

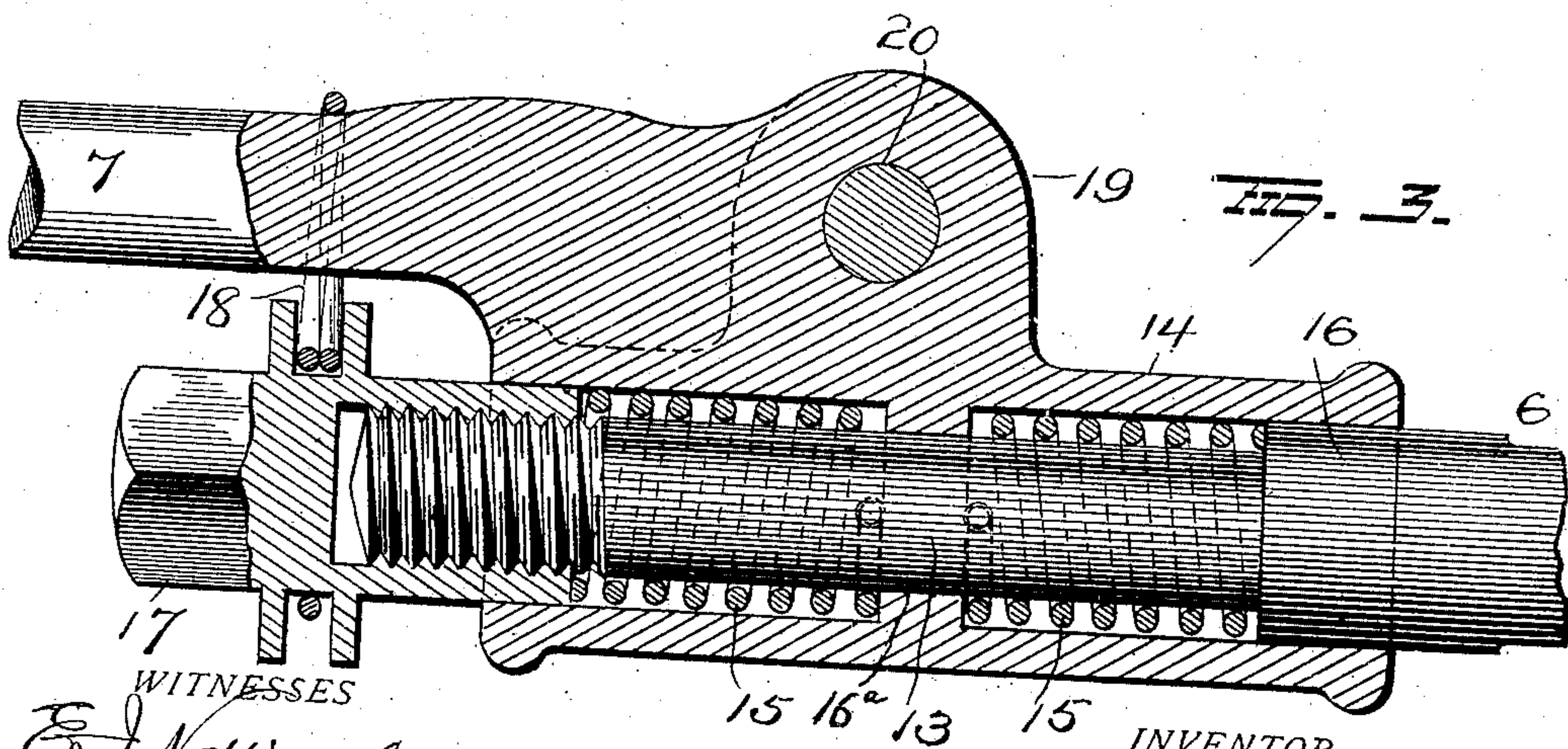
