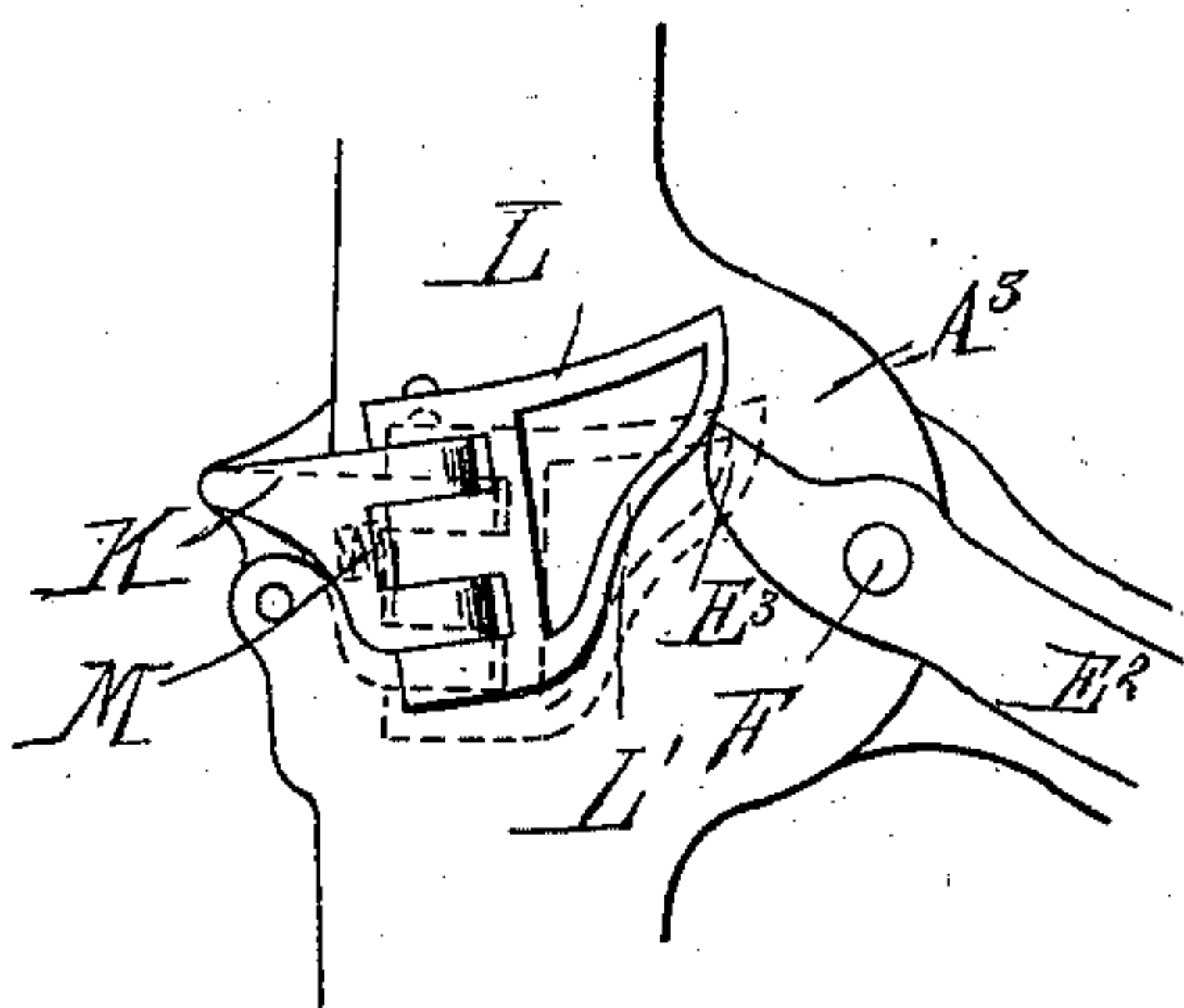
