

W. C. McLEOD.

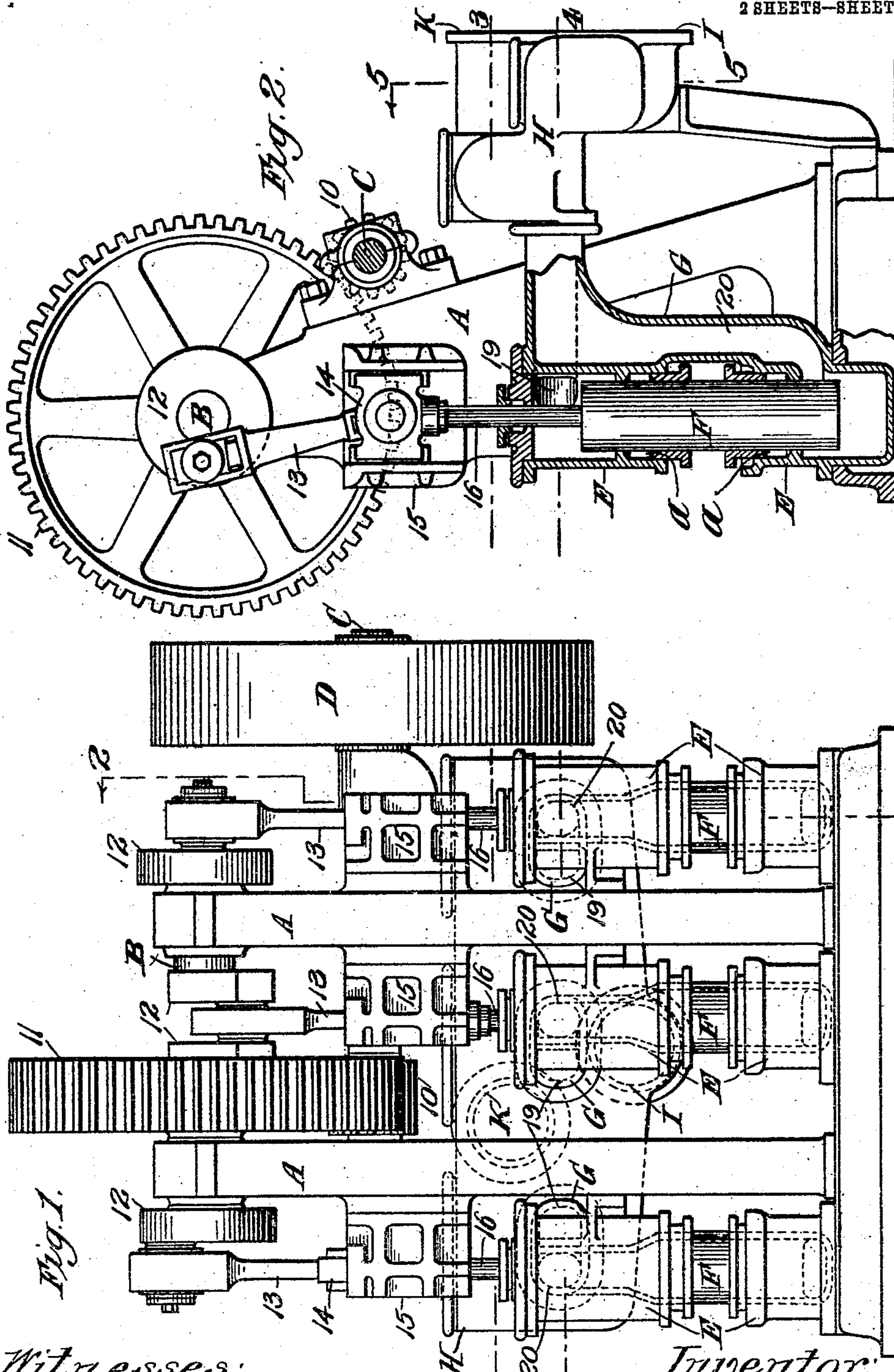
PUMP.

APPLICATION FILED OCT. 21, 1908.

929,467.

Patented July 27, 1909.

