No. 652,550. Patented June 26, 1900.

F. ROBINSON.

TRACK JACK.

(Application filed June 1, 1899.)

(No Model.)

3 Sheets—Sheet 1.

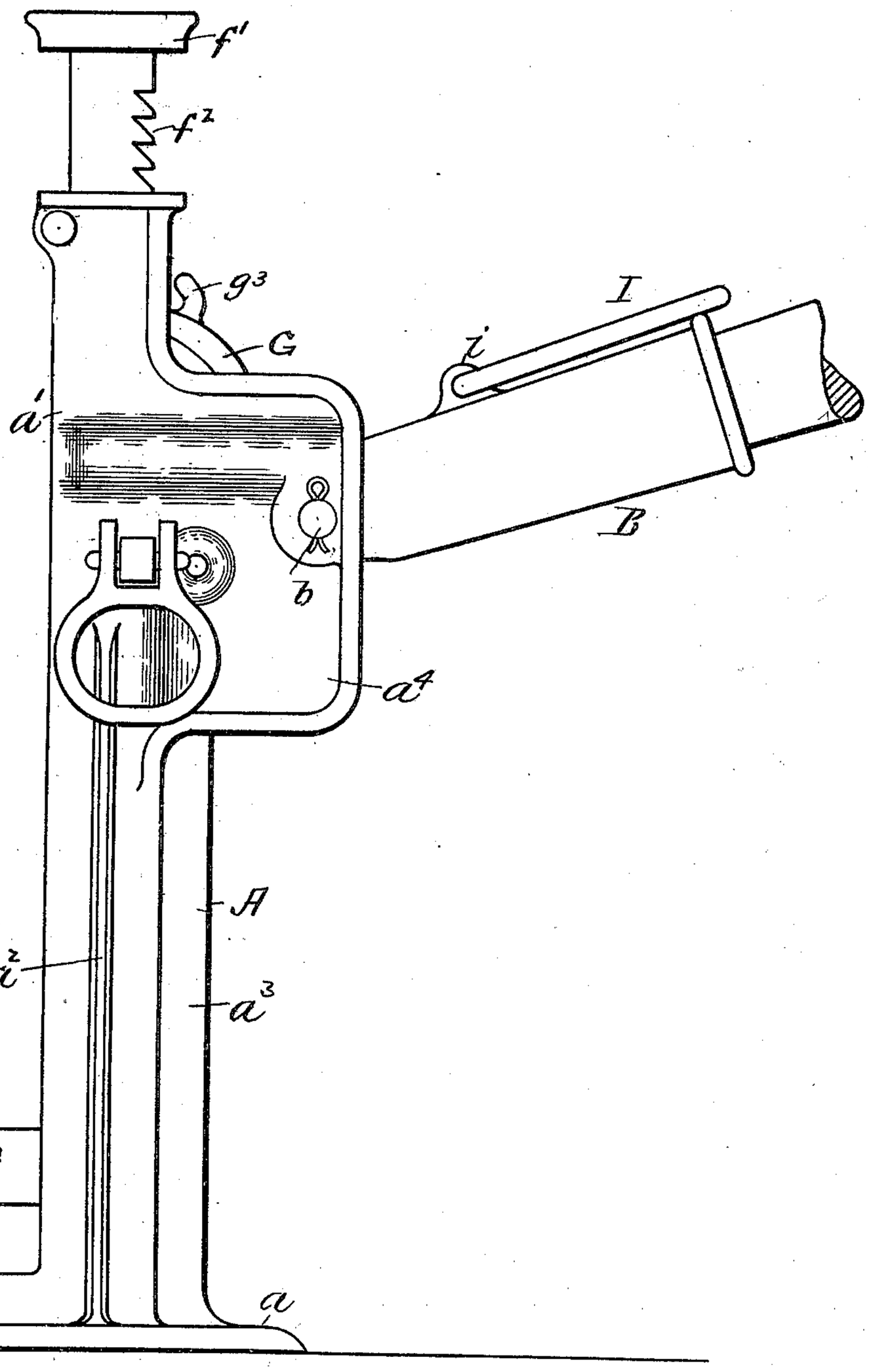

Fig. 1.

WITNESSES

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Chas. T. Eldridge.

