



No. 689,548.

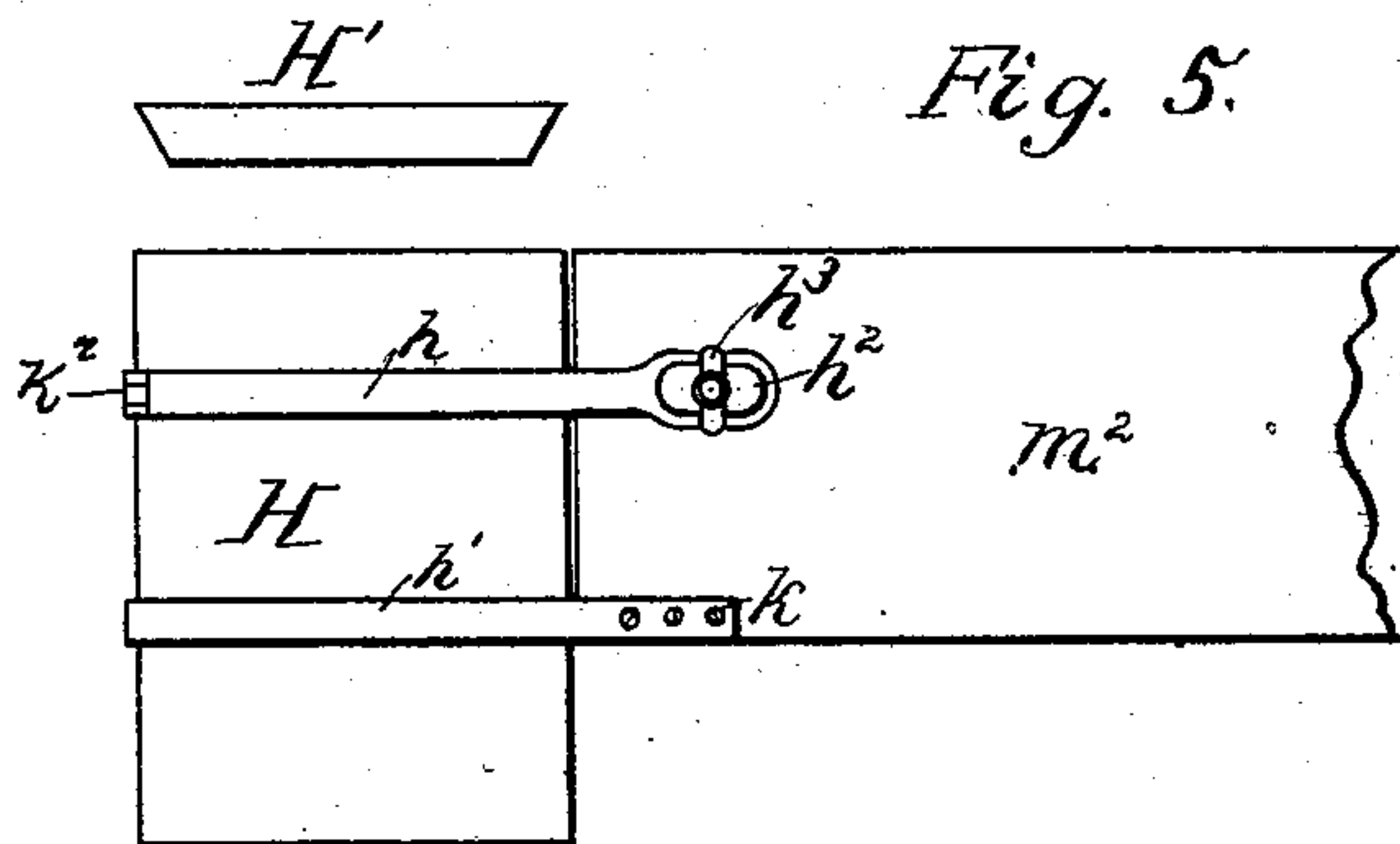
