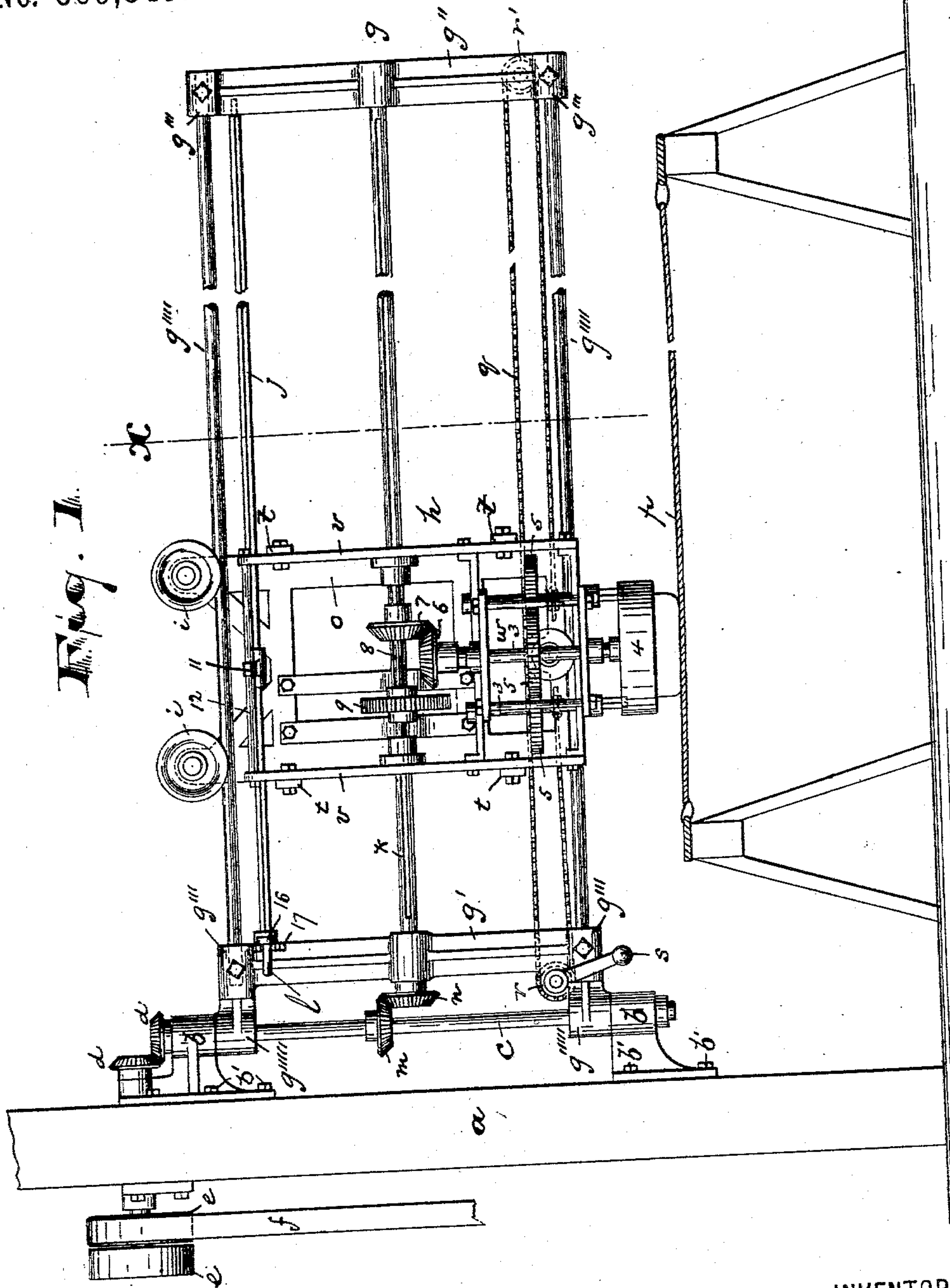


(No Model.)

H. SMITH.
POLISHING OR FINISHING MACHINE.

No. 569,843.

Patented Oct. 20, 1896.



WITNESSES:

Robert Sollberger
Essie J. Goldfinger.

