

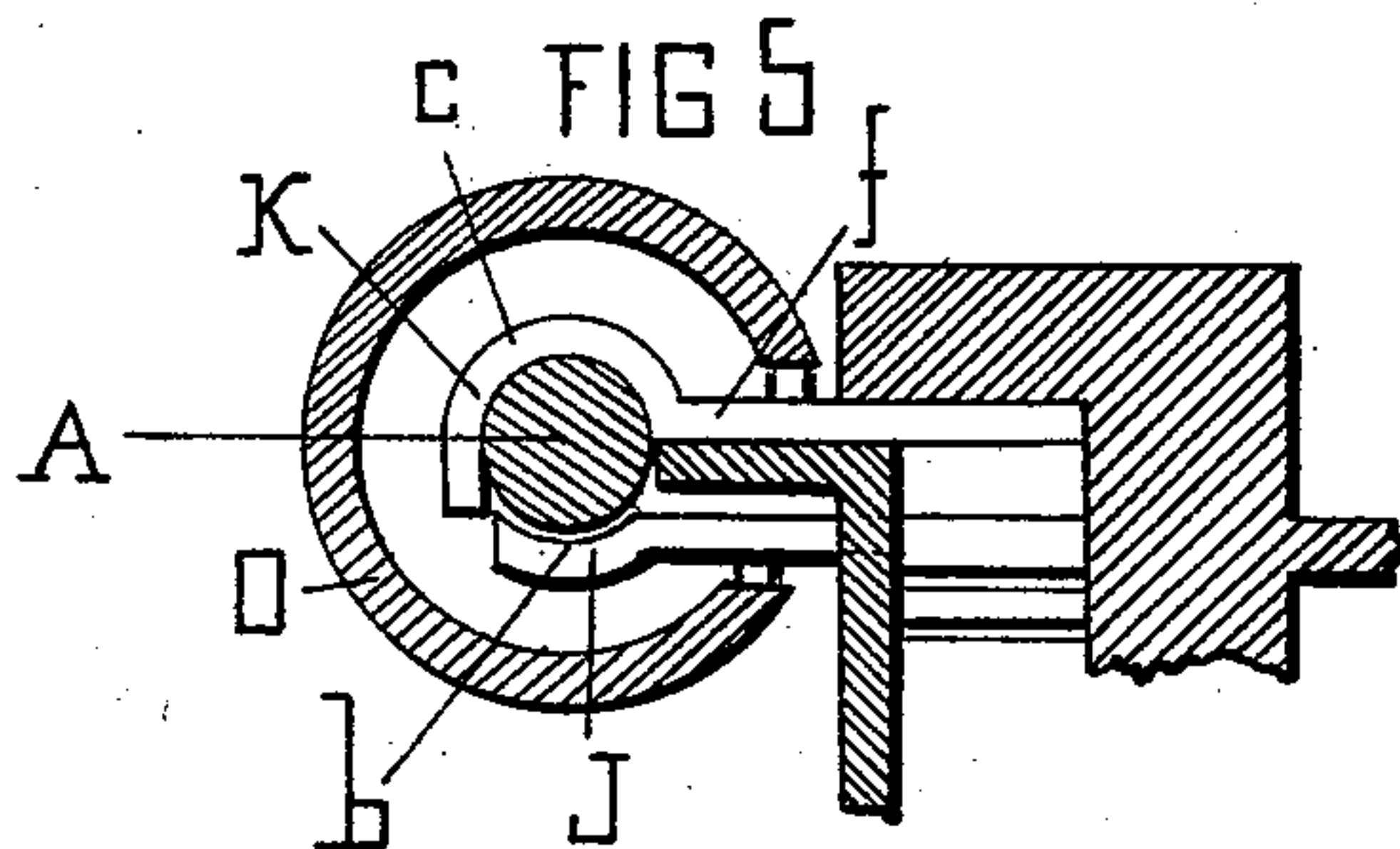
