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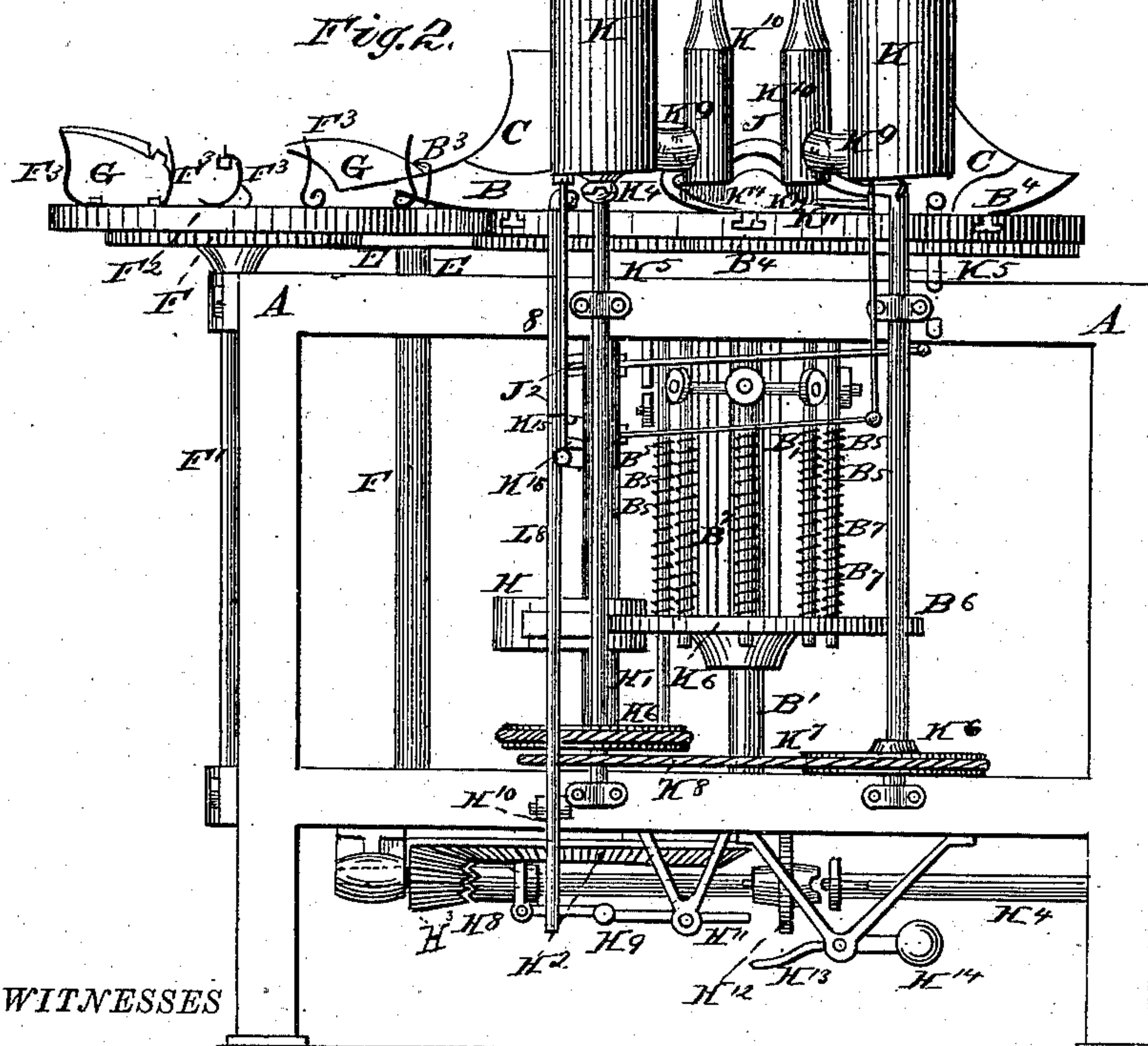
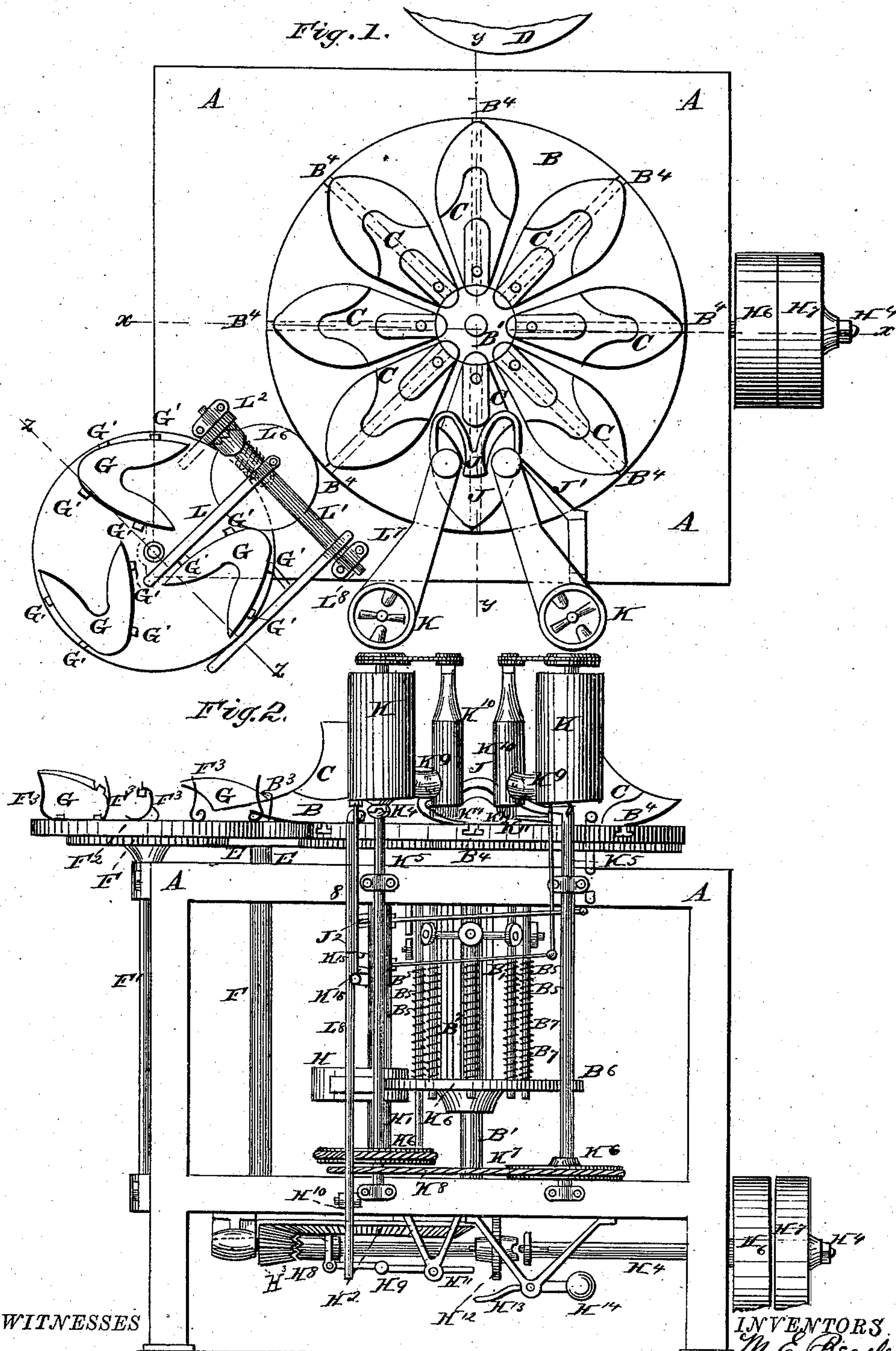
4 Sheets—Sheet 1.

M. E. BEASLEY & S. L. WIEGAND.

MACHINE FOR PASTING SHOE UPPERS.

No. 258,004.

Patented May 16, 1882.



WITNESSES

Med. L. Dieterich.
F. C. Dieterich

F. C. Dörnerich

INVENTORS

M. E. Brasley.
S. L. Megard.

S. L. Heyland

by Lloyd Wiegand Attorney.

(No Model.)

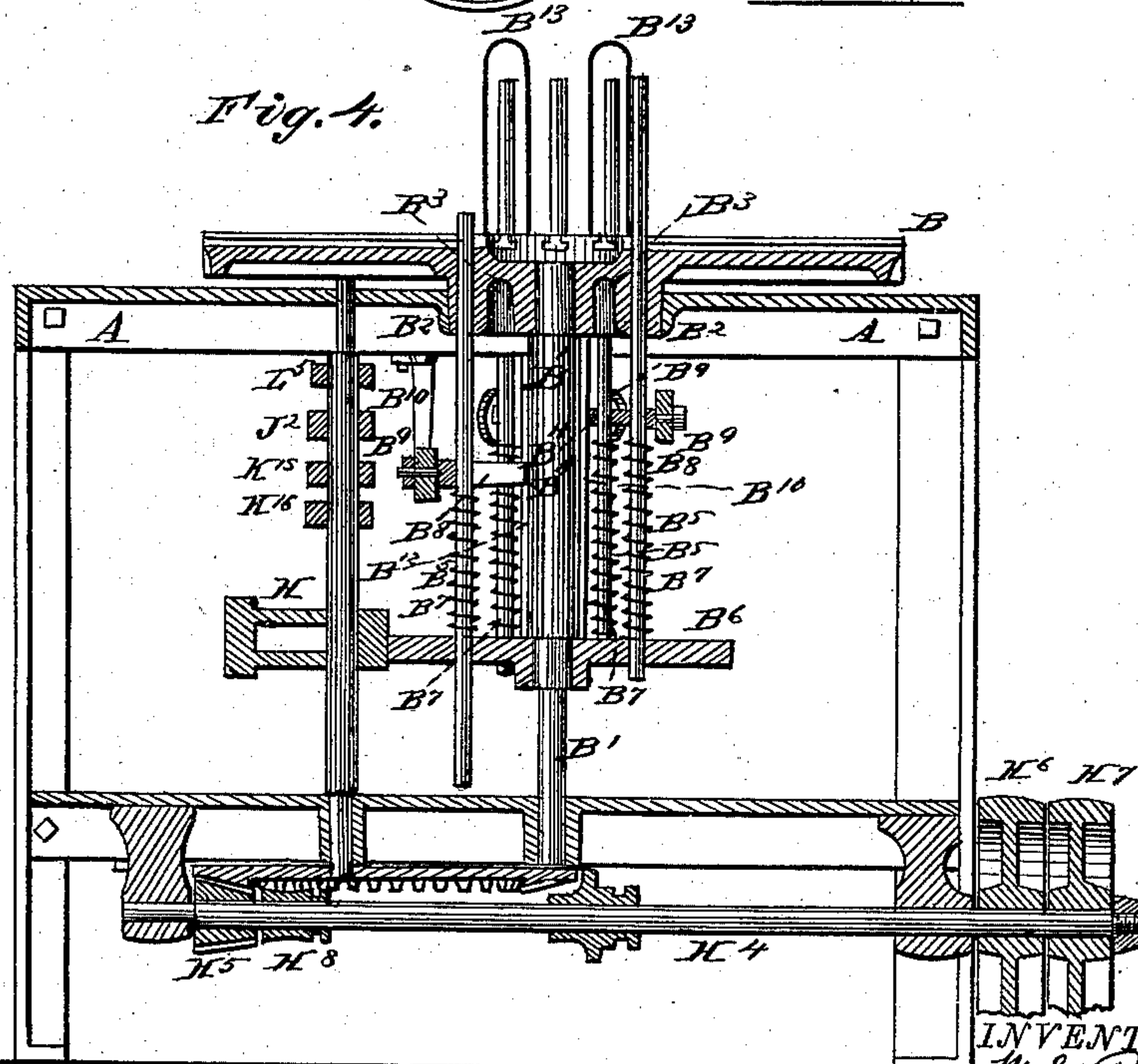
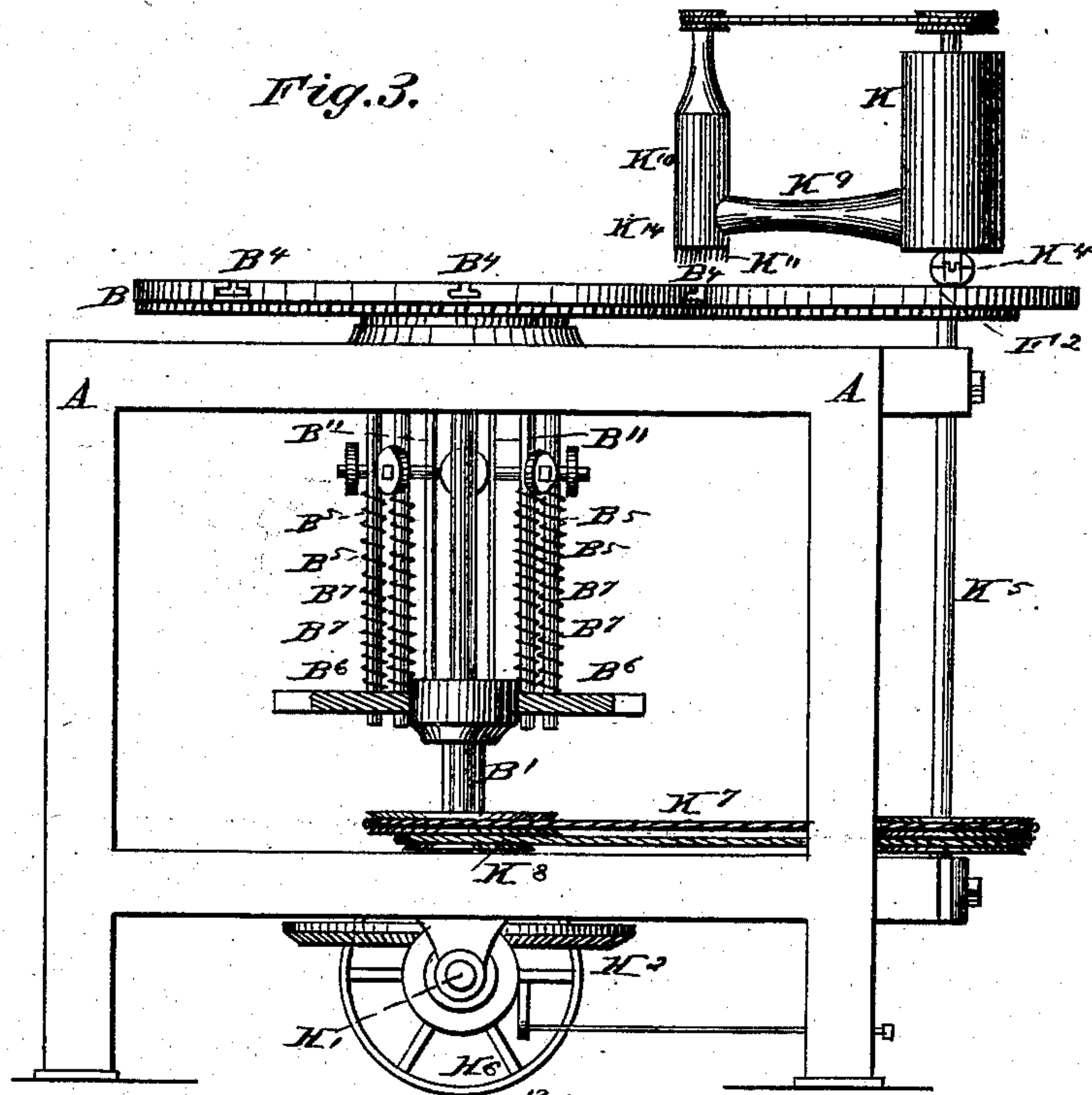
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WITNESSES

W. H. Dietrich
P. C. Dietrich

INVENTORS

M. E. Beasley
S. L. Wiegand

by Lloyd Wiegand Attorney

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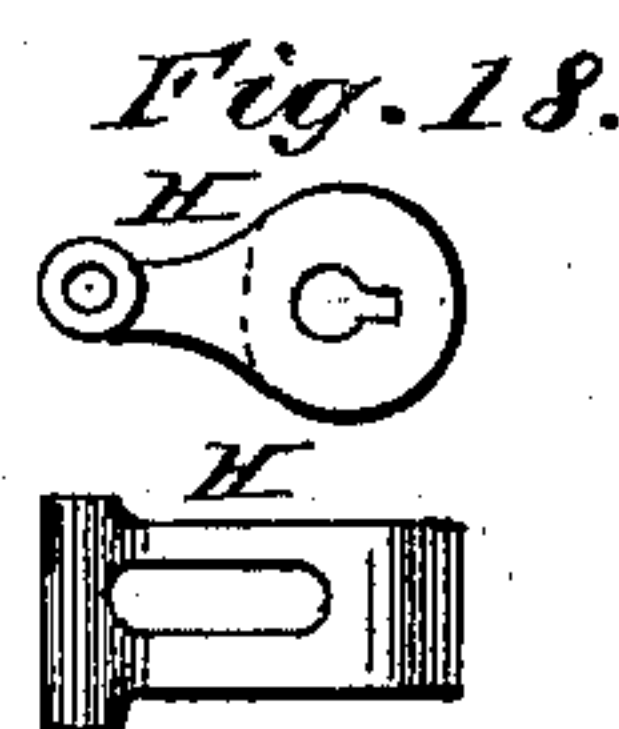
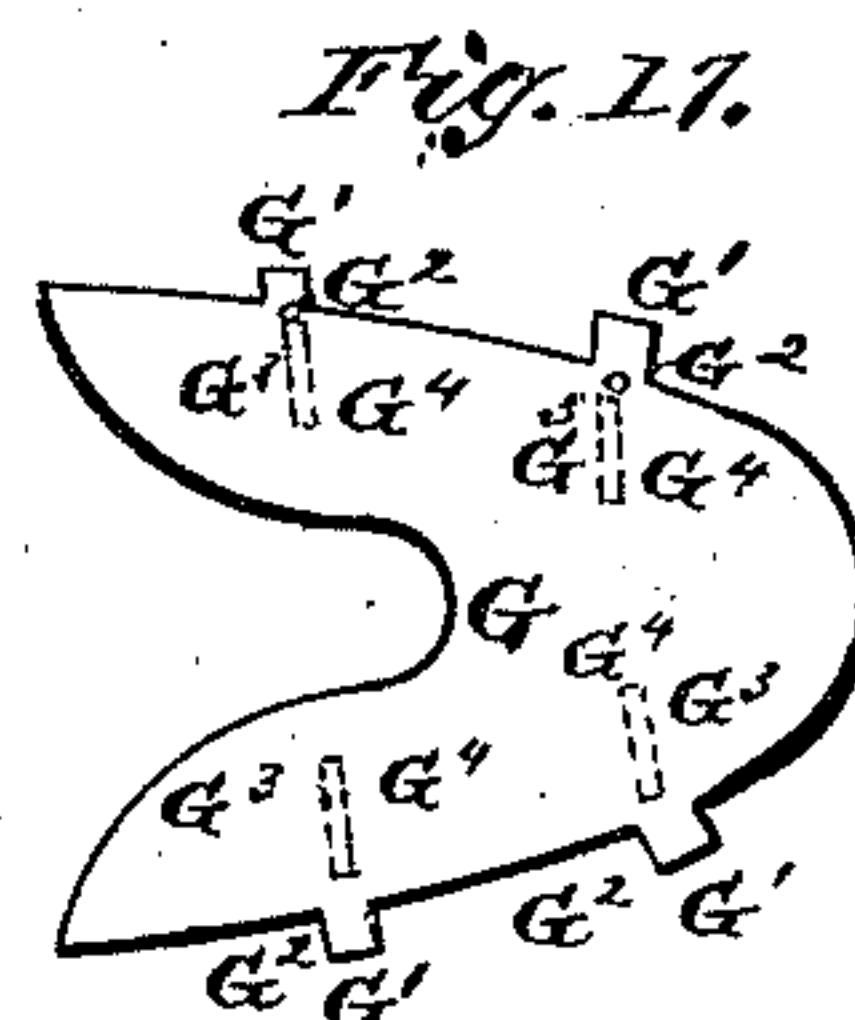
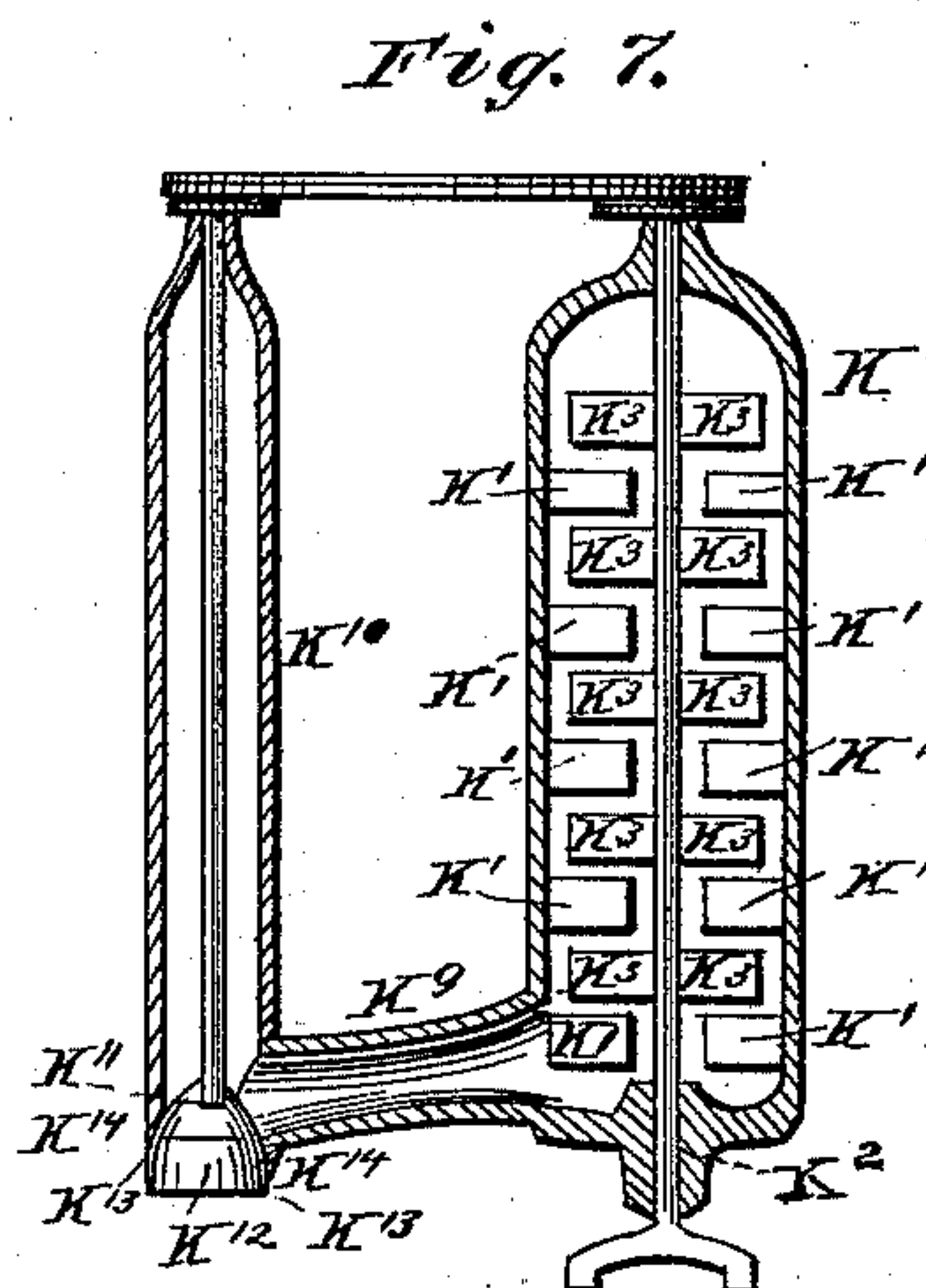
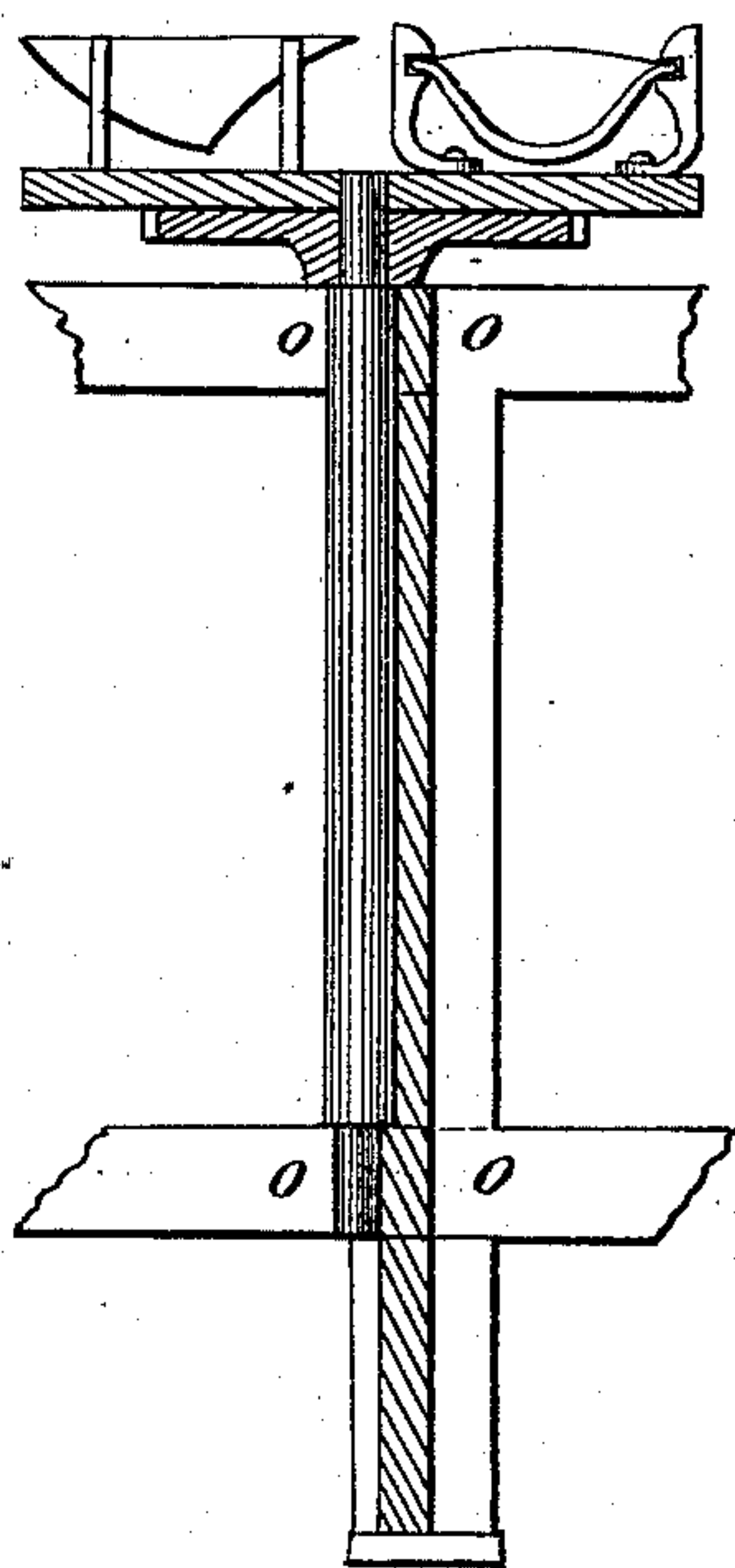
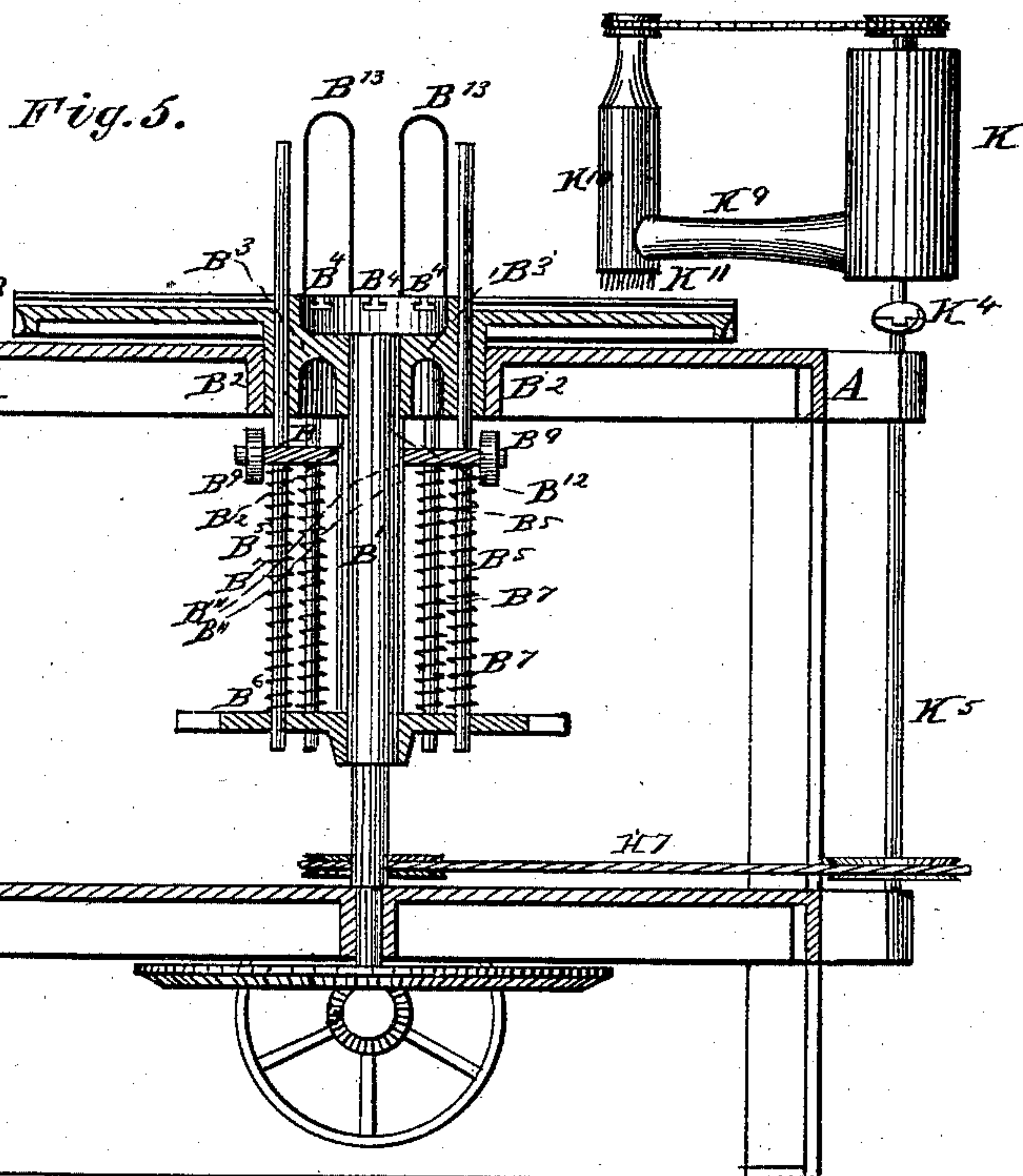
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WITNESSES