INVENTOR:

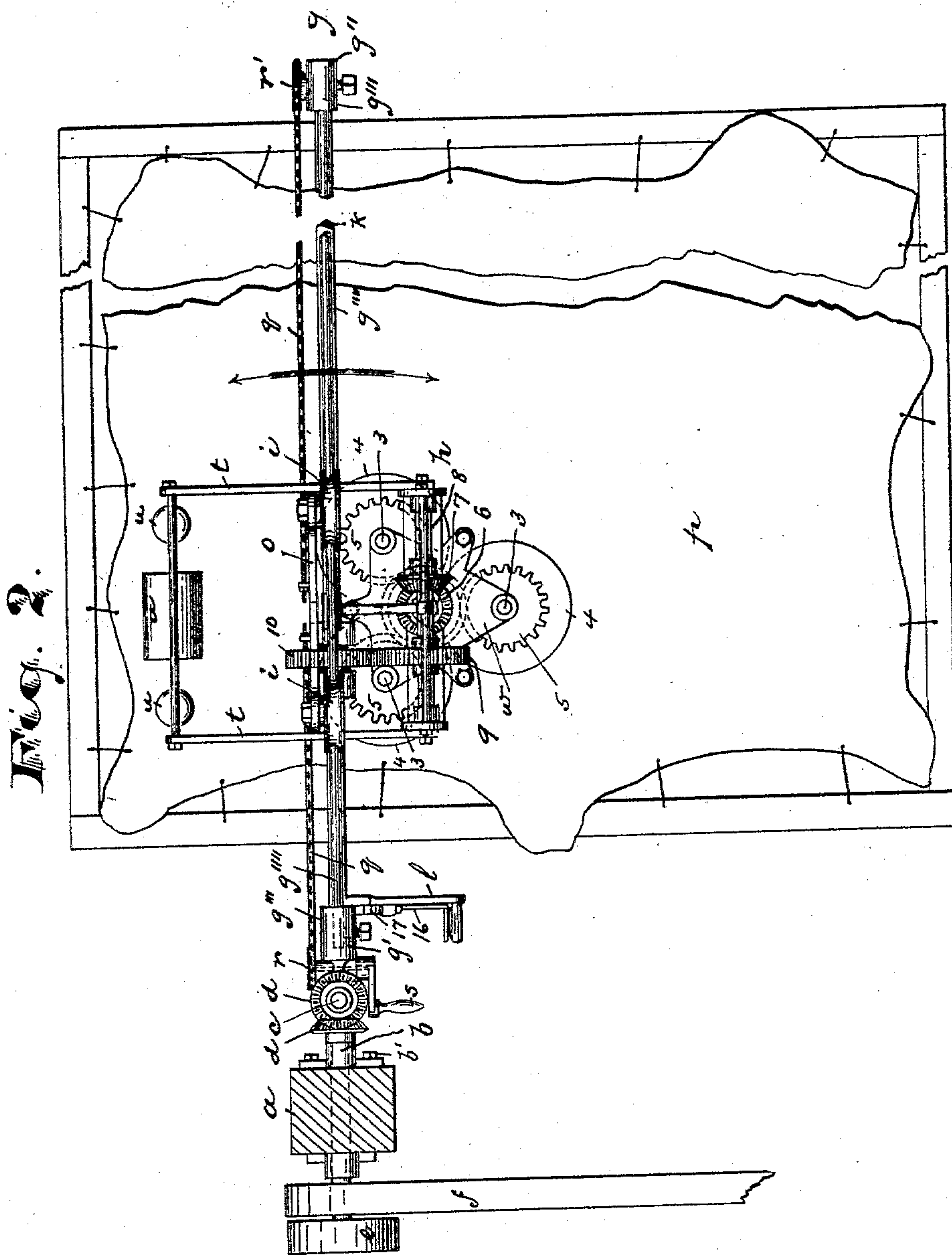
Hugh Smith,

BY *Drake & Co.* ATTY'S.

4 Sheets—Sheet 2.

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WITNESSES:

-INVENTOR

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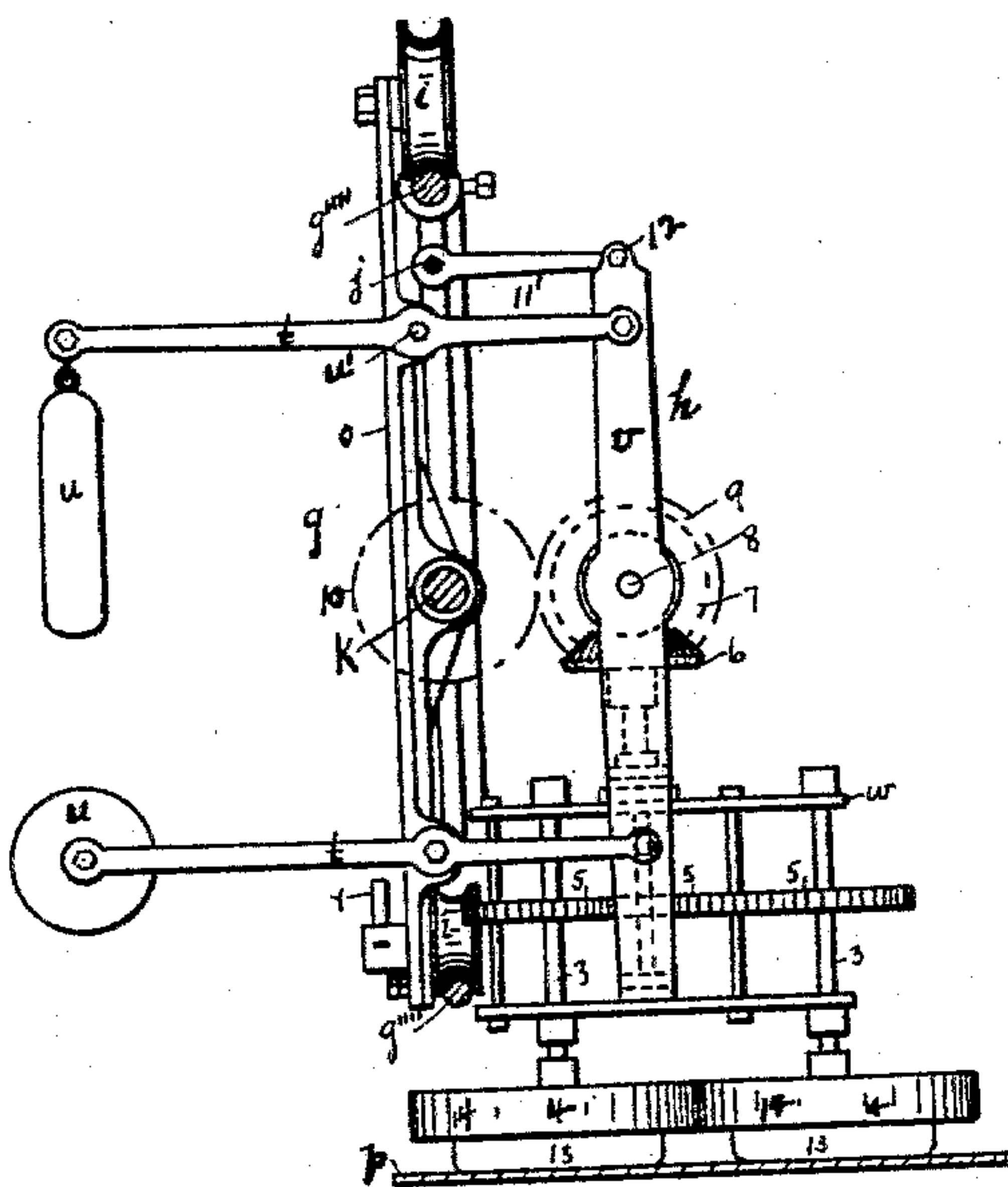


Fig. 3.