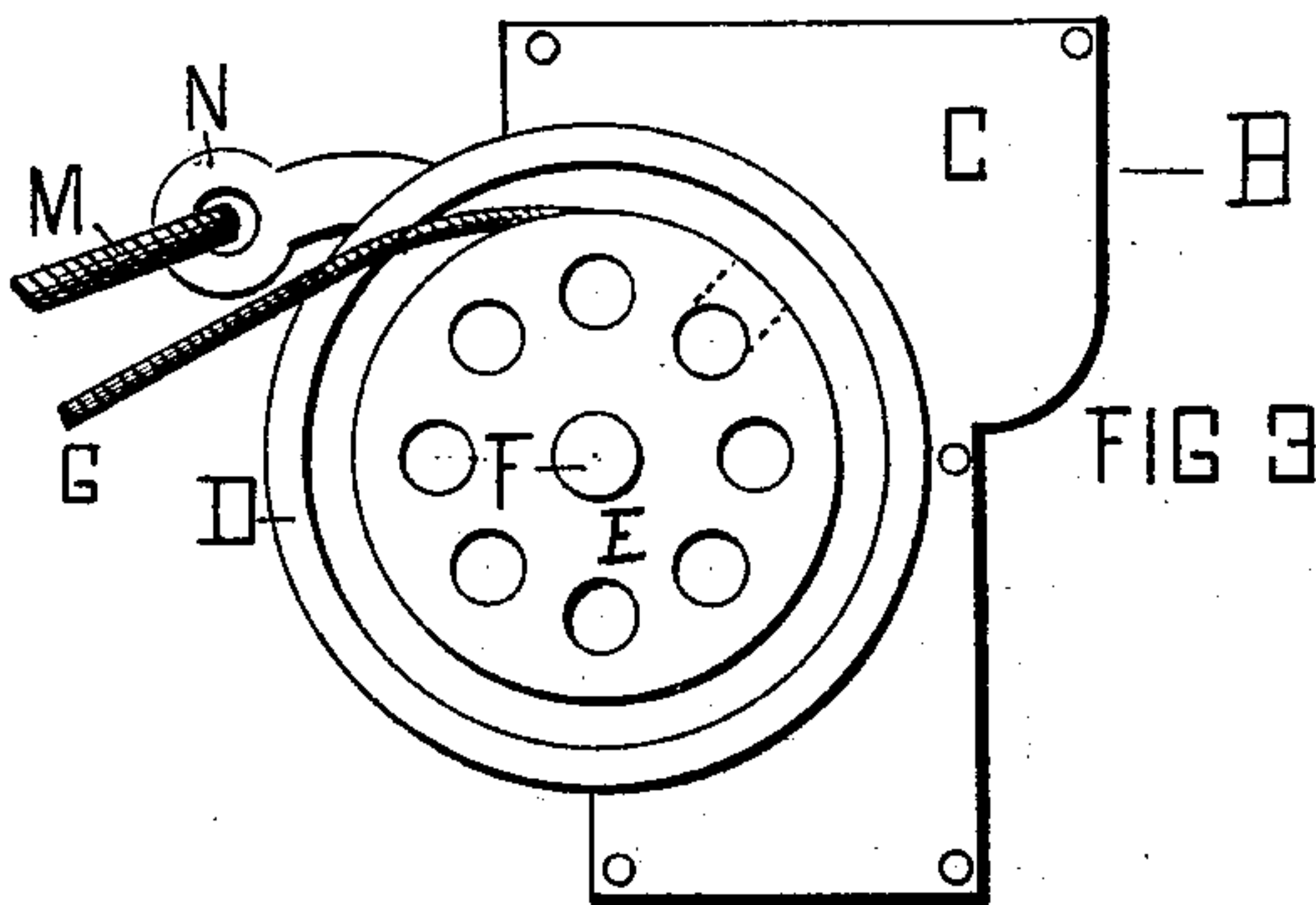
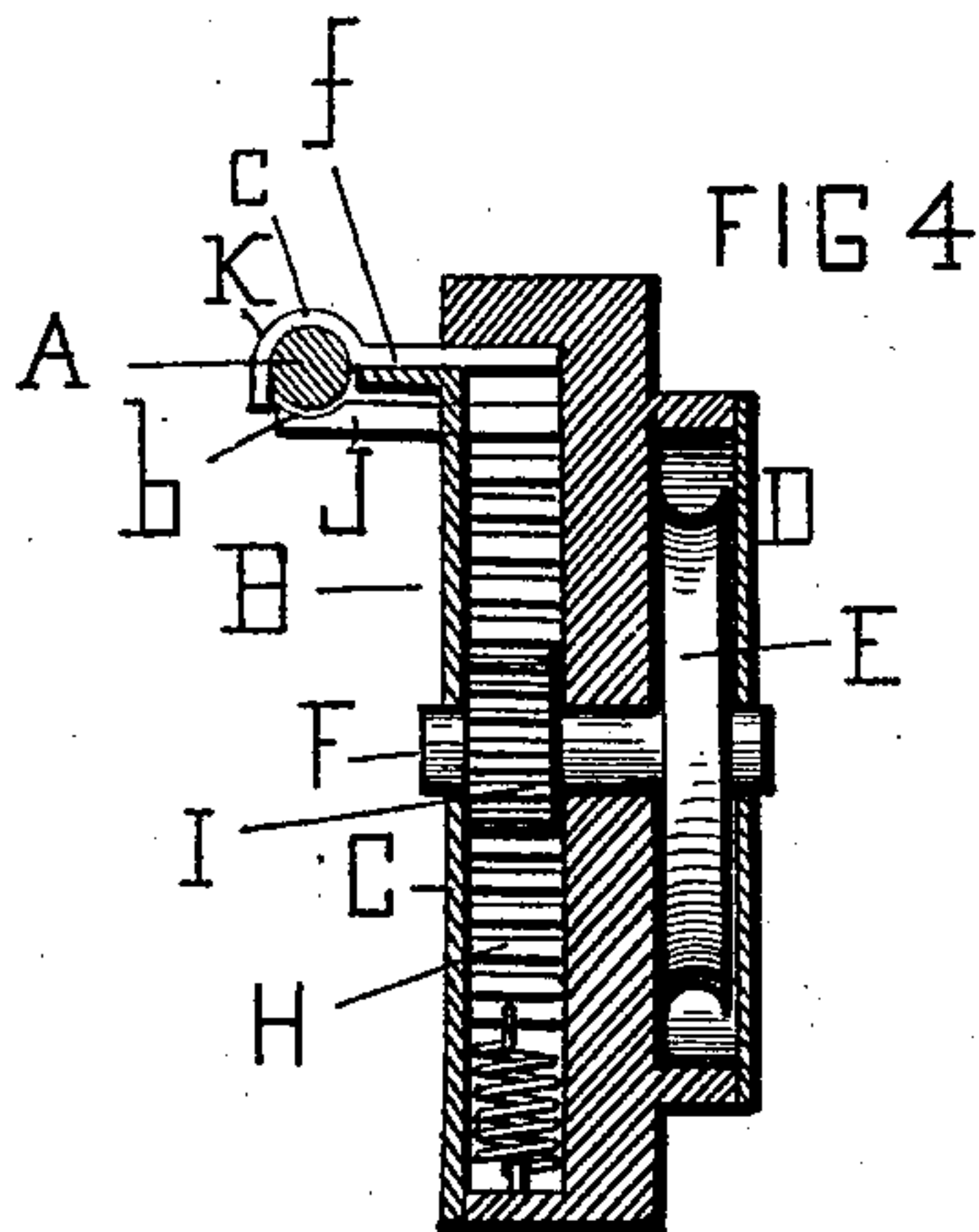
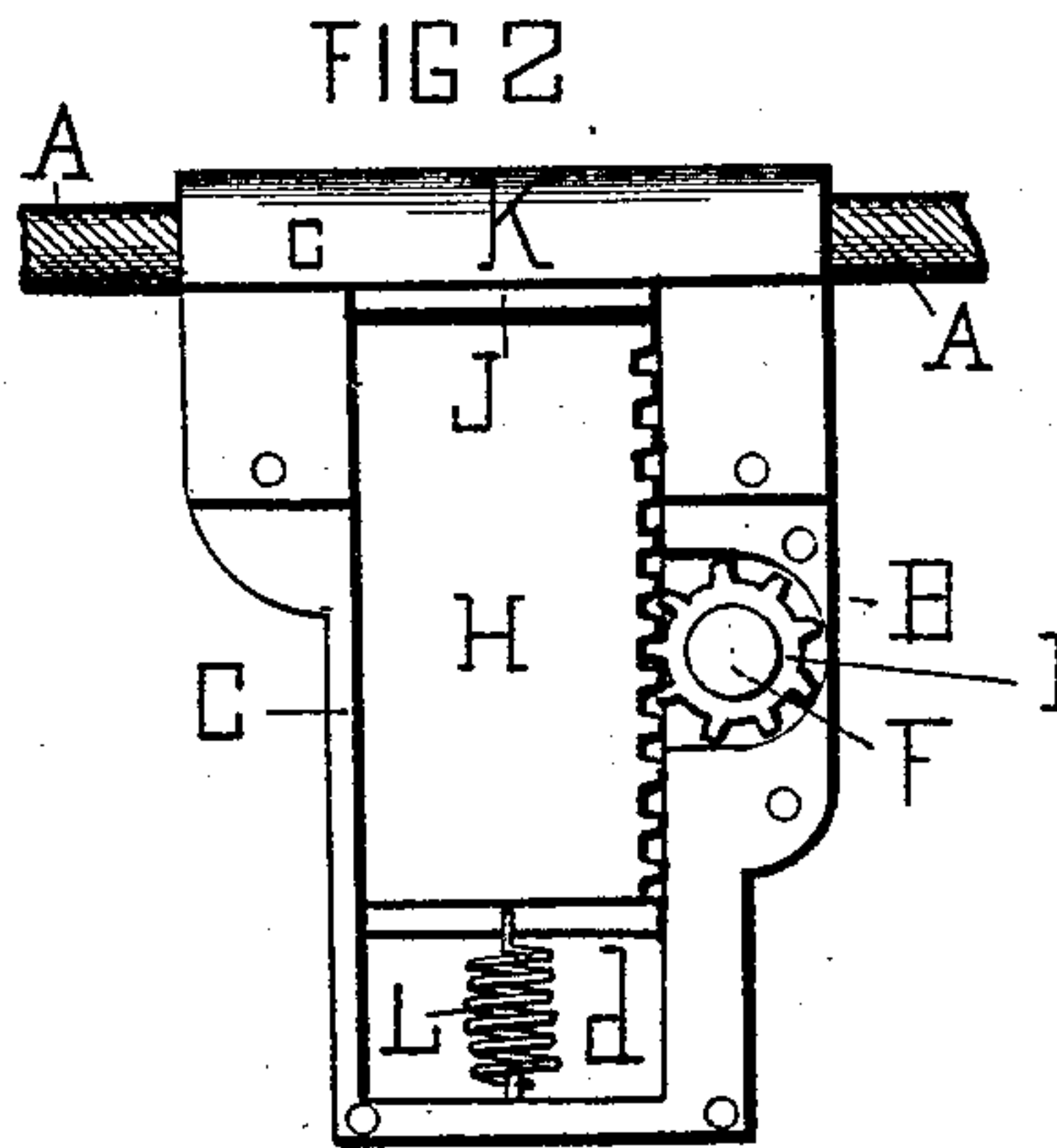
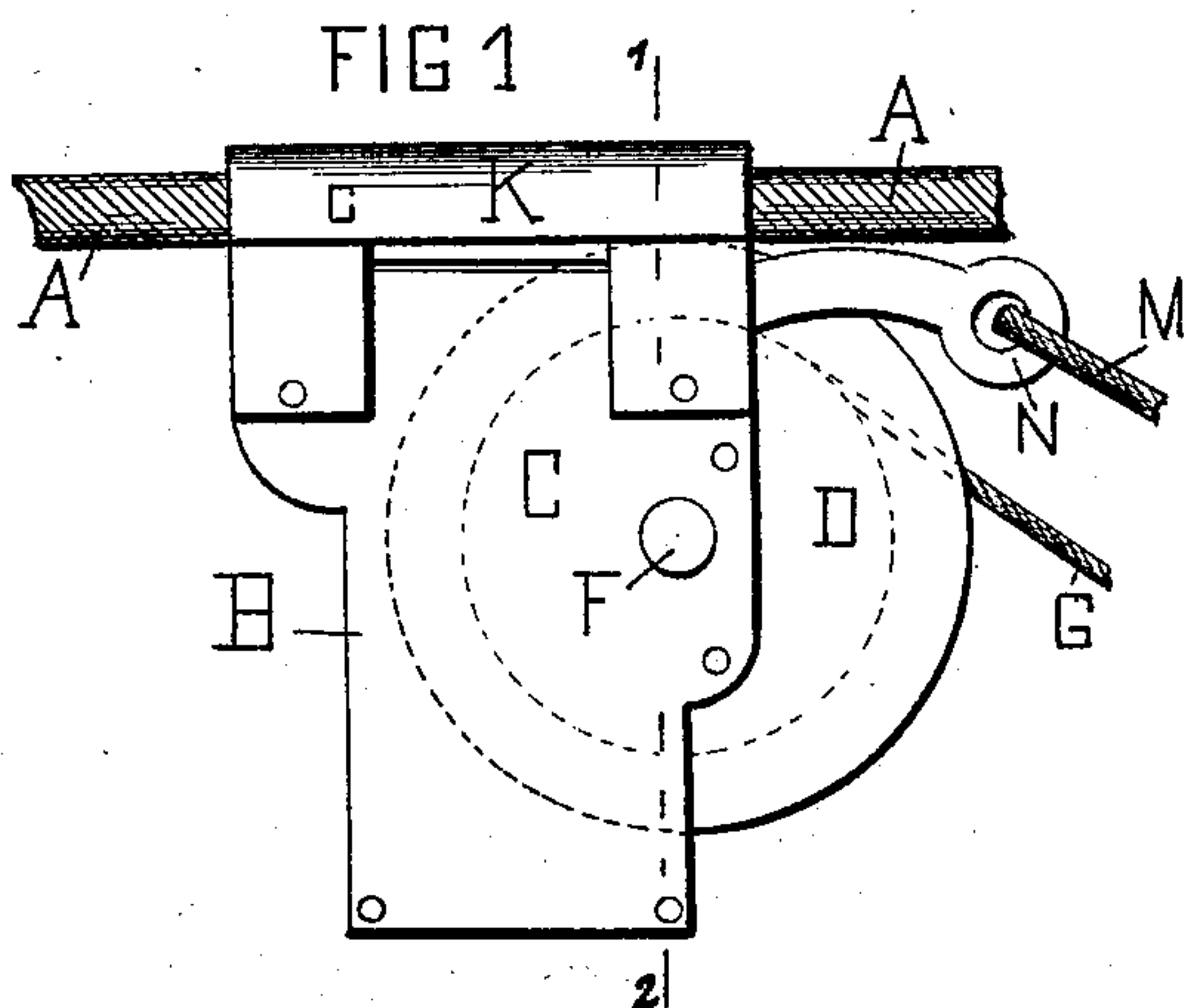
(No Model.)

2 Sheets—Sheet 1.

J. I. MORRIS.
CANAL TOWAGE.

No. 521,527.

Patented June 19, 1894.



Witnesses
A. Martin
Samuel B. Coff.

Inventor
Joseph I. Morris
by Francis D. Castains
Attorney

(No Model.)

2 Sheets—Sheet 2.

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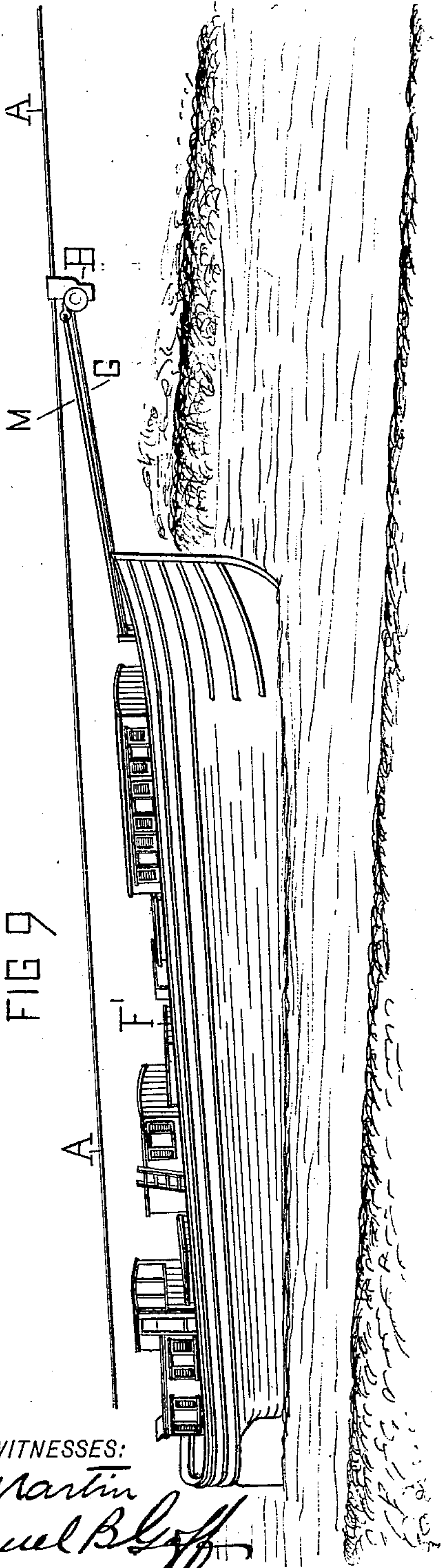


FIG 9

WITNESSES:
Samuel Martin
Samuel B. Goff

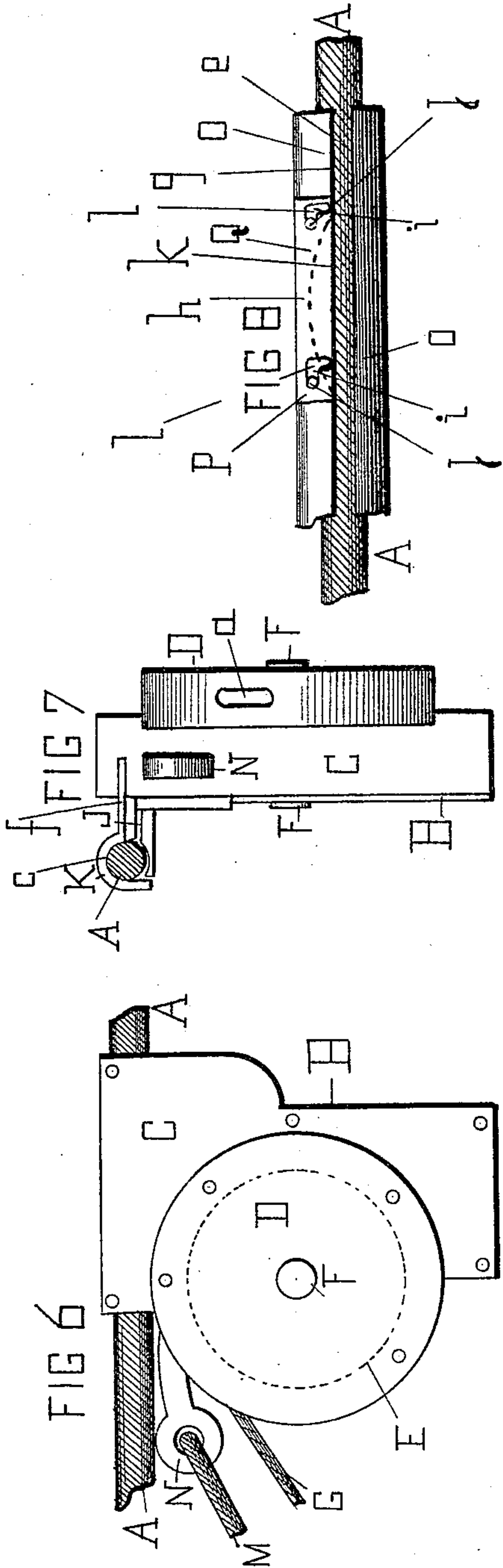


FIG 6

FIG 7

INVENTOR
Joseph I. Morris
by *Francis D. Pastorius*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH I. MORRIS, OF CAMDEN, NEW JERSEY.

CANAL TOWAGE.

SPECIFICATION forming part of Letters Patent No. 521,527, dated June 19, 1894.

Application filed July 19, 1893. Serial No. 480,955. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH I. MORRIS, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Canal and Water-Way Towage, of which the following is a specification.

The invention relates to towing boats on canals and water-ways.

It consists in a continuous-motion endless-cable arranged and operated above the surface of a canal or water-way, or the sides thereof. Said cable is provided with a removable-grip which is suspended from and carried by it. A tow-line or connection extends from the grip to the tow or boat, as does an operative-line or connection by which the grip is set in motion with the cable, or released to suspend idly from it. Circumstances may arise by which the grip operating-line may have to be operated from a different and more suitable place than the deck of the boat being towed, as for instance, it may be operated by a person walking on the tow-path. If required the cable may be inclosed in a tube having intermediate grip-attaching stations.

On reference to the accompanying sheets of drawings making part of this specification: Figure 1, is a side elevation of a grip-system embodying my invention. Fig. 2, is the same view as Fig. 1, with the exception of the removal of the side cover, to show the rack and pinion which operate the grip-jaw. Fig. 3, is a side elevation of the grip system, opposite to Fig. 1, the plate being removed to show the operating-wheel, and line or connection, by which the rack and pinion operate the grip-jaw. Fig. 4, is a transverse and vertical section through the line 1—2, Fig. 1; the rack, pinion, shaft, and pulley not being sectioned. Fig. 5, is a transverse section of the carrying-tube cable and grip. Fig. 6, is an opposite side elevation of Fig. 1. Fig. 7, is an end view of the cable and grip, showing the eye-bolt, and the operating-line opening. Fig. 8, is a side view of the cable and tube; and Fig. 9, is a side elevation of the cable, grip and grip-connections applied in canal and water-way towage.

Similar letters refer to similar parts in the several views.

A is a continuous-motion endless-cable arranged and operated at a convenient height above the surface or sides of a canal or water-way.

B is a grip, removably suspended from the cable A, consisting in a case C, Figs. 1, and 6, having a covered circular enlargement D, containing a pulley E, Figs. 3, and 4, on the end of a transverse-shaft F, which is operated from the boat or tow F', Fig. 9, or other convenient place, by means of a line or connection G. The opposite side of the case is recessed for the reception of a rack-plate H, Figs. 2, and 4, having a reciprocal movement in the same by gearing with a pinion I, on the transverse shaft F which receives its motion from the pulley E on the opposite end thereof; the rim of the enlargement being slotted at *a*, for the passage of the line or connection G. The top end of the rack-plate H has an outward extension which forms the lower and movable-jaw J, of the grip B, to that end its upper side is concaved at *b*, to the diameter of the cable A. The upper jaw K is rigidly attached to the casing C, and is provided with a gripping-curve *c*, which hooks over the cable A, and besides embracing it, serves to removably suspend and carry the entire grip from said cable. While the cable gripping is effected by a fixed upper jaw K, and a reciprocal lower-jaw J, actuated by a rack and pinion H, I, operated by a line or connection G between the grip and boat F' or other suitable place, the jaw-opening and cable-releasing are accomplished by a spiral-spring L, located in the bottom of the casing-recess, *d*, and endwise connected with the rack-plate H and casing. The tow-line or connection M is drawn between an eye-bolt N of the grip and the usual line-hold of the boat F'.

As hereinbefore mentioned, circumstances may arise by which the grip operating line or connection G, may have to be operated from another place than the deck of the boat being towed, for instance, from the tow-path, therefore, I do not confine myself to any other than a suitable place.

For simplicity and economy of construction and operation the cable A is suspended uncovered, but if desired it can run through an elevated-tube O, provided with a longitudinal slot, *e*, in which the neck, *f*, of the grip B moves,

Figs. 5, and 8. At intermediate stations P, the slot *e*, is enlarged at its top side, *g*, dotted line, Fig. 8, for the insertion and engagement of the grip-jaws J, K, with the cable A. An adjustable cover Q is fitted around the outside of the tube O, Fig. 8, for covering the enlargement, *h*, after the grip-jaw curve, *c*, has hooked on the cable, and making the slot uniform, which keeps the grip on the cable. Said cover has an L-shaped slot, *i*, through which projects a pin, *j*, of the tube O. On turning the cover from the slot, *e*, the enlargement *h*, is uncovered and the jaws, J, K, inserted and hooked on the cable. By returning the cover Q to the slot, *e*, its bottom-edge, *k*, aligns with the top, *g*, of the slot *e*, which alignment is retained by sliding said cover along the tube O until the pin *j*, is lodged in the part, *l*, of the L-shaped slot, *i*. For reducing friction the tube O can be fitted with anti-friction wheels for carrying the cable A. The jaw-hook *c*, and the neck, *f*, which moves in the slot, *e*, can also have anti-friction wheels for reducing frictional-contact when the grip is motionless and inoperative on the running-cable, and its neck idle within the slot, *e*. The tube O can be carried by brackets extending from supporting-posts arranged along the side of the canal without interfering with the running of the cable, or the working of the tow and grip lines or connections. The grip B, being removable, can be taken from the cable A and stored on the boat F', at any point of the canal or water-way, it, therefore, when not in use, does not form any impediment whatever to the travel of the cable.

Should it be thought advisable to run the cable over pulleys without the tube, the jaws of the grip will ride over them with the cable with ease.

I claim—

1. In a canal and water-way towage system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal, a removable-grip suspended from and carried by the cable, a distinct and separate tow-line or connection between the grip and boat, solely for towing the boat, and a distinct and separate grip-line or connection between the grip and boat, solely for operating the grip, for the purpose shown and described.

2. In a canal and water-way towage system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal or water-way, an elevated, longitudinally slotted, cable carrying-tube, having intermediate grip-attaching stations, and a removable grip suspended from and carried by the cable, and provided with connections for towing a boat and operating said grip, for the purpose shown and described.

3. In a canal and water-way towage-system, the combination of a continuous-motion endless-cable arranged and operated above the surface or sides of a canal or water-way, a removable-grip consisting in a fixed-jaw which embraces said cable and is suspended therefrom, and a movable-jaw having a vertical movement by means of a rack and pinion operated by a line or connection from a boat, and a tow-line between the grip and boat, for the purpose shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH I. MORRIS.

Witnesses:

FRANCIS D. PASTORIUS,
MARTIN V. BERGEN.