INVENTOR

Frank Robinson

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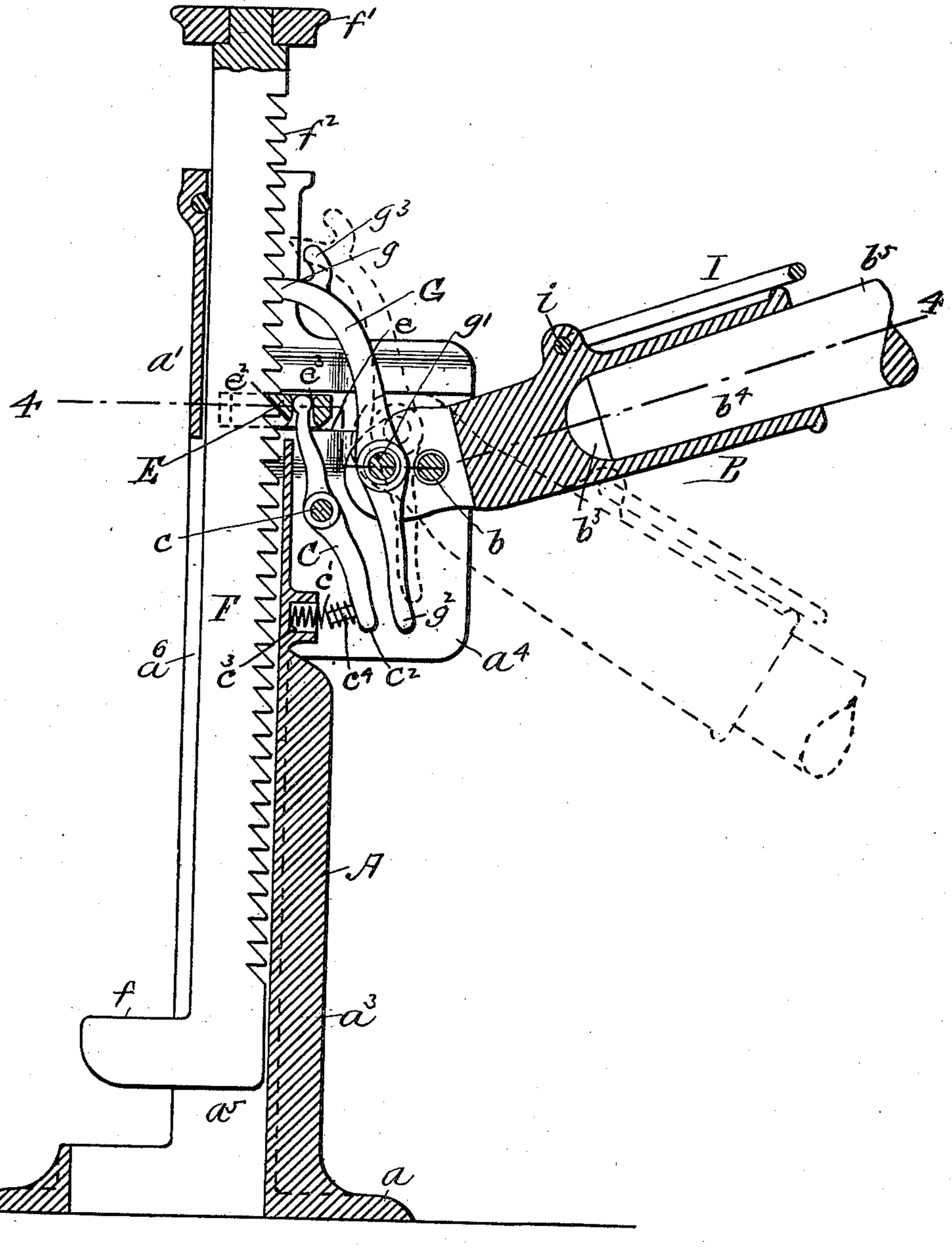

Fig. 2.