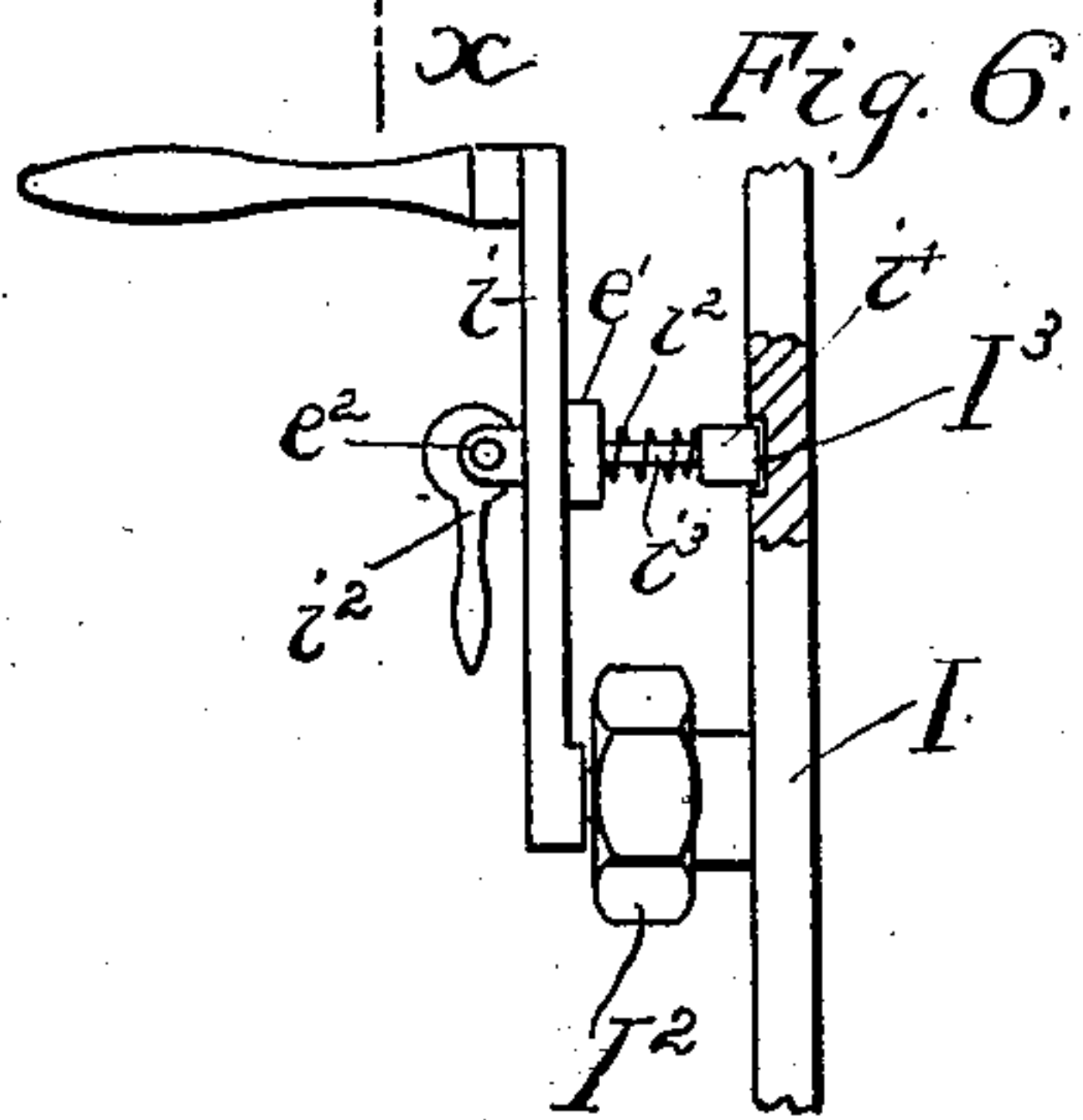
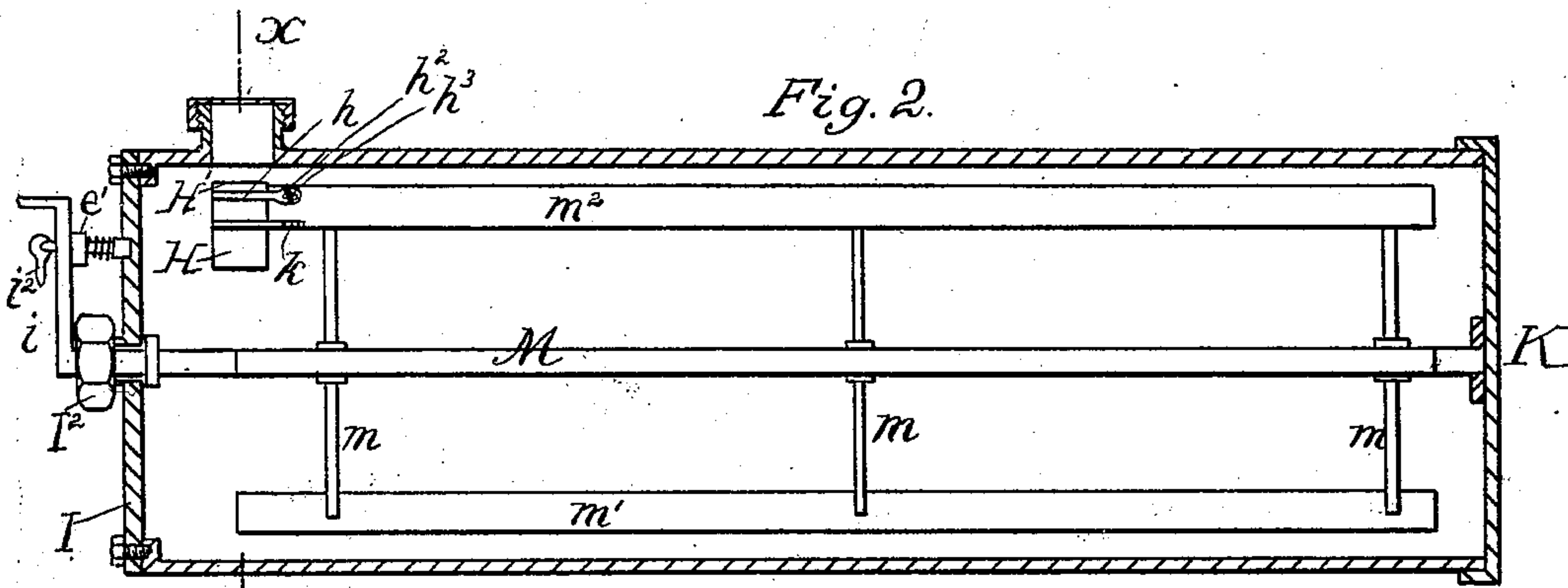