2 SHEETS—SHEET 1.



Witnesses:  
W. H. Kennedy  
S. E. Brown

Inventor:  
William Clark McLeod  
by his Attys:  
Philip Laugel Rice Kennedy

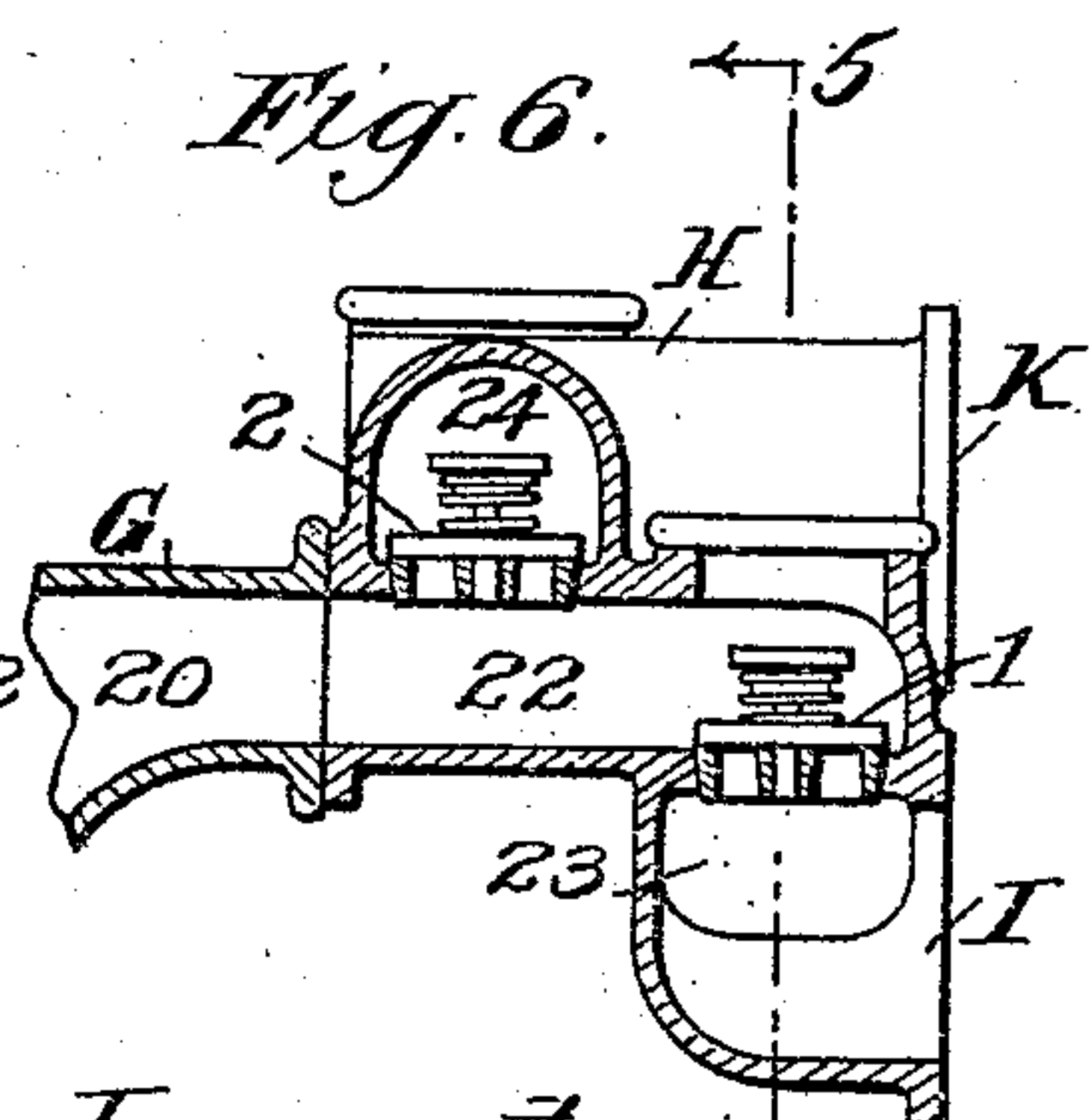
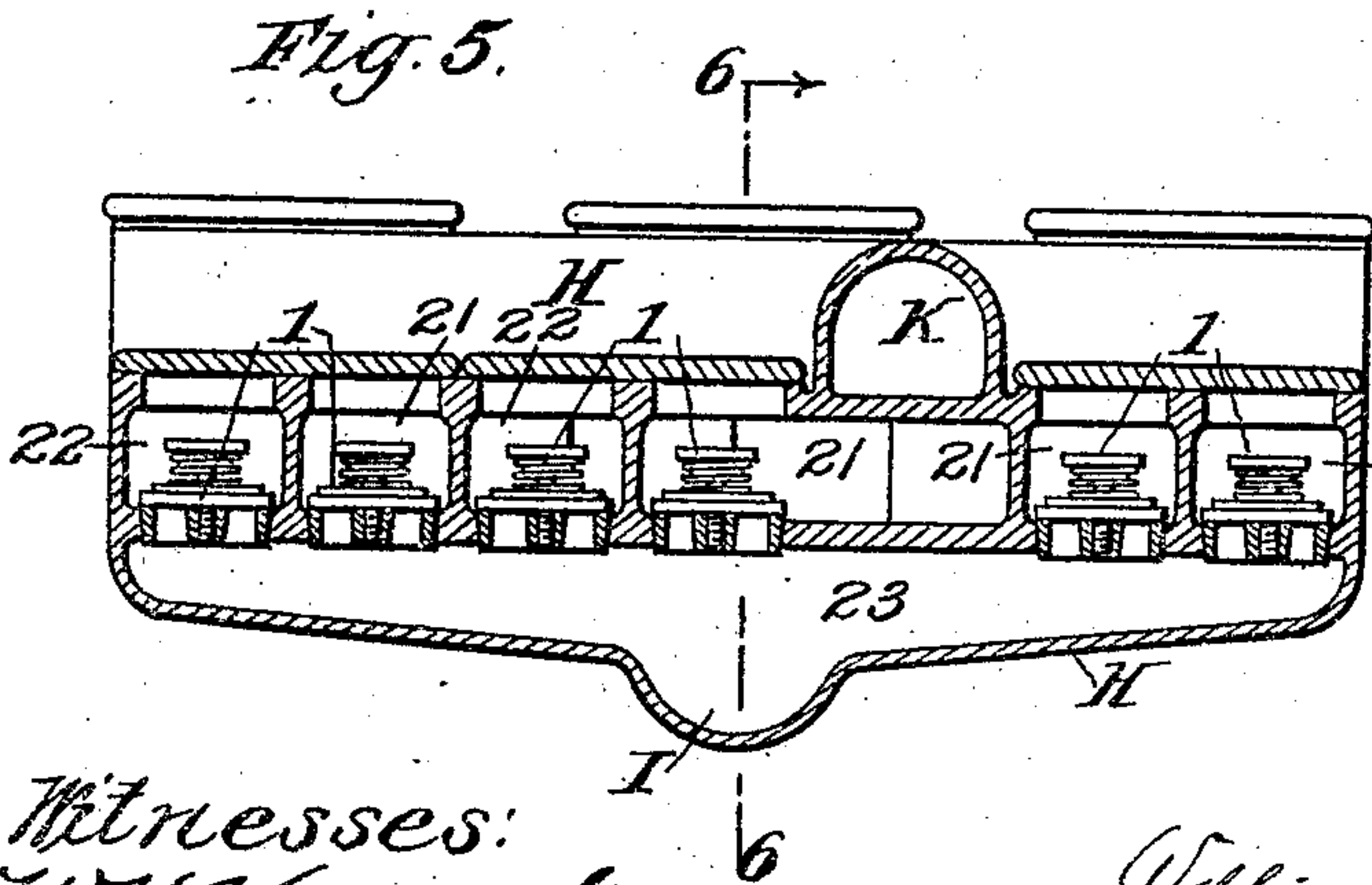
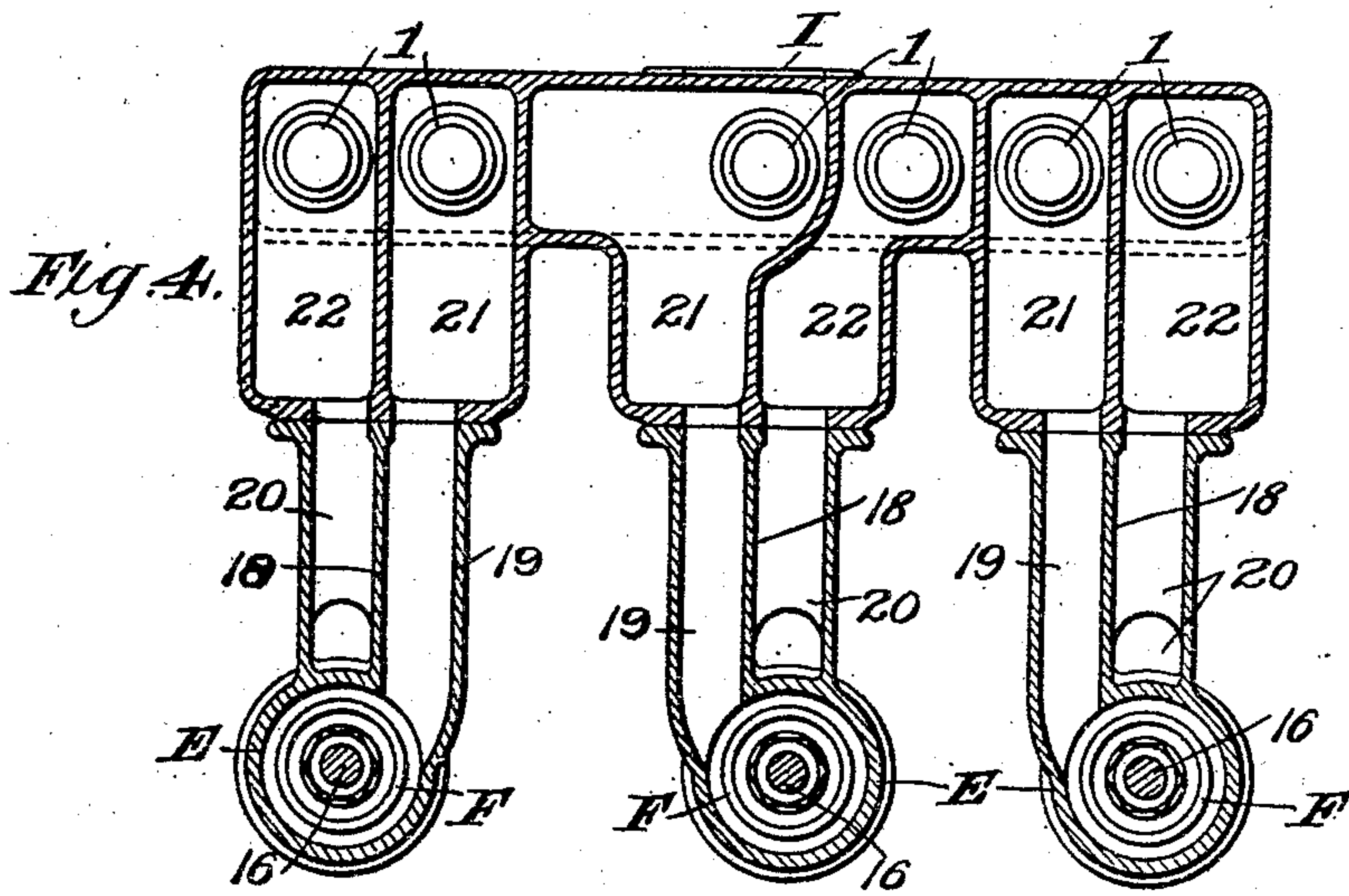
