

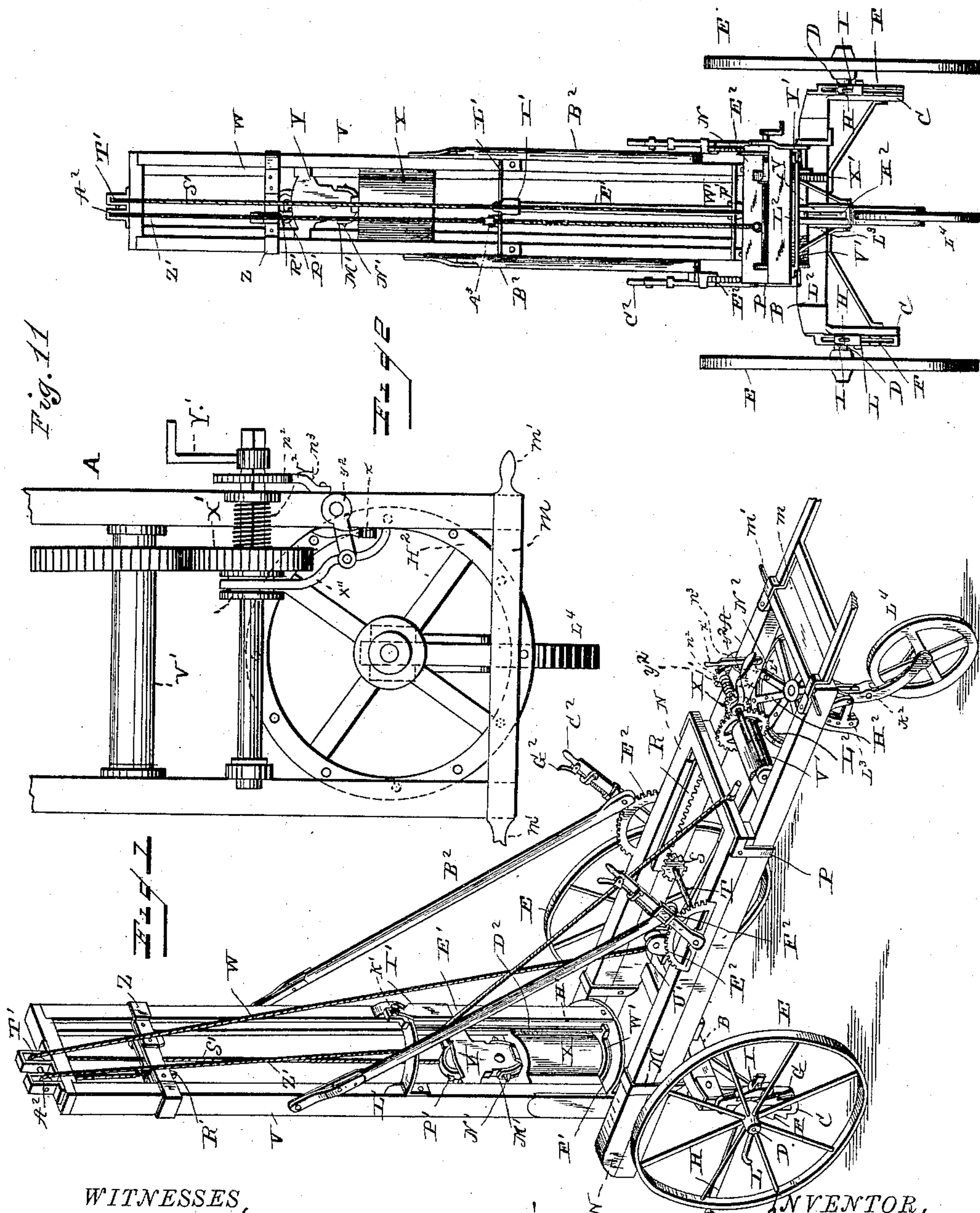
(No Model.)

4 Sheets—Sheet 1.

M. F. SCHAAF.
POST DRIVING MACHINE.

No. 387,369.

Patented Aug. 7, 1888.



WITNESSES,
J. L. Orvand
J. Wesley Cook.

INVENTOR,
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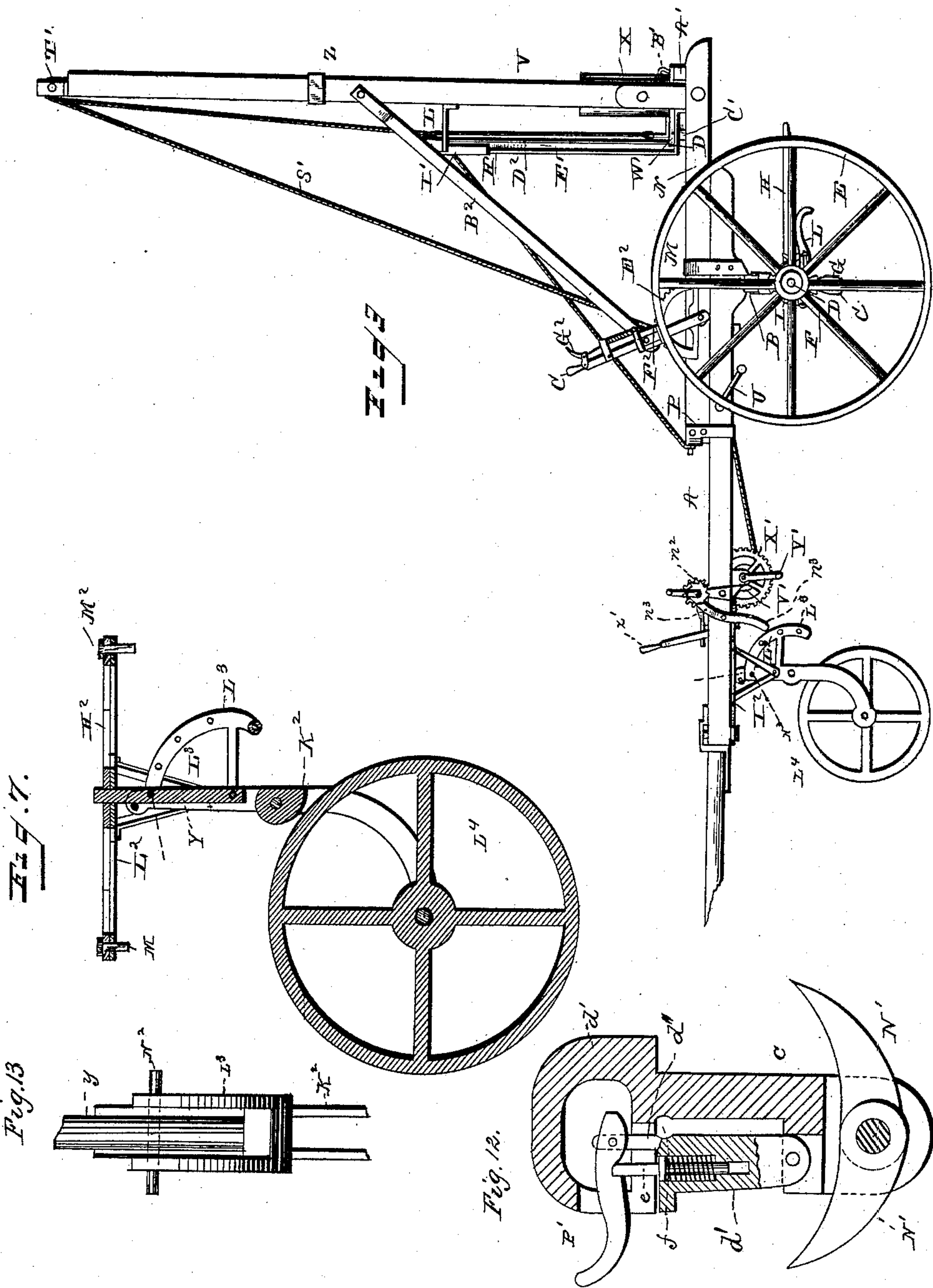
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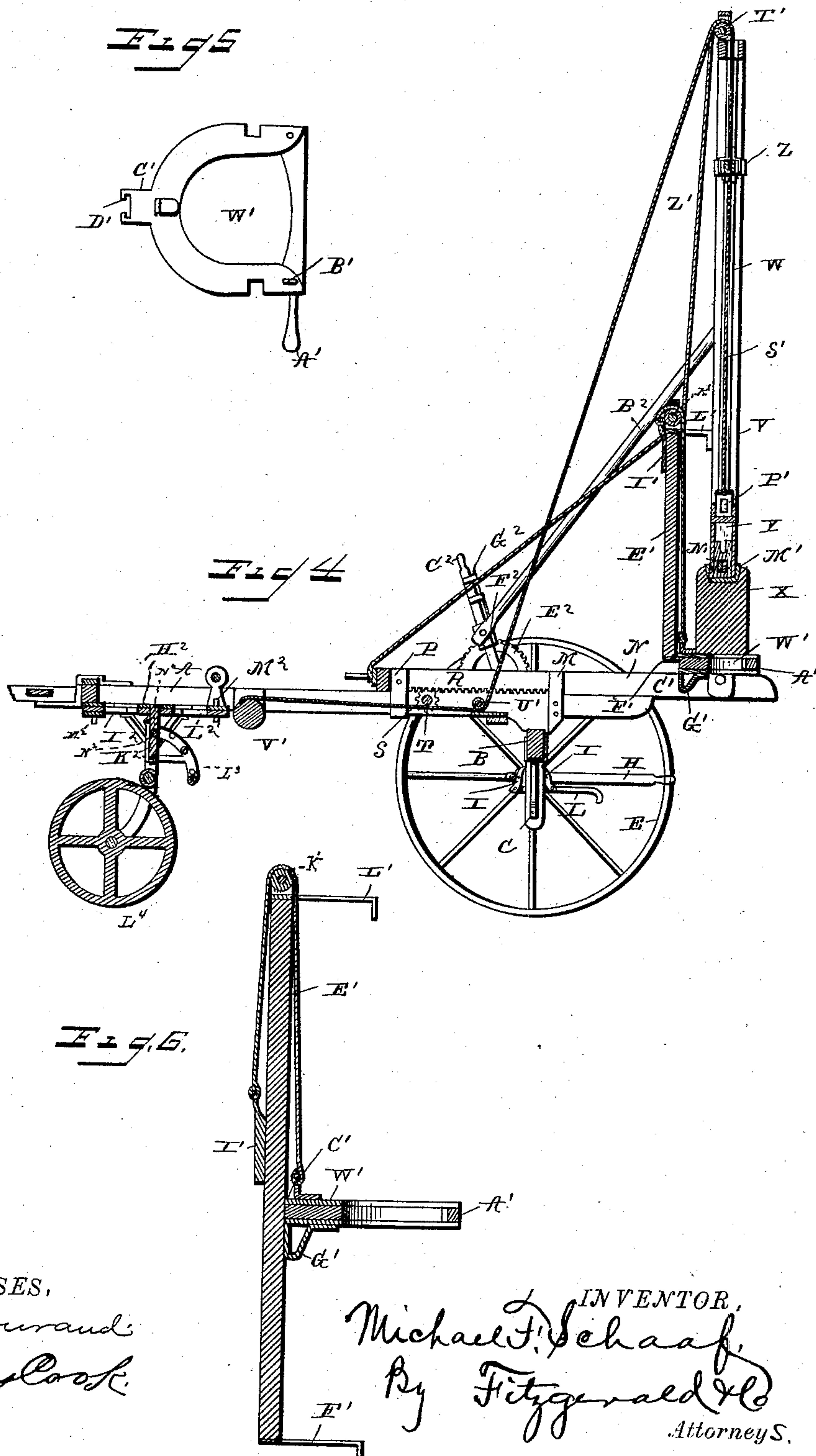
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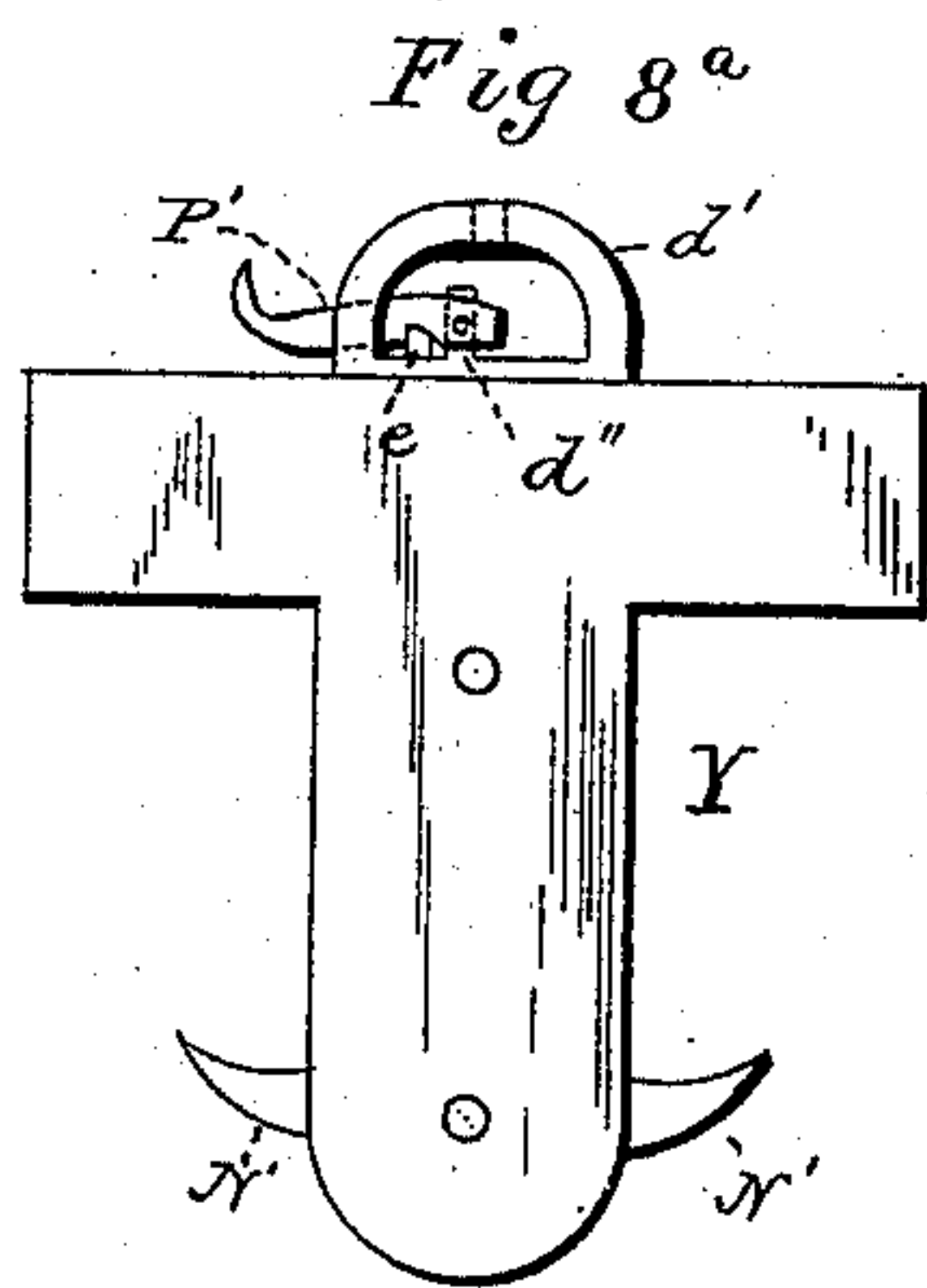


Fig. 8

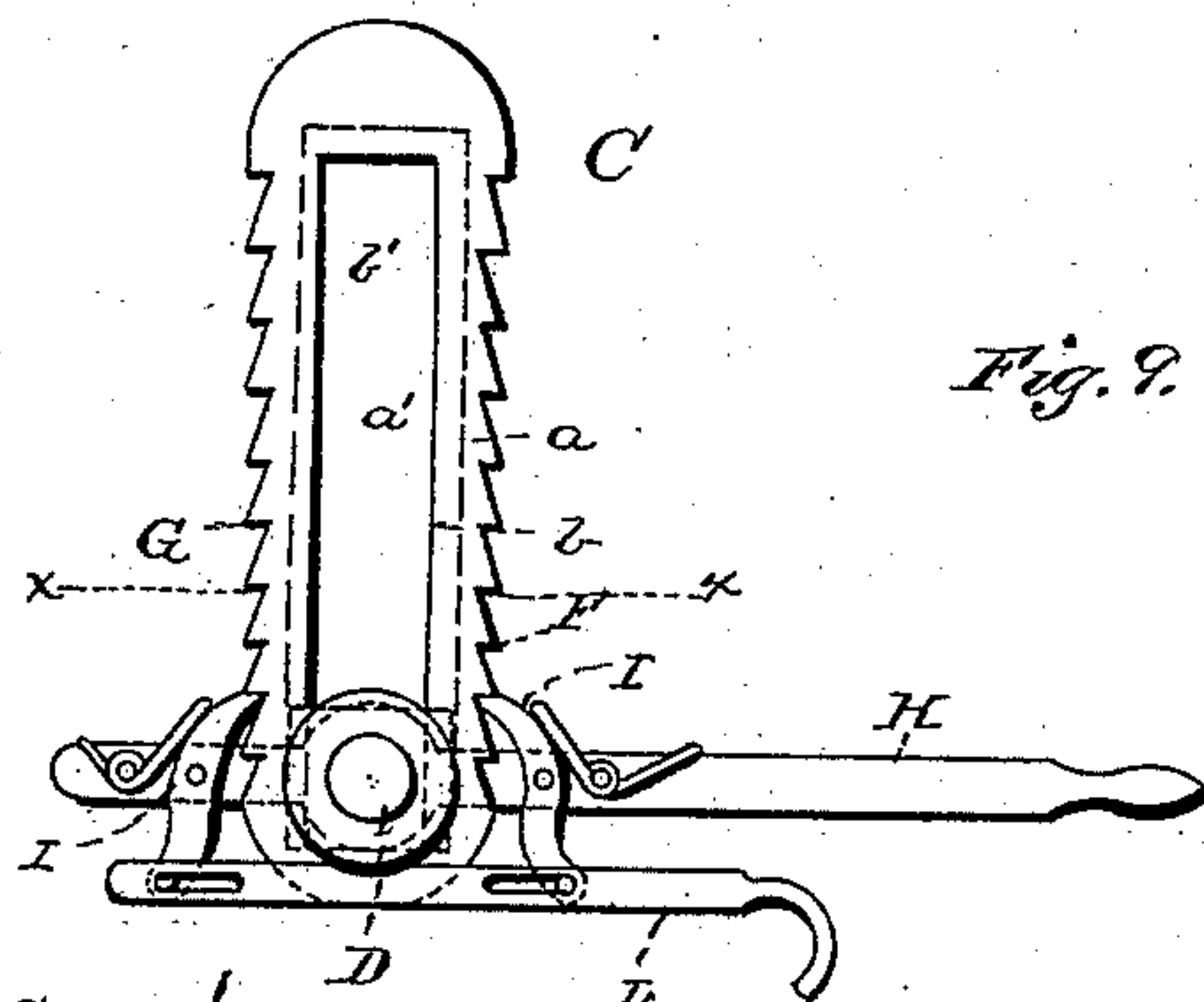
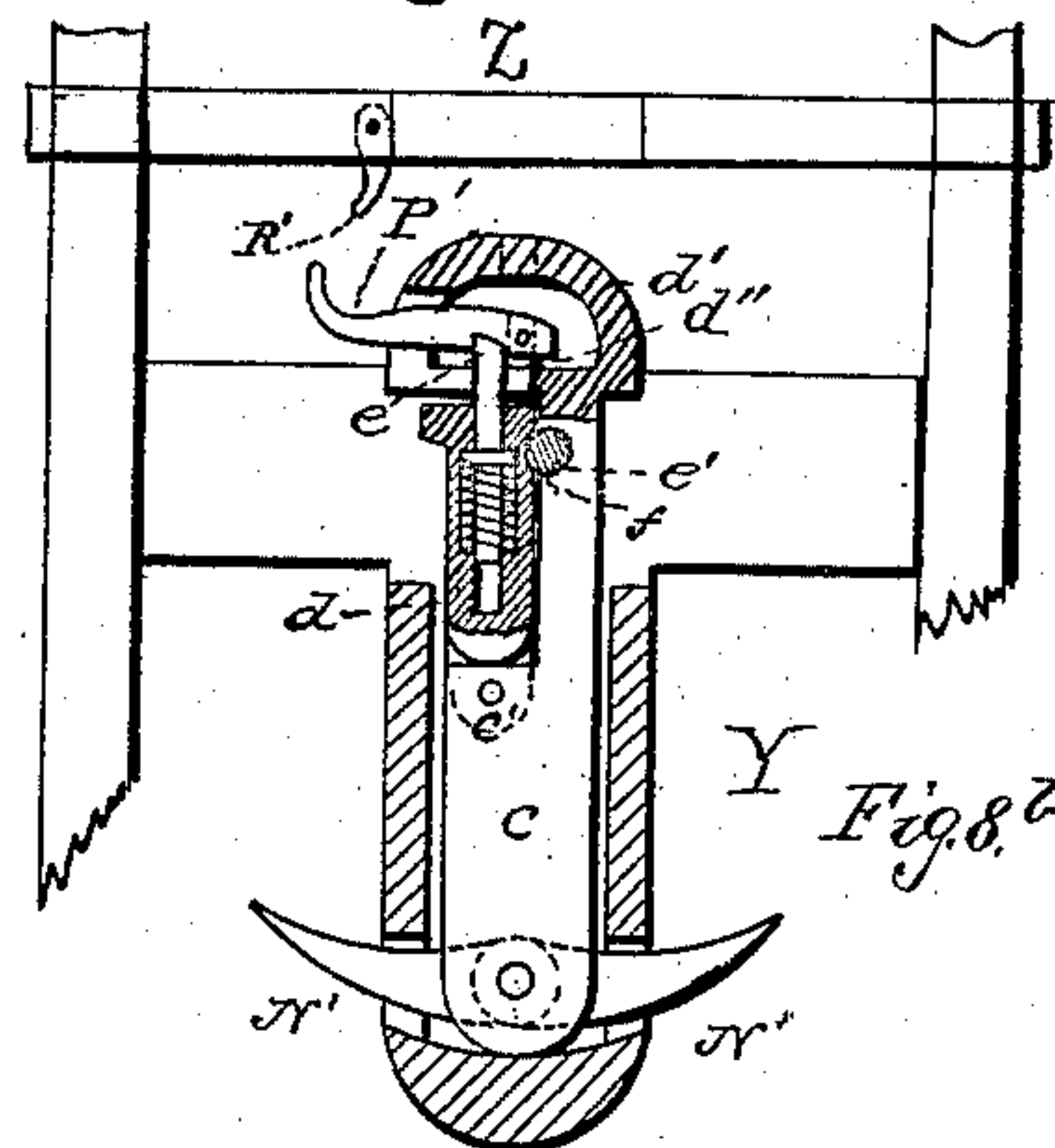
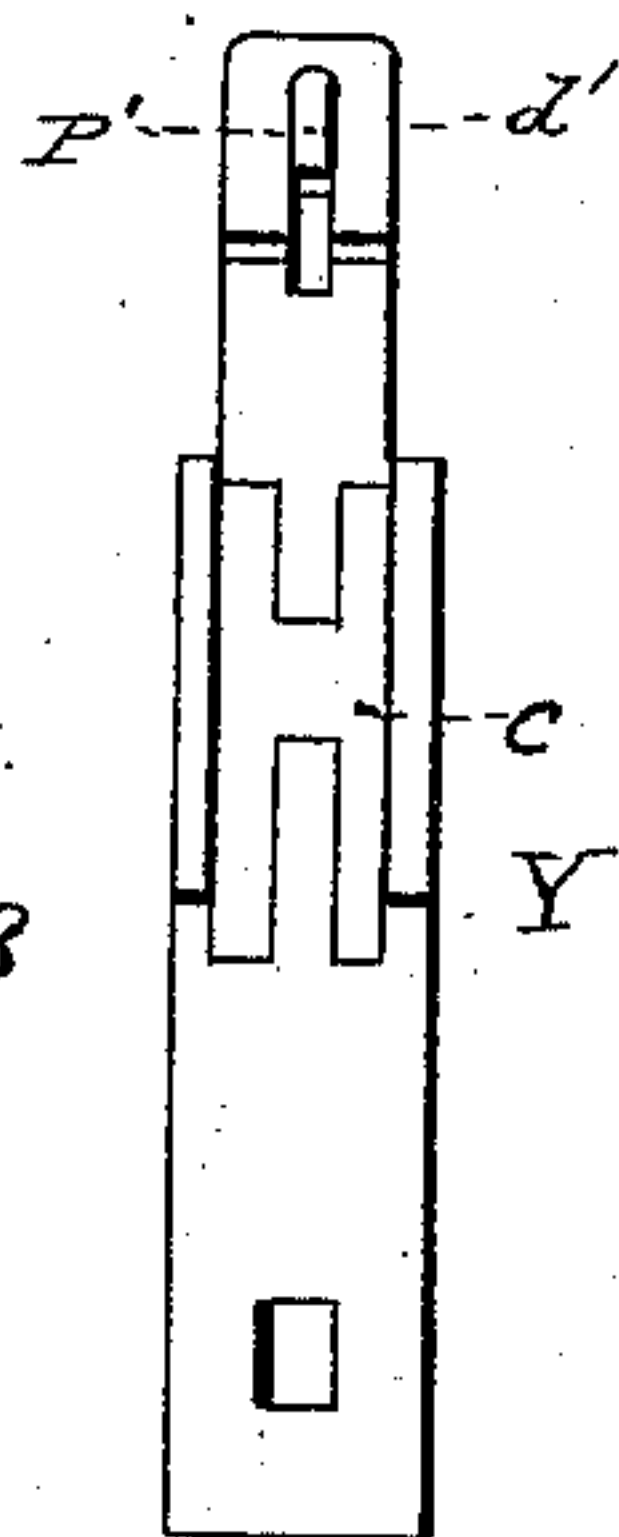


Fig. 9.

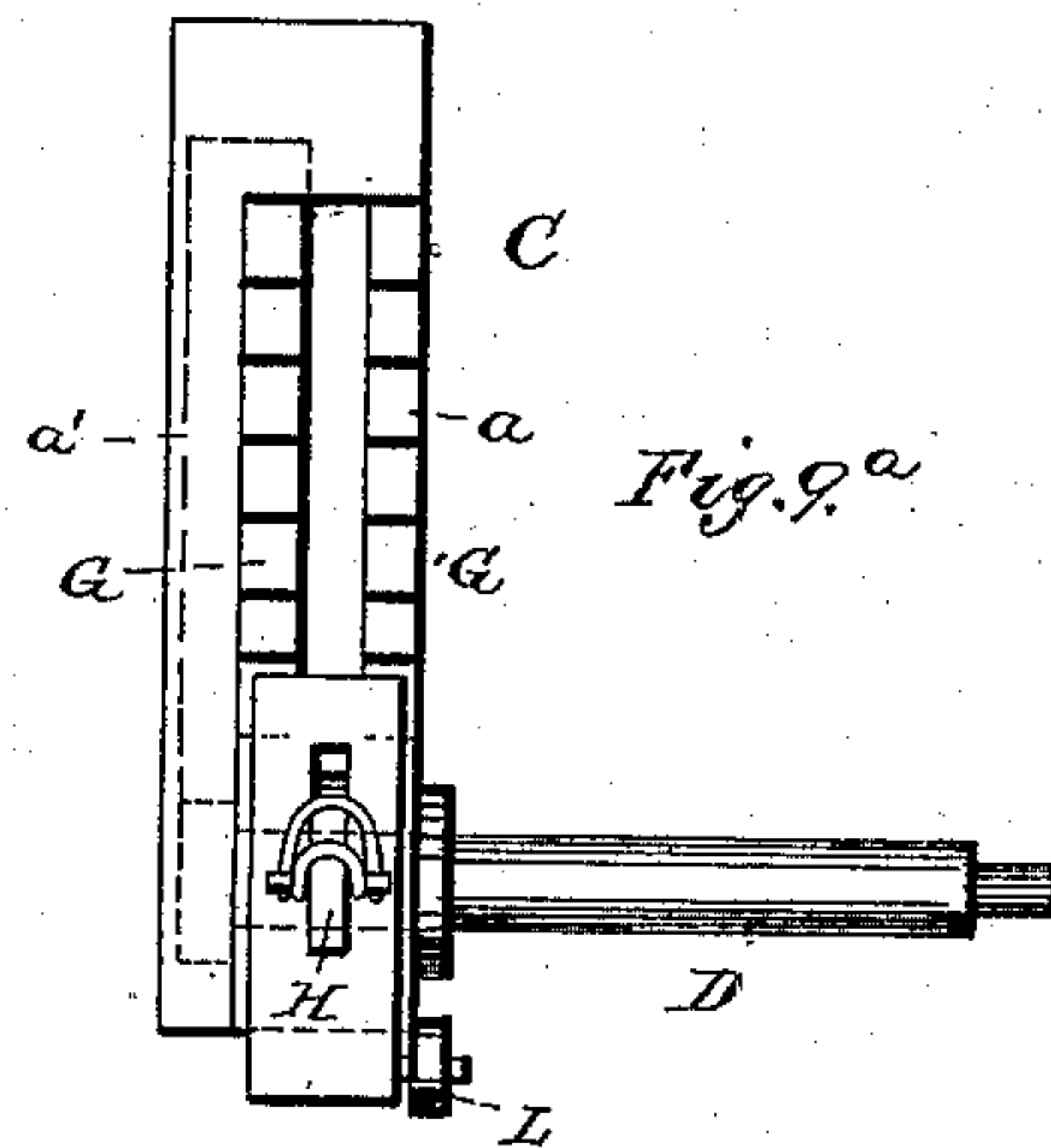


Fig. 9, a

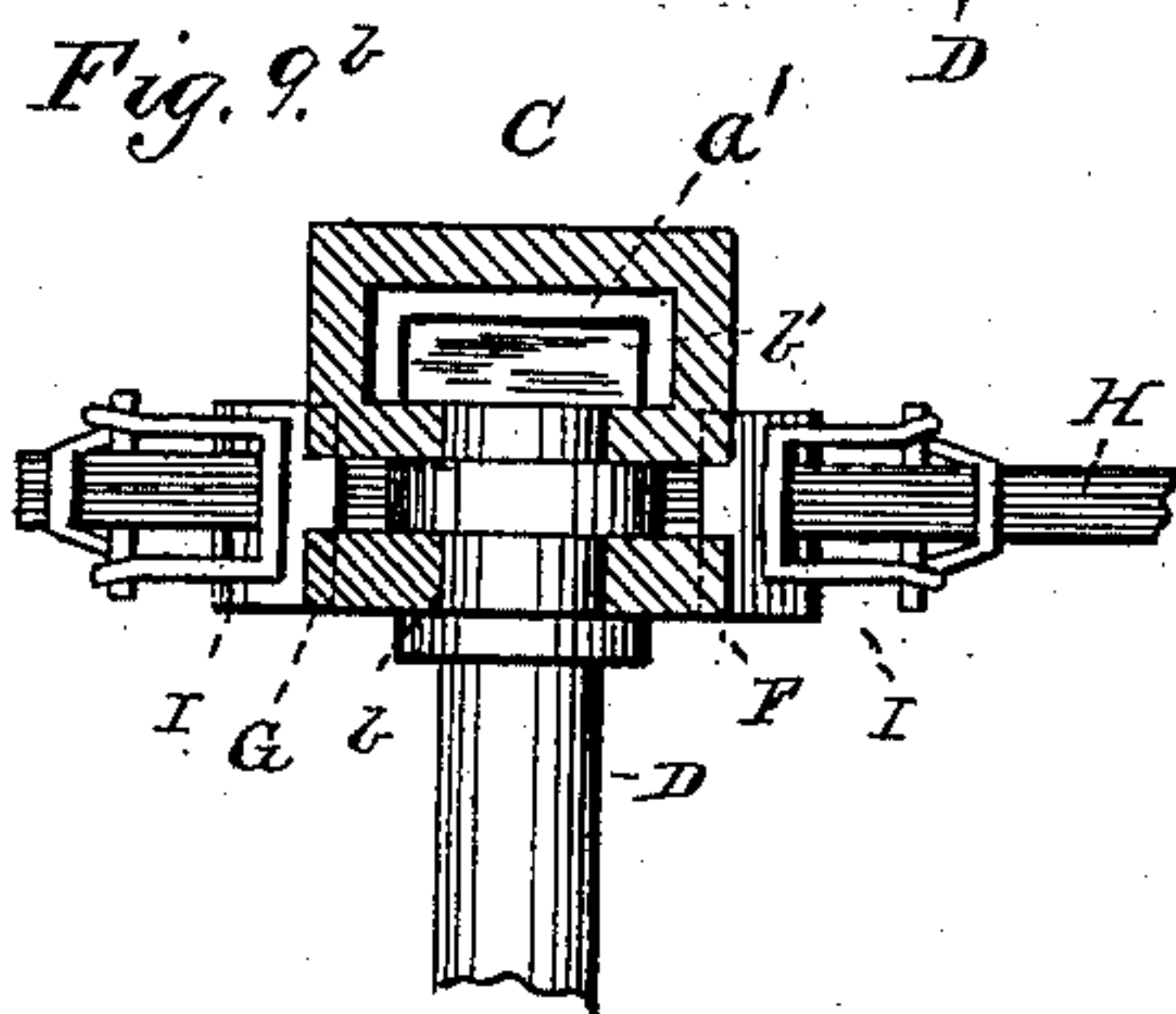


Fig. 9, 2

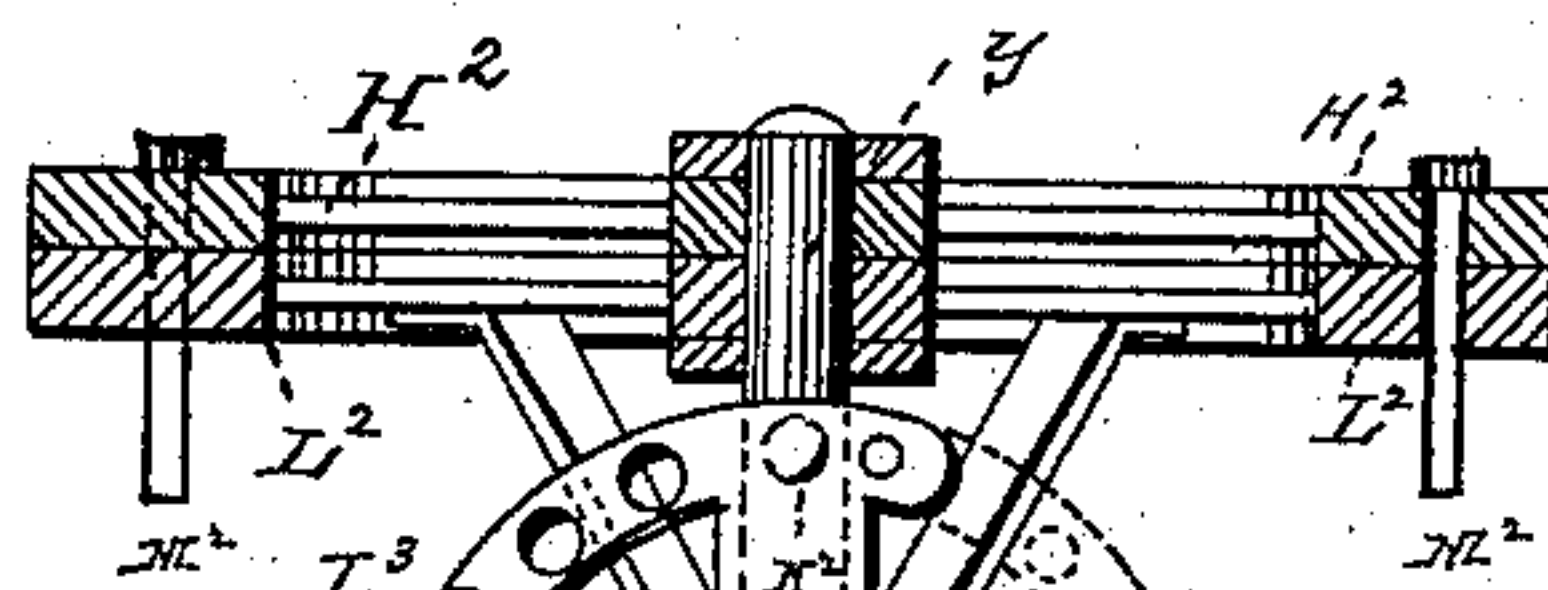
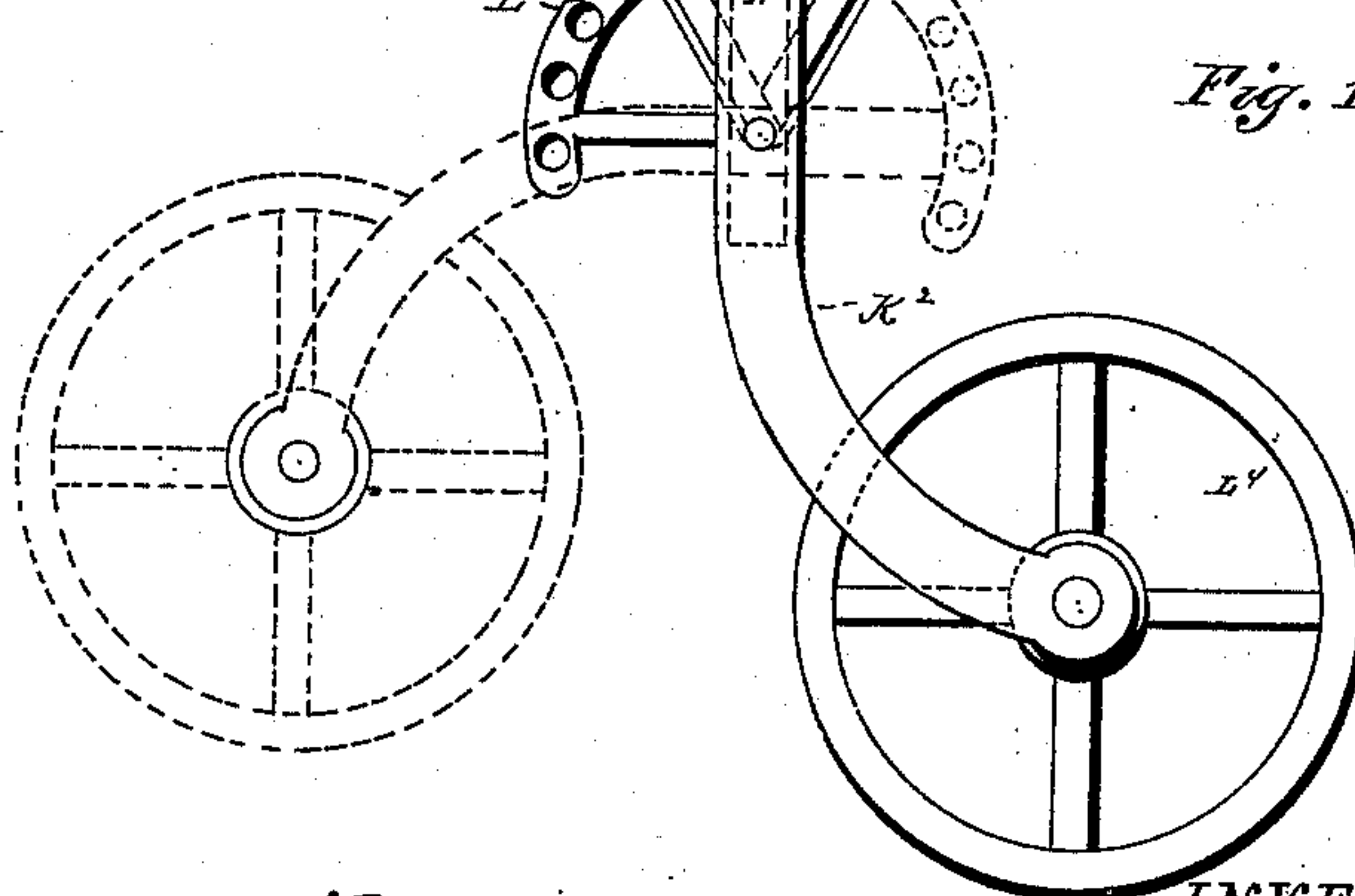


Fig. 10.



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UNITED STATES PATENT OFFICE.

MICHAEL F. SCHAAF, OF MINERAL POINT, WISCONSIN.

POST-DRIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 387,369, dated August 7, 1888.

Application filed March 1, 1888. Serial No. 265,846. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL F. SCHAAF, a citizen of the United States, residing at Mineral Point, in the county of Iowa and State of Wisconsin, have invented certain new and useful Improvements in Post-Driving 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.

This invention relates to improvements in post-driving machines; and it consists in the novel construction and combination of parts, as hereinafter set forth, illustrated in the drawings, and pointed out in the claims.

The object of my invention is to provide a light and portable machine of the character named that is readily adjustable to accommodate it to different positions.

In the accompanying drawings, Figure 1 is a perspective view of my apparatus complete. Fig. 2 is a front elevation thereof, showing the trip-hammer in position ready to be dropped. Fig. 3 represents a side elevation of the apparatus. Fig. 4 represents a vertical longitudinal section thereof. Fig. 5 represents a detached top view of the post-holder. Fig. 6 represents a detached sectional view of the devices for regulating and adjusting the post-holder. Fig. 7 represents a detached sectional view of the front support of the apparatus, its swivel and wheel, and adjusting mechanism. Fig. 8 is a detail end view of the trip-head. Fig. 8^a is a front view of same. Fig. 8^b is a front view of same, partly in section. Fig. 9 is a detail front view of one of the hangers. Fig. 9^a is an end view of same. Fig. 9^b is a horizontal section on the line *xx*, Fig. 9. Fig. 10 is a detail view of the front bearing-wheel, showing the wheels H² L² in section. Fig. 11 is a detail plan view of the windlass and front part of the frame A. Fig. 12 is a detail view of the slide *c*, partly in section. Fig. 13 is a detail end view of the bifurcated segment L³.

Referring by letters of reference to the drawings, A designates a rectangular frame mounted near its rear end upon the transverse bolster B, from the ends of which depend the hangers C. The hangers C consist of the two parallel walls *a a'*, the front wall, *a*, of which is

provided with a longitudinal slot-opening, *b*, through which the rear end of the spindle D projects and enters a longitudinal recess, *b'*, in the rear wall, *a'*. The spindle D has a rectangular head which slides with the spindle in the recess *b'*, and a collar or shoulder on the spindle bears against the outer face of the wall *a* and forms a stop for the hub of the rear wheels, E. The opposite edges of the hanger-walls are provided with ratchet-teeth FG, having their stop or engaging shoulder downward.

H is a lever fulcrumed on the spindle between the walls of the hanger, and dogs or pawls I, pivoted to said lever at opposite sides of the hangers are designed to alternately engage the adjacent teeth of the hanger when the lever is operated to lower or raise the rear end of the apparatus. The pawls I are held in engagement with the teeth by means of springs bearing thereon and secured to the lever, and the pawls have an arm extending below the lever H, provided with an outstanding pin or lug which passes through a slot in the lever L. The levers L are provided with a convenient handle and are designed when moved longitudinally to throw the pawls, respectively, in or out of engagement. This arrangement of the hangers and the parts operating therewith, as above described, is designed to render the frame vertically adjustable and to regulate the pitch of the frame in connection with the adjusting device at the front end of the frame.

The rectangular frame A is provided with rigidly-secured straps or guides M, through which the side rails of the frame N are designed to slide, and similar straps, P, secured to the front end of the frame N, embrace the side rails of the lower frame and slide freely thereon. The inner sides of the side rails of the frame N are provided with racks R, which are engaged by the pinions S on the transverse shaft T, journaled in the frame A, and provided at one end with the crank U, whereby the frame N may be longitudinally adjusted on the lower frame.

V is a vertical guide-frame pivotally connected at its lower end to the frame N, as shown, and projecting ways W on the inner sides of said vertical frame are provided for guiding the movement of the post-holder W',

the trip hammer X, the trip-head Y, and the sustaining adjustable trip cross-head Z, as hereinafter described.

The post-holder consists of a semicircular frame forming a seat for the upper part of the post, and a retaining-bar, A', pivoted to one side of the frame, extends across the front of said frame and is confined or secured at the opposite side thereof by the pin B', which is inserted through openings in said frame and bar. The rear side of the post-holder W is provided with an extension, C', which has lugs D', embracing the flanges D² in the front edges of an upright, E', which is secured to the vertical guide-frame by means of the braces F and L'. The extension C' is provided on its lower side with the depending bracket G', which bears against the front face of the upright E' and serves to prevent the post-holder from tilting downward at its outer side. The rear of the upright is provided with flanges H', similar to the flanges D², on which flanges is arranged to slide a counterbalance-weight, I', which is connected to the extension C' by means of a cord passing over a pulley, K', having bearings in the upper end of the upright, so as to retain the post-holder in any required position.

The hammer X is provided on opposite sides with longitudinal recesses to slide upon the ways W, and diverging slotted arms M' are secured to and extend upwardly from the top of the hammer.

The trip-head Y is adapted to slide on the ways W, and a slide, c, has pivoted within its lower bifurcated end the levers or dogs N', which project laterally through slots to engage the slots on the arms M'. The slide c has an offset, c', formed by the cut-away portion, to which is pivoted the short arm d of the slide, which extends upwardly parallel with the opposite side. A portion, d'', of the pivoted arm d extends through a slot-opening in the bottom of the laterally-projecting head d', secured to the upper end of the main portion of the slide, as shown, and a pawl, P', is pivoted to the extended end of the arm d and bears upon a spring-controlled block, e, which has its shank extended into a vertical opening in the arm d. The spring-controlled block is designed to return the pawl P' to its normal position. When the slide c is down, the levers N' are projected laterally through the casing to engage the arms of the hammer, and a transverse pin, e', secured to the walls of the trip-head Y, engages the transverse notch f of the slide, which is held in engagement therewith by the pivoted short arm which impinges on the opposite side of the pin.

When the trip-head Y is raised, bearing the hammer, a pivoted pawl, R', on the cross-head Z strikes the pawl P', forcing its free end downward and consequently drawing the short side of the slide away from the pin e', which releases and allows the trip-head casing to fall on the slide, which brings the levers N' out of

engagement with the hammer and into the trip-head casing.

It will be observed that the top edge of the pawl P' is slightly curved and provided with a hook end, and that the pawl R' is pivoted near its heel, and that its rounded side and point, as it turns, pushes outwardly on the inner curve of the hook end of the pawl P'.

The trip-head Y is connected by means of a rope, S', passing over a pulley, T', at the top of the guide-frame and under a pulley, U', secured to a cross-piece on the frame A, with a windlass, V', operated by gearing X' and a crank, Y', whereby the said hammer may be elevated to the trip-head.

The cross-head Z is provided with a rope, Z', extending over a pulley, A², at the top of the guide-frame and under a pulley, A³, journaled on the brace L'. By this rope the cross-head may be elevated and secured at any desired point on the guideway to limit the fall of the hammer.

The gear X' is loose on a squared portion of its shaft, so that it may be thrown out of gear with the windlass, allowing said windlass to revolve freely to lower the trip-head by gravity. An arm, X'', having a collar-connection with one side of the gear X', extends therefrom and is pivoted on a short arm, y², secured to the frame A. Its end extending beyond the pivotal point is curved outwardly, so that by moving the pivoted hand-lever x' longitudinally the said arm X'' carries the gear out of engagement against the spring Y², which serves to force the gear back when the hand-lever is released. A ratchet, n², on the outer end of the gear-shaft is engaged by a pawl, n³, which prevents said gear and windlass from turning to let the head and hammer down.

B² indicates two arms pivoted at their upper end to the guide-frame and at their lower ends to the levers C², which are fulcrumed to the side of the frame N and work against the rack-segments E², the said levers being provided with pawls F², actuated by the spring-controlled levers G², so that the guide-frame may be set at any angle with the frame N and held there for the purpose of driving a post when set out of a vertical line.

The front end of the frame A is provided with a wheel, H², securely attached to the under side, and a similar wheel, L², is pivoted to and turns thereon. The pivot-arm y has fulcrumed to it a lever-standard, K², which is provided at its upper end with a bifurcated segment, L³. The wheels H² L², the segment L³, and the pivot y are provided with apertures, through which may be passed holding-pins M² N², whereby the parts may be adjusted.

By means of the pivoted wheels the forward bearing-wheel, L⁴, may be turned at any longitudinal angle, and by means of the segment and curved standard the bearing-wheel may be adjusted to raise or lower the front end of the frame.

The front end of the frame A is provided with a cross-bar, *m*, to which thills may be attached, and extended handles *m'* are attached for the convenience of the operator.

5 Having described my invention, what I claim is—

1. The combination, with the bolster, of the hangers secured thereto, consisting of the block slotted longitudinally, the longitudinal recess, 10 and the detent-teeth on the opposite edges, the lever, the pawls, and the spindle having the rectangular head and the shouldered portion, substantially as specified.

2. The trip head adapted to slide on the 15 ways, having the slide bifurcated at its lower end, the levers pivoted therein and adapted to project laterally through slots, the short side *d*, pivoted to the offset *c'* and extending upwardly, the laterally-projecting slotted head 20 *d'*, the pawl pivoted to the extended portion of the short side, the spring-controlled block, the transverse notches, and the pin, substantially as specified.

3. The cross-head having the pawl *R'* pivoted near its heel therein, the said pawl having the rounded side and the point to engage the hook end of the pawl *P'*, substantially as 25 specified.

4. The combination, with the vertical pivoted frame having the projecting guideways, of the semicircular post-holder adapted to slide 30 on said ways, the pivoted retaining-bar, the locking-pin, the extension *c'*, having lugs *D'*, the depending bracket, the upright having the flanged edges, the braces securing said 35 upright to the vertical frame, the counter-

weight, the connecting-cord, and the pulley, substantially as specified.

5. The combination, with the rectangular frame A, of the windlass having the gear- 40 wheel, the loose gear adapted to engage said gear-wheel, the gear-wheel shaft having the crank and the ratchet-wheel on its outer end, the arm having the collar-connection with the gear *X'*, pivoted to the frame and having the 5 curved projecting end, the pivoted hand-lever, and the spring bearing upon the gear *X'*, substantially as specified.

6. The combination, with the frame A, of the wheel *H*², secured thereto, the wheel *L*², 50 turning on the wheel *H*², the pivot arm *y*, the standard fulcrumed on the pivot-arm, the integral bifurcated segment, the adjusting-pins, and the bearing-wheel, substantially as specified. 55

7. The combination, with the rectangular frame A and the bearing-wheel, of the pivot-arm *y*, the curved standard, the bifurcated segment thereon provided with adjusting-apertures, and the holding-pins, substantially as 60 specified.

8. The combination of the hammer having the opposite longitudinal recesses and the diverging slotted arms secured to the upper end of said hammer, substantially as specified. 65

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL F. SCHAAF.

Witnesses:

J. M. SMITH,
R. M. SMITH.