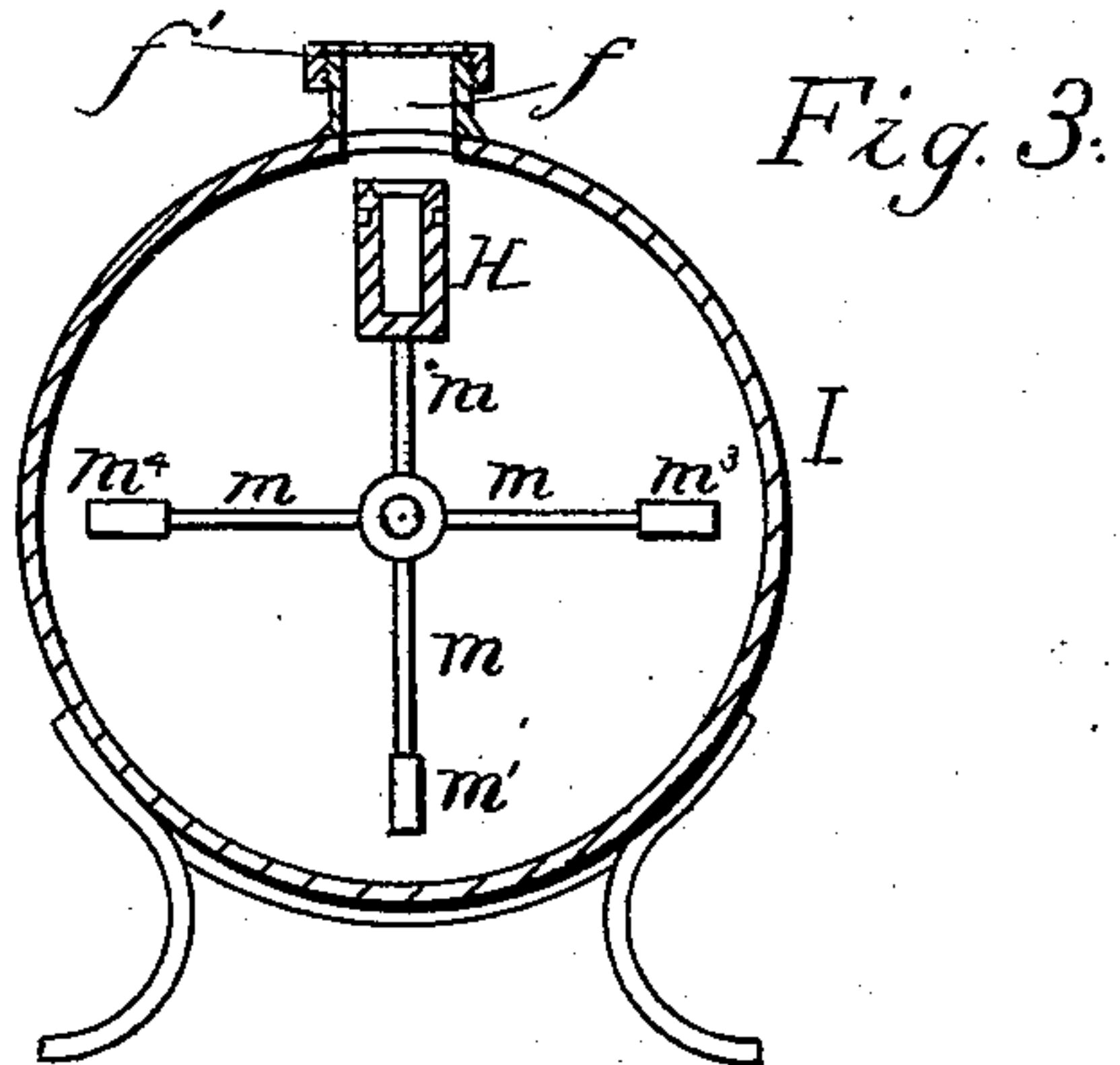
