

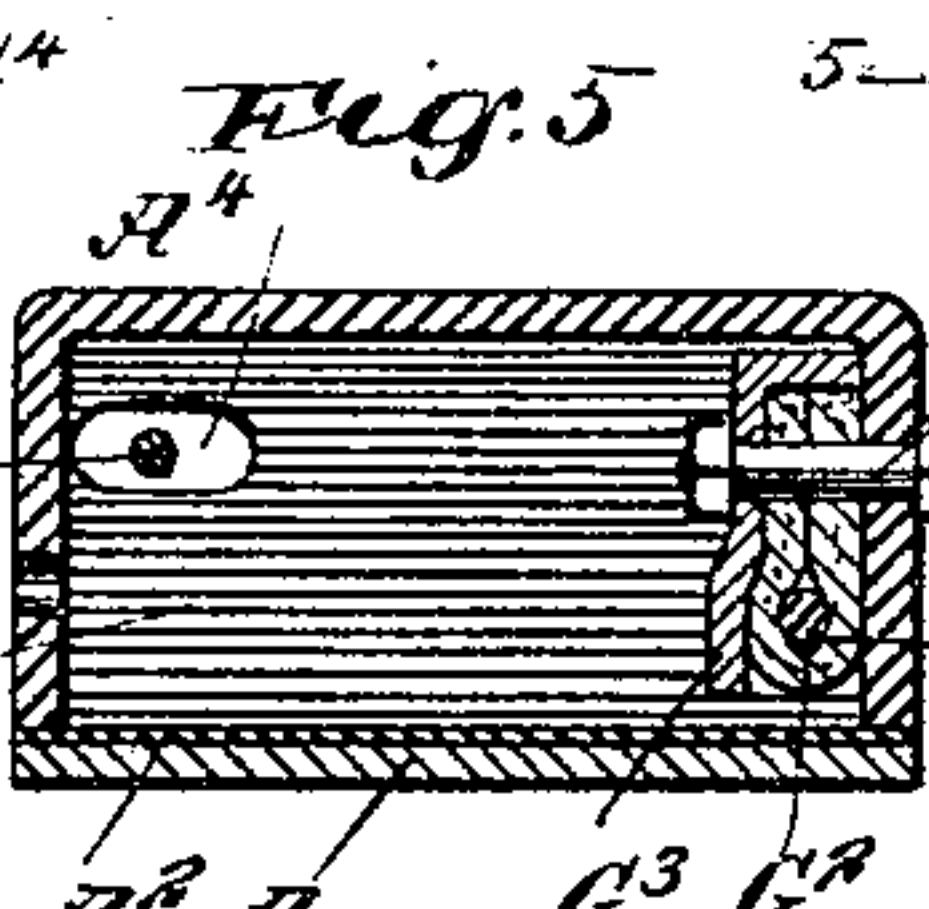
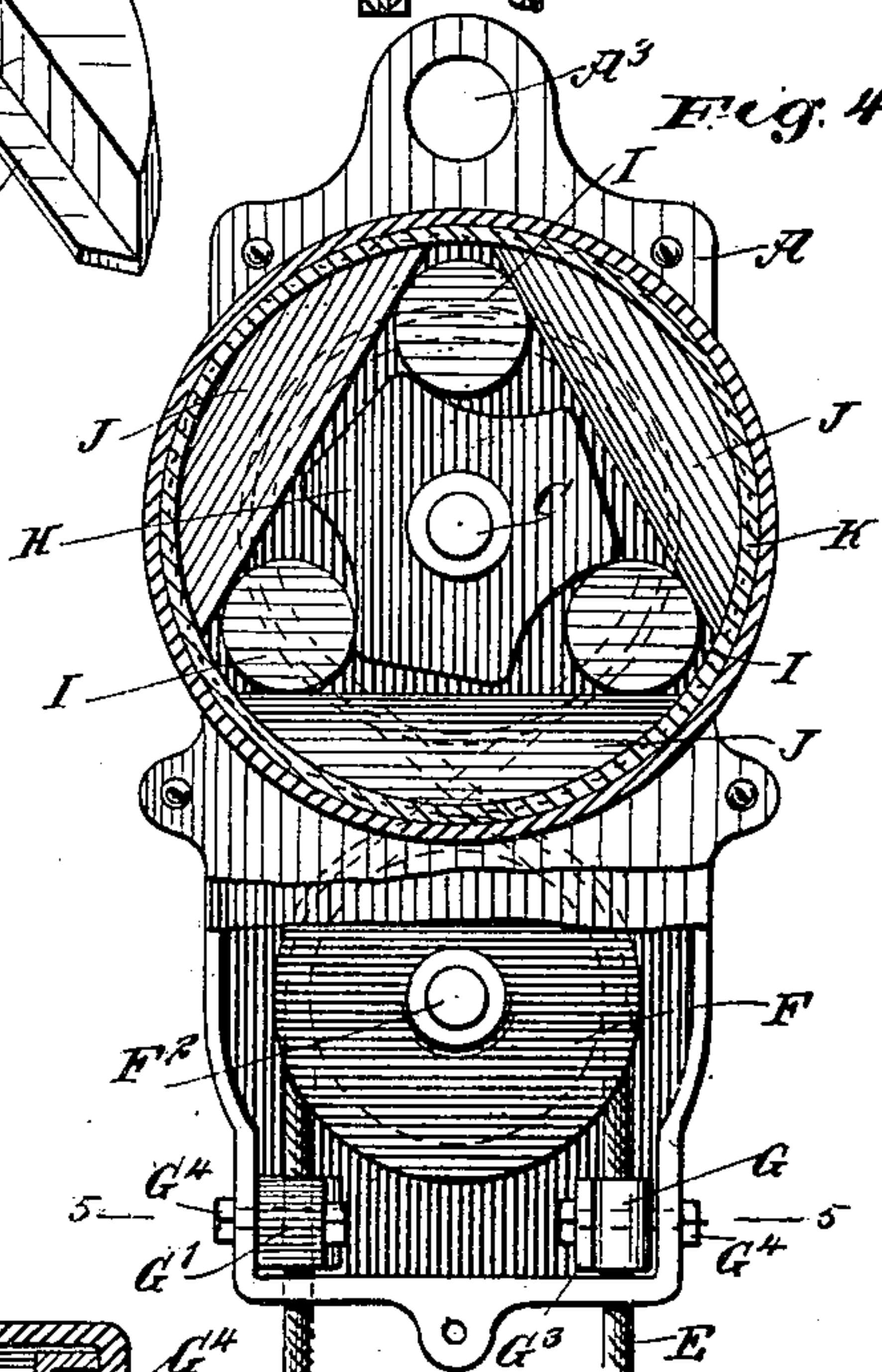
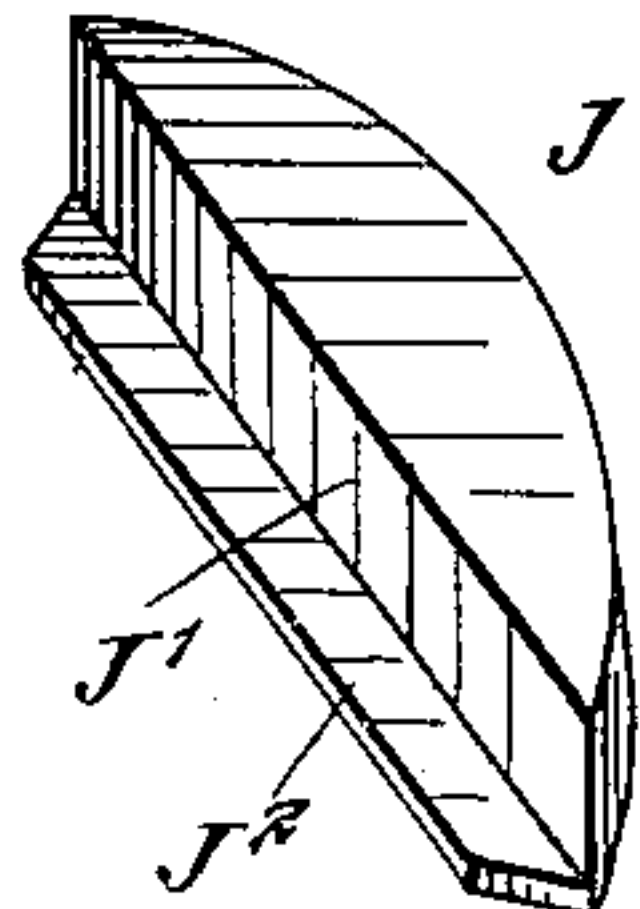
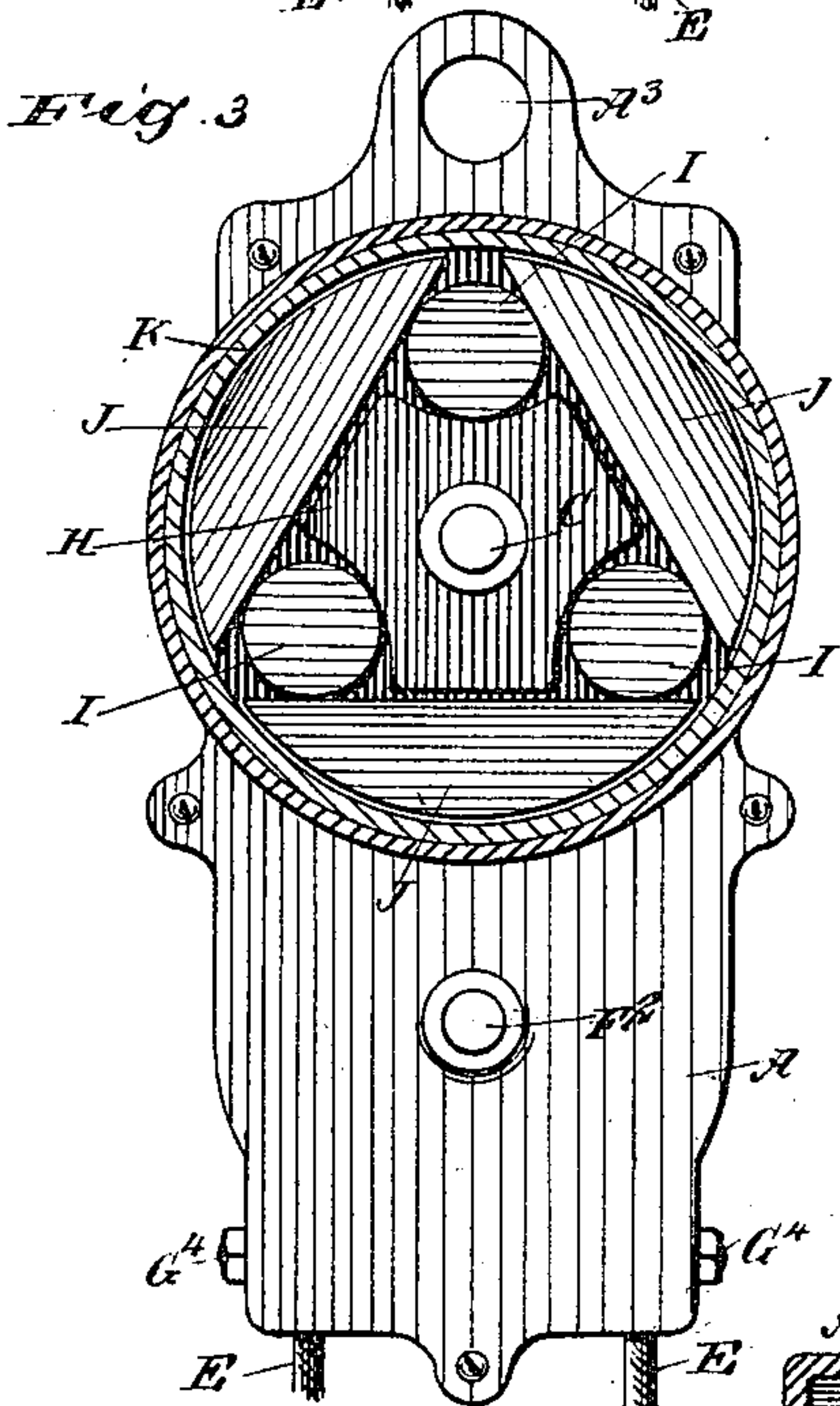
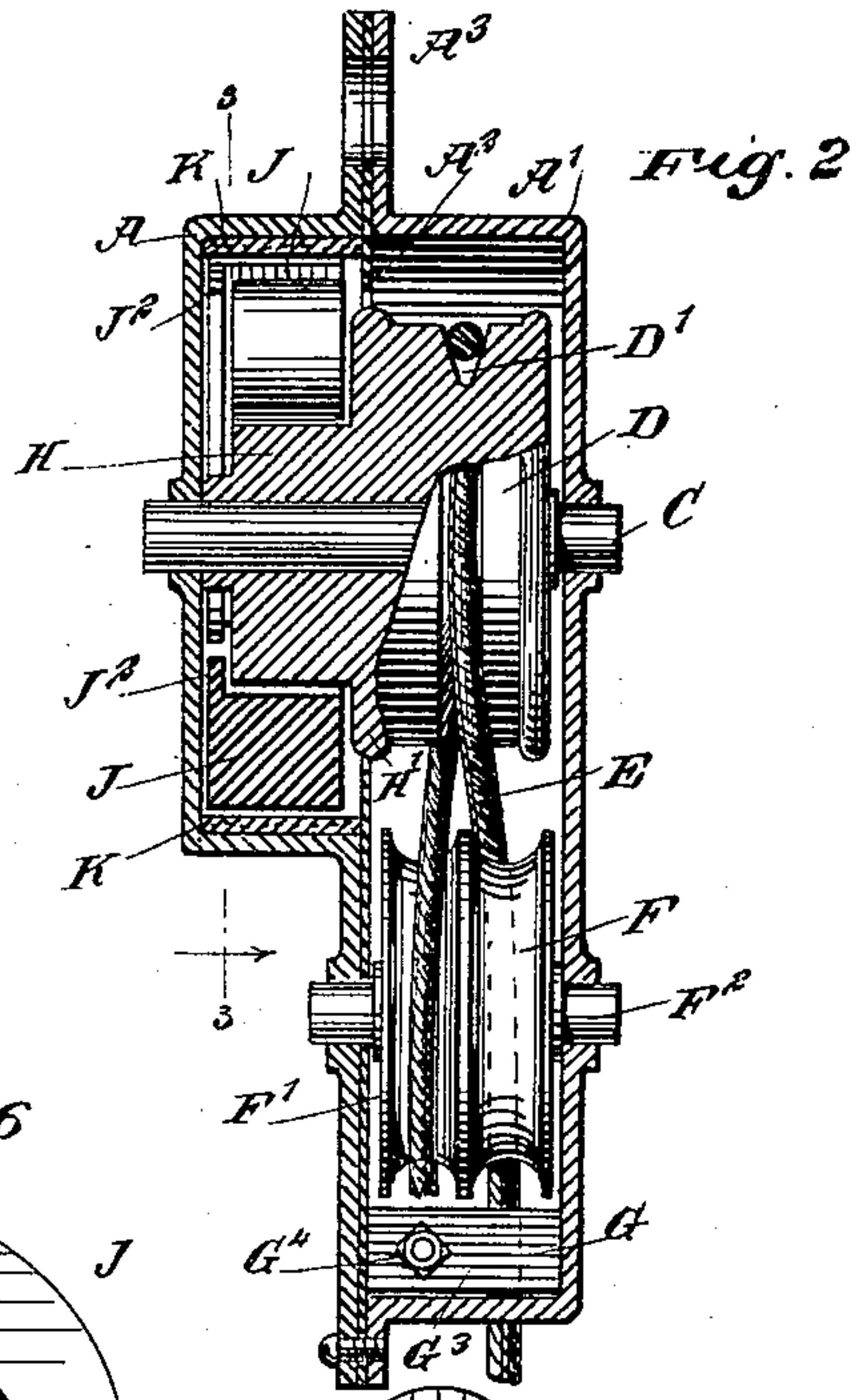
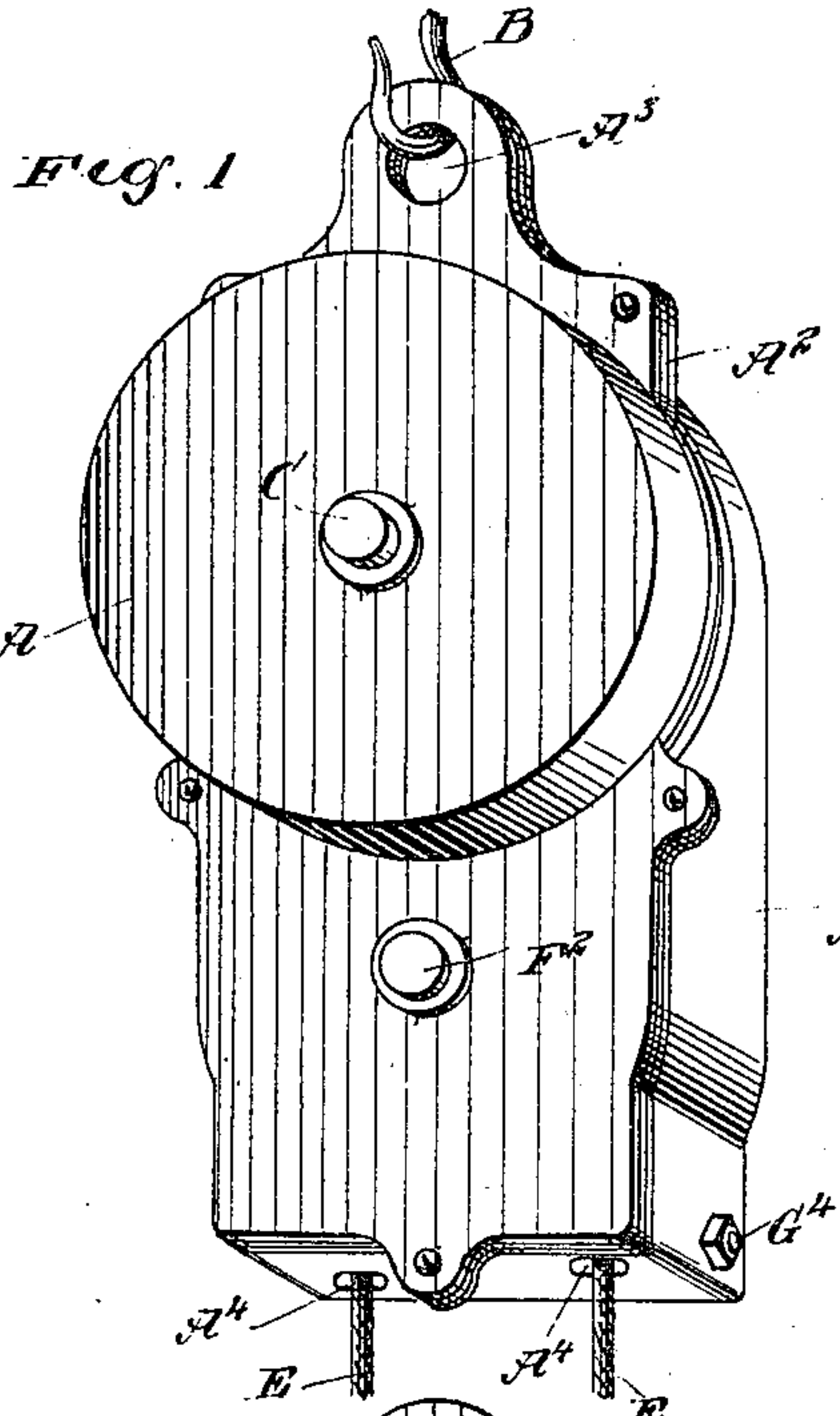
No. 667,526.

Patented Feb. 5, 1901.

F. J. HUGH.
FIRE ESCAPE.

(Application filed May 5, 1900.)

(No Model.)



WITNESSES:
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FRANCIS J. HUGH, OF NEW YORK, N. Y.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 667,526, dated February 5, 1901.

Application filed May 5, 1900. Serial No. 15,610. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. HUGH, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

The invention relates to fire-escapes such as shown and described in Letters Patent of the United States No. 650,325, granted to me May 22, 1900, and in which a wire rope or cable unwinds from a pulley controlled by a speed-checking governor.

The object of the present invention is to provide a new and improved fire-escape which is simple and durable in construction and arranged to permit the use of a wire rope or cable, not liable to slip upon the pulley actuating the governor, so that a person can descend safely from a building and at a uniform rate of speed.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the improvement. Fig. 2 is a transverse section of the same. Fig. 3 is a rear sectional elevation of the same on the line 3 3 in Fig. 2. Fig. 4 is a like view of the same with parts of the governor in a different position. Fig. 5 is a sectional plan view of the same on the line 5 5 in Fig. 4 and with one of the initial friction devices removed, and Fig. 6 is a perspective view of one of the friction brake-blocks.

The improved fire-escape has its casing made in two parts A A', fastened together by suitable screws or other means and preferably made of cast or malleable iron, with a division plate or partition A² of steel separating the casing parts from each other. At the upper end of the casing is formed an eye A³ for attaching the casing to a suitable support B, as illustrated in Fig. 1. In the upper portion of the casing is journaled a transversely-

extending shaft C, carrying within the casing part A' a pulley D, having in its periphery a V-shaped groove D', into which extends a wire rope or cable E, crossed below the pulley D and then extending over a double pulley F F', secured on a shaft F², journaled in the lower part of the casing, the strands of the escape cable or rope then extending through initial friction devices G G' and then through elongated slots A⁴, formed in the bottom of the casing part A'. (See Fig. 5.) The slots A⁴ are so arranged that the depending strands of the escape wire rope or cable pass perpendicularly down from the sides of the double pulley F F' to prevent the cable from chafing in the casing when the device is used.

The middle or separating flange of the double pulley F F' holds the cable-strands apart, so that they do not rub over each other while crossing each other under the pulley D. (See Fig. 2.) Each of the initial friction devices G G' consists of a piece of flexible material G², such as leather or the like, doubled up and inclosing the strands, as shown in Fig. 5, a clamping-plate G³ pressing the doubled-up material against the side of the casing by means of a clamping-bolt G⁴, extending through the material G², as shown in Fig. 5. By this arrangement sufficient friction is given to that end of the cable which passes upward at the time so as to hold the cable in firm frictional contact with the side walls of the V-shaped groove D' to draw the cable firmly into the groove, and thereby insure a positive turning of the pulley D when the device is used—that is, prevent the cable from slipping over the pulley D without turning the same.

In the casing part A is arranged a governor for checking the speed of the person descending, and this governor consists, essentially, of a three-armed star-wheel H, preferably integral with the pulley D and somewhat less in diameter, so as to form a shoulder H' with the pulley D, as is plainly indicated in Fig. 2. Between adjacent arms of the star-wheel H are located actuating devices, preferably in the form of disks I, adapted to be thrown outward by the star-wheel when the latter is rotated to simultaneously engage and press the ends of adjacent friction-blocks J, mount-

ed loosely in the casing part A and adapted to move with their outer segmental surfaces in frictional contact with the inner surface of a circular brake-band K, secured to the inside of the casing part A and preferably made of leather or like material.

By reference to Fig. 3 it will be seen that the arms of the star-wheel H stand approximately at a right angle to the friction-blocks J to direct the actuating-disks I against the ends of adjacent friction-blocks J when the device is used. The inner faces of the actuating-disks I are adjacent to the shoulder H', and the outer faces are adjacent to the flanges J² formed on the friction-blocks J, next to the inner faces J' of said friction-blocks, and by this construction the actuating-disks I are prevented from rubbing or coming in contact with any part of the casing to interfere with the proper workings of the governor when the device is used.

It is evident that when a person is attached by a suitable belt or the like to one of the strands of the cable E then the weight of the person descending causes the cable to rotate the pulley D, while the other strand winds up and is retarded in its upward movement by the corresponding initial friction device G or G' to insure a positive engagement of the wire rope or cable with the pulley D to rotate the latter. The rotary motion of the pulley D causes the star-wheel H, which rotates with it, to throw the actuating-disks I outward into firm engagement with the inner faces J' of adjacent friction-blocks J at or near the ends thereof, (see Fig. 4,) so that each friction-block is pressed at both ends in an outward direction to bring its peripheral surface in frictional contact with the brake-band K. Thus the speed of the pulley D, and consequently that of the person descending from the wire rope or cable, is checked and rendered uniform, so that the person descends with the greatest safety and without danger of unduly striking the pavement or the ground below.

It is expressly understood that one of the principal objects of my invention is to utilize a wire rope or cable in such a manner that a positive rotation of the pulley D, and a consequent actuating of the governor, takes place, especially as the ordinary ropes frequently used in fire-escapes were objectionable owing to the danger of being burned by flames issu-

ing from a window in the burning building from which a person desires to escape.

From the foregoing it is evident that it is of the greatest importance that the cable, besides moving freely through the casing, be prevented from slipping over the pulley D, and this result is obtained by the initial friction devices and the V-shaped groove in the pulley. It is further understood that the heavier the load on the wire rope or cable the firmer the cable will be drawn in contact with the side walls of the V-shaped groove D', so that the pulley D is rotated without danger of the cable slipping, so that the governor is caused to function properly and check the speed of the load.

Two initial friction devices G and G' are provided, as either strand of the wire rope or cable can be used to suspend the load thereon, and it is necessary that the strand moving up for winding on the pulley D be first subjected to the action of an initial friction device before reaching and winding on the pulley D.

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

1. A governor for a fire-escape, comprising a fixed brake-band, friction-blocks for engagement with said brake-band and having flanges, actuating-disks, a revoluble star-wheel engaging said actuating-disks, to force the same outward against the said friction-blocks and move the latter in frictional contact with said brake-band, and a pulley for rotating said star-wheel and for forming with the latter a shoulder adjacent to the inner faces of said disks, the outer faces of the disks being adjacent to the flanges on said blocks, as set forth.

2. A fire-escape, provided with an initial friction device, comprising a doubled flexible material, between the doubled-up portions of which passes the cable, a clamping-plate, and a bolt for said clamping-plate, and engaging one side of the fire-escape casing, as set forth.

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

FRANCIS J. HUGH.

Witnesses:

THEO. G. HOSTER,
JNO. M. RITTER.