

No. 665,564.

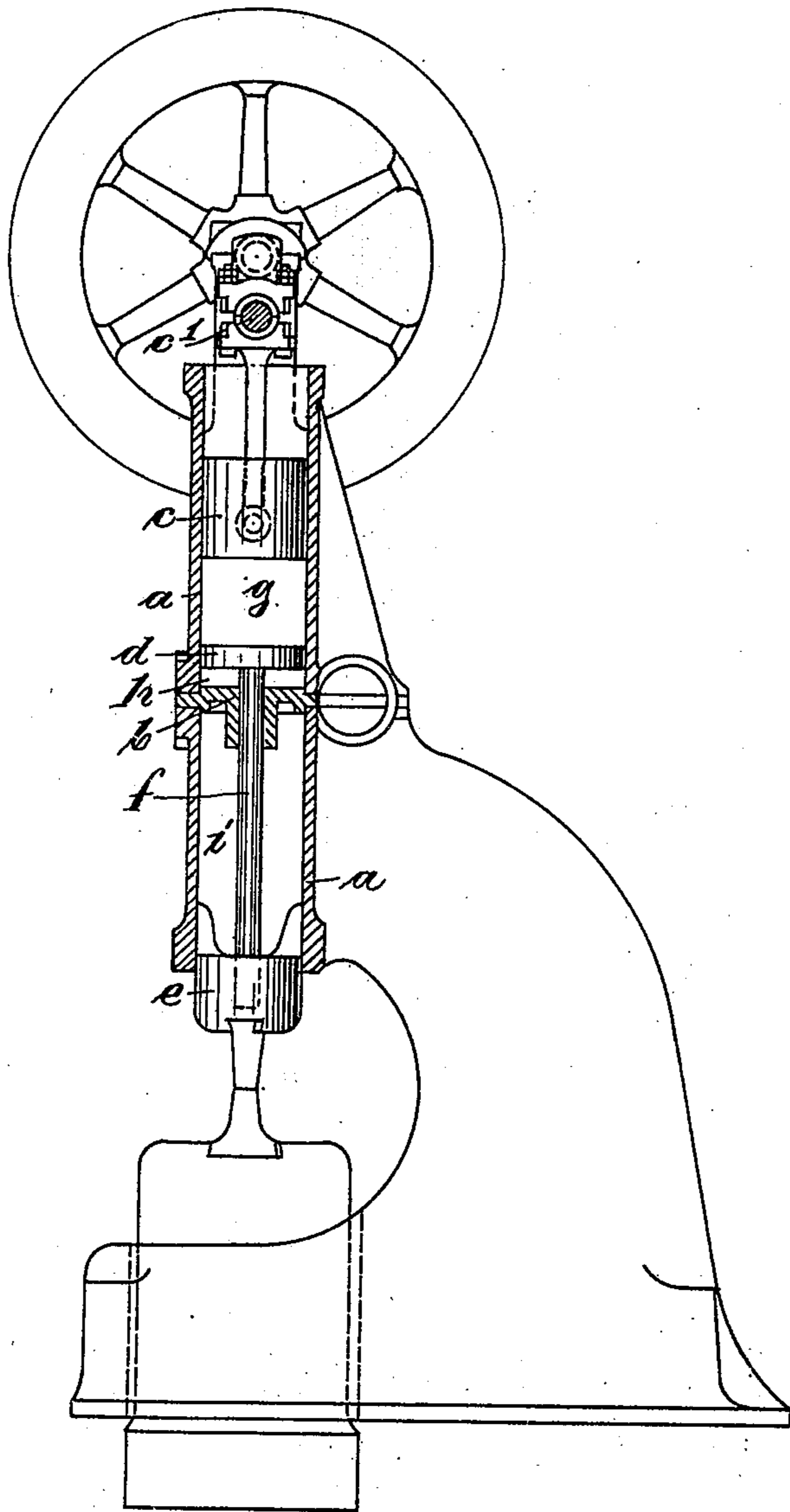
Patented Jan. 8, 1901.

