

(No Model.)

B. L. TOQUET.
HOISTING MECHANISM.

No. 542,545.

Patented July 9, 1895.

FIG. 1.

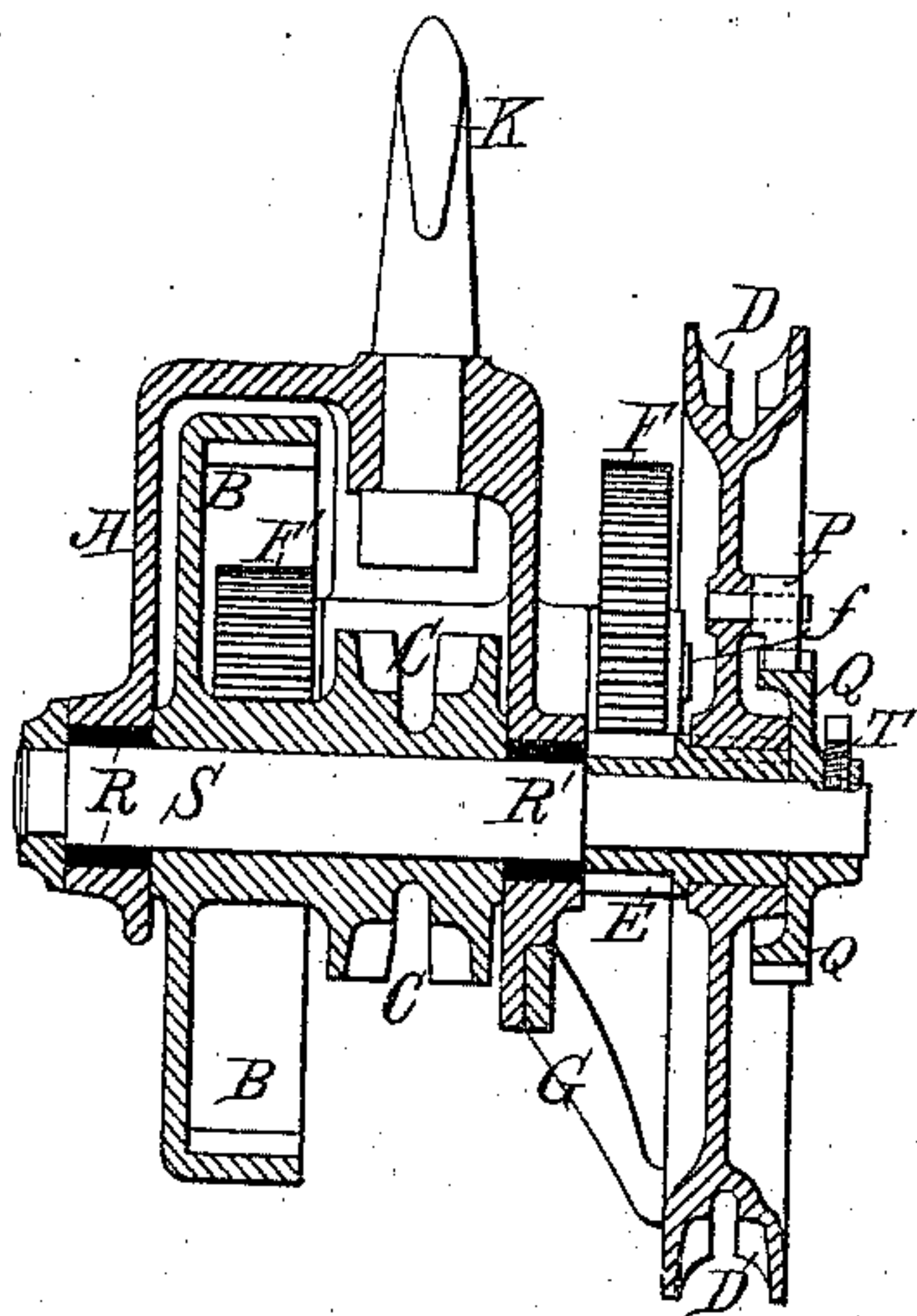


FIG. 2.