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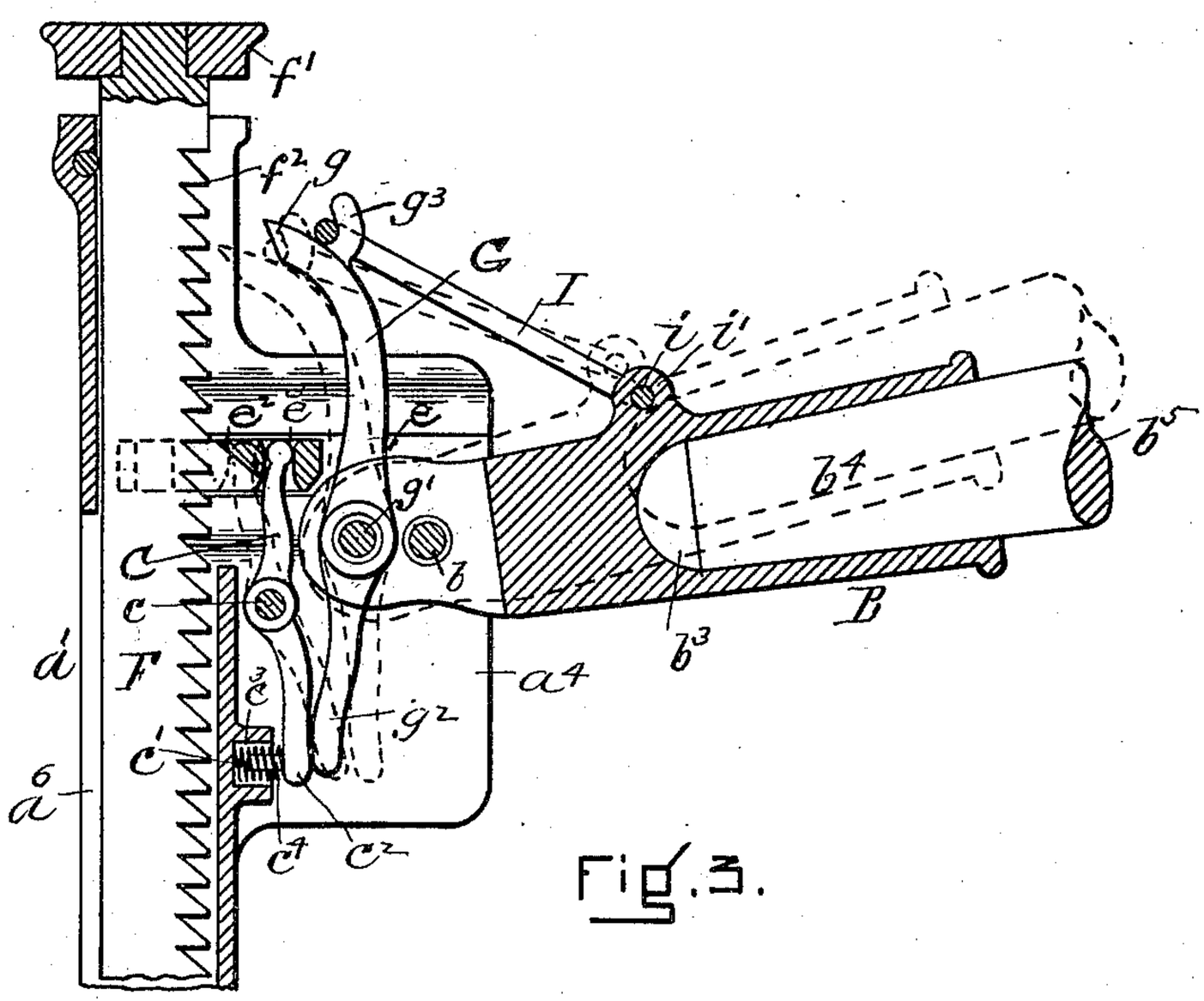

Fig. 3.