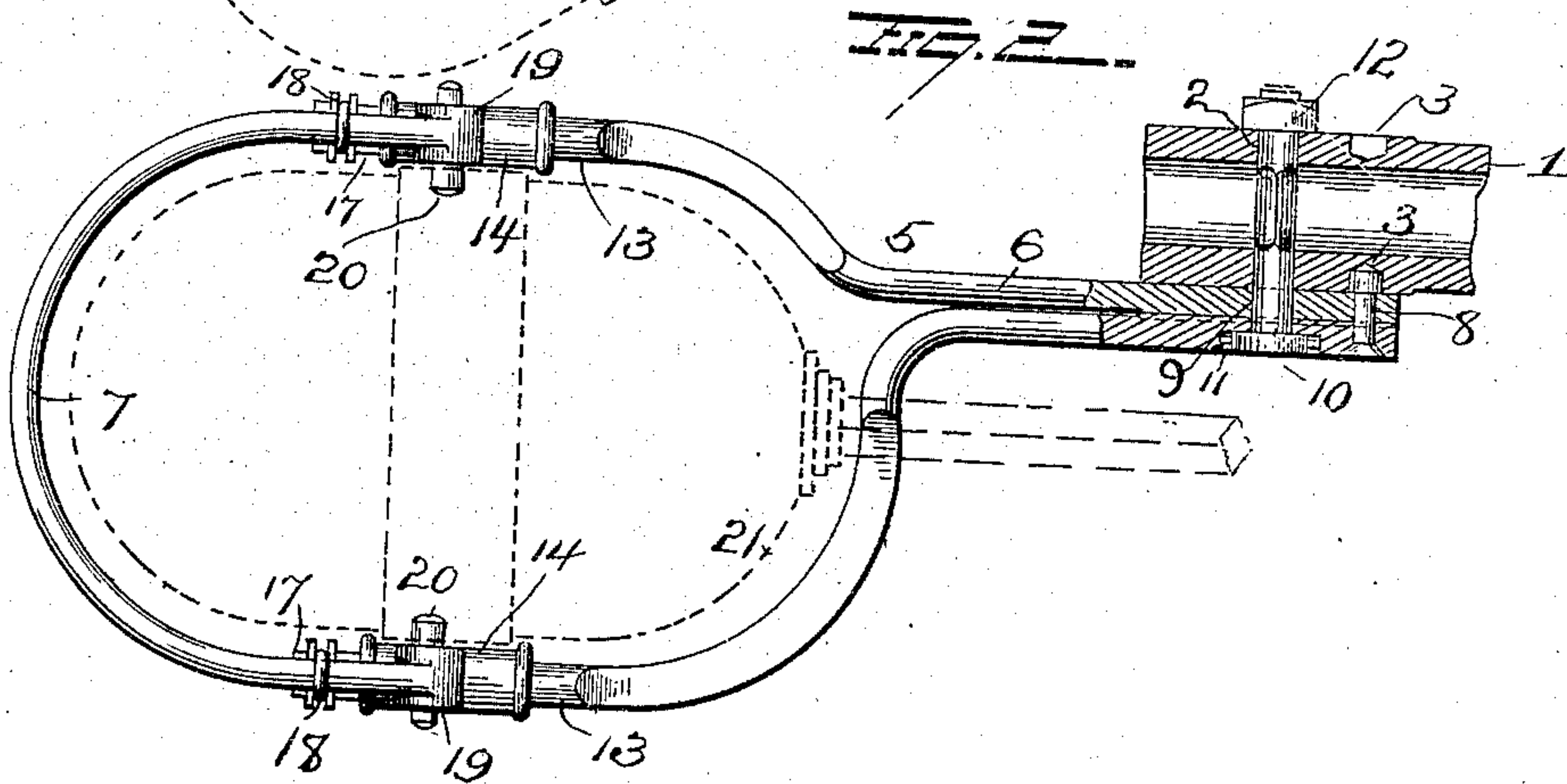