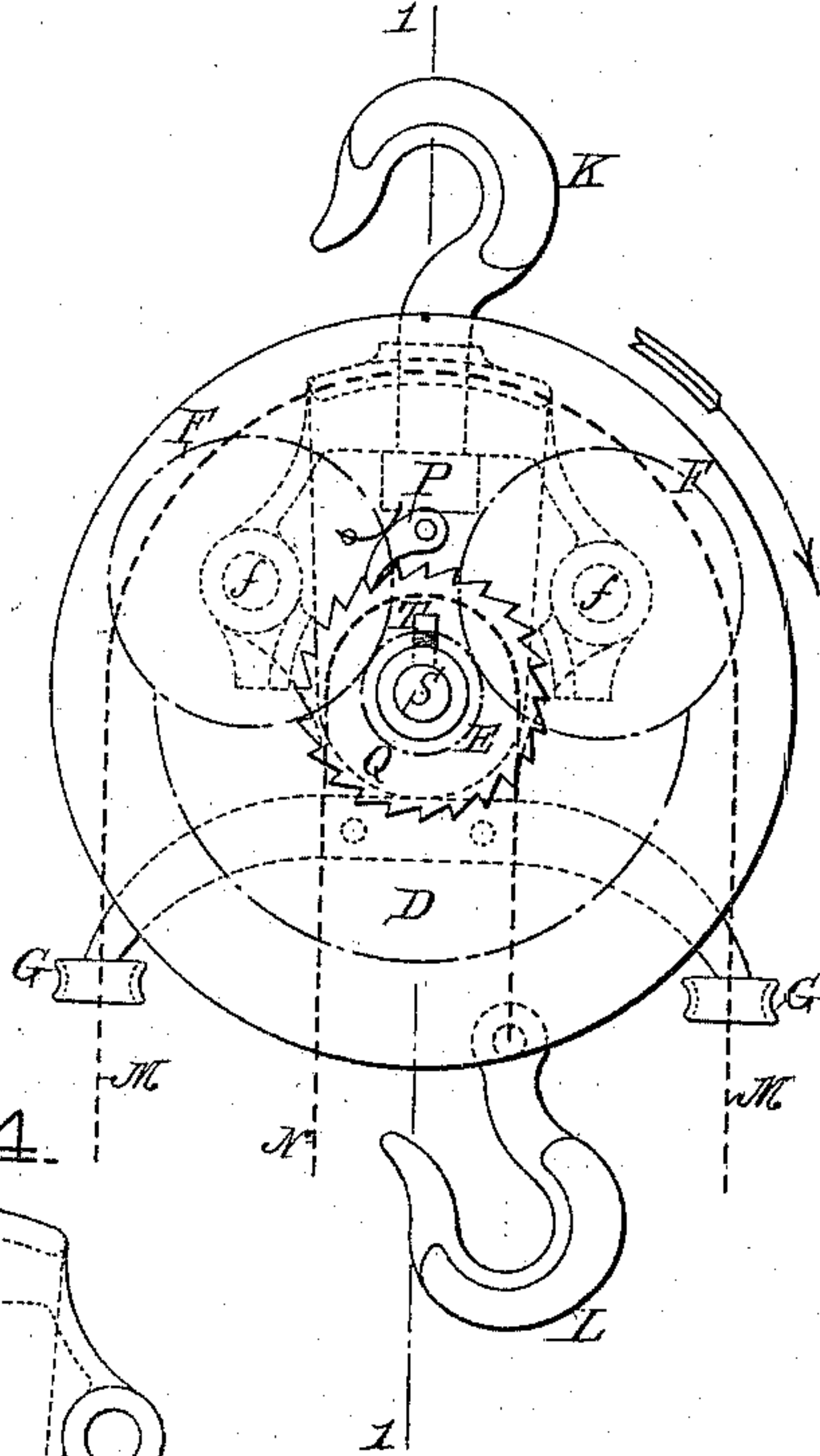


FIG. 4.