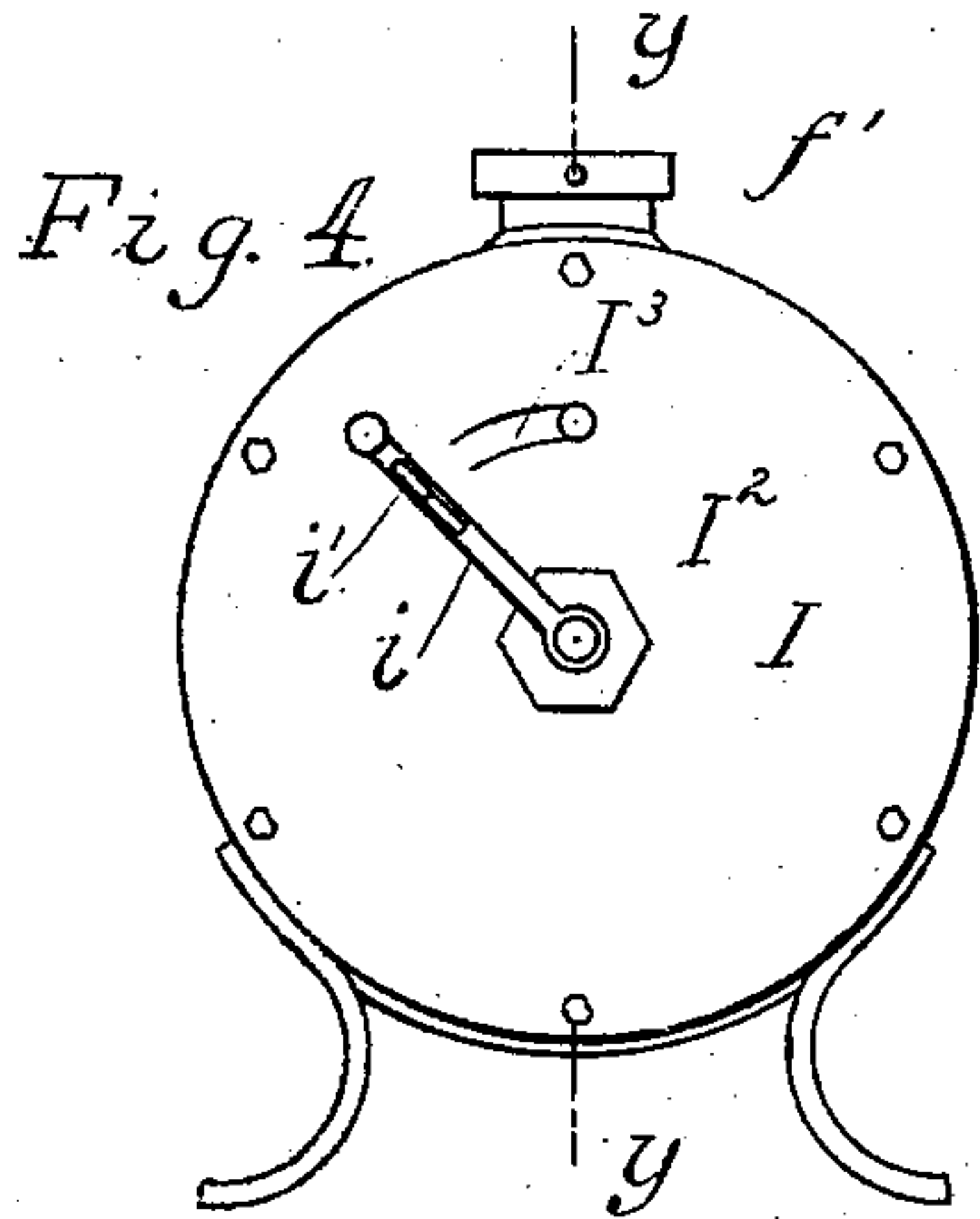
Patented Dec. 24, 1901.