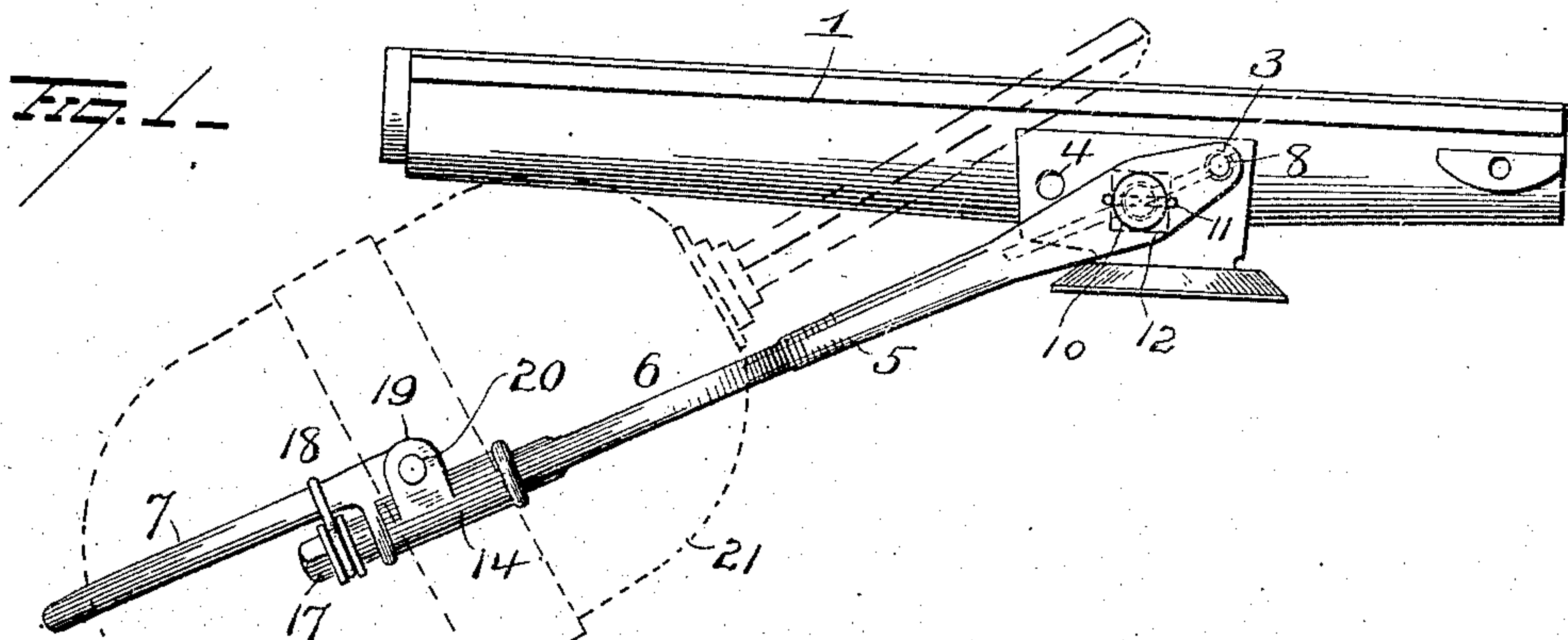
No. 840,817.

PATENTED JAN. 8. 1907.

T. E. ADAMS,
MOTOR SUPPORTING HARP FOR ROCK DRILLS.

APPLICATION FILED FEB. 25, 1905.

2 SHEETS—SHEET 1.



WITNESSES
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G. F. Downing

INVENTOR
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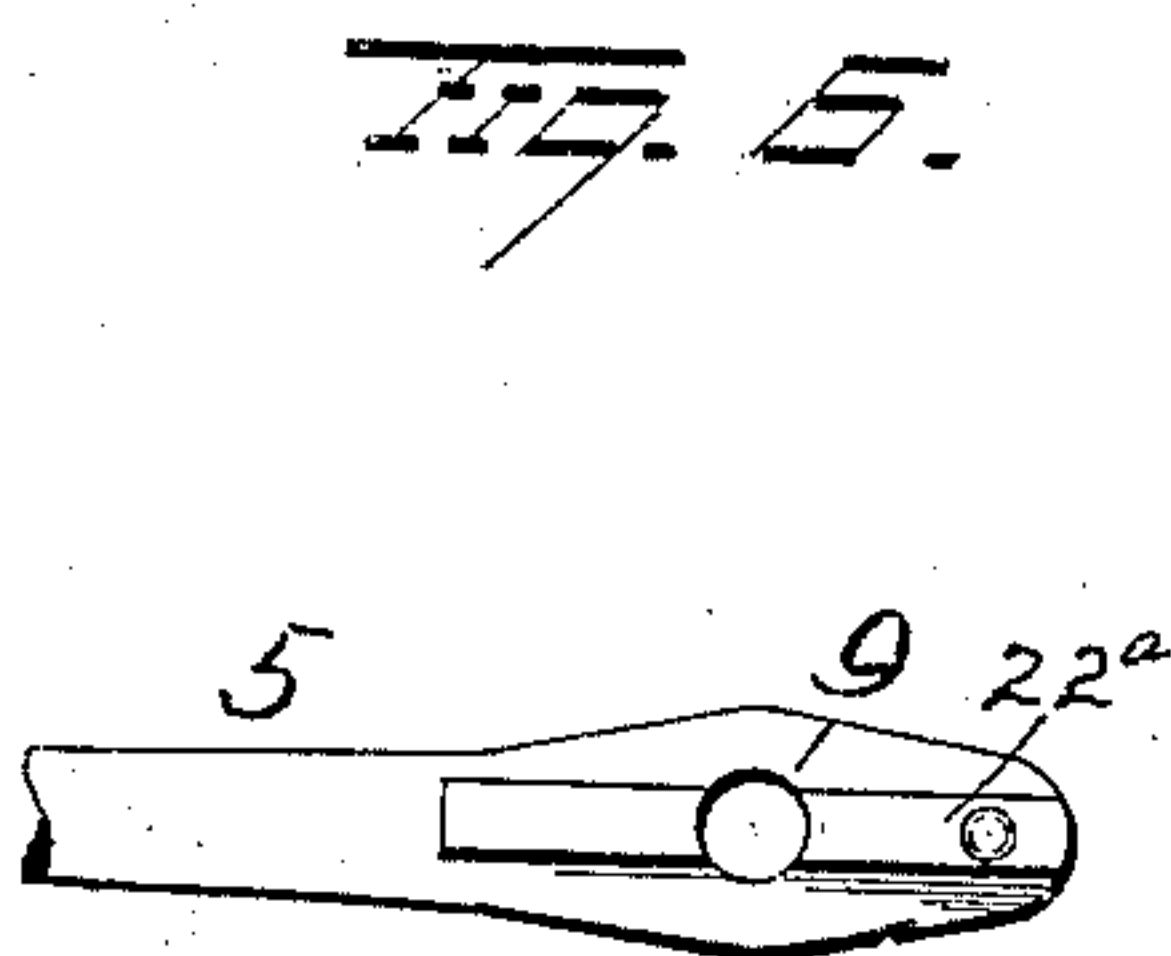
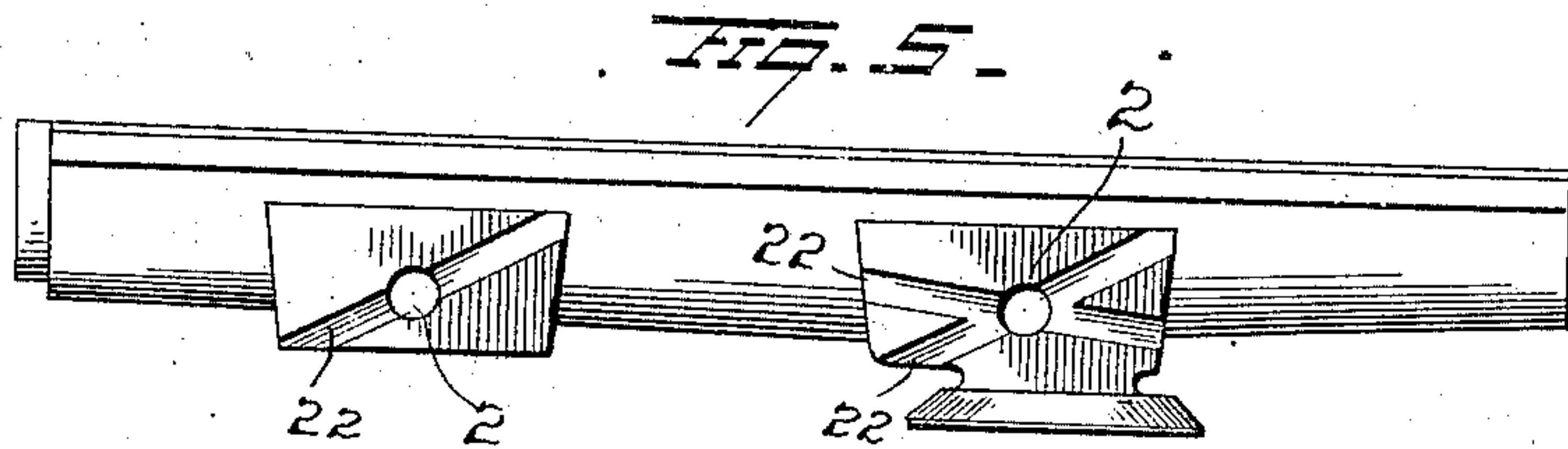
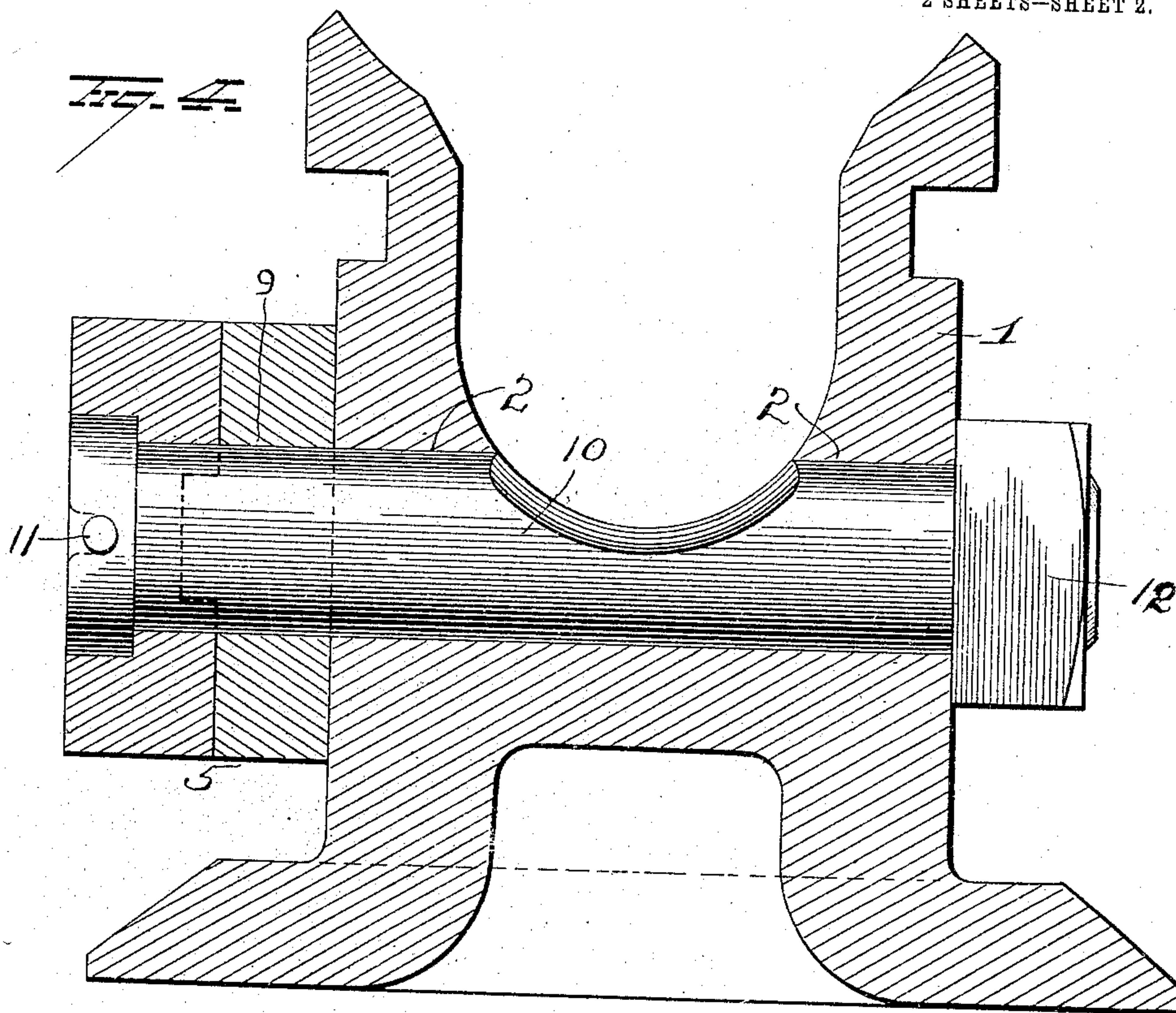
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UNITED STATES PATENT OFFICE.

THOMAS EDGAR ADAMS, OF CLEVELAND, OHIO.

MOTOR-SUPPORTING HARP FOR ROCK-DRILLS.

No. 840,817.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed February 25, 1905. Serial No. 247,317.

To all whom it may concern:

Be it known that I, THOMAS EDGAR ADAMS, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain and new and useful Improvements in Motor-Supporting Harps for Rock-Drills; 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.

My invention relates to an improved motor-supporting harp for rock-drills, the object of the invention being to provide improvements of this character which will provide elastic mounting for the motor in all directions and which is not liable to get out of repair, but which permits ready substitution of new for old parts should they become worn.

A further object is to provide an improved motor-supporting harp consisting of two separable sections, with adjustable and elastic connection between them.

A further object is to provide improved fastening means between the motor-supporting harp and the drill-shell; and a further object is to so construct the harp that the motor cannot by any possibility jar therefrom or get out of its proper working position.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation, illustrating my improvements. Fig. 2 is a view of the harp detached. Figs. 3 and 4 are enlarged sectional views of details of construction, and Figs. 5 and 6 illustrate a modified form of fastening device for the harp and shell.

1 represents the drill-guide shell, having an opening 2 and notches 3 and 4 at both sides of the opening above the same and at both sides of the shell.

5 represents my improved harp, comprising two members, which for convenience of reference I will term one a "fork" 6 and the other a "yoke" 7, both composed of steel bars bent into the shape shown. The fork comprises two flattened bars enlarged at one end and rabbeted together and secured by a rivet 8, which latter projects at one end beyond the flat face of the bars and consti-

tutes a dowel-pin to fit into either of the notches 3 or 4, according to the disposition of the harp, and an opening 9 is provided in this enlarged end of the fork, where the bars thereof join, to receive a bolt 10, passed through the opening 2 in shell 1 and securing the harp in position. The head of this bolt 10 is preferably made with a key 11 to enter a notch in the fork and hold the bolt against turning. A nut 12 is screwed onto the other end of the bolt, and the latter is recessed between its ends to accommodate the drill-barrel in the shell.

The bars forming the fork are bowed outward and are made with circular portions 13 at their ends which, I term "journals," although they, of course, have no rotary movement. These journals 13 are adapted to enter sleeves 14 on the ends of curved yoke 7, and coiled removable springs 15 encircle the journals 13 within said sleeves. One of the springs (in each sleeve) bears at its respective ends against a shoulder 16 on the journal and a shoulder 16^a in the sleeve, and the other spring bears at its respective ends against said shoulder 16^a and a nut 17, screwed on the end of the journal at the end of the sleeve. These nuts are preferably made with annularly-grooved enlargements to receive wires 18, passed around the yoke-bar to prevent accidental displacement of the nuts.

In metal enlargements 19 on sleeves 14 lateral openings are provided to receive conical pins 20, driven therein and constituting trunnions to support the motor 21, and should these pins become worn they can be readily removed and new pins substituted therefor.

To assemble the harp on the motor, the yoke 7 is sprung onto the motor with the pins 20 in the motor-bearings, and the journals 13 of fork 6 are then inserted in sleeves 14 and secured by the nuts 17, the latter being adjusted to bring the springs 15 up to the proper tension. When the motor is once confined within the harp, there is no possibility of its being jarred out of position, as it is positively held by the harp constructed as above explained.

By thus constructing my improvements it will be seen that the motor is elastically supported in all directions, the inherent elasticity of the harp giving its elastic support in all directions save longitudinally, and such elasticity is supplied by the springs 15.

The harp may be attached to either side of the shell and project in either direction, and I do not limit myself to this particular point of attachment, as the harp may be secured
 5 at any point between the ends of the shell and may be secured in a manner other than described.

In Figs. 5 and 6 I illustrate another method of fastening the harp to the shell and
 10 fasten the harp nearer the rear end of the shell or elsewhere, as may be desired. In this construction a groove or grooves 22 is provided in the shell to receive a similarly-shaped flange or enlargement, 22^a, Fig. 6, on
 15 the harp, and when the bolt 10 is secured in place through the openings in the shell and harp the parts will be most effectually held together.

A great many slight changes might be made
 20 in the general form and arrangement of the parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes
 25 and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

30 1. A motor-supporting harp comprising two members, one movable longitudinally relatively to the other and means for mounting a motor on the longitudinally-movable member.

35 2. A motor-supporting harp comprising an elastic fork, a yoke attached to and movable longitudinally with relation to the fork, springs between the fork and yoke and means on the yoke for mounting the motor.

40 3. A motor-supporting harp, consisting of two members removably secured together and elastic connection between the members.

45 4. A motor-supporting harp, consisting of two members, elastic connecting means between the members, and removable pins in one member forming pivotal motor-supports.

5. A motor-supporting harp, consisting of

a fork and a yoke, means for removably connecting them together, springs forming elastic cushions between them, and removable
 50 conical pins driven into openings in the yoke and adapted to provide pivotal mounting for the motor.

6. A motor-supporting harp, comprising a
 55 fork and a yoke, sleeves on the yoke ends to receive the fork ends, and springs in each sleeve engaging a part on the fork and a part in the sleeve.

7. A motor-supporting harp, consisting of
 60 a fork and a yoke, sleeves on the yoke ends to receive the fork ends, springs in said sleeves bearing against shoulders therein, nuts screwed onto the fork ends and against which the said springs in the sleeves bear,
 65 and conical pins driven into openings in the yoke and providing pivotal support for a motor.

8. A motor-supporting harp, consisting of a fork of elastic material and a yoke elastically attached together, and said fork consisting of two flattened bars secured together, and means for securing the same to the drill-guide shell.

9. The combination with a guide-shell
 75 having a part provided with recesses, of a motor-supporting harp provided at one end with a lateral projection to enter any one of said recesses, and a bolt passing through the harp and shell and securing the parts to-
 80 gether.

10. A motor-supporting harp comprising a fork, a yoke, sleeves on the yoke to receive the ends of the fork, springs in said sleeves, nuts screwed on the fork ends and entering
 85 the sleeves, and devices, carried by the arms of the yoke to prevent accidental displacement of the nuts.

In testimony whereof I have signed this specification in the presence of two subscribing
 90 witnesses.

THOMAS EDGAR ADAMS.

Witnesses:

J. H. WORBS,

F. W. SINDAM.