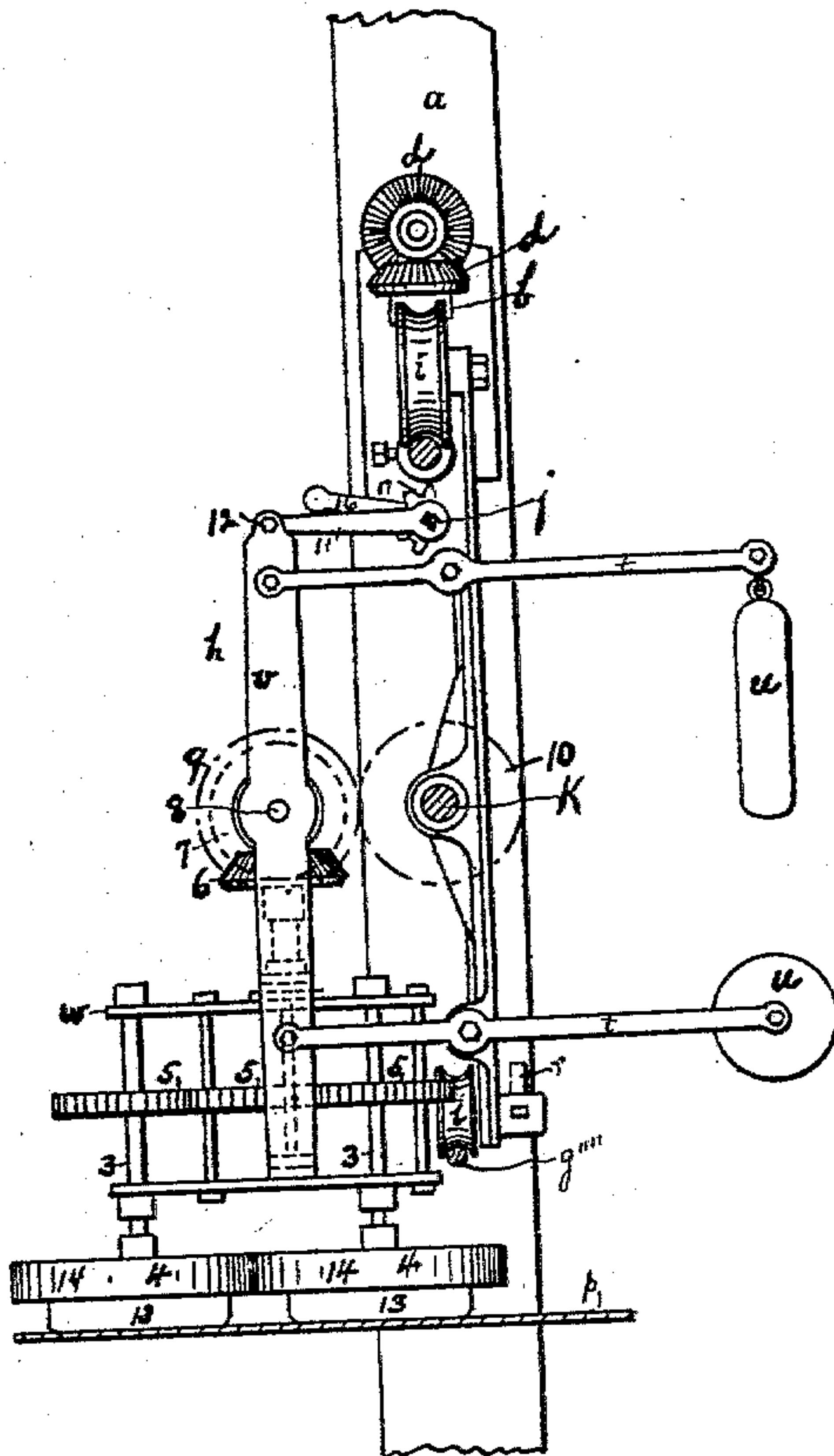



Fig. 3a.

WITNESSES:
R.B. Blomcke
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(No Model.)

4 Sheets—Sheet 4.

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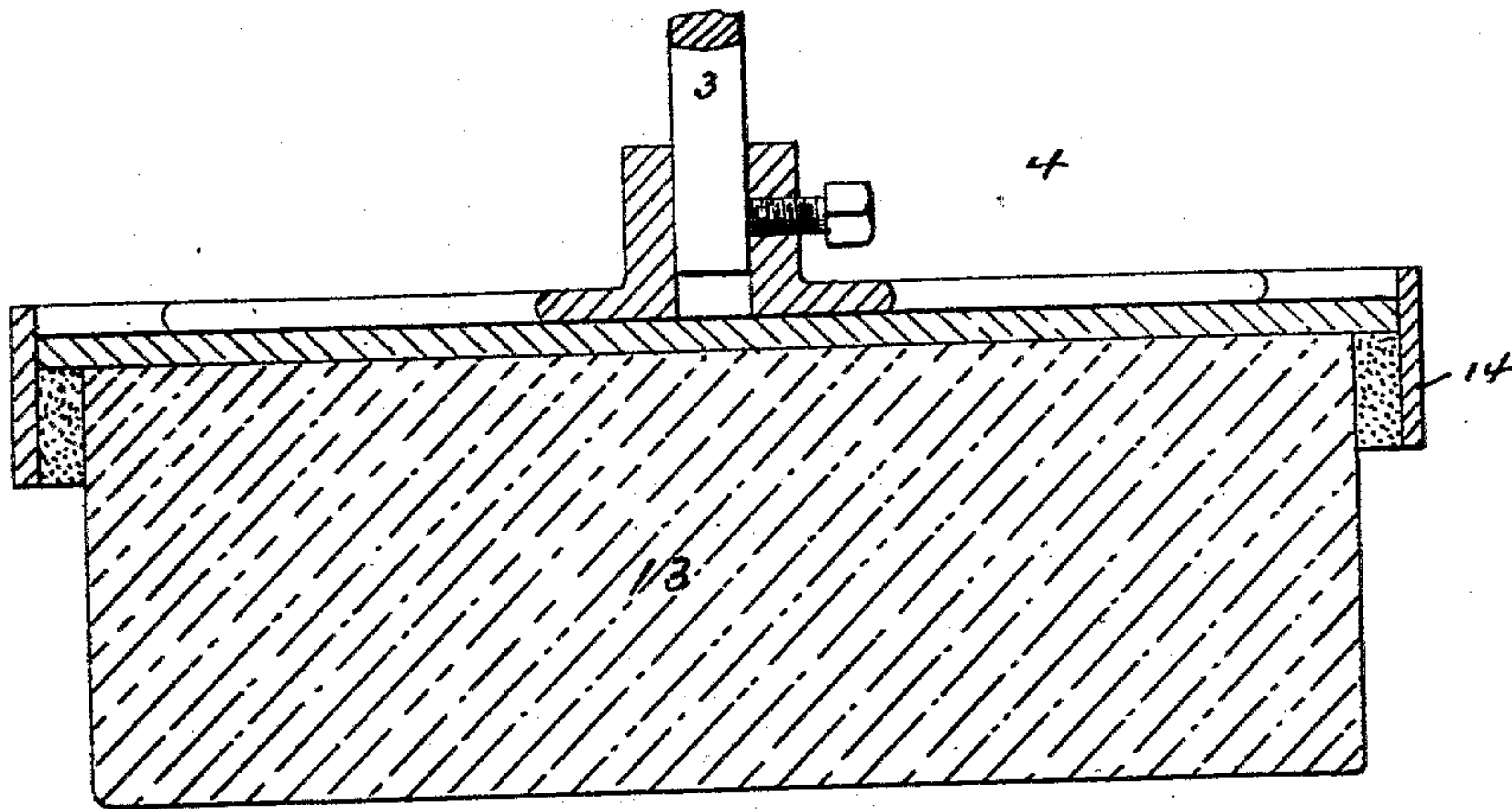