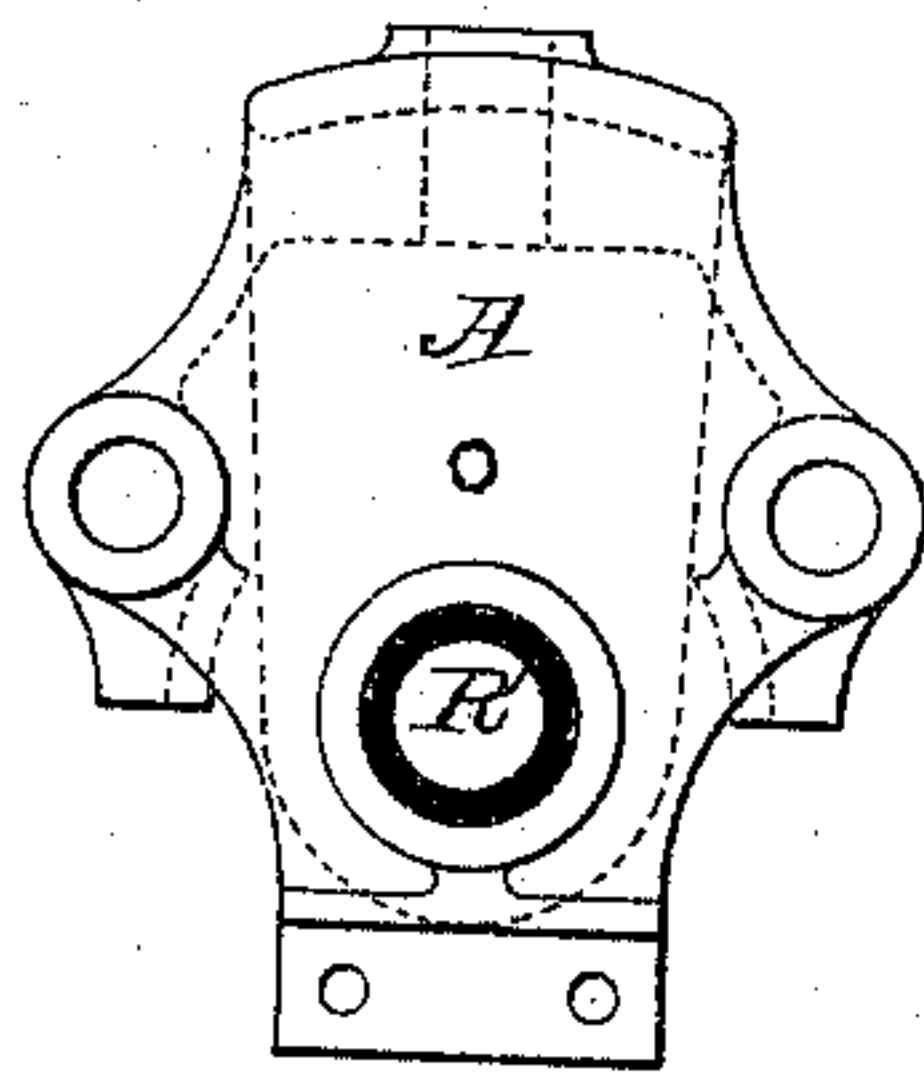


FIG. 5.