J. BÉCHÉ, JR.
PNEUMATIC HAMMER.
(Application filed Aug. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses.

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2 Sheets—Sheet 2.

Fig. 2.

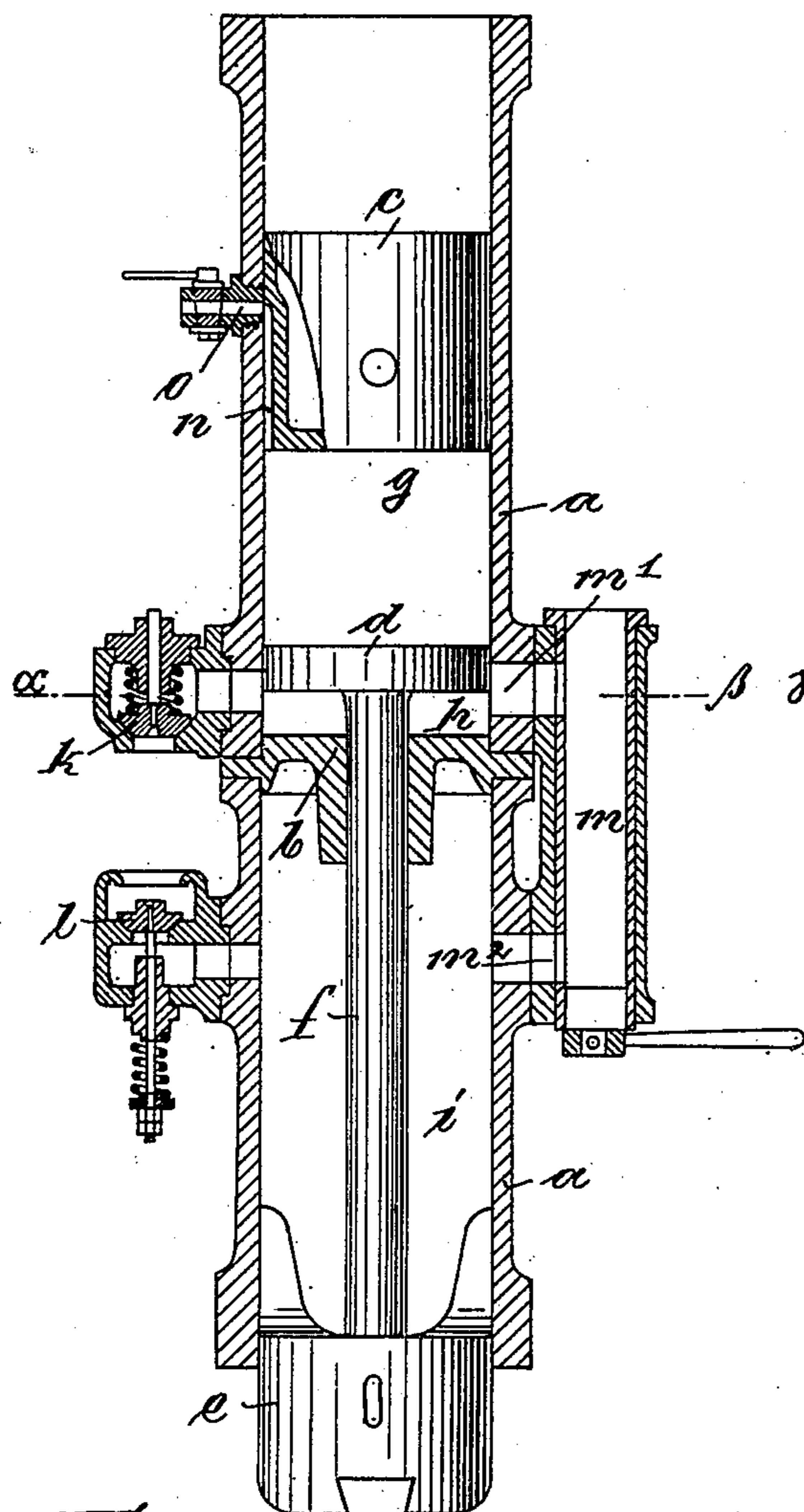


Fig. 3.

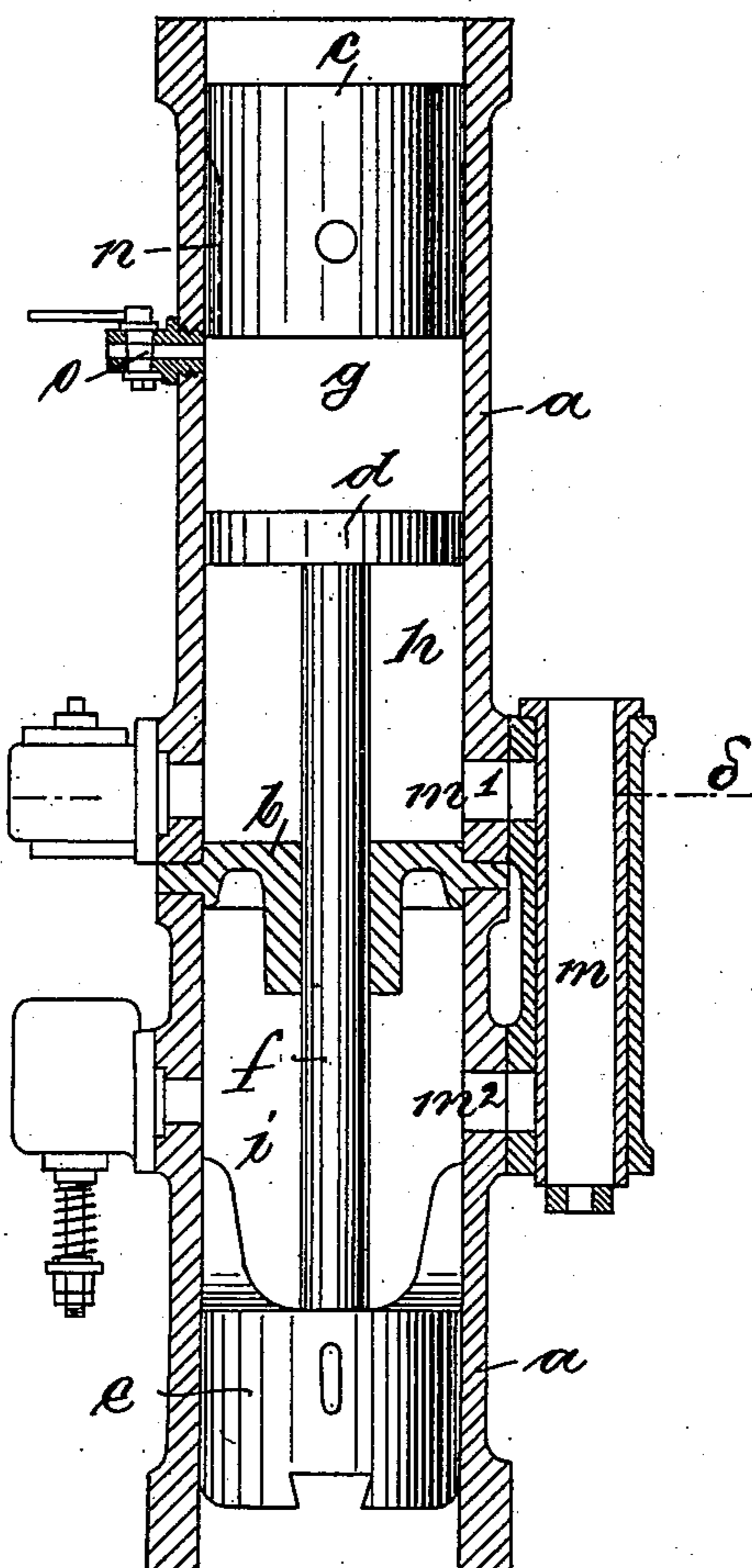


Fig. 4.

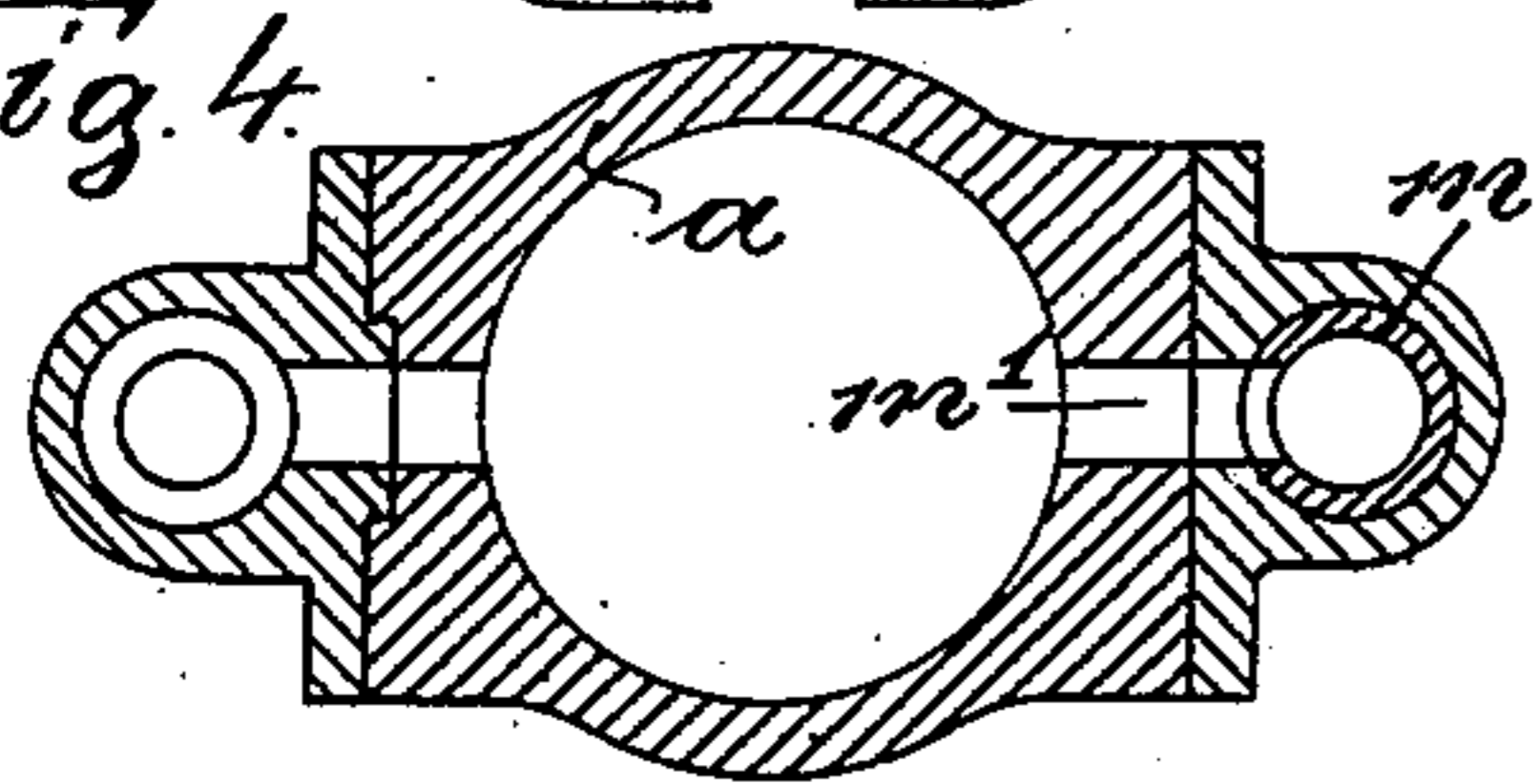
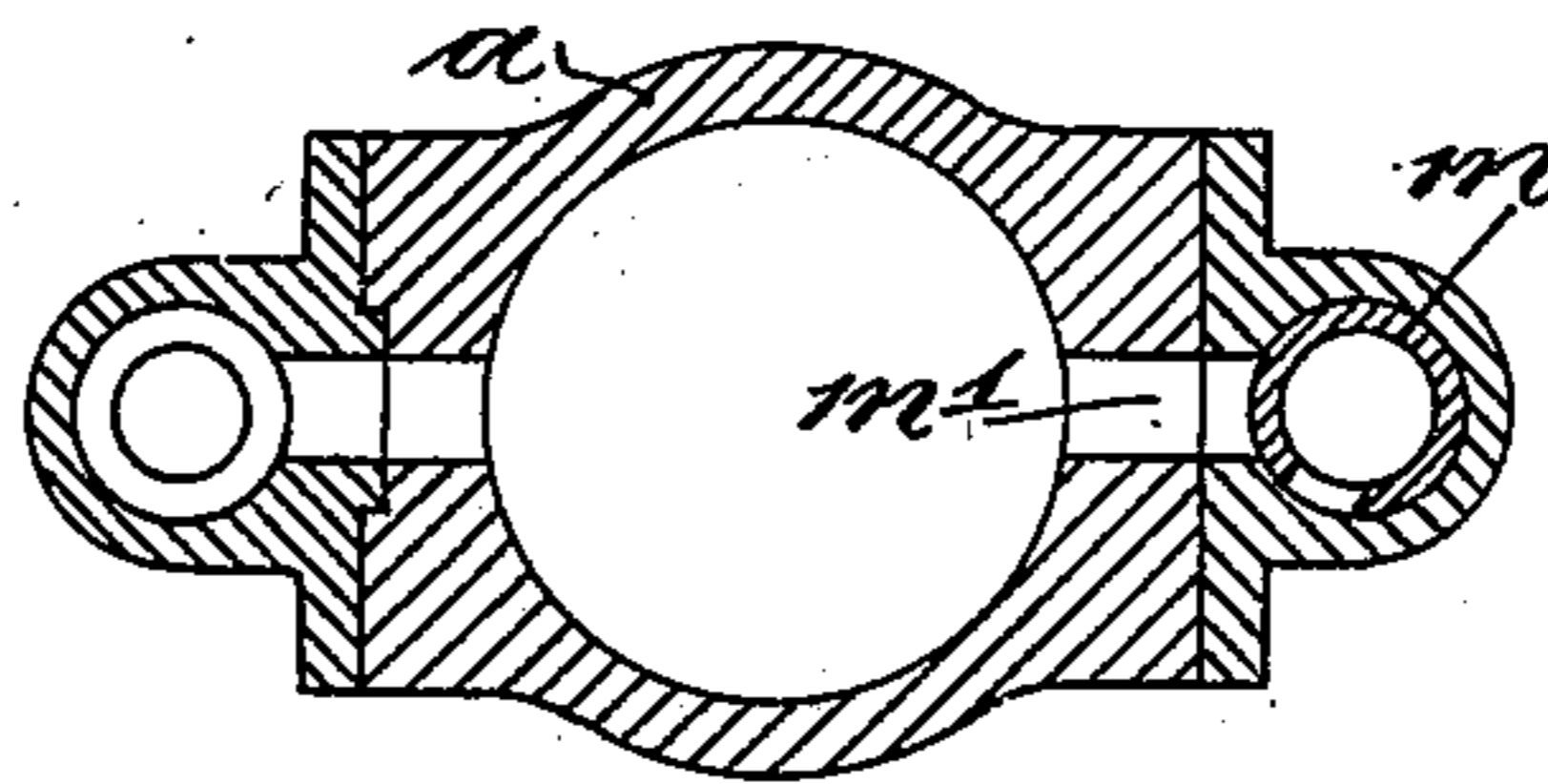


Fig. 5.



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UNITED STATES PATENT OFFICE.

JEAN BÊCHÉ, JR., OF HÜCKESWAGEN, GERMANY.

PNEUMATIC HAMMER.

SPECIFICATION forming part of Letters Patent No. 665,564, dated January 8, 1901.

Application filed August 17, 1900. Serial No. 27,224. (No model.)

To all whom it may concern:

Be it known that I, JEAN BÊCHÉ, Jr., a subject of the King of Prussia, German Emperor, and a resident of Hückeswagen, in the Province of the Rhine, German Empire, have invented certain new and useful Improvements in Pneumatic Hammers, of which the following is an exact specification.

The present invention relates to pneumatic hammers, and in order to make the same more clear I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 shows a side view of the arrangement. Figs. 2 and 3 are sections through the cylinder and valves. Figs. 4 and 5 are sections through $\alpha \beta$ and $\gamma \delta$.

The cylinder a of the pneumatic hammer is divided by a partition b in two parts. In the top part of this cylinder a piston c , provided with a recess n , is moved up and down by means of a crank c' , Fig. 1. The hammer consists of two pistons d and e , rigidly connected by means of a piston-rod f , which is guided within the partition b . The piston d works in the top part, the piston e being the hitting-block in the bottom part of the cylinder a . The three pistons form thus within the cylinder three closed spaces $g h i$, Fig. 2. A valve k , adapted to move inward, only communicates with the space h , and a valve l , adapted to move outward, only communicates with the space i . Both spaces h and i can be brought into connection with the outer atmosphere or be closed up against the same by means of a cylindrical rotating-valve m and of channels $m' m^2$. Evidently instead of arranging one valve m only, each space might be provided with separate valves.

A cock o is fitted on the top part of the cylinder a , through which air is raised into or discharged from the space g , the cock being constantly in communication with said space g by the recess n of the piston c in any position of the latter.

The hammer works in the following manner: When the piston c is moved upward a vacuum is produced within the space g , so that the hammer is raised, and when the first

is moved downward the compressed air drives the hammer down, provided that the valve m is open, and allows the air to be discharged from the space h and to be raised into the space i .

In order to regulate the work of the hammer, the valve m is turned so as to close the passages $m' m^2$, Fig. 3. Air will then enter into the space h through the valve k and will be compressed in the same, as it is not able to exit, whereas from the space i air will exit through the valve l and form a vacuum, as fresh air cannot enter through said valve. In consequence thereof the hammer will be kept in its upper position.

According to the position of the valve m , the hitting force of the hammer varies. When the valve m is completely closed up, the hammer remains, as already mentioned, in its upper position and is kept away from the working piece, which the forger then can move and turn at will. In this position, the piston d of the hammer being brought nearer to the piston c moves simultaneously with the latter up and down, whereby air is alternatively raised into and discharged from the space g through the cock o . By suddenly opening the valve m the hammer is brought to hit. The new hammer can be thus perfectly regulated.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

In a pneumatic hammer, the combination of a cylinder provided with a partition b , cock o and valves k , l and m and passages m' and m^2 , a hammer, two pistons $d e$ connected to said hammer by a piston-rod f guided by the partition, and another piston c in the cylinder operated by a crank, this piston having a recess u , all arranged and designed to operate substantially as shown and described.

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

JEAN BÊCHÉ, JR.

Witnesses:

OTTO KÖNIG,
FR. SCHADDEJL.