R. O. JONES.  
FIRE EXTINGUISHER.

(Application filed Jan. 28, 1901.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 689,548, dated December 24, 1901.

Application filed January 28, 1901. Serial No. 44,972. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT OSCAR JONES, a citizen of the United States, and a resident of Peoria, county of Peoria, and State of Illinois, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

This invention relates to improvements in fire-extinguishing apparatus.

The nature and object of the invention will be fully understood from the following general description and the annexed drawings and will be subsequently pointed out in the claim.

Figure 1 illustrates a common fire-ladder wagon with my newly-invented fire-extinguisher attached. Fig. 2 is a sectional view of my fire-extinguisher, taken on the line  $yy$  of Fig. 4. Fig. 3 is a sectional view of the same, taken on the line  $xx$  of Fig. 2. Fig. 4 is an end view of the same. Figs. 5 and 6 are detail views of the mechanism hereinafter more fully described.

The ladder-wagon A may be of any approved and adaptable form. On the top of the frame of this wagon are mounted two or more hose-reels B B, wound with fire-hose adapted with unions and couplings to work with the remainder of the apparatus, more fully hereinafter described.

Upon the ladder-wagon between the foot-board F and the bottom of the bed-frame are mounted two or more stout hollow cylinders, (designated, respectively, by I and I'.) These cylinders are preferably made of metal and of such strength as to resist very considerable pressure from within. Each cylinder is provided with a hand-hole  $f$ , covered by a lid  $f'$ , which may be detachably fastened with clamps or screw-bolts or in any other secure and convenient way. A shaft M is journaled on the inside center of the head K of the cylinder I. This shaft extends through the whole length of the cylinder and a little beyond its other head. Upon this shaft within the cylinder are mounted the spokes  $m$ , and upon these the vanes  $m^1$ ,  $m^2$ ,  $m^3$ , and  $m^4$ . These vanes are arranged and adapted to revolve

with the shaft M very near to the internal surface of the cylinder. Upon this same shaft, sustained by the vane  $m^2$  and detachably attached to the end thereof, as more fully hereinafter described, is mounted the acid-cup H. This cup may be made of any acid-proof material—such as glass, chinaware, earthenware, and the like. It is fitted with a lid  $H'$ , adapted to easily fall off when the cup is inverted. The shaft M is revolved by the hand-crank  $i$ , which is fixed on its projecting end outside of the cylinder. To prevent the escape of any of the contents of the cylinder around the shaft M, a stuffing-box I<sup>2</sup> is provided, which may be set up so fast as to prevent such escape.

The acid-cup H is held in its position on the end of the vane  $m^2$  by the two straps  $h$  and  $h'$ . The strap  $h'$ , which is in the form of a yoke and embraces the lower part of the acid-cup H, is rigidly fastened to the vane  $m^2$  by bolts or rivets, as  $k$ . In this strap sits the acid-cup, held by frictional contact. The strap  $h$  consists of two parts, one of which may be fastened by one end to the vane  $m^2$  in any adaptable and secure way. On the outer end of this is a hinge  $k^2$ , by which it is pivotally fastened to the other part of the strap, the two parts together forming a yoke or loop adapted to embrace the acid-cup H a little above its middle and above the strap  $h'$ . The inner end of this last-named part of the upper strap  $h$  is attached to the vane  $m^2$  by the yoke  $h^2$ , on which works the button  $h^3$ . This button  $h^3$  is constructed and arranged so that when it is in the position illustrated in Fig. 5 it will bind the yoke end of the strap  $h$  to the vane  $m^2$ ; but when it is turned to a position at right angles to this the end of the strap will be free to be drawn away from the vane, swinging around on the hinge  $k^2$ . When the straps  $h$  and  $h'$  are in the position illustrated in Fig. 5, the acid-cup will be held in position; but when the upper strap is opened, as above described, the acid-cup can be readily lifted out of its support to be refilled or replaced by another, as may be required.