Fig. 4.

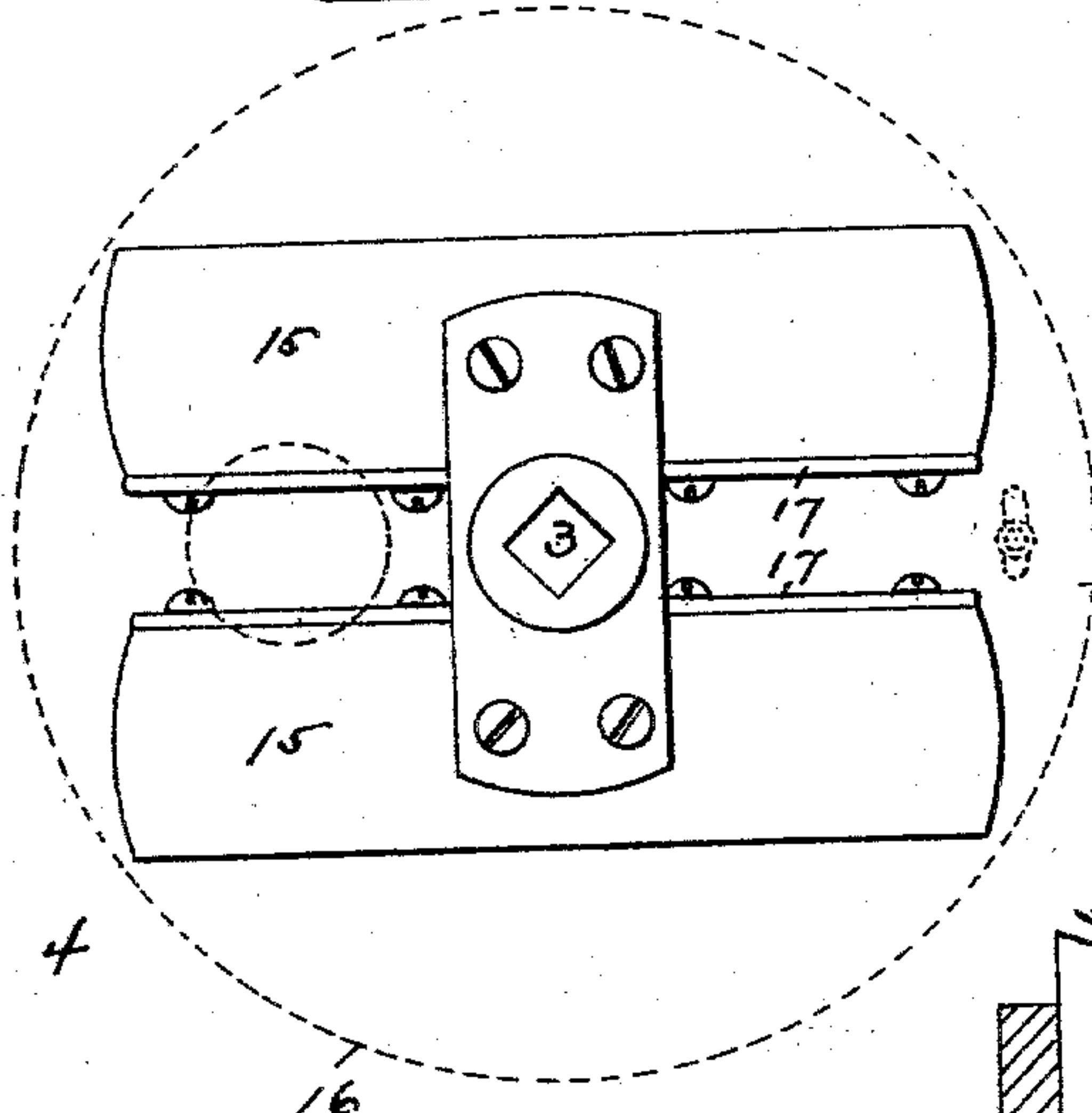


Fig. 5.