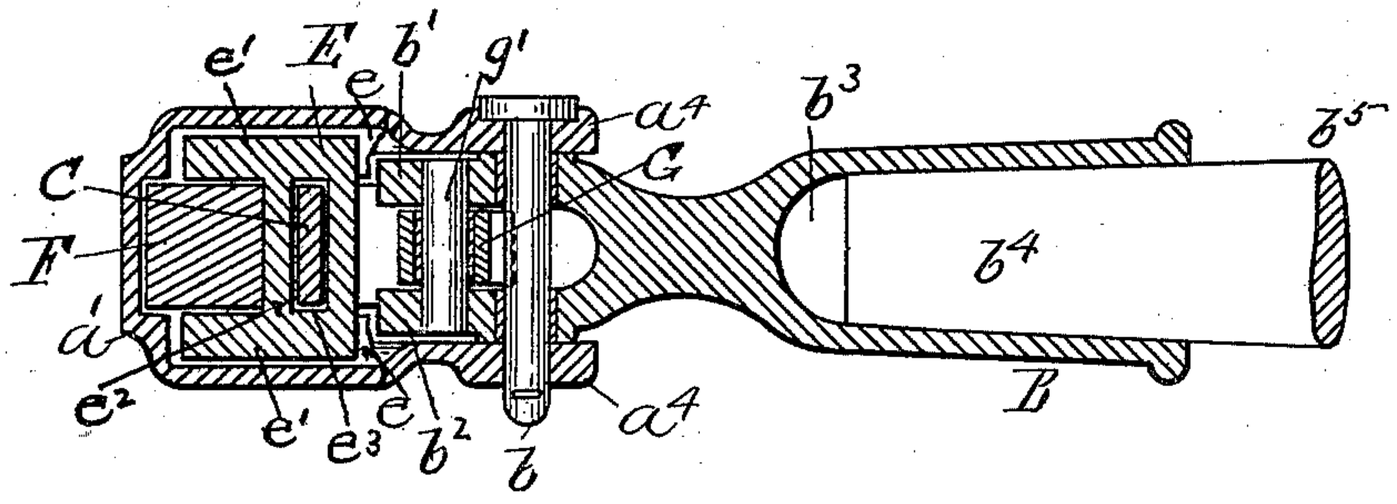

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK ROBINSON, OF BANGOR, MAINE.

TRACK-JACK.

SPECIFICATION forming part of Letters Patent No. 652,550, dated June 26, 1900.

Application filed June 1, 1899. Serial No. 718,941. (No model.)

To all whom it may concern:

Be it known that I, FRANK ROBINSON, a citizen of the United States, and a resident of Bangor, in the county of Penobscot and State of Maine, have invented a new and useful Improvement in Track-Jacks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a track-jack having the construction hereinafter described.

In the drawings, Figure 1 is a view in perspective of the jack. Fig. 2 is a view in vertical central section thereof, showing in dotted outline the depressed position of the jack-lever and its lifting-dog. Fig. 3 is a detail view, also in vertical section, representing the operation of the jack-releasing devices, to which reference is hereinafter made. Fig. 4 is a view in horizontal section upon the dotted line 4 4 of Fig. 2.

The jack-stand A has a suitable metal base a and a metal column a', which rises from it, is ribbed or reinforced at a^2 upon its sides and a^3 at its front, and has the lateral projections a^4, which are separated from each other and which form cheek-pieces for supporting the pivot b of the handle B, the pivot c of the tripping-lever C, and the ways e for the sliding dog E. These sides also act as a housing for the lifting-dog, tripping-lever, and tripping-dog. The jack-stand also has a square central cavity a^5, extending from top to bottom, and a long slit or recess a^6 in its back side, which opens into the central cavity and in which the guiding-foot f of the jack-post F extends. The jack-post has a head f' of any desired form, and it has upon its front face the notches f^2, extending very nearly its entire length, and these notches have inclined upper surfaces and straight lower surfaces, and they are engaged by the upper end g of the lifting-dog G. This lifting-dog is pivoted by the pivot g' between the forked ends b' b^2 of the lifting or operating lever B (see Fig. 4) and being overbalanced at its upper end maintains a contact with the teeth and is brought into contact with one of them whenever the lever is moved downward. Its pivot g' is placed closely to the lever-pivot b, and as the lever is long great lifting power is thus provided for.

The inner part of the lever B is of iron or steel and has at its outer end a socket b^3 for receiving the end b^4 of a wooden or other extension b^5. The inner end of the said inner part of the lever b^3 is made especially deep over the lever-pivot b and under the lifting-dog pivot g' to provide sufficient strength to resist strains to which these parts are subjected.

The jack-bar is automatically locked after each upward lifting movement by the lifting-dog by means of the sliding dog E, which slides horizontally in the ways e and which is shaped as represented in Figs. 2 and 4—namely, it has the side sections e', which bear upon the ways, the holding-tooth e^2, which extends between the side sections and has a straight upper surface and an inclined under surface, and the recess e^3 back of the tooth, which receives and holds the upper end of the tripping-lever C. The ways e extend upon each side of the jack-post, and the side sections of the dog also extend beyond the tooth and upon each side of the jack-post, and thereby provide a large and steady bearing for supporting the jack. The sliding dog makes engagement with the teeth of the jack by being automatically moved to a tooth-engaging position by means of a spring c' constantly bearing against the end of the prolongation c^2 of the tripping-dog, said spring being held in part in a hole c^3 in the jack-post and by a stud c^4, which projects from the lever.

From the above description it will appear that the jack is lifted by the movement of the lever B, the upward movement thereof lowering the lifting-dog with respect to the teeth of the jack and the downward movement thereof causing said lifting-dog to engage a tooth and to continue said engagement while it is being lifted with the jack by the lever. The upward movement of the jack throws the sliding dog E out of engagement by the contact of the inclined surface of the tooth which may bear against it with the inclined surface of the tooth of the dog. The dog, however, is immediately automatically returned to engage another tooth at the end of each upward

impulse communicated to the jack by the lifting-dog, and it serves to hold the jack and its load while the lifting-dog is being moved downward vertically to engage another tooth.

It will be seen that the jack has but one set of teeth, which are alternately engaged by the lifting-dog and the sliding dog. It will also be seen that the lifting-dog is caused to engage the jack near the upper end of the jack-stand and that this gives the jack a large range of vertical movement.

I have arranged near the top of the jack-post, opposite the side engaged by the lifting-dog, an antifriction-roll H, largely held in a cavity and against which the said side of the jack bears as it is being lifted, thereby converting the sliding friction at that point to a rolling friction.

To release the jack-post, I have provided the lever B and the lifting-dog G with means whereby the lifting-dog may be held or locked from engaging the teeth and may also be moved to such a position that the end of a depending arm g^2, forming a part thereof, may upon the downward movement of the lever B be brought into contact with the end of the depending arm c^2 of the feed-dog lever and cause it to be moved inward sufficiently to draw outward the sliding dog E to a releasing position, thereby leaving the jack entirely free to drop. I have represented as one means of so locking the feeding-dog to the lever a link I, which is pivoted at i to a lug i' of the handle B and which in its operative position lies on top of the handle, as represented in Fig. 2. In its operative position it is moved from the position represented in said figure to that represented in Fig. 3, where it is shown as thrown over and as engaging a holding-lug g^3 at the upper end of the lifting-dog. This is done when the lever B is at or near its highest position, and it holds the lower end of the lifting-dog in such a position that upon the downward movement of the lever B the lower end of the lifting-dog lever comes into contact with the lower end of the slide-dog lever (see Fig. 3) and disengages the sliding dog from the jack. After the jack has been tripped the link is disengaged from the lifting-dog and returned to its normal position. This releases the lifting-dog and the tripping-dog, and the jack is then in condition to be again immediately operated. Any equivalent for the device for locking the lifting-dog to its actuating-lever may be used.

It will be seen that the extensions or cheek-pieces entirely cover the working parts of the jack, with the exception of the upper part of the lifting-dog, enough of which is exposed to permit its attachment to its operating-handle, as above specified.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a track-jack, a jack-stand having lateral extensions or cheek-pieces near its top, in combination with a jack-post mounted in the stand, having teeth in one side adapted to be engaged by the jack-post-lifting and jack-post-holding devices, a jack-post-operating lever pivoted to the jack-stand between its extensions or cheek-pieces and having an end extending inwardly beyond its pivotal point, a jack-post lifting and dropping dog pivoted to said inner end of said operating-lever entirely inside the pivotal point of said lever, having a lifting arm or section which extends upward and inward from said lever to make engagement by its upper end with the teeth of the jack-post near the upper end of the jack-stand and above the jack-stand-holding device, and a tripping-arm integral with the lifting-arm and extending downward from the end of said jack-post-operating lever, and jack-post-holding devices comprising a slide-dog mounted upon the jack-stand, a spring for automatically closing the same and a disengaging-lever pivoted to the said jack-stand and having a downward-extending arm with which the tripping end of the dog pivoted to the jack-post-operating lever is adapted to be brought into contact, as and for the purposes set forth.

2. In a jack, a jack-stand having lateral extensions or cheek-pieces near its top, in combination with a jack-post mounted in the stand, having teeth in one side adapted to be engaged by the jack-post-lifting and jack-post-holding devices, a jack-post-operating lever pivoted to the jack-stand between its extensions or cheek-pieces, a jack-post-lifting dog pivoted to the inner end of said operating-lever inside of the pivotal point of said lever, which dog extends upward and inward from said lever and makes engagement with the teeth of the jack-post near the upper end of the jack-stand, a downward-tripping extension of said dog, a lug upon the dog, a dog-locking device attached to the lever and adapted to make locking engagement with the dog-lug to lock the lever with its tripping extension in operative relation, a sliding jack-post-holding dog, a spring for moving it into engagement and holding it in egagement with the post, a lever connected therewith which is adapted to be moved to disengage the jack-post-holding dog by the tripping extension of the lifting-dog when said dog is locked by its operating-lever.

3. In a track-jack, a jack-stand having lateral extensions or cheek-pieces near its top, in combination with a jack-post mounted in the stand, having teeth in one side adapted to be engaged by the jack-post-lifting and jack-post-holding devices, a jack-post-operating lever pivoted to the jack-stand between its extensions or cheek-pieces, jack-post-lifting devices operated by the said jack-post-operating lever, a jack-post-holding device comprising a slide-dog and a spring for moving it into engagement and holding it in engagement with a tooth of the jack-post, a lever connected with said slide and extending downwardly

therefrom, and a tripping-dog pivoted to said jack-post-operating lever to extend downward therefrom and adapted to be moved thereon and locked thereto to bring and hold its end in operative position to actuate the said disengaging-lever upon the downward movement of the said jack-post-operating lever, and means for locking said tripping-dog to said lever.

4. In a track-jack, a jack-stand having lateral extensions near its top, a jack-post located within said stand and having teeth on its inner vertical edge, a jack-post-operating lever pivotally mounted in said lateral extensions and carrying a lifting-dog pivotally mounted on its inner extremity, in combination with a jack-post-holding device mounted in said extension between the end of said operating-lever and said jack-post, said lifting-dog extending upwardly and inwardly to clear said holding device and engage said jack-post teeth, and having an extension below its pivotal connection to engage with and withdraw said holding device from contact with said post-teeth, as set forth.

5. In a track-jack, a jack-stand having lateral extensions or cheek-pieces near its top, in combination with a movable jack-post mounted in the stand, having teeth upon one side which are engaged by the jack-post lifting and holding devices, a jack-post-operating lever pivoted between the extensions or cheek-pieces, a lifting-dog pivoted to the said operating-lever, which dog extends upward and inward from said lever, makes engagement with the teeth of the jack-post near the upper end of the jack-stand, a hook-lug upon said lifting-dog near its upper end, a downward tripping extension of said lifting-dog, a hook or link pivoted to the upper side of the jack-post-operating lever to lie along the top of the same when in operative position, and to be closed over the hook-lug of the lifting-dog when it is desired to move the dog from operative engagement with the teeth of the jack-post and hold it removed therefrom and to bring it into operative position with its jack-post-releasing extension, a jack-post-holding dog, a spring to move it to holding position, a tripping-lever to move it in a reverse or disengaging direction, which lever is adapted to be operated by the tripping extension of the lifting-dog to disengage the said jack-post-holding dog from the jack-post upon the downward movement of the operating-lever.

6. In a jack, a jack-stand in combination with a movable jack-post mounted in the stand, having teeth upon one side which are engaged by the jack-post lifting and holding devices, a jack-post-operating lever pivoted to the jack-stand, a jack-post-lifting dog pivoted to said operating-lever, which dog extends upward and inward from said lever and makes engagement with the teeth of the jack-post near the upper end of the jack-stand, a jack-post-holding dog movable inwardly automatically, a holding-dog-disengaging lever connected at one end with the holding-dog, a locking device for locking the jack-post-lifting dog to the jack-post-operating lever, cheek-pieces or extensions of the jack-stand to which said operating-lever and said holding-dog-tripping lever are pivoted, which cheek-pieces serve to inclose the said holding-dog, its tripping-lever and the greater part of the lifting-dog with the exception of that portion engaged by the device which locks it to the jack-post-operating lever, as and for the purposes set forth.

FRANK ROBINSON.

In presence of—
M. S. CLIFFORD,
WILLIS Y. PATCH.