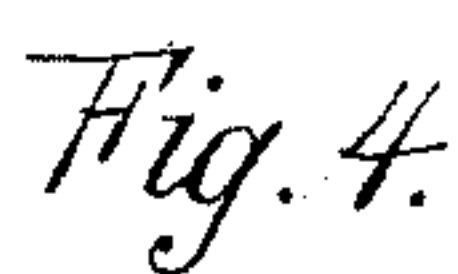
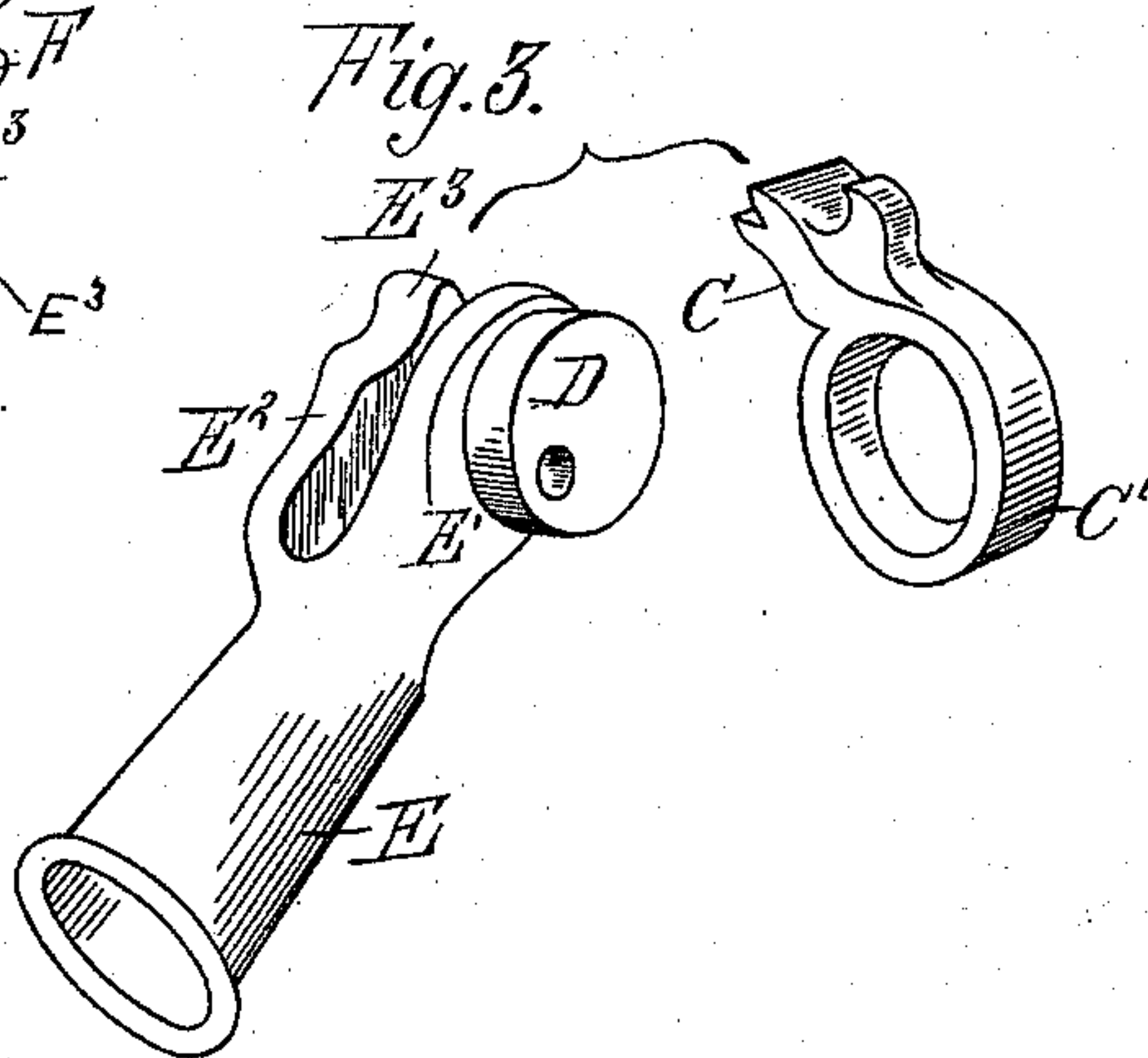
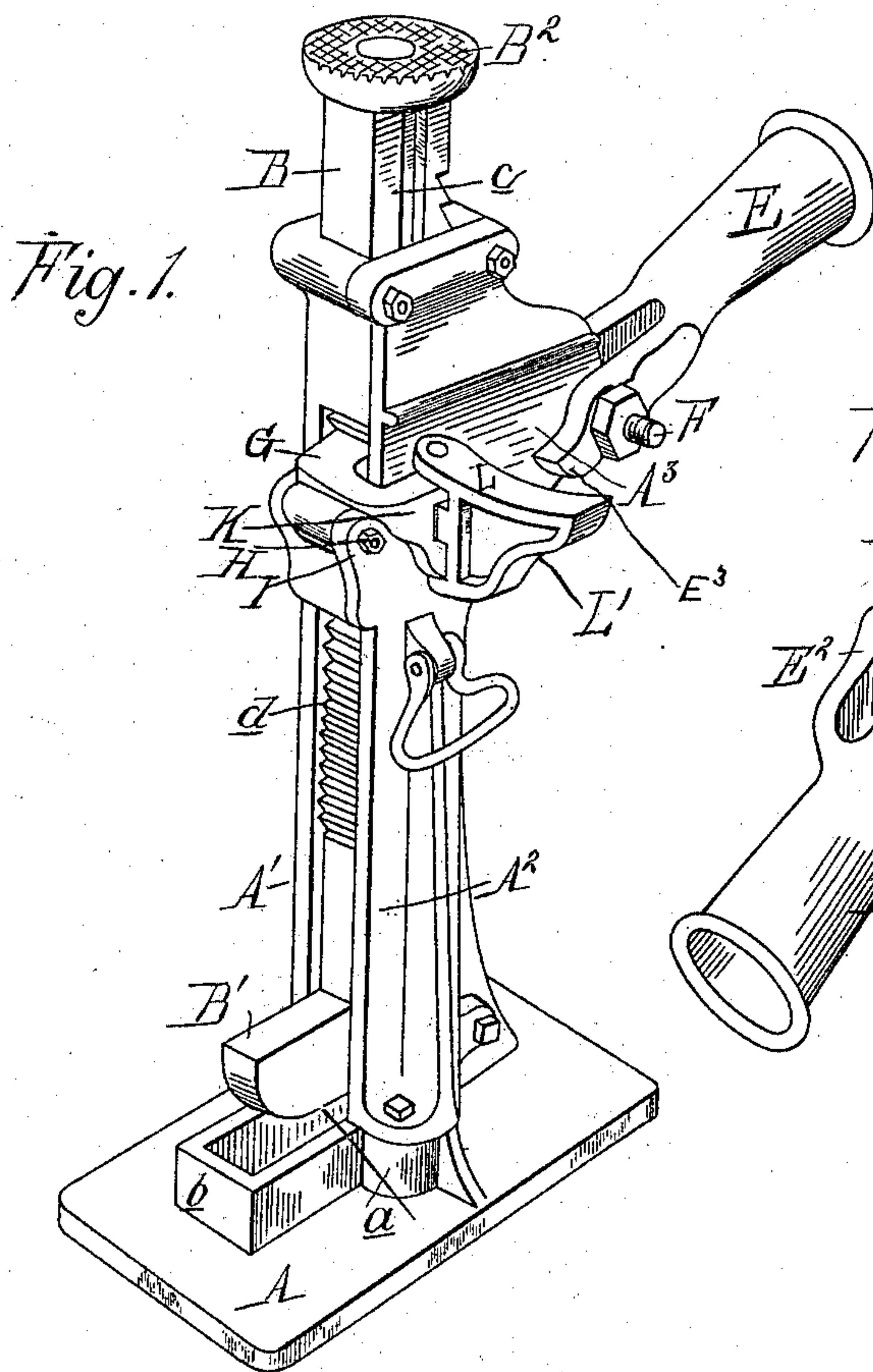


(No Model.)

F. ROBINSON.
TRACK JACK.

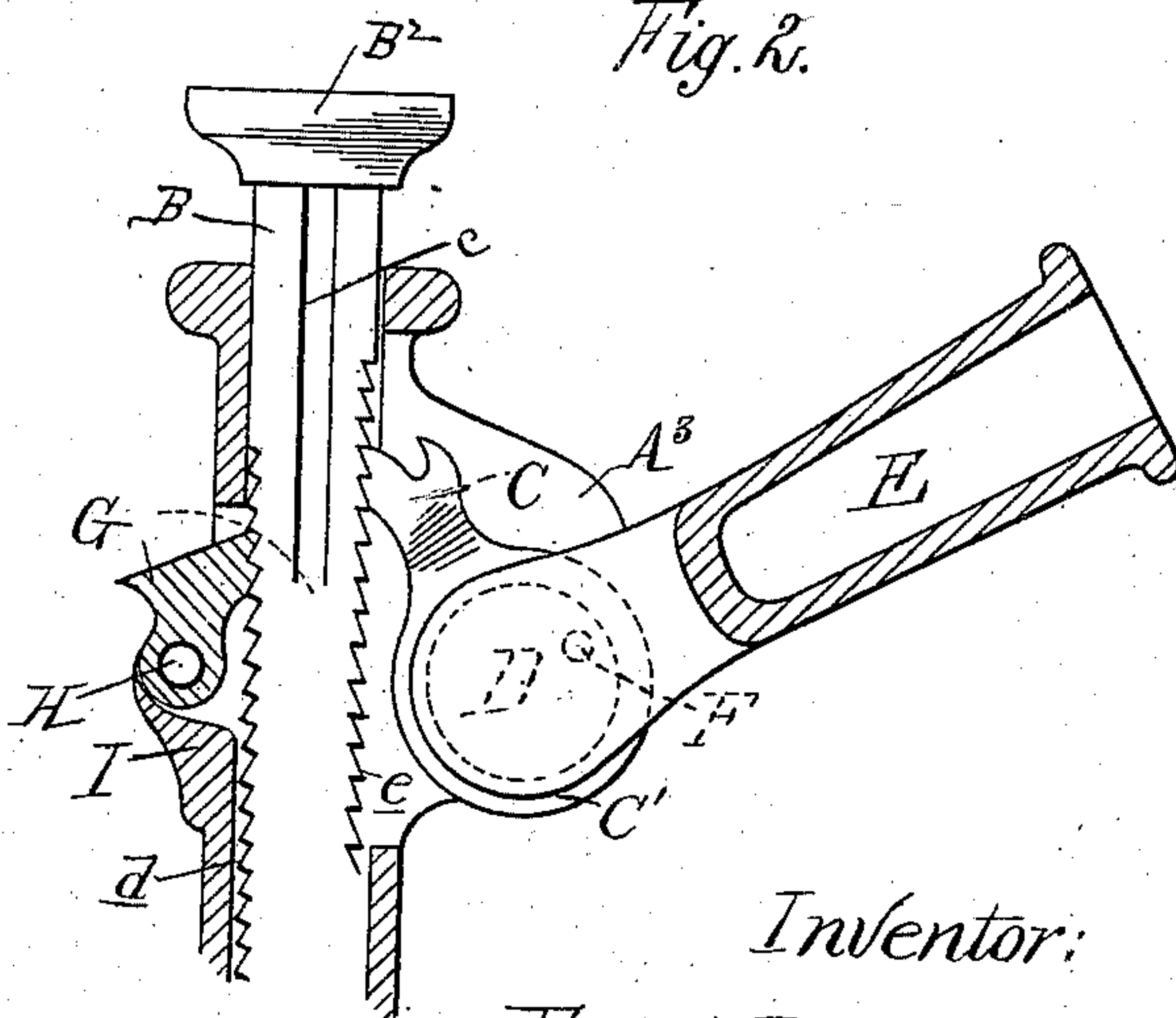
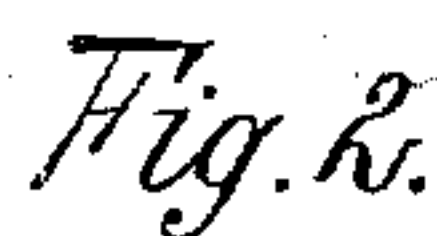
No. 558,881.

Patented Apr. 21, 1896



Witnesses:

A. F. Barthel,
McDonagherty.



Inventor:

Frank Robinson,

By Thos. G. Maguire & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

FRANK ROBINSON, OF BANGOR, MAINE, ASSIGNOR OF ONE-HALF TO
ARTHUR O. NORTON, OF BOSTON, MASSACHUSETTS.

TRACK-JACK.

SPECIFICATION forming part of Letters Patent No. 558,881, dated April 21, 1896.

Application filed August 20, 1895. Serial No. 559,878. (No model.)

To all whom it may concern:

Be it known that I, FRANK ROBINSON, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Track-Jacks, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to produce a track-jack which, while being of simple and strong construction, contains all the desirable features of track-jacks—that is, easy and rapid lifting, secure holding, and an easy and absolutely sure drop under all conditions of service. The feature that a track-jack should have an easy and absolute sure drop has never been given heretofore the necessary attention, and in this particular my invention embodies an important improvement in that it can be easily and instantly dropped under all conditions, or that if an emergency, such as a fast approaching train, requires it, it can be speedily removed from the track and thus avoid accidents, like the one which occurred on the Old Colony Railroad in August, 1890, near Quincy, Massachusetts, due to the lack of this feature in the track-jack.

My construction of track-jack is also particularly devised to simplify and cheapen its construction and permit the use of good workmanship, all as more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a perspective view of my track-jack. Fig. 2 is a vertical section of the upper portion thereof. Fig. 3 is a detached perspective view of the lever-socket and lifting-pawl. Fig. 4 is a side elevation of that portion of the jack to which the trip is applied, showing the parts as in operation.

The body of the jack is made of malleable iron in two parts. One part comprises the base A, cast solid in one piece with the upright part A', forming three sides of the casing inclosing the lifting-bar, the fourth side being formed by the part A², firmly riveted upon a solid foot a, extending above the base. The two parts A' A² are each accurately milled and firmly joined together.

B is the lifting-bar, made from best quality of forged steel and provided upon opposite sides with vertical guide-grooves c, engaging with corresponding ribs formed on the inside of the casing. The lifting-bar is provided on the front side with a series of teeth d, with which a holding-pawl is adapted to engage, and the rear side is provided with a series of teeth e, with which a lifting-pawl is adapted to engage.

At the lower end the lifting-bar is integrally formed with a right-angularly-projecting foot B', which projects through a vertical slot formed in the front side of the casing, and the top of the bar is provided with the circular cap B², roughened upon its upper face. The foot B' of the lifting-bar has a housing formed in the top of the base by means of a standing-flange b, integrally formed with the base A and extending to such a height as to wholly receive the foot B' of the lifting-bar when the latter is dropped.

The mechanism for lifting consists of a lifting-pawl C, which, by means of a strap C', is sleeved upon an eccentric D, integrally formed with the lever-socket E of the lifting-lever. This lever-socket is made with the forked ends E' E², and is pivotally secured by means of a hardened tool-steel pin F, which is keyed to the frame so that it cannot turn to the rearwardly-extending flanges A³ of the sides of the casing, all in such manner that the pin E forms the fulcrum for the forked ends of the lever and gives the eccentric sufficient throw to raise the lifting-bar from one-half inch to one and a half inches, as may be desired, with one stroke of the lever. To make it impossible for the pawl to become disengaged while lifting, the teeth in lifting side of bar are cut square.

G is the holding-pawl, pivotally secured by a steel pin H upon the front side of the lifting-bar between two forwardly-projecting ears I of the casing. The holding-teeth of the bar are cut in line with the arc of a circle struck from the center of the pin H for the purpose hereinafter described.

The holding-pawl is provided at one side of the casing with an extension K, to which is

pivotaly secured the tripping-cam L in such manner that it is free to swing on the side of the casing, so that it may be thrown in or out of engagement with a projection E^3 on the forked arm E^2 of the lever. The function of this tripping-cam is, first, to act as a weight to hold the holding-pawl in safe engagement with the lifting-bar by the action of gravity, and, second, to form a means for instantaneously tripping the jack, which is accomplished by raising the lever, disengaging the lifting-pawl and turning the tripping-cam into position, as shown in Fig. 4, and then pressing down the lever. The end E^3 of the lever in striking against the face of the tripping-cam forces the holding-pawl out of engagement with the lifting-bar, which instantaneously drops. The tripping-bar is provided with an inclined face L' of such character that it is thrown up by the lever with the force of a wedge, which, aided by the shape of the teeth on the lifting-bar, is so powerful that a man can easily and instantly trip with one hand any load that can be raised with the jack, even with two or three men on the lever. In thus tripping the jack it will be seen that there is no lifting of the load while it is being tripped, as is the case with other jacks, and this feature constitutes a valuable feature in this class of devices.

While it is not new in lifting-jacks to use an eccentric device for lifting, I still claim that my construction embodies a novel feature in that the eccentric D is formed separately on one side of the arm E' of the socket-lever. This construction permits of proportioning and locating the eccentric to give the best results. The arm E' being shaped broad and flat, as shown, furnishes a strong bearing for the pin in the eccentric, and therefore this pin may pass as close to the periphery of the eccentric as may be desired without weakening the bearing of the lever in any degree. Thus, with a comparatively small eccentric, the greatest desirable throw can be obtained with the least amount of friction.

I find it desirable to provide the tripping-cam with some means for holding it from accidental displacement when turned into its operative position. To this end I show in the drawings in Fig. 4 a small coil-spring M, seated in a recess of the extension K of the dog and pressing against a flat portion on the hinge-knuckle of the tripping-cam, all so arranged that the tension of the coil-spring holds the cam either in the position shown in Fig. 1 or in the working position shown in Fig. 4.

What I claim as my invention is—

1. In a track-jack, the combination with the supporting-casing, of a lifting-bar provided with ratchet-teeth upon front and rear, a holding-pawl engaging with the ratchet-teeth upon the front thereof, a tripping-cam hinged thereto free to swing on the side of the casing,

a lifting-pawl engaging with the ratchet-teeth on the rear of the lifting-bar and an operating-lever actuating said lifting-pawl and provided with a forward extension adapted to engage with the tripping-cam and trip the holding-pawl, substantially as described.

2. In a track-jack, the combination with the supporting-casing and the lifting-bar slidably engaging therein and provided with ratchet-teeth upon front and rear, a holding-pawl engaging the teeth on the front, a lifting-pawl engaging with the ratchet-teeth upon the rear of the lifting-bar and provided with an eccentric-strap, an operating-lever provided with a socket fulcrumed at its inner end to the rear side of the casing and an eccentric formed upon one side of the lever-socket and having the strap of the lifting-pawl sleeved upon it, substantially as described.

3. In a track-jack, the combination with the supporting-casing and its vertically-slidable lifting-bar, of a holding-pawl engaging the lifting-bar upon the front side of the casing and having a tripping-cam hinged thereto which is adapted to be turned rearwardly against the side of the casing, a lifting-pawl engaging the lifting-bar upon the rear side of the casing, and an operating-lever provided with a socket having a forked inner end fulcrumed upon rearwardly-extending flanges of the sides of the casing, one of the forked ends of said socket extending forwardly on one side of the casing, and adapted to engage with and trip the holding-pawl and the other being enlarged and flattened and provided upon its outer side with an eccentric-bearing upon which the lifting-pawl is sleeved, substantially as described.

4. In a track-jack, the combination with the lifting-bar having ratchet-teeth in front and rear and provided with vertical guide-flanges, and a foot B' , of the outer casing in which said lifting-bar slidably engages, said outer casing consisting of the part A' , inclosing the lifting-bar upon three sides and cast integrally with a base A, forming a housing b for the foot of the lifting-jack, and the part A^2 forming the fourth side of the casing and secured upon a foot a above the base, substantially as described.

5. In a track-jack, the combination with the casing and the lifting-bar slidably engaging therein, of the holding-pawl G pivoted in front to said casing, the ratchet-teeth d formed in the front side of the casing and having their faces cut in line with a circle struck from the center of the holding-pawl, the tripping-cam L hinged to the holding-pawl and having the inclined face L' as described, the ratchet-teeth e cut upon the rear side of the lifting-bar, the lifting-pawl C adapted to engage therewith, and the operating-lever socket E provided with the forked ends E' E^2 , one formed with an eccentric carrying the lifting-pawl, the other having the extension E^3 adapted to op-

erate the tripping-cam, substantially as described.

6. In a track-jack the combination of the operating-lever carrying the lifting-pawl and provided with the extension E³ projecting beyond its fulcrum on the side of the casing, the holding-dog provided with the extension K, the tripping-cam hinged to the extension K

and the spring M arranged to hold the tripping-cam in its adjusted position.

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

FRANK ROBINSON.

Witnesses:

JOHN MCCARTY,

JOHN F. ROBINSON.