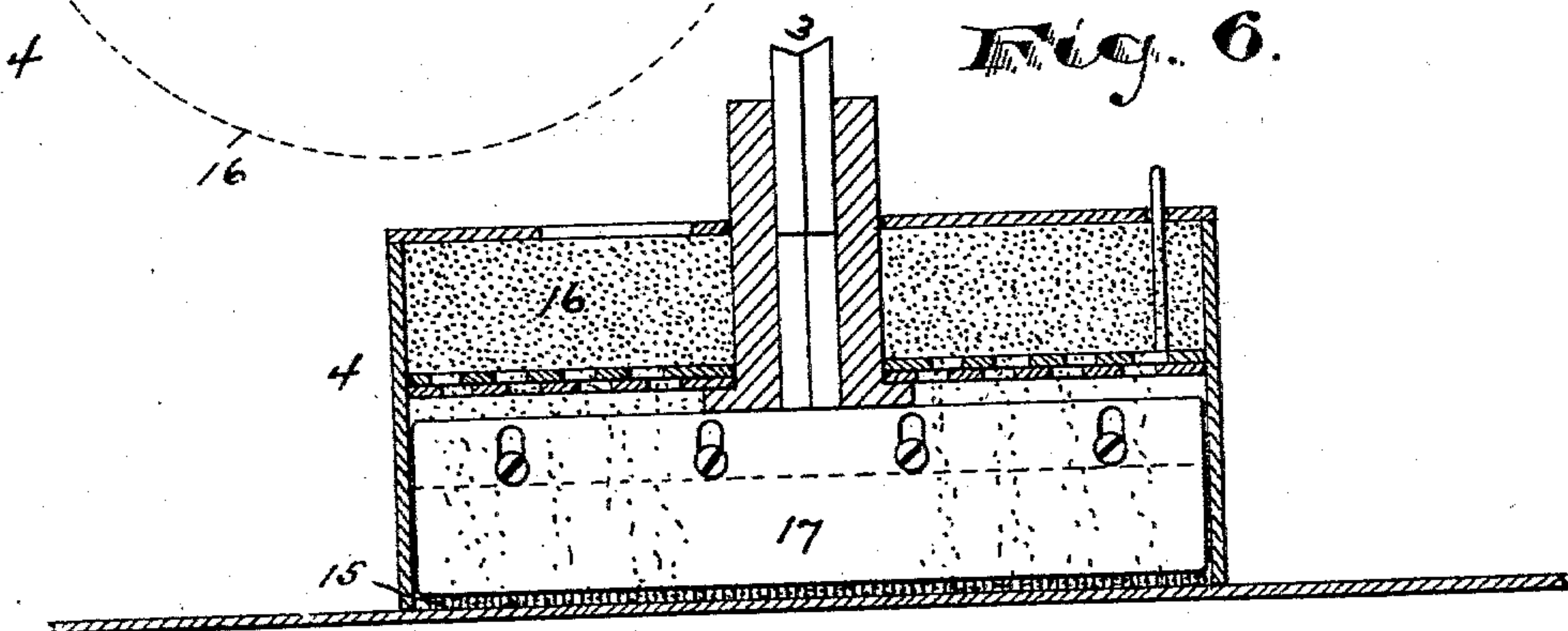


Fig. 6.

WITNESSES:

Esie J. Goldfinger
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INVENTOR:

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UNITED STATES PATENT OFFICE.

HUGH SMITH, OF NEWARK, NEW JERSEY.

POLISHING OR FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,843, dated October 20, 1896.

Application filed October 14, 1895. Serial No. 565,551. (No model.)

To all whom it may concern:

Be it known that I, HUGH SMITH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Polishing or Finishing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and numerals of reference marked thereon, which form a part of this specification.

The object of this invention is more particularly to facilitate the manufacture of patent and enameled leather and to provide an oscillatory arm, such as will, with regularity and evenness, move over three or more hides, skins, or leathers arranged side by side, the machine acting on said skins one after another and thus kept constantly at work, while the workman can be actively and continuously engaged in setting and removing the skins.

A further object is to enable the machine to be worked by an operator standing at the center of oscillation of the arm, so that his time will not be so largely consumed in walking from place to place.

Another object is to enable the leather to be more evenly finished and to avoid the application of material in stripes by arranging a series or group of brushes, stones, or similar tools, so that the path of one will overlap that of the others at each sweep of the oscillating arm, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention may be employed in other arts than that referred to.

The invention consists in the improved polishing or finishing machine and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters and numerals indicate corresponding parts in each of the several

views, Figure 1 is an elevation of the improved machine. Fig. 2 is a plan of the same. Fig. 3 is a sectional view taken at line *y*. Fig. 3^a is a section at line *x*; and Figs. 4, 5, and 6 are details of polishing-tools which may be employed with the machine and which will be hereinafter more fully and specifically described.

In said drawings, *a* indicates a suitable post or vertical supporting-fixture, to which the machine is secured.

b b are boxes or bearings fastened to said post by bolts, said bearings being vertically in line with one another.

c is a rotary shaft arranged in said bearings and receiving motion through angle gear-wheels *d d* from pulleys *e*, belt *f*, and shafting in any suitable manner, and *g* is a vibratory or oscillatory frame on said shaft *c* and bearings *b b*, which frame serves as a carrier for the polishing tool or tools. Said frame *g* comprises horizontal shafts *g'''* and end pieces *g' g''*, each of which latter is provided with bearings *g'''* for said horizontal shafts *g'''*, and one of which end pieces has arms *g''''*, Fig. 1, which extend into engagement with the bearings *b* on the vertical supports *a*, so as to be held thereby from falling. Said arms *g''''* are perforated to allow passage for the shaft *c*, as will be understood.

The horizontal shafts *g'''* serve as tracks or ways for a tool-carriage *h*, which is provided with wheels *i i*, by which said carriage may travel over said track from one end of the frame to the other with ease.

Between the tracks *g''' g'''* the oscillating frame *g* is provided with an angular horizontal shaft *j* and a horizontal rotary shaft *k*, which have bearings in the end pieces *g' g''* and lie parallel with the said shafts *g'''*. The angular shaft *j* is adapted to be oscillated in its bearings by a hand-lever *l*, and motion is communicated to the rotary shaft *k* by angle gear-wheels *m n*, one of which is on the end of the shaft *k* and the other on the vertical shaft *c*. Said carriage *h*, traveling on the oscillating frame, consists of a frame *o*, having the wheels *i i* above referred to and attachments and connections on which the tool-shafts and gearing for giving rotary motion thereto have their bearings. To enable said

frame *o* and its connections to be moved back and forth on the track or way by a person standing near the center of movement of the oscillating frame *g*, so that the polishing-tools may be given variously-directed sweeps over the leather *p* or surface to be finished, I have fastened to said frame *o* a chain *q*, arranged on sprocket or chain wheels *r r'* at the opposite ends of the frame *g*, one of which wheels, (the one marked *r*,) stationed near the center of oscillation of the frame *g*, is provided with a hand-crank *s*, by which said sprocket or chain wheel is rotated. The opposite ends of the chain are secured to the frame *o*, and when the hand-crank *s* of the sprocket-wheel *r* is turned the said frame *o* is given the desired horizontal movement. The frame *o* carries parallel arms *t t*, which are weighted at *u*, Fig. 3, are fulcrumed on the frame *o* at *u'*, and at the ends opposite the weights are pivoted to vertically-movable bars or side pieces *v v*, between which a gearing-frame *w* is bolted. The weights more or less exactly balance the side pieces and connections, so that undue weight will not be brought upon the leather. Said gearing-frame *w* provides bearings for the vertical shafts 3, to which the rotary tools 4 are fastened, and which shafts have intermeshing gear-wheels 5 5 5, which cause the plurality of tools 4 to operate in unison, as indicated in Figs. 2 and 3. It will be evident upon examination of Fig. 3 that the paths of the tools over the sides of the leather, due to the oscillatory movements, will overlap, and thus the finishing fluid of one brush will be transmitted to and bespread to some extent by the others and thus a more even distribution of the material will be effected and a streaked or striped appearance to a greater extent be avoided. One of said shafts 3 projects above the gearing-frame *w*, and is provided with an angle gear-wheel 6, which meshes with a corresponding angle-wheel 7 on the shaft 8, journaled between the bars or side pieces *v*. Said shaft 8 also carries a cog wheel or pinion 9, which meshes with and receives its motion from a longitudinally-movable or horizontally-sliding cog wheel or pinion 10 on the rotary shaft *k*. The longitudinally-movable or sliding cog-wheel 10 and its rotary shaft *k* are provided with a suitable groove and feather to admit of the sliding movement and at the same time transmit the rotary movement.

The cog-wheel 10 is suitably held in the tool-carrying frame, so that said wheel will slide with the said carrying-frame on the shaft *k* of the oscillatory frame and remain in operative relation with the gear-wheel 9, as will be understood upon reference to Fig. 1, where opposite lying portions of the frame *o* are shown.

To raise and lower the polishing or finishing tools from and to the face of the leather, the oscillating shaft *j* and its hand-lever *l* are connected to the vertical side pieces *v v* by

an arm 11 and cross-bar 12. The arm 11 slides upon the angular shaft with the carriage and oscillates with said shaft when the latter is turned by means of the hand-lever. The action of the arm 11 is transmitted to the side pieces *v* and the parts carried thereby, and thus, when the hand-lever *l* is raised or lowered, the tools 4 are simultaneously raised or lowered from or to the leather. A latch 16 on the lever *l* coöperates with a toothed segment 17, Fig. 2, to hold the parts from vertical movement.

The tools are preferably of pumice-stone 13, Fig. 4, suitably held in a receptacle 14, fastened on the ends of the shafts 3 by plaster-of-paris or other suitable means; but I may fasten upon said shafts a tool such as is illustrated in Figs. 5 and 6, where the shafts 3 are shown to be provided with two brushes 15, arranged beneath valved receptacles 16 for blacking liquid or other material to be fed to the surface being polished. At the sides of the brushes are spreading-plates 17, which extend down to or near to the surface and serve to spread the said material evenly preliminary to its being brushed. Slickers or other tools common in the art may be also employed.

In operating the device the workman stands near to the post *a* or where he can conveniently oscillate the frame *g* horizontally on its bearings *b*. Power is imparted to the rotary tools 4 from any suitable source through the belt *f*, pulleys *e*, angle gear-wheels *d d*, shaft *c*, angle gear-wheels *m m*, shaft *k*, cog-wheels 9 10, shaft 8, angle gear-wheels 6 7, gear-wheels 5, and shafts 3, so that as the frame *g* oscillates the tools will rotate and travel in curved lines over the face of the leather. To throw the tools farther from or nearer to the center of vibration and thus vary the position of the tool with relation to said leather and its direction of movement over the surface being finished, I employ the hand-crank *s* and chain *q*, by turning which the tool-carriage travels longitudinally on the frame *g*. When it is deemed necessary or desirable to lift the tools free from the part *p*, then the hand-lever *l* is raised and with it the arm 11 and its connections, and said parts are held in this position as long as desired by the latch 16 engaging the toothed segment 17.

I am aware that various changes may be made in the construction of the machine without departing from the spirit or scope of the invention, and therefore I do not wish to be understood as limiting myself by the various positive descriptive expressions employed, excepting as the state of the art may require.

Having thus described the invention, what I claim as new is—

1. The improved polishing or finishing machine herein described in which is combined with an oscillating frame, a horizontally and vertically movable frame, carrying rotary fin-

ishing-tools and weights counterbalancing the weight of said frame and tools and means for rotating said tools and for moving said frame horizontally and vertically, substantially as set forth.

2. The improved polishing or finishing machine comprising an oscillating frame having tracks or ways g''' , angular shaft j , rotary shaft k , means for transmitting motion to said shaft, chain q , and sprocket-wheels r, r' , a frame o , with wheels i , weighted parallel arms t , fulcrumed upon said frame, o , and supporting vertically-movable side bars or pieces, v , a frame secured to said pieces, gearing receiving power from said shaft k , and transmitting motion to the polishing or finishing tool, said finishing-tool and means connecting with the angular shaft, j , for raising and lowering the pieces, v , and its connections, all arranged and combined substantially as set forth.

3. The improved finishing-machine, comprising a frame movable pivotally and provided with tracks g''' , g''' , extending from one end of said frame to the other, a rotary shaft k , also extending from one end of the frame to the other, and oscillating horizontally therewith, chain or sprocket wheels arranged at opposite ends of said frame, the sprocket or chain wheel which is arranged at the pivotal end of said frame having a hand-crank s , a chain q , extending from chain-wheel to chain-wheel, and a tool-carrying frame carried by said oscillating or pivoted frame, and attached to said chain, q , and movable horizontally on said oscillating frame thereby, a finishing-tool carried by said tool-carrying frame and means for transmitting

rotary movement from said rotary shaft k , to said tool, substantially as set forth.

4. The combination with the oscillating frame, the horizontally-sliding tool-carrying frame, a portion of which latter is vertically movable, tools arranged on said vertically-movable portion, means for transmitting rotary movement to said tools, means for raising and lowering said tools, and means for sliding said tool-carrying frame, the sliding means and the means for raising and lowering the tools extending to and being controlled by hand devices l, s , at the center of movement of said oscillating frame, and said hand devices arranged at the pivotal end of the oscillating frame, substantially as set forth.

5. In a finishing-machine, the combination with the oscillating frame, provided with a horizontal track and a horizontal rotary shaft k , of a wheeled frame, o , levers t, t , vertically-movable pieces carried by said levers, counterbalance-weights, a frame carried by said vertically-movable pieces and having therein a train of gear-wheels which mesh with one another, shafts carrying said gear-wheels and rotary tools on said shafts, and a train of gears transmitting motion from said shaft k , means for rotating said shaft k , and means for operating the levers, t , substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of August, 1895.

HUGH SMITH.

Witnesses:

CHARLES H. PELL,
OLIVER DRAKE.