W. L. Dieterich
P. C. Dieterich

INVENTORS

M. E. Beasley
S. L. Wiegand
by Lloyd Wiegand Attorney

(No Model.)

4 Sheets—Sheet 4.

M. E. BEASLEY & S. L. WIEGAND.

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Fig. 8.

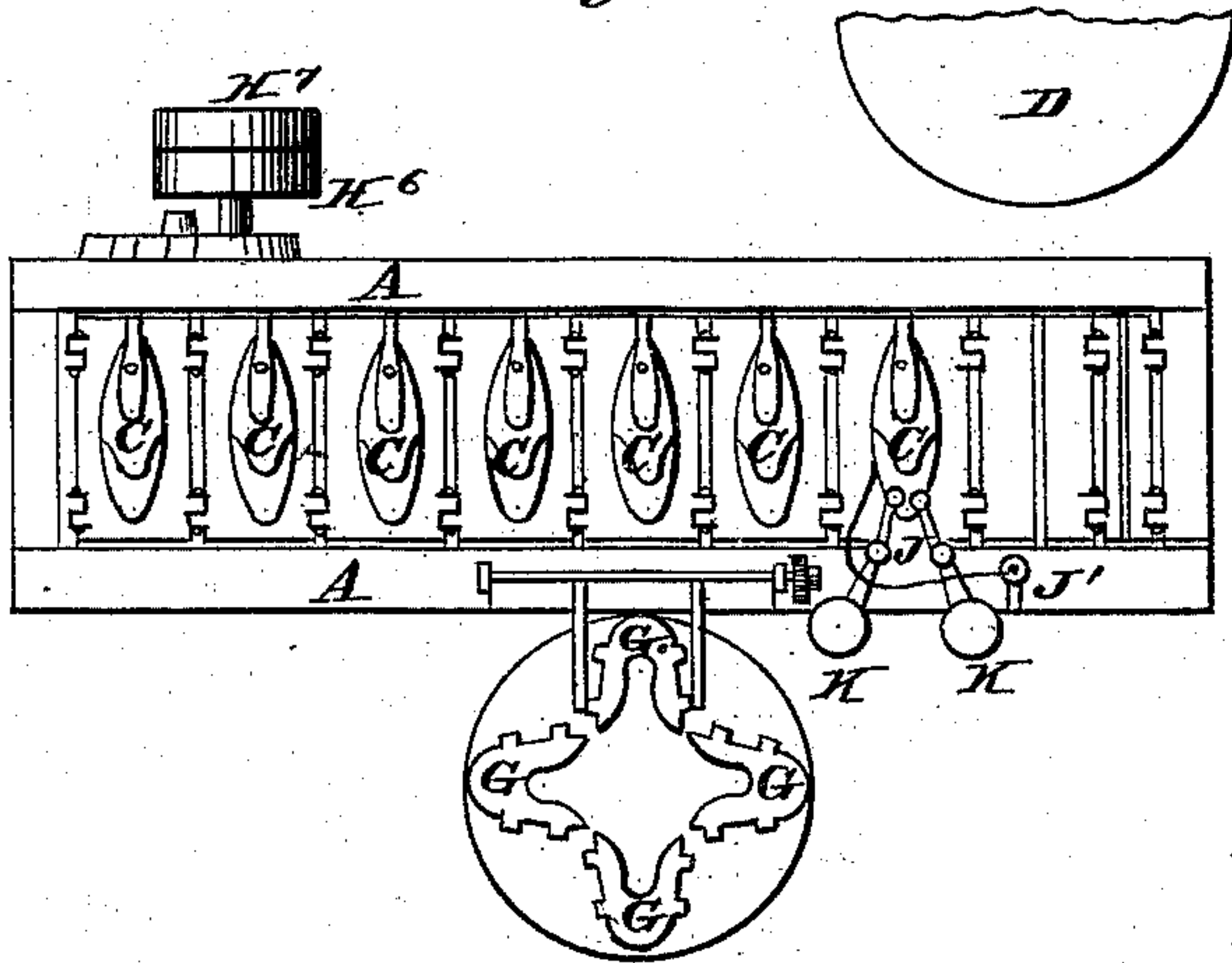


Fig. 9.

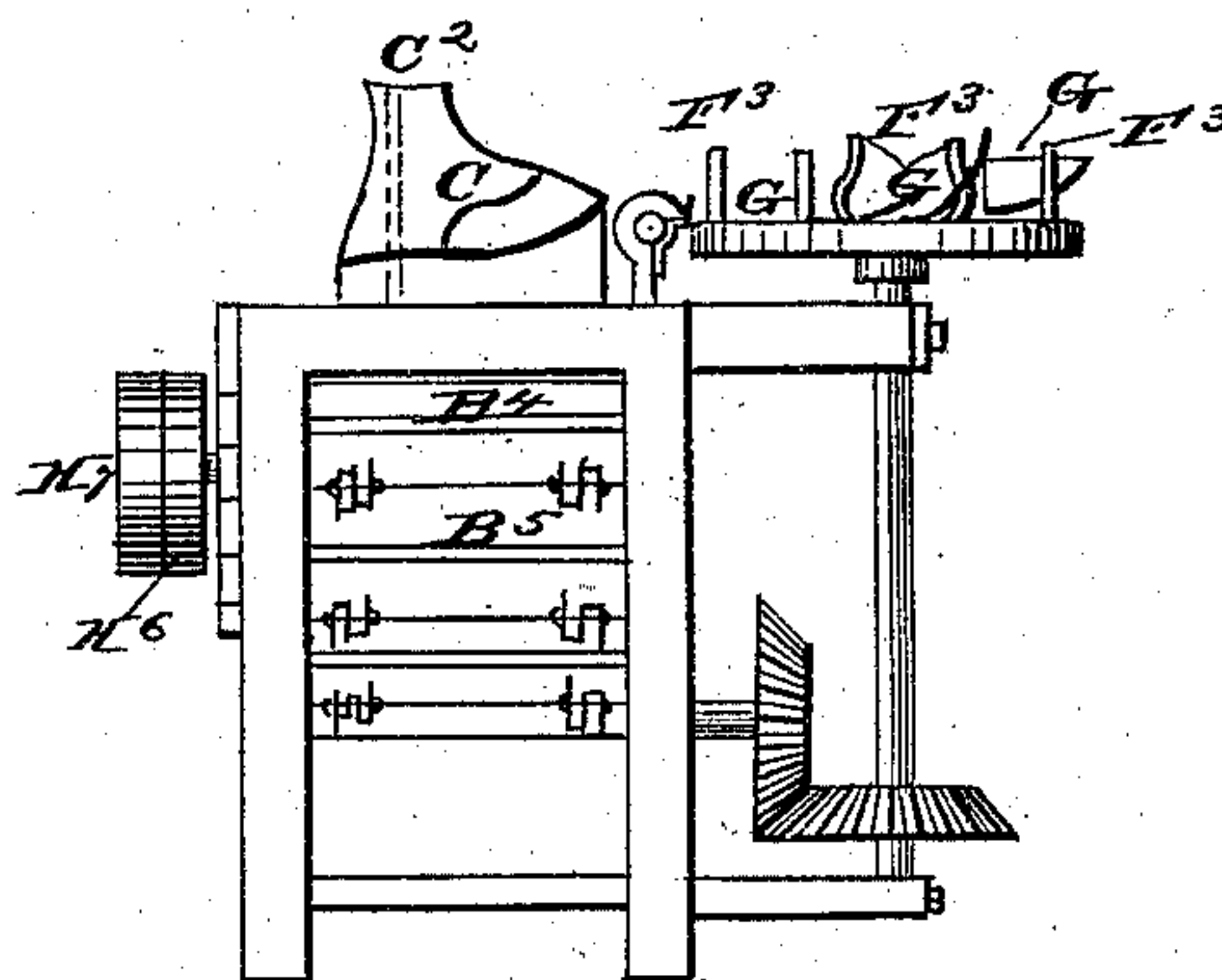


Fig. 10.

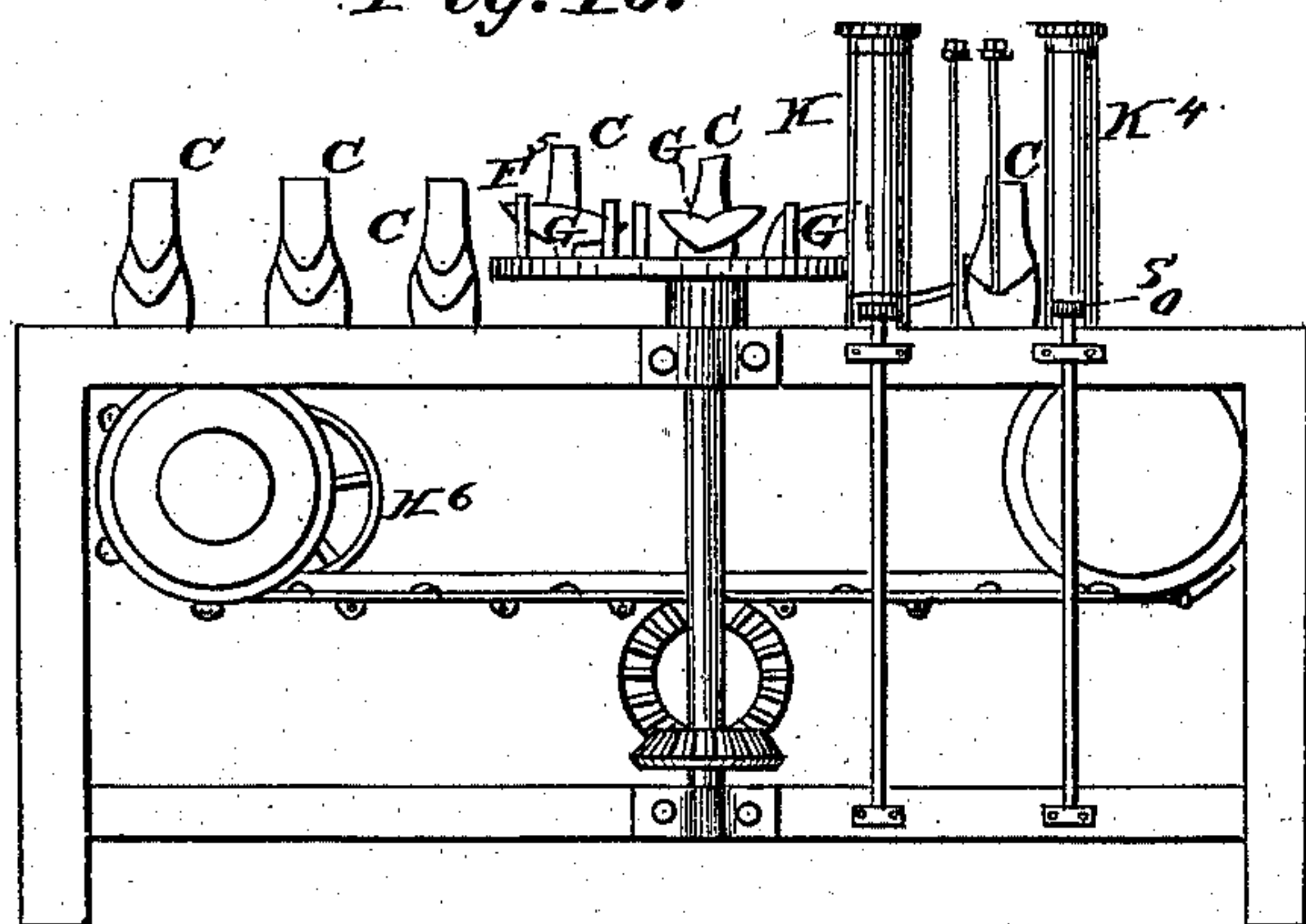


Fig. 11.

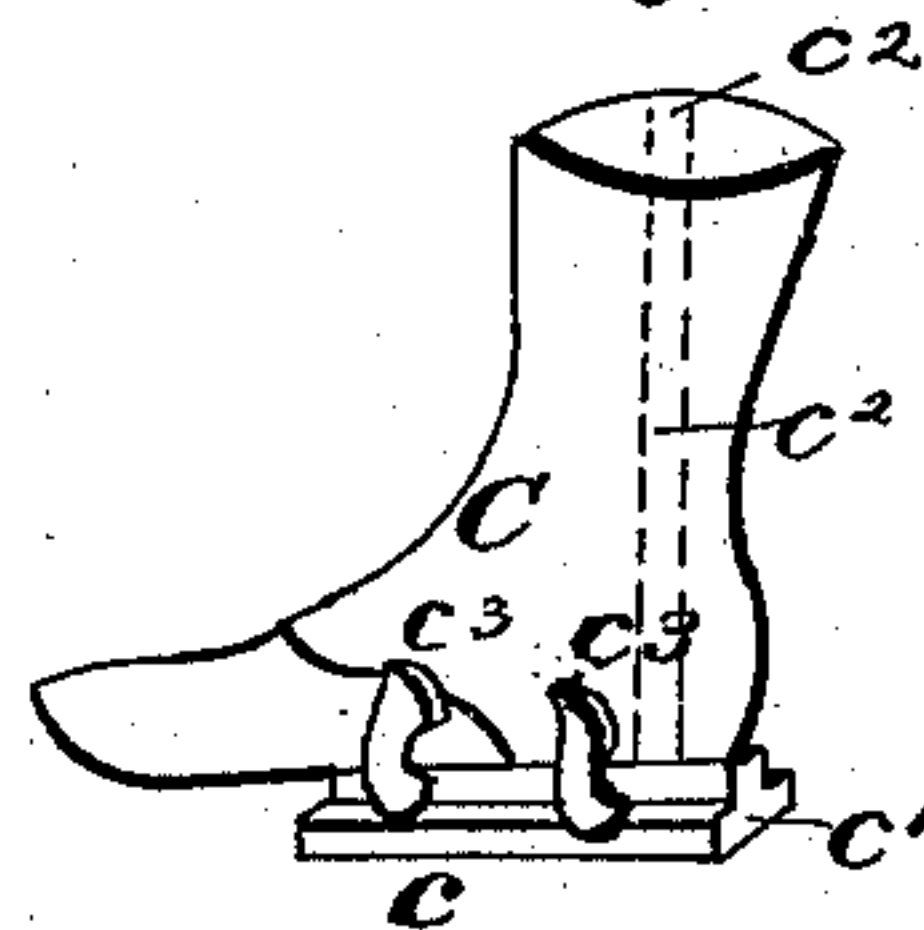


Fig. 12.

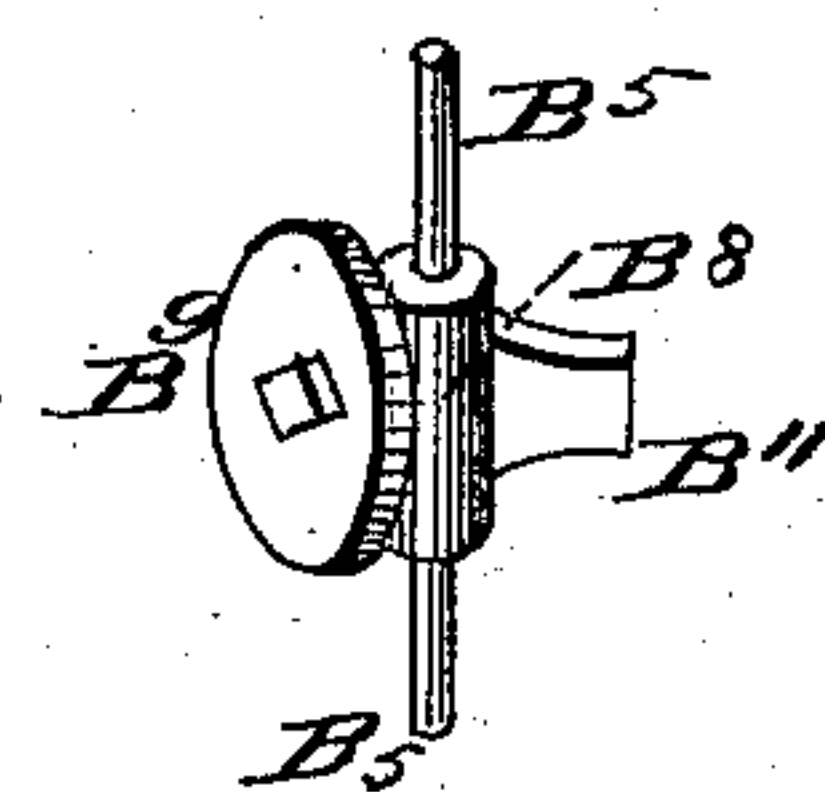


Fig. 14.

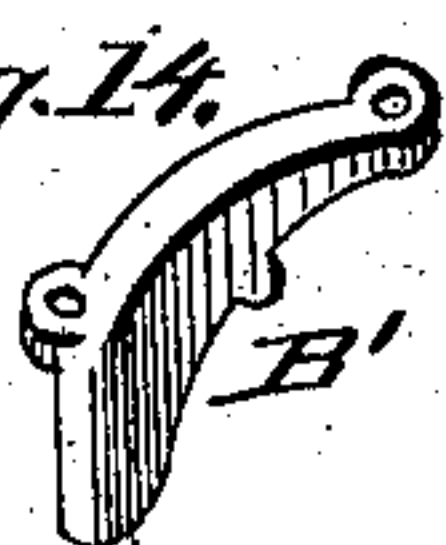


Fig. 13.

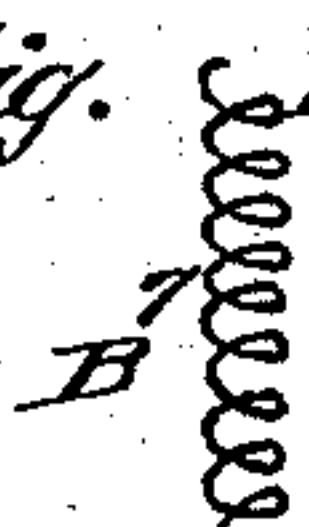
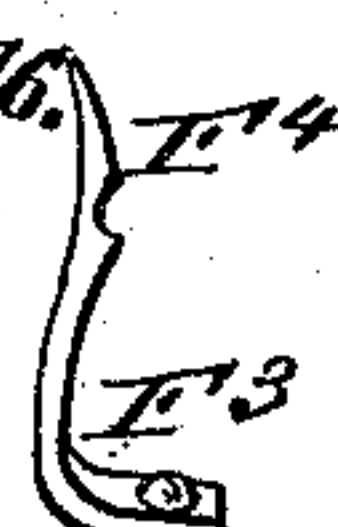


Fig. 15.



Fig. 16.



WITNESSES

Thos. L. Dietrich
D. Dietrich.

INVENTORS

M. E. Beasley
S. L. Wiegand
by Lloyd Wiegand Attorney.

UNITED STATES PATENT OFFICE.

MARIA E. BEASLEY AND S. LLOYD WIEGAND, OF PHILADELPHIA, PENN-
SYLVANIA; SAID WIEGAND ASSIGNOR TO SAID BEASLEY.

MACHINE FOR PASTING SHOE-UPPERS.

SPECIFICATION forming part of Letters Patent No. 258,004, dated May 16, 1882.

Application filed September 30, 1881. (No model.)

To all whom it may concern:

Be it known that we, MARIA E. BEASLEY and S. LLOYD WIEGAND, of Philadelphia, Pennsylvania, have jointly invented a new and useful Machine for Pasting Together the Parts of Shoe-Uppers Preparatory to Sewing and Lasting Them; and we do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention, reference being had to the accompanying drawings and the letters of reference marked thereon.

The nature of this invention consists in a series of forms, blocks, or molds upon which the parts are placed as they serially pass before clamping, pasting, and smoothing devices, and gripper and frames which, by devices similar to the register points and gages used in printing, place the several parts in exact position, and thus insure the exact and rapid assembling of the several parts forming the shoe-upper, as hereinafter fully shown.

Figure 1 of the drawings shows a plan of the machine; Fig. 2, a front elevation; Fig. 3, a side elevation; Fig. 4, a vertical section in the plane indicated by the line $x x$ in Fig. 1; Fig. 5, a section in the plane indicated by the dotted line $y y$ in Fig. 1; Fig. 6, a section in the plane indicated by the dotted line $z z$ in Fig. 1; Fig. 7, an elevation partially in section of the pasting fountain and brush, and scrapers connected therewith, the paste-fountain drawn on enlarged scale. Figs. 8, 9, and 10 show projections in plan, front, and side elevation, in which the several mechanisms are differently assembled, and the remaining figures show the several parts in detail on enlarged scale.

The same letters of reference apply to the same parts in the several figures.

A represents the frame of the machine; B, a large horizontal circular table rotating with a shaft, B', and supported by a large bearing, B², fitting around an enlargement or boss, B³, formed on the under side of the table B. In the upper face of the table B are formed equidistant radial slots B⁴, in shape like an inverted capital block-letter T. These slots should be made accurately of the same dimen-

sions, so as to fit correspondingly-shaped slides (marked C') attached to the under side of the molds or forms C. The forms C are the shape of the interior of a shoe or gaiter upper before the same is lasted and as spread open far enough to place all of the parts involved in the seam uniting the vamp to the quarters or sides in convex form, and are made perforated or of porous material at the parts near the seam in order to expedite the drying of the paste. The inverted-T shaped slides C' are made to fit accurately in the slots B⁴ in the table B, so as to slide freely therein, but not to shake or vibrate laterally. In each of the forms C is a hole, C², made perpendicularly in the center near the heel end of the form, and should be made accurately of the same diameter and at the same distance from the heel in all of the forms used upon the same machine for the same size and pattern of shoe-upper.

Through the table B, at equal distances from the center and centrally in each of the slots B⁴, are fitted a series of vertically-sliding bolts, B⁵. These bolts B⁵ are guided at their lower ends by passing through holes in a plate or wheel, B⁶, securely fastened upon the shaft B', and are raised by means of spiral springs B⁷, which rest at their lower ends on the plate B⁶, with their upper ends pressed against trammels or clamps B⁸, secured upon the bolts B⁵. The trammels B⁸ each bear a roller, B⁹, adapted to pass under an inclined plane or stationary cam, B¹⁰, by which at the proper time they are depressed. The bolts B⁵ are prevented from turning and so caused to present the rollers B⁹ properly to the action of the cam B¹⁰ by projections B¹¹, formed on the trammels B⁸, sliding in grooves B¹², formed in the shaft B', parallel with the axis thereof. When held up by the springs B⁷ the bolts B⁵ engage in the holes C² in the form C and hold them in position in the table B. When depressed by the cam B¹⁰ they are disengaged from the forms C and permit the forms C to be disengaged from the table B by the slides C' sliding outward in the radial grooves or slots B⁴. A series of springs, B¹³, shaped like an inverted capital letter U, are secured by one end near the center of the table B, and have their free ends resting against

the parts of the form C directly below the heel of the uppers, and are so set and adjusted as to project the forms C from the table B when the bolts B⁵ are retracted or depressed by the operation of the cam B¹⁰. The adjustment of the cam B¹⁰, rollers B⁹, bolts B⁵, and springs B⁷ in relation to the plates B⁶ and table B is such that as the table B is turned each bolt is successively retracted so as to clear the form C upon which the operation of pasting and clamping has been completed, and the spring B¹³ discharges that form from the table B upon a carrying or conveying table, D, which turns slowly upon an upright axis and receives the several forms with their uppers upon them, and holds them while the drying and absorption of moisture proceed sufficiently to permit of the separation of the form C and the clamps G, hereinafter described, from the uppers. An endless apron or belt may be substituted for the wheel D.

Upon the periphery of the table B are formed cog-teeth, in number equal to a multiple of the number of the slots B⁴, into which gears an idle or transmitting wheel propelling another wheel, F, of such number of teeth as to be evenly divided by the same multiple as the number of teeth in the wheel B. Upon the upper end of the same vertical shaft, F', as the wheel F, and turning therewith, is a table, F². Upon this table is secured a series of springs, F³, which are arranged in sets of three or more, (four are preferable,) and serve to receive and hold the forms G in position. The forms G are made of metal and of the shape of the vamp or front portion of the shoe-upper, and are provided with ears or projections G', which, resting upon the shoulders F⁴ of the springs F³, hold the forms G in position, and also, engaging in springs C³ on the form C, serve to hold and clamp the forms G and C together, and hold the vamp and quarters when placed in and on them, in the manner hereinafter described, during the operation of drying.

Upon the forms G are placed registering gages or pins G², which serve to guide the leather vamps G³ and determine their position with precision in the form G. The gages or pins G² are attached by springs G⁴, (shown in dotted lines in Fig. 17,) which, yielding, permit the pins G² to recede when the vamps are applied to the quarters of the upper, as will hereinafter appear.

The rotary motion of the tables B and F² is intermittent and derived from a cam, H, engaging in notches of peculiar form in the rim of the plate B⁶, and is transmitted from the teeth on the rim of the table B through the wheel E to the wheel F. The operation of the cam H (shown in Fig. 18) in the wheel or plate B⁶ is like that of the device known to clock and watch makers as the "Geneva stop-motion." The cam H is mounted upon and turns with a shaft, H', turned by a beveled cog-wheel driven by a beveled pinion, H³, on a shaft, H⁴, provided with the usual fast and loose pulleys, H⁶ and H⁷, adapted to receive power from an

endless band or belt. The connection between the pinion H³ and the shaft H⁴ is effected by a clutch, H⁸, so beveled as to tend to unclutch, and is held in connection by a pair of toggle-levers, H⁹, which is held in a straight position for engaging by a spring-latch, H¹⁰, and can be re-engaged after having been liberated by pressure upon the pedal H¹¹.

Upon the shaft H⁴ is mounted, so as to slide upon and turn with the shaft, a wheel, H¹², having a rim of leather, which may be pressed against the side of the beveled wheel H² opposite to the pinion H³ on a smooth rim above the teeth by means of a treadle, H¹³, and is automatically retracted by the weighted arm H¹⁴. This wheel enables the operator at pleasure to turn the machine backward when the pinion H³ is disengaged. A stencil, J, mounted adjustably upon an arm, J', so as to rise and fall by the action of a cam, J², on the shaft H', covers the part of the upper upon a form, C, exposing only such portions as are to receive paste. The adjustment of the cam J² is such as to raise and hold the stencil J clear of the form during the rotary motion of the table B.

Contiguous to the front of the form covered by the stencil J are placed two paste-fountains, K, with scrapers and brushes combined, which parts are shown on an enlarged scale in Fig. 7. The fountains are upright vessels K, having inclined wings or vanes fastened on their inside, and a rotating vertical shaft, K², provided with vanes K³, inclined in an opposite direction from the vanes K'. The direction of the motion of the shaft K² and vanes K³ is such that the paste by their combined action is kept thoroughly stirred and pressed downward. The rotary motion of the shaft K² is imparted by an easily-detachable clutch or coupler, K⁴, from the upright shafts K⁵, propelled by pulleys K⁶ and endless cords K⁷, receiving motion from the pulley K⁸ on the shaft H'. A spout or arm, K⁹, extends from each to the paste-fountain, and is made flexible, so as to rise and fall to a limited extent, and at the end terminates in an upright chamber or cylinder, K¹⁰, from the bottom of which protrudes a brush, K¹¹, having a center formed of bristles K¹², between which paste is forced, and around which bristles are placed steel scrapers K¹³, inclosed in a sheath of india-rubber, K¹⁴. The scrapers roughen the exposed part of the leather and insure the penetration of the paste, and the india-rubber covering or sheath prevents the paste splashing and wasting between the scrapers. The brushes are rotated from the shafts K⁵ by means of cords and pulleys.

The fountains K and arms K⁹ with their connected brushes and scrapers turn about the axis of the shaft K⁵, so as to apply paste to the exposed portions of the lining and quarters that protrude through the stencil J, such motion being derived from the cams K¹⁵ and K¹⁶ on the shaft H'. The paste-fountains K are attached by thumb-screws to the frame, and are readily removed and attached, so as to be easily cleaned.

The molds or forms G, bearing vamps, are transferred from the table F² by a pair of elastic arms, L, turning with a rock-shaft, L', while the tables are stationary. The motion of the rock-shaft L' is derived from the pinion L², driven by a sector, L³, moved by a cam, L⁵, on the shaft H'. The pinion L² is not rigidly secured to the rock-shaft L'; but it is connected by a clutch, L⁶, having teeth beveled in both directions. This clutch has one member fastened to the rock-shaft L', and the other member fastened to or formed on the side of the pinion L², against which it is pressed by a spring, L⁷, of sufficient tension to overcome all normal resistances in transferring the form G and "vamp" to the form C and the "quarters." When, through accidents, any undue resistance is encountered, the pinion L², bearing against the bearing L⁴, turns without turning the rock-shaft L', but, instead, causes it to move endwise, and by means of a lever, L⁸, liberates the spring H¹⁰ and releases the toggles H⁹, unclutches the driving-pinion, and stops the machine. When the vamp is applied to the quarters the guides or pins G², being supported by the springs G⁴, yield and recede so as to permit close contact of vamps and quarters, and the form G clamps them firmly together by engaging the projections G' in the springs C³ on the forms C.

In the modified form of the machine, as shown in Figs. 8, 9, and 10, instead of the circular table B an endless band, Q, formed of plates hinged together in the manner of the traveling platform of a "railway horse-car," is used to convey the forms C, and the intermittent cam-motion for progressively moving it is applied to the reels or cylinders upon which it returns.

The operation of the machine is as follows: The quarters and inner lining, having been previously sewed and turned, are placed in the forms C and successively placed in the machine with the slides C' of the forms in the slots B⁴ of the table B. The bolts B⁵, engaging in the holes C² in the form C, successively pass by the intermittent motion of the table B to the stencils J and pasting devices, where they receive a coat of paste on the parts exposed, and at the next step receive from the arms L a form, G, containing a vamp, which form G clasps by its projections G' upon the springs C³ of the form C, in which it is securely held. Upon farther rotation of the table B the bolts B⁵ are retracted, and the forms containing the parts pasted in exactly registered position are discharged by the springs B¹³ upon the table D. A counter or register may be added to record the work done by the machine, and also a second counter to record the number of times that the clutch H⁸ is liberated, so as to determine the amount of work produced by the machine.

Having described our invention and the mode of operating the same, we claim as new and useful therein and as original of our invention—

1. A machine for pasting the parts of shoe-

uppers together, embracing the following devices in combination: a series of forms for receiving and holding the upper, a paste fountain and brush, a clamping device, and a discharging mechanism, all substantially as described, arranged to operate substantially in the manner set forth.

2. In a machine for pasting the parts of shoe-uppers together, the combination of gages and forms, substantially as described, for guiding the feeding of parts and determining the registration thereof, substantially as and for the purpose set forth.

3. In a machine for pasting shoes, the combination, substantially as described, of pasting-brushes with guards or stencils for restricting the spreading of paste or other cement, substantially as and for the purpose set forth.

4. In a machine for pasting together the parts of shoe-uppers, the perforated forms, in combination with clamps for holding the parts in position while drying.

5. In a machine for pasting together the parts of shoe-uppers, the combination of the scraping device with a pasting device, substantially as and for the purpose set forth.

6. In a machine for uniting the parts of shoe-uppers by pasting, the combination of a wheel for receiving and conveying the forms bearing uppers with the pasting and clamping devices, substantially as and for the purpose set forth.

7. In a machine for pasting the parts of shoe-uppers together, the combination of a throw-off or disengaging device driven with the driving-shaft and the feeding and clamping mechanisms, substantially as and for the purpose set forth.

8. In a machine for pasting shoe-uppers together, the combination of a tempering or stirring device, substantially as shown, with the paste-fountains, substantially as and for the purpose set forth.

9. In a machine for pasting the parts of shoe-uppers together, the combination of forms and clamps with the guiding and discharging mechanism, substantially as shown and described.

10. In a machine for pasting the parts of shoe-uppers together, the combination of guides and clamps, substantially as shown and described, for holding the vamps during the pasting operation.

11. In a machine for pasting the parts of shoe-uppers together, the combination of an intermittently-moving table, adapted to receive the forms bearing the quarter-pieces, with a reciprocating flier adapted to convey and apply molds or clamps containing the vamps, all substantially as and for the purpose set forth.

12. In a machine for pasting together the parts of shoe-uppers, the combination of the intermittently-rotating mold or table adapted to receive vamps in clamps or molds and deliver them to a flier, substantially as and for the purpose set forth.

13. In a machine for pasting the parts of shoe-uppers together, the combination of the flier for applying the vamps with the stop-motion

to automatically stop the machine when the vamp fails to apply properly to the quarters, as and for the purpose set forth.

14. In a machine for pasting the parts of shoe-uppers together, the combination of the discharging mechanism with a registering mechanism, so as to register the uppers delivered, as and for the purpose set forth.

15. In a mechanism for pasting the parts of shoe-uppers together, the combination of two or more intermittently-moving tables, substantially as set forth, adapted to convey forms bearing the parts of the uppers to a pasting and a clamping mechanism, as and for the purpose set forth.

16. The form C, provided with springs C³, substantially as shown and described, and for the purpose set forth.

17. The clamps G, provided with register-pins G² and springs G⁴, substantially as and for the purpose set forth and shown.

18. The combination of forms and clamps, substantially as described, constructed and arranged to co-operate as and for the purpose set forth.

19. The adjustable stencils or guides constructed and arranged as and for the purpose set forth.

20. The disengaging and backing devices combined to co-operate as and for the purpose set forth.

21. The combination of the sliding bolts B³ with the intermittently-moving table B and forms or clamps C, substantially as and for the purpose set forth.

MARIA E. BEASLEY.
S. LLOYD WIEGAND.

Witnesses:

J. DANIEL EBY,
LINN WHEELER.