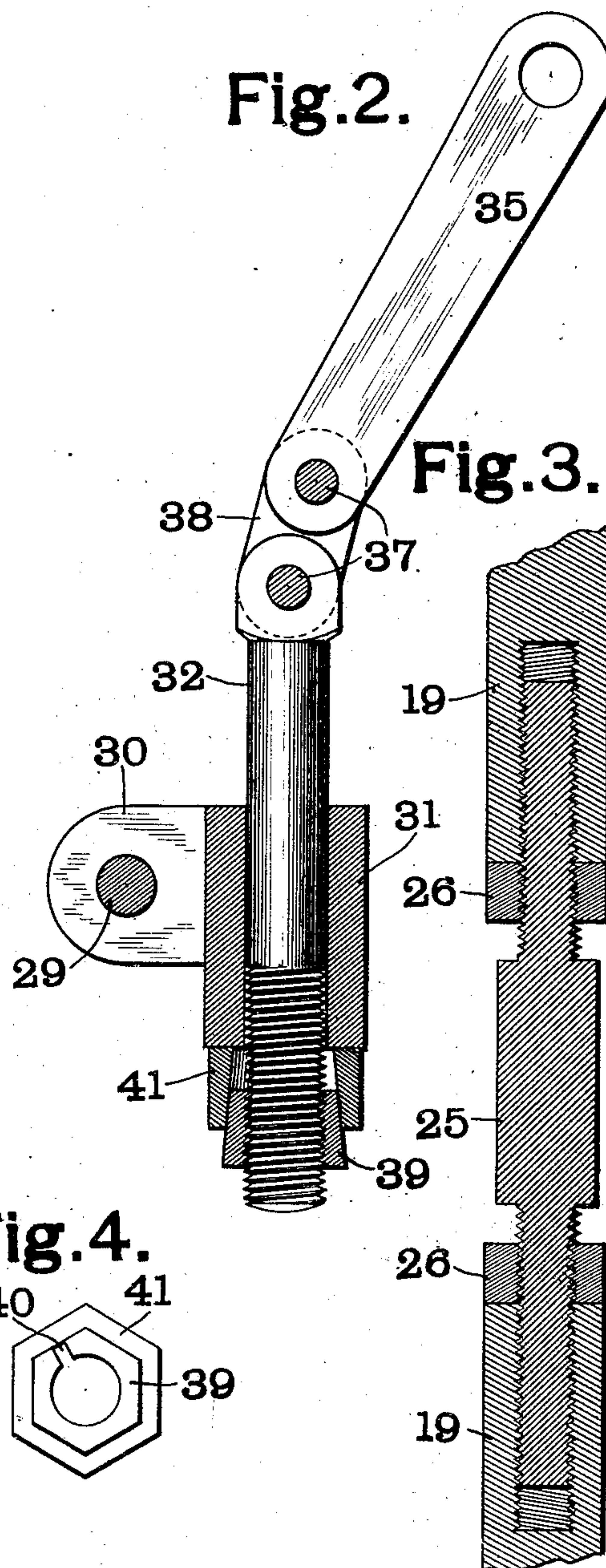
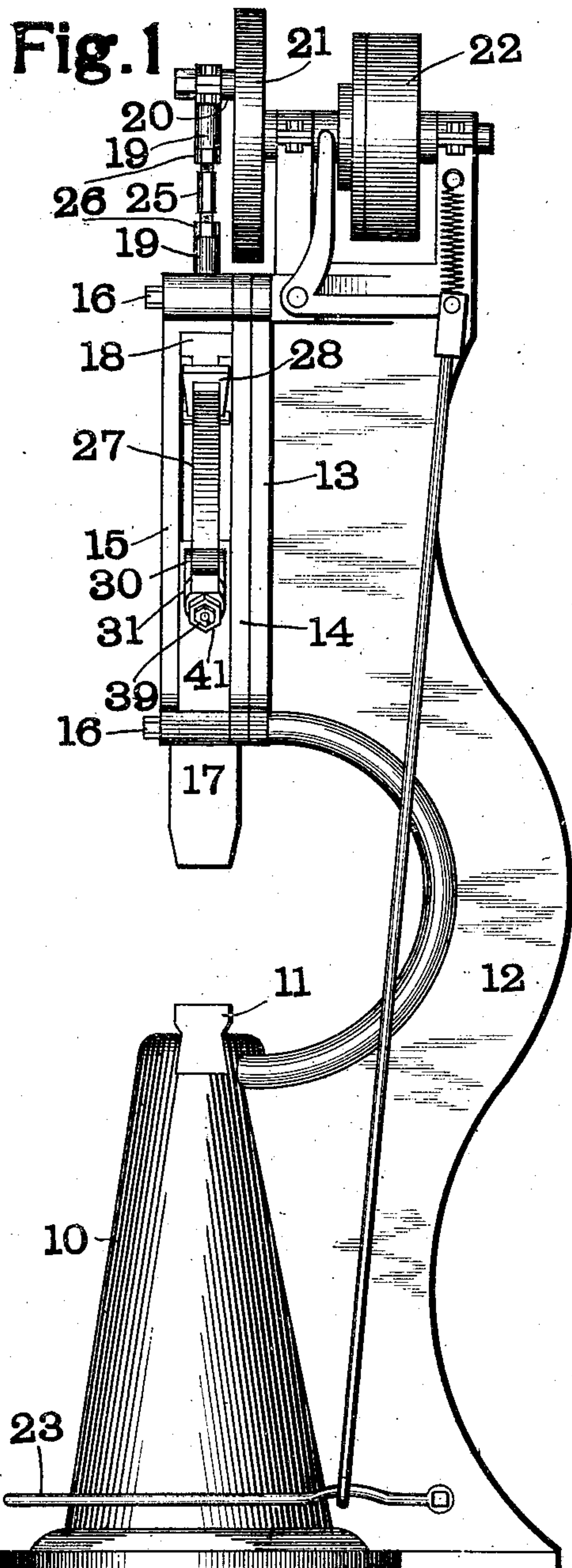


P. S. MACGOWAN.
POWER HAMMER.

APPLICATION FILED FEB. 28, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

L. L. Mead.
W. A. Alexander.

INVENTOR

P. S. Macgowan.

BY

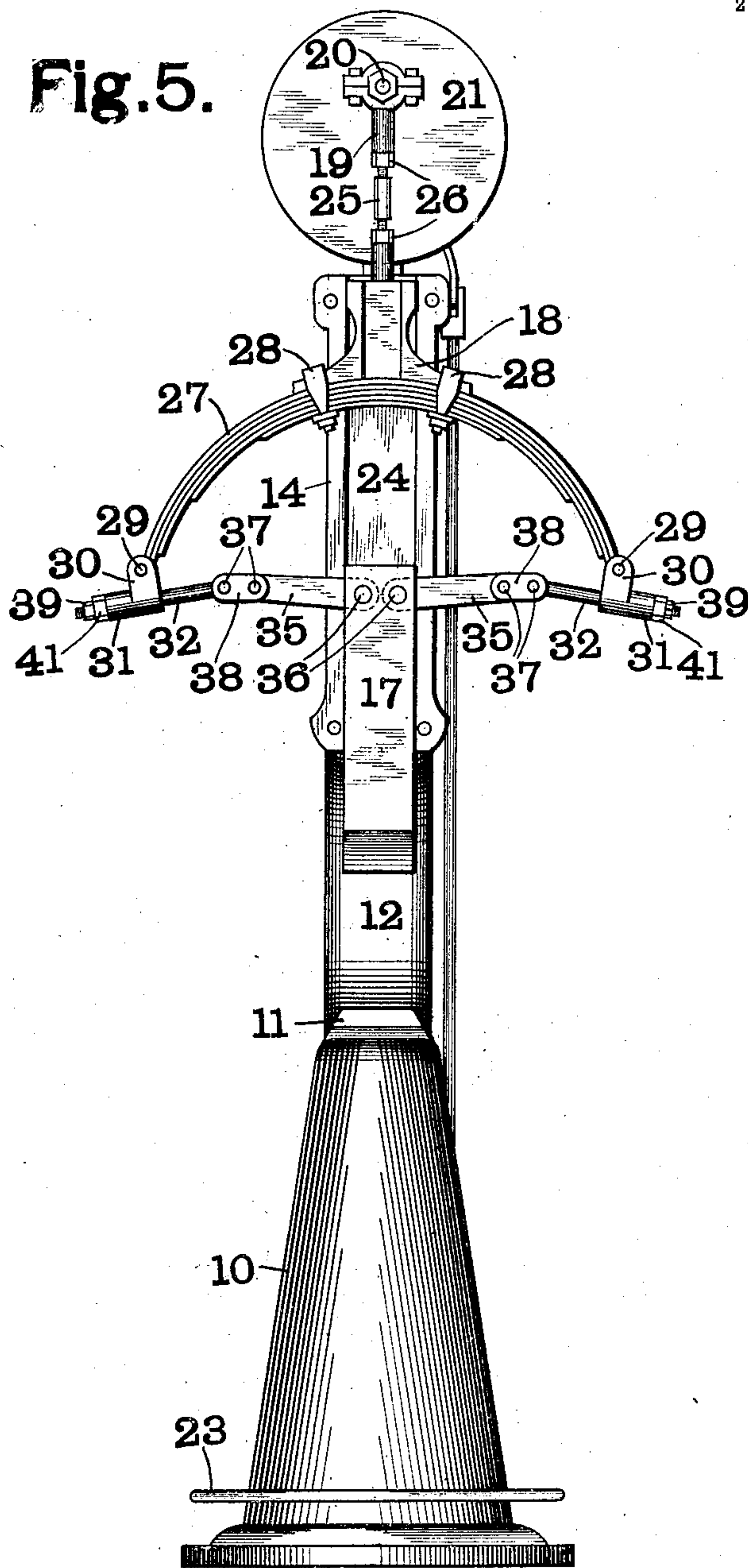
Lowell & Bryson
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PETER S. MACGOWAN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO MACGOWAN AND FINIGAN
FOUNDRY & MACHINE CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

POWER-HAMMER.

No. 865,787.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed February 28, 1907. Serial No 359,766.

To all whom it may concern:

Be it known that I, PETER S. MACGOWAN, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful

5 Power-Hammers, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

10 My invention relates to improvements in power hammers, and more particularly to that class of hammers in which a bow spring is interposed between the hammer and the pitman or other driving mechanism of the machine.

15 I have found that in hammers of this class it is necessary to provide means for accurately adjusting both the tension of the spring and the length of the driving connection so that the hammer may be properly adjusted after the machine has been assembled.

20 My invention relates in part to means for accomplishing the above adjustments.

I have also found that in hammers of this class where the ends of the spring are connected by rigid connecting rods to the stem of the hammer, the jar upon the

25 parts is so great as to cause the parts to crystallize and become readily broken.

My invention consists in part in constructing the connecting rods so as to overcome the above difficulty.

In the accompanying drawings, which illustrate one

30 form of hammer made in accordance with my invention, Figure 1 is a side elevation of the complete machine, Figs. 2 and 3 are enlarged sectional views showing details of construction, Fig. 4 is a detailed view of the lock nuts for the connecting rods and Fig. 5 is a front

35 elevation of the complete machine, some of the parts being removed.

Like marks of reference refer to similar parts in the several views of the drawings.

10 represents the base or cone of the machine, carrying the anvil 11. Preferably formed integral with the cone or base 10 is the frame 12. This frame 12 is provided with a face plate 13, to which is secured one part 14 of the guide, the other part 15 of said guide being secured to the part 14 by bolts 16 passing through both

45 said parts into the face plate 13. In the guides 14 and 15 are formed ways 24 in which the stem 17 of the hammer travels. The cross head 18 also travels in these ways 24. The cross head 18 is connected by means of a pitman 19 with the wrist pin 20 on a disk

50 21. This disk 21 is driven by means of the clutch mechanism 22 controlled by a foot lever 23.

In order to adjust the connection between the hammer 17 and the wrist pin 20, I make the pitman 19 in two parts and interpose between said two parts a rod 25,

55 carrying right and left hand threads and engaging with

internal threads in the two parts of the pitman 19 as shown in detail in Fig. 3. The central part of the rod 25 is made hexagonal in shape to facilitate the rotation of the rod to adjust the length of the connections. Nuts 26 serve to maintain the adjustment after it has

60 been secured.

Carried by the cross head 18 is the bow spring 27. This spring 27 may be secured to the cross head 18 in a suitable manner, but preferably by means of U shaped straps 28, as best shown in Fig. 5. The ends of

65 the spring 27 are pivoted by means of pins 29 to lugs 30 carried by sleeves 31. The connecting rods between the ends of the spring 27 and the hammer 17 are each made of two parts. The outer part 32 of each of these rods passes through one of the sleeves 31 and

70 is threaded at its outer end to receive the adjusting and lock nuts. The inner part 35 of each of the connecting rods is pivoted by means of a pin 36 to the stem of the hammer 17. The adjacent ends of the parts 32 and 35 of the connecting rods are pivoted by

75 means of the pins 37 to a pair of links 38.

Each of the parts 32 is provided with an internally threaded nut 39. This nut 39 has its outer faces beveled and these faces are adapted to make contact with corresponding internal beveled faces upon the

80 collar 41. The nut 39 is split, as best shown in Fig. 4.

The inner end of the collar 41 engages with the end of the sleeve 31, as shown in Fig. 2, so that the tension of the spring bow 27 causes the said collar 41 to compress the nut 39 around the rod 32 and thus firmly lock

85 the two parts against rotation.

After the hammer has been assembled, it is necessary to properly adjust it, to compensate for variation in the tension of the spring and also for slight inequalities in other parts of the machine and in order to accomplish

90 this the nuts 39 and 26 are loosened. The length of the connection can then be varied by rotating the rod 25, and the tension of the spring can be properly adjusted by means of the nut 39. After the proper adjustments have been made, the adjustment of the pit-

95 man is made permanent by means of the nuts 26. As has been heretofore pointed out, the construction shown in detail in Fig. 2 is such that the tension of the spring bow 27 acting through the inner beveled faces of the collar 41 and the outer beveled faces of the

100 nut 39 compresses the nut 39 firmly around the end of the rod, hence no additional locking means is necessary. In fact, this form of nut holds the sleeve 31 firmly in adjustment, while I have found that the ordinary form of lock nut is incapable of holding the

105 sleeve against the continual vibration of the spring 27. The form of the connecting rods is such as to allow freedom of motion of the parts and this prevents the excessive jars which tend to crystallize the parts of the machine.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a power hammer, the combination with a cross
5 head, of a spring bow carried thereby, sleeves pivoted to the ends of said spring bow, a hammer, a pair of connecting rods each pivoted at one end to said hammer and passing through one of said sleeves at the other end, each of said rods being provided with a pivotal joint intermediate
10 its ends, means for adjusting the said sleeves on said rods, and means for actuating the said cross head.
2. In a power hammer, the combination with a cross
head, of a spring bow carried thereby, a sleeve pivoted to each end of said spring bow, a hammer, a pair of connect-
15 ing rods each comprising two parts, one part of each of said connecting rods being pivoted to said hammer and the other passing through one of said sleeves, a pair of links pivoted to the adjacent ends of said parts, nuts for adjusting said sleeves on said rods, and means for actuat-
20 ing the said cross head.
3. In a power hammer, the combination with a cross-
head, of a spring bow carried thereby, a hammer, a connect-
ing rod between each end of said spring bow and said

hammer, each of said connecting rods having a pivotal
joint intermediate its ends, and the outer part of each 25
of said connecting rods being pivoted to said bow at a point above the axis of the rod, whereby the tension of said bow throws the inner end of said outer part upwardly, and means for operating said crosshead.

4. In a power hammer, the combination with a cross-
head, of a spring bow carried thereby, a hammer, a pair
of connecting rods each comprising two pivotally con-
nected parts, the inner part of each of said connecting
rods being pivoted to said hammer and the outer part
passing through a sleeve, an upwardly extending lug car- 35
ried by each of said sleeves and pivoted to said spring bow, whereby the tension of said bow throws the inner end of said outer part upwardly, and means for operating said crosshead.

In testimony whereof, I have hereunto set my hand and
affixed my seal in the presence of the two subscribing wit-
nesses.

PETER S. MACGOWAN. [L. S.] 40

Witnesses:

W. A. ALEXANDER,
ELIZABETH BAILEY.