To prevent the crank  $i$  and the shaft M from turning when it is not desirable, a stop is provided. This stop engages the groove I<sup>3</sup>



in the head of the cylinder. A short shaft  $i^3$ , having the head  $i^4$  and the jaws  $e^2$ , is adapted to slide a little in the boss  $e'$  on the crank  $i$ . The helical spring  $i^2$ , embracing the shaft  $i^3$  between the boss  $e'$  and the head  $i^4$ , holds the head  $i^4$  normally in locked position in engagement with the groove  $I^3$ ; but when it is desired to turn the crank the cam-lever  $i^2$  is turned to a position opposite from that which it occupies in Fig. 6. This will lift the head  $i^4$  from out of engagement with the groove  $I^3$ , and the crank will be free to be turned with its accompanying mechanism.

The two cylinders I and I', which are both constructed in the same way and with the same internal mechanism, are connected by the branch tubes  $d$  and  $d'$  with the upright pipe D. This pipe D extends through a little more than the whole height of the ladder-wagon body and is provided at top and bottom with union-sections  $e$  and  $d^2$ , respectively. Near the bottom of the pipe D is a valve  $b^2$ . Between the cylinders in the branch tubes  $d$  and  $d'$  are placed the valves  $b$  and  $b'$ , the whole device to be substantially as herein illustrated and described.

To use my invention, the cylinders are charged through the hand-holes  $f$  with an alkaline solution, preferably a saturated solution of a salt of soda in water. A little more of the salt than the water will dissolve may be put in the cylinder. The cup H, which is to be placed in the position illustrated in Fig. 3, is then to be filled with acid in sufficient quantity to neutralize the alkali in the cylinder. For this purpose many different acids may be used; but I prefer to use sulfuric acid. The lid H' is then placed on the cup H, the hand-hole cover  $f'$  fastened on the hand-hole  $f$ , and the crank  $i$  locked, as before described. The apparatus will then be in proper condition for use. As soon as the apparatus has arrived at a fire a sufficient length of hose is unrolled from the hose-reels B B. The hose is then attached by the union  $e^3$  to either the union-section  $e$  of the union-section  $d^2$  or different lengths of hose may be attached to each union-section. Then if it be desired first to use the cylinder I the crank  $i$  is unlocked, as before described, and turned rapidly several times. This inverts

the cup H. The top H' falls off. The acid pours into the alkaline solution and by the motion of the vanes is thoroughly mixed therein. This produces by the immediate generation of gas a considerable pressure in the inside of the cylinder. If then the valve  $b$  be opened, the fluid contents of the cylinder will rush through the pipe D into the hose and may be used for extinguishing a fire in the common and well-known way. The cylinder I', if required, may be utilized in the same way. The cock  $b^2$  is primarily intended to be a blow-off cock; but if it be required a hose may be attached to the union-section  $d^2$  and the contents of the cylinder conducted to the fire that way also.

This in practice will be found a very economical, adaptable, and convenient apparatus for extinguishing small fires, such as occur in villages and other places where the houses are comparatively far apart.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a fire-ladder wagon; hose-reels mounted thereon, foot-boards mounted thereon; and hollow cylinders, closed at both ends mounted on said foot-boards; of shafts journaled in said cylinders, spokes on said shafts, within said cylinders, stirring-vanes on said spokes; acid-cups mounted on the ends of said stirring-vanes, within said cylinders; one rigid strap detachably attaching each acid-cup to its adjacent vane; and one strap embodying a hinge and a yoke, and in combination with said rigid strap, detachably attaching each acid-cup to its accompanying vane; buttons working in said yokes, to effect such attachment; cranks for turning said shafts; means for holding them in position; means for charging said cylinders, for connecting them together, and for connecting them with fire-hose; all substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of December, A. D. 1900.

ROBERT OSCAR JONES.

Witnesses:

CHAS. H. MOTSETT,  
GEORGE M. GIBBONS.