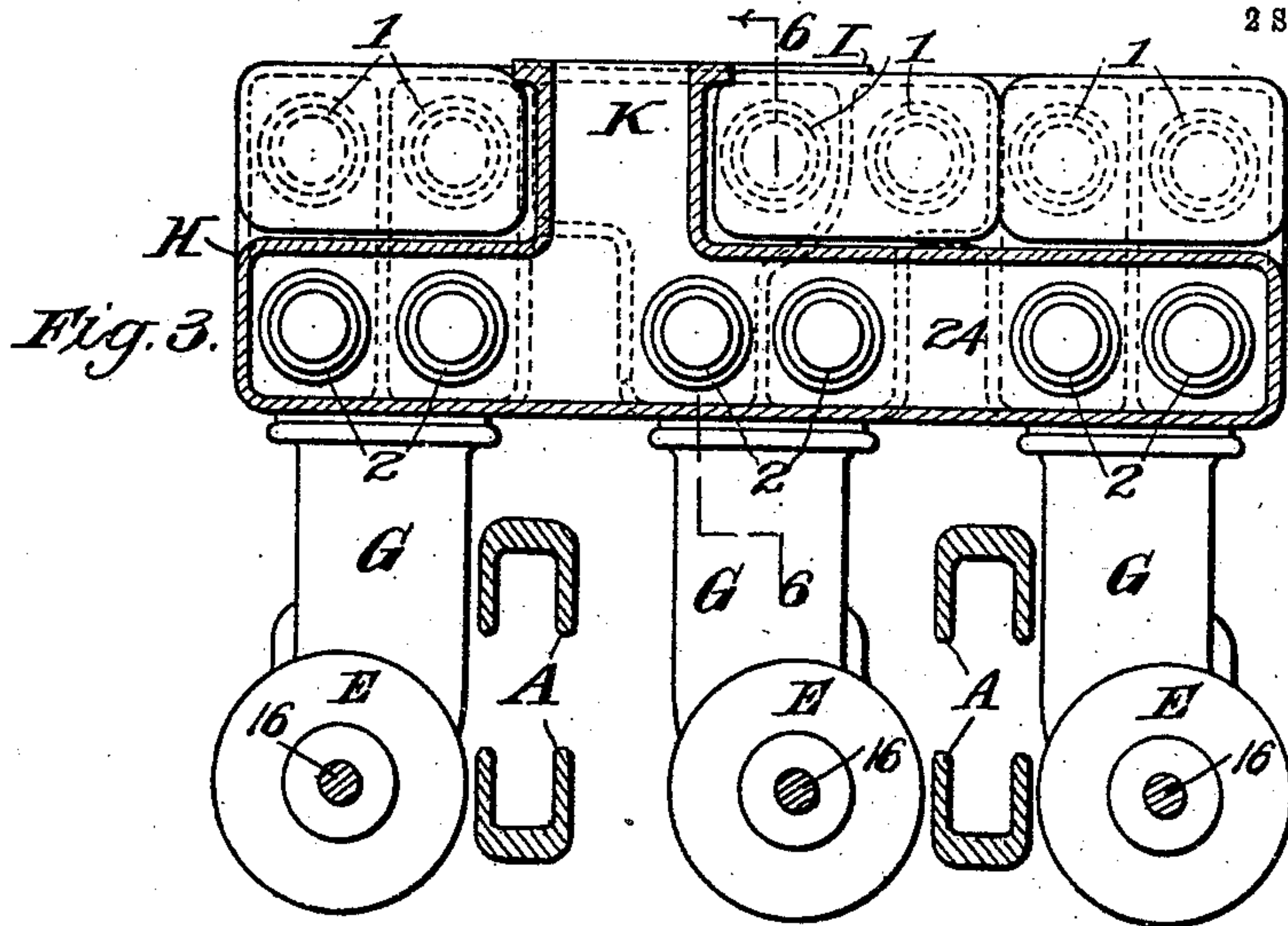
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2 SHEETS—SHEET 2.



Witnesses:  
W. H. Kennedy  
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# UNITED STATES PATENT OFFICE.

WILLIAM CLARK McLEOD, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO INTERNATIONAL STEAM PUMP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## PUMP.

No. 929,467.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed October 21, 1908. Serial No. 458,762.

*To all whom it may concern:*

Be it known that I, WILLIAM CLARK McLEOD, a citizen of the United States, residing at Holyoke, county of Hampden, and State of Massachusetts, have invented certain new and useful Improvements in Pumps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The especial object of the present invention is to provide a double acting triplex power pump, in which the plunger shall be center packed and readily accessible for renewing the packing, while the pump is compact and simple and cheap of manufacture. The invention includes, however, certain features which are applicable also in other classes of pumps.

For a full understanding of the invention, a detailed description of a construction embodying all the features of the same in their preferred form will now be given in connection with the accompanying drawings forming a part of this specification, showing a triplex power pump of a common type changed in accordance with the invention and the features forming the invention will then be specifically pointed out in the claims.

In the drawings:—Figure 1 is a front elevation of the pump. Fig. 2 is a section on the line 2 of Fig. 1. Figs. 3 and 4 are sections on respectively the lines 3 and 4 of Figs. 1 and 2. Fig. 5 is a section on the line 5 of Figs. 2 and 6. Fig. 6 is a section on the line 6 of Figs. 3 and 5.

Referring to said drawings, A is the frame having the usual standards in which is mounted the crank shaft B operated by gears 10, 11 from driving shaft C and carrying the fly wheel D outside the frame, the crank shaft B being connected by cranks 12 and crank rods 13 to cross heads 14 sliding in guides 15 on the frame A, said cross heads being connected directly to the plunger rods 16. All the parts thus far described may be of any common or suitable construction, and, as shown, are the same as the well known Deane pump.

Referring now to the parts especially embodying the present invention, the pump cylinders E are divided into upper and lower separated chambers and the plungers F center packed by suitable packing sleeves and packing *a* between the pump chambers. On the rear side of each pump cylinder is formed

or connected a casing G, which is divided longitudinally by partition 18 to form passages 19, 20 for the respective pump chambers, the passage 20 being extended downward along the rear side of the pump to the lower pump chamber. These passages 19, 20 form suction and force passages or part of the pulsation chambers for the opposite ends of the pump, and are continued by passages or pulsation chambers 21, 22 in casings H mounted on the frame A at the rear of the pump. These valve casings H contain chambers, valves and passages as follows: A common suction chamber 23 extends through the casing across the rear end of the pump, and has the central suction port I with which the suction pipe connects. This suction chamber 23 is below the pulsation passages or chambers 21, 22 and connects with each of the passages 21, 22 through the upwardly opening valve 1. Above the passages or chambers 21, 22, and within the valve casings H, is the force chamber 24 extending across the pump in a plane between the suction chamber and the pump cylinders, this force chamber connecting with each of the pulsation passages or chambers 21, 22 through the upwardly opening force valve 2, and having the discharge port K, with which the discharge pipe connects, this discharge port K being on the rear side of the pump at one side of and above the suction port I. In order to provide space for carrying the discharge port to the rear of the pump with a small vertical dimension for the valve casing H, passages 21, 22 of the central pump are curved or offset so as to bring the suction passages at the rear of the pump out of line with the force passages and valves and thus provide space for the discharge port.

It will be seen that the invention provides a double acting center packed pump, in which the pump cylinders are wholly uncovered at the front of the pump, so that the packing is entirely open for convenient renewal, all the pump passages and valve casings being placed at the rear of the pump. It will be seen also that a large capacity for a pump of small size is secured and that the pump may be very simple and cheap of manufacture. The pump chambers E may be cast integral with the casings, G, as shown and a single additional casing H contains the suction, force and pulsation chambers for all the cylinders and provides connections for



the suction and force pipes on the rear of the pump and in proper position for finishing on a single setting of the casing. This construction may be applied to multiplex pumps having any number of cylinders, although intended especially for triplex pumps.

What I claim is:—

1. In a vertical double acting pump, the combination of a plurality of pump cylinders having separate chambers for the opposite pump ends, of plungers outside packed between the chambers, separate casings on one side of the cylinders having combined force and suction passages for the opposite ends of the pump, and a valve casing extending along the ends of the separate casings and having separate pulsation chambers for the opposite ends of the respective pump cylinders and suction and force chambers common to all the cylinders and provided with suction and force pipe connections on the same side of the casing.

2. In a vertical double acting power pump, the combination with the frame, crank shaft and operating connections, of a plurality of pump cylinders arranged in line with and below the shaft and having separate chambers for the opposite pump ends, plungers outside packed between the chambers and connected to the cranks, separate casings on the rear side of the respective cylinders extending beyond the pump standards and divided to form combined force and suction passages for the opposite pump ends, and a casing extending along the rear side of the pump and having pulsation chambers with which said force and suction passages connect and suction and force chambers common to all the pump cylinders and provided with suction and force pipe-connections on the rear side of the casing.

3. In a vertical double acting power pump, the combination with the frame, crank shaft and operating connections, of the pump cylinders arranged in line with and below the shaft and having separate chambers for the opposite pump ends, plungers outside packed between the chambers and connected to the cranks, separate casings on the rear side of

the respective cylinders extending beyond the pump standards and divided to form combined force and suction passages for the opposite pump ends, and a casing extending along the rear side of the pump and having pulsation chambers with which said force and suction passages connect, and suction and force chambers common to the pump cylinders and arranged respectively below and above the pulsation chambers and provided with suction and force pipe connections at the rear side of the pump.

4. In a vertical double acting triplex power pump, the combination with the frame, crank shaft and operating connections, of the pump cylinders arranged in line with and below the shaft and having separate chambers for the opposite pump ends, plungers outside packed between the chambers and connected to the cranks, casings extending beyond the pump standards with combined force and suction passages for the opposite pump ends, and separate pulsation chambers for the respective pump cylinders with which said force and suction passages connect and suction and force chambers for the pump cylinders provided with suction and force valves and suction and force pipe connections on one side of the pump.

5. The combination with the plurality of vertical pump cylinders E and outside center packed plungers F, of the separate casings G divided to form suction and force passages 19, 20 for the opposite pump ends, and casing H extending along the end of casing G having pulsation chambers 21, 22 for the respective pump cylinders and suction and force chambers 23, 24 common to all the cylinders and respectively below and above the pulsation chambers and having suction and force pipe connections I, K on the rear side of the casing.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

WILLIAM CLARK McLEOD.

Witnesses:

H. W. CHASE,

W. M. FLEMING.