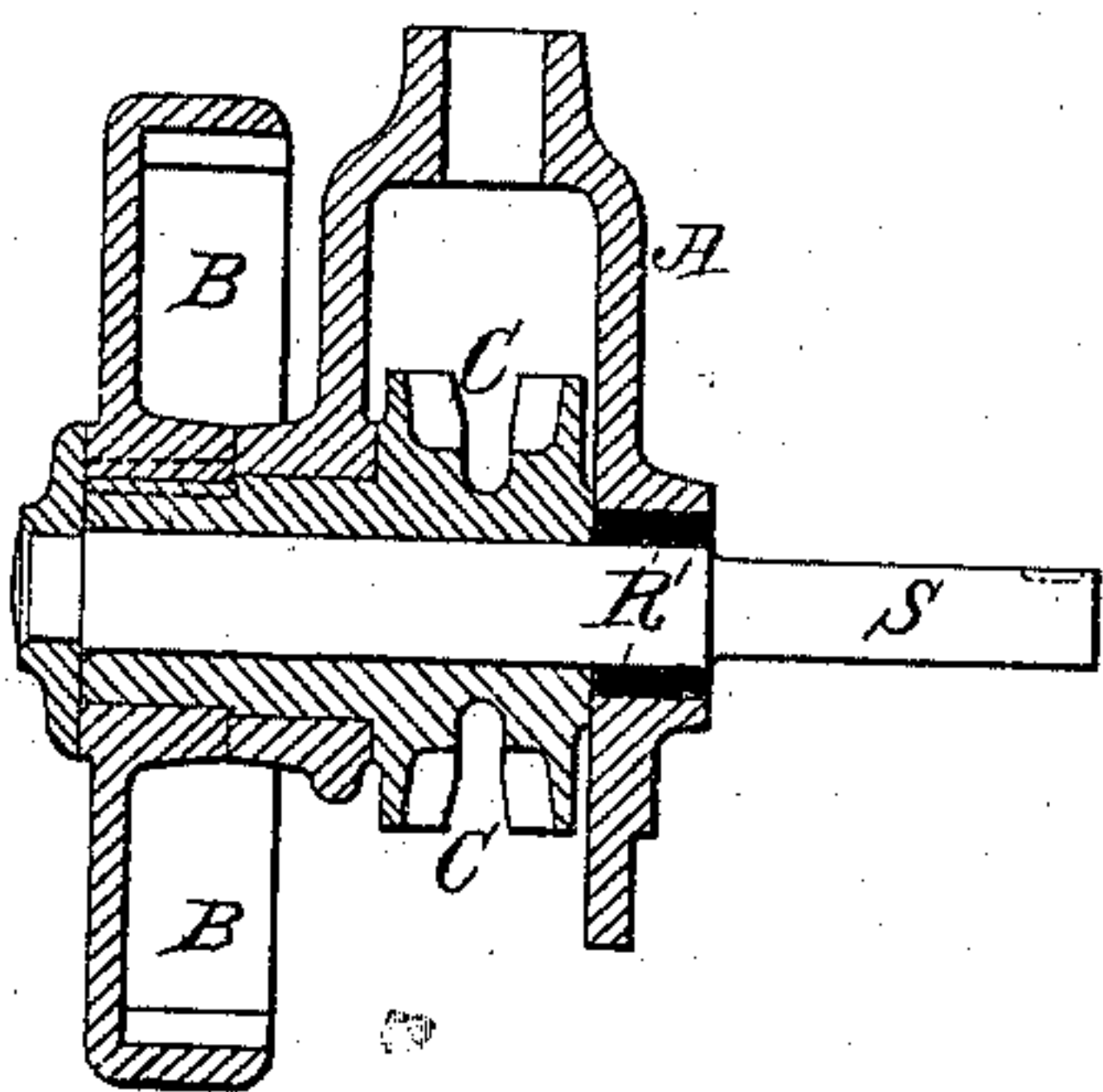
