

No. 737,344.

PATENTED AUG. 25, 1903.

C. J. CARNEY & J. C. GORTON.

RIVETING MECHANISM.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.

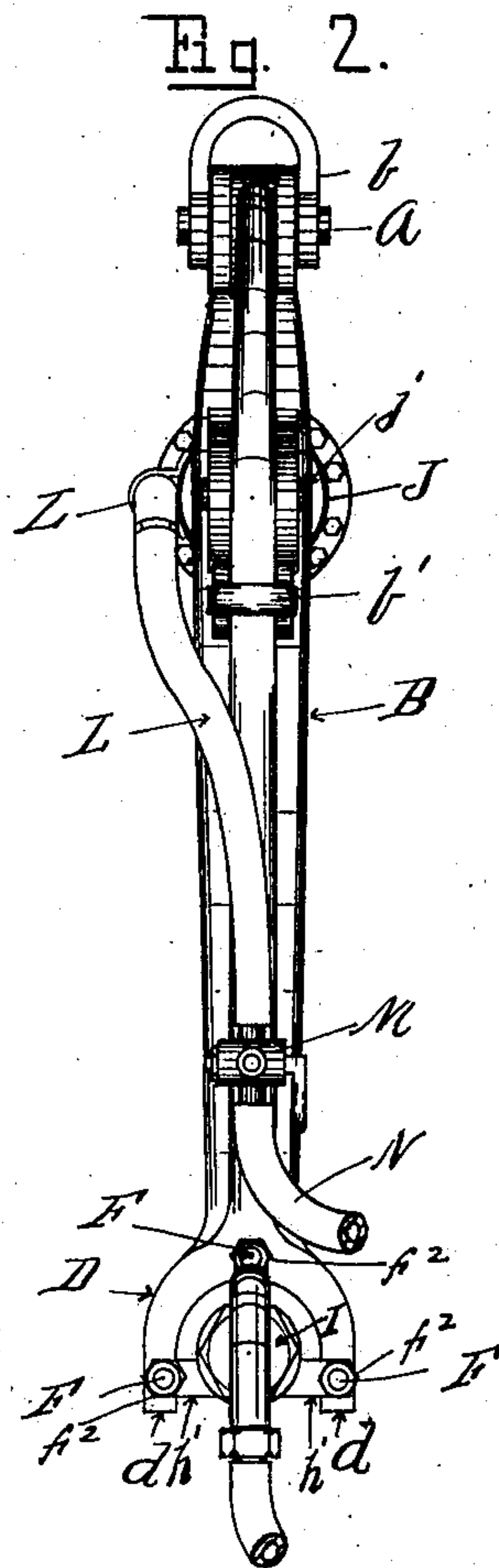
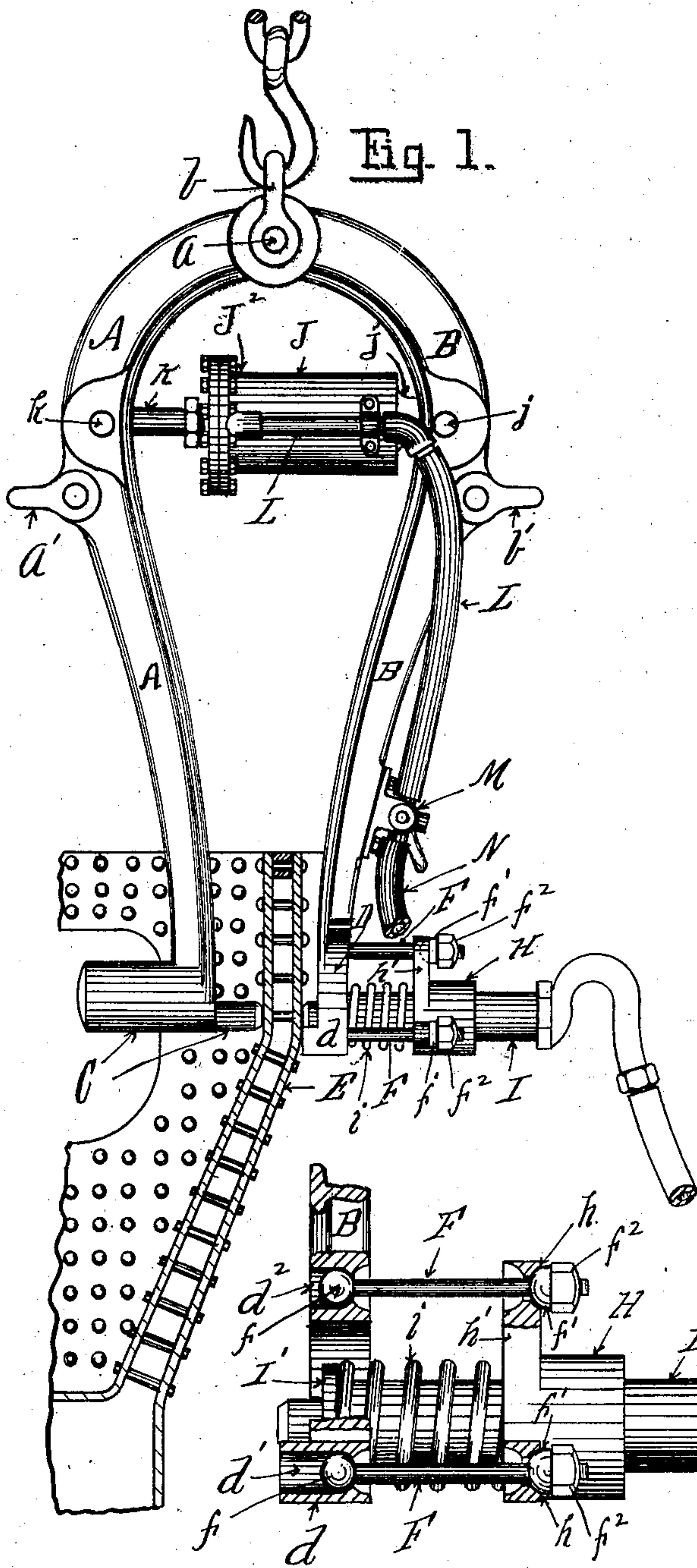
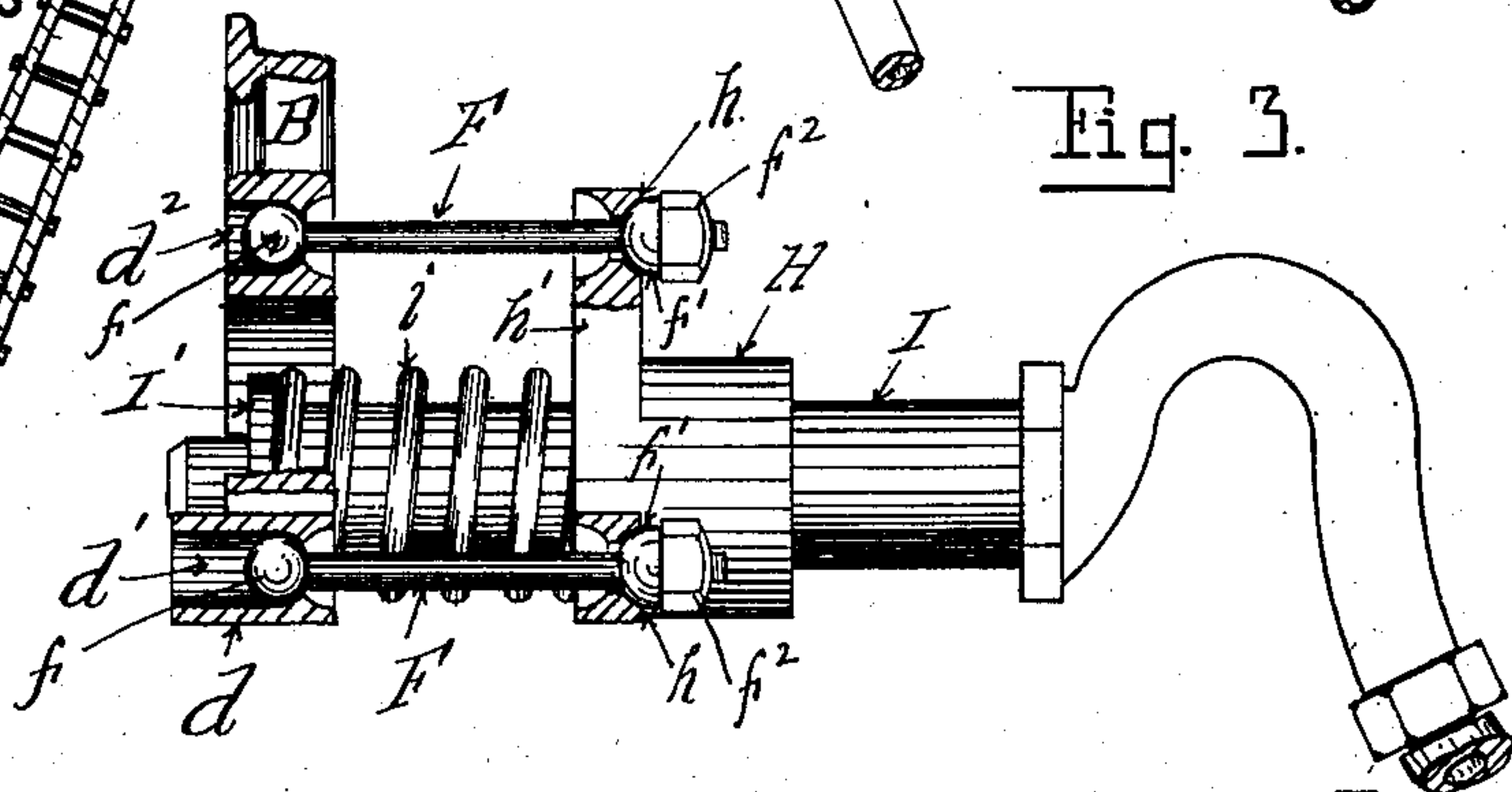


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## RIVETING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 737,344, dated August 25, 1903.

Application filed November 3, 1902. Serial No. 129,870. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES J. CARNEY, residing at Dunkirk, in the county of Chautauqua and State of New York, and JOHN C. GORTON, residing at Cleveland, in the county of Cuyahoga, in the State of Ohio, citizens of the United States, have jointly invented certain new and useful Improvements in Riveting Mechanism; and we 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 the letters of reference marked thereon, forming part of this specification.

This invention relates to riveting mechanism, and particularly to hinged-jaw mechanism for supporting an anvil and pneumatic hammer operating in opposition to each other and adapted to span and be clamped against the sides of boiler fire-boxes and structures of similar character for riveting stay-bolts or rivets therein. To this end we construct a pair of jaws which are hinged together at one end and are provided with an anvil on the end of one jaw and mechanism for supporting a pneumatic hammer on the end of the other jaw, and between the jaws, adjacent to the pivotal junction thereof, we provide mechanism for drawing the free ends of the jaws together, so that the jaws are adapted to span and be clamped against the sides of a structure which it is desired to rivet together. These and other features of our invention are hereinafter fully set forth and described in this specification, and illustrated in the accompanying drawings, in which—

Figure 1 is a side view, in elevation, of mechanism embodying our invention clamped upon a section of a boiler fire-box. Fig. 2 is an edgewise view, in elevation, of the same without the section of the boiler fire-box. Fig. 3 is an enlarged detail, partially in section, of the pneumatic hammer-supporting mechanism of our device.

In the drawings illustrating our invention, A and B are jaws having their upper portions curved toward each other until they meet and are pivoted together by means of a pivot *a*, upon which pivot there is also a clevis *b* for

suspending the structure vertically. There are also clevises *a'* and *b'* on the jaws A and B for suspending the structure horizontally, when desired. On the lower end of the jaw A we secure an anvil C and on the lower end of the jaw B we form a yoke D, the lower ends *d d* of the arms of which are adapted to be clamped against the side of a boiler fire-box E or other structure to be riveted in opposition to the anvil C, contacting with the opposite end thereof. In the ends of said arms *d d* and the apex of the yoke D we make sockets *d'*, *d'*, and *d''*, adapted to receive rods F, having spherical or semispherical heads *f*, operating in said sockets to form ball-and-socket joints therewith, as illustrated in Fig. 3. The opposite or outer ends of these bolts F pass through socket-shaped openings *h* in the arms *h'*, which project radially from a sleeve H and are provided with semispherical washers *f'* and nuts *f''*, which semispherical washers operate in the socket-shaped openings *h* to form ball-and-socket joints therewith, as clearly shown in Fig. 3. In the sleeve H we place an ordinary pneumatic hammer I, having a collar I' on its inner end, and between the collar I' and the sleeve H we place a spring *i*, adapted to normally hold the hammer in contact with the side of the structure being riveted, yet which permits the operator to move the hammer backward in the sleeve at will. It will be observed also that this hammer-supporting mechanism also permits the operator to swing the sleeve H, in which the hammer I is supported laterally or to rotate it around its normal center, so as to direct the hammer-head in any desired direction when in operation, the yoke-shaped support enabling the operator to at all times observe the operation of the hammer-head upon the stay-bolt or rivet being riveted.

Between the jaws A and B, near the pivoted junction thereof, we place a compressed-air cylinder J, one end of which is provided with an arm J', pivoted to the jaw B by means of a pivot *j*. In this cylinder there is the usual piston, (not shown,) the piston-rod K of which is pivoted to the jaw A by means of a pivot *k*. From the end J<sup>2</sup> of the cylinder J a pipe L, a part of which is flexible, extends to an ordinary three-way valve M, located on the jaw



B at a point where it can be conveniently operated by the hammer-operator, and from the valve M a pipe or hose extends to a suitable source of compressed-air supply. (Not shown.)

5 By means of this mechanism the jaws A B can be quickly clamped on structures to be riveted and retained thereon until it is desired to release them, which can be quickly done by means of the valve M. We have  
10 thus shown and described a convenient mechanism for utilizing our invention. It is obvious, however, that parts thereof can be considerably modified, both in construction and arrangement, without departing from the  
15 spirit of our invention. Therefore we do not desire to confine ourselves to the exact construction hereinbefore shown and described, as,

20 What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of a pair of jaws pivoted together, an anvil on the free end of one jaw, a yoke on the free end of the other jaw, rods pivoted with ball-and-socket joints in  
25 said yoke, a sleeve, radial arms on said sleeve in which the outer ends of said rods are pivoted with ball-and-socket joints, a pneumatic hammer mounted on said sleeve, and mechanism for drawing the free ends of said jaws  
30 toward each other, substantially as set forth.

2. In a riveting mechanism, a pneumatic hammer-support, comprising substantially a sleeve surrounding the rear part of the hammer-shell, radial arms on said sleeve, rods extending from said arms to a yoke on the hammer-support, and ball-and-socket-joint  
35 connections between said rods and arms and hammer-support, substantially as and for the purpose set forth.

3. The combination of a pair of jaws pivoted together means on said jaws for suspending them vertically or horizontally, an anvil on the end of one jaw, yoke, sleeve-and-rod mechanism on the end of the other jaw, a pneumatic hammer supported by said yoke,  
40 sleeve-and-rod mechanism so as to be moved laterally or radially thereon, a pneumatic cylinder between said jaws, and valve mechanism for controlling the action of said cylinder,  
45 substantially as set forth. 50

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES J. CARNEY.

JOHN C. GORTON.

Witnesses as to Charles J. Carney:

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