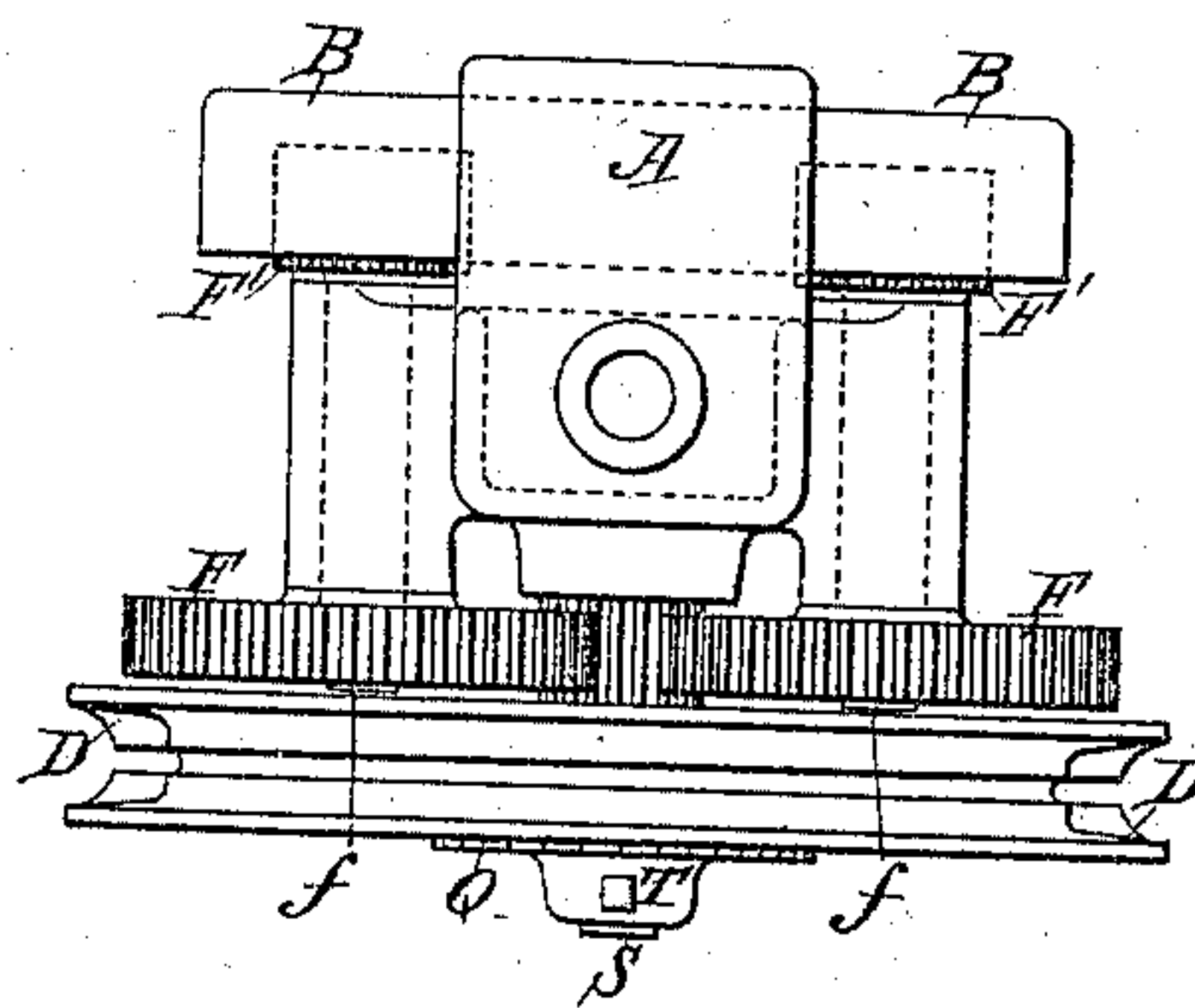


FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BENJAMIN LOUIS TOQUET, OF WESTPORT, CONNECTICUT.

HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 542,545, dated July 9, 1895.

Application filed January 25, 1895. Serial No. 536,169. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN LOUIS TOQUET, a citizen of the United States, and a resident of Westport, Fairfield county, Connecticut, have invented an Improved Hoisting Mechanism, of which the following is a specification.

My invention consists of improvements in the construction of hoisting mechanism, and more particularly of that class called "portable hoists" or "pulley-blocks," and the main object of my invention is to provide a hoisting mechanism which can be economically manufactured, will be efficient in operation, durable in construction, and will automatically sustain the load at any height to which it may be lifted and allow of a lowering of the load with ease.

In the accompanying drawings, Figure 1 is a vertical sectional view on the line 1 1, Fig. 2, of my invention as embodied in a portable hoist or pulley-block. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view. Fig. 4 is a view of the frame with all movable parts detached, and Fig. 5 is a sectional view of a modification.

In the construction shown A is the frame of the hoist or pulley-block, provided with the usual suspending hook K, and C is the hoisting wheel or sheave, shown sprocketed in this instance for the hoisting-chain N, which carries the lower hook L for the load. This hoisting-wheel is mounted to turn freely upon a horizontal shaft S, which may be termed the "main shaft," although it does not turn with the chain-wheel. By preference the driving-pulley D is mounted outside the frame A upon the same shaft S, but the said pulley can turn independently of the shaft. The power may be transmitted to the hoisting sheave or wheel C from the driving-pulley by any suitable means, but I prefer to employ the gearing shown. Adjacent to the inner side of the driving-pulley D is a pinion E, which is secured to or formed in one with the said pulley, and this pinion meshes into gears F F, whose shafts pass through bearings in the frame A and have at their opposite ends pinions F' F' meshing with an internal gear B, which may be formed in one with or secured to the hoisting wheel or sheave C.

The bearings in the frame for the shafts S

before referred to are provided with friction-bushings R R of hard fiber, lignum-vitæ, or other suitable material.

A guide G attached to or formed in one with the frame A may be provided for the power chain or rope M passing over the pulley D.

In the construction shown in Figs. 1, 2, and 3 the pinion E and gears F F, as well as the driving-wheel D, are shown as arranged outside the frame A on one side, while the pinions F' F' and internal gear B are shown inside the frame A, near the opposite side; but I do not wish to confine myself to this arrangement. For instance, as shown in the modification, Fig. 5, the gear B and pinions F' F' may be outside the frame A, and in such event there will be but one friction-bushing R' for the shaft S. The essential features of construction and operation are the same in this modification as in the embodiment of my invention described with reference to Figs. 1, 2, and 3.

The operation I will now describe. As I have already explained, the driving-pulley D can turn independently of the shaft S, and this it always does in hoisting; but I provide means for automatically locking the pulley to the shaft at other times for sustaining the load and lowering. For this purpose I may secure to the end of the shaft S by a set-screw T, or otherwise, a ratchet-wheel Q, with which engages a spring-pawl P on the hoisting-wheel, so that when the pulley D is turned by its chain or rope in the direction of the arrow, Fig. 2, for hoisting the pulley will turn freely upon the shaft and communicate a hoisting movement to the wheel or sheave C through gearing such as heretofore described; but when hoisting is no longer applied to the pulley D the latter will be locked to the shaft by the pawl and ratchet and motion of the pulley D in the reverse direction will cause the shaft S to move with it in its bearings in the frame, and this movement of the shaft S will be independent of, and at a different speed from, the movement of the hoisting wheel or sheave C, and in the particular construction shown it will be in a direction opposed to that which would be communicated through the gearing described to the said hoisting wheel or sheave C from the reversed

movement of the pulley D. The friction between the shaft S and the wheel C which is thus sustained by the shaft and turns upon it will be proportioned to the load, and the latter can thus be made self-sustaining. The bearing or bearings supporting the shaft S can also be used by the described locking of the shaft to the driving-pulley in other conditions than hoisting to make the load self-sustaining and capable of being lowered easily. I prefer, as shown, to make use of the combined frictional effect between the shaft S and hoisting-wheel and between the shaft and its bearing or bearings, to furnish what may be termed "the automatic lowering-brake."

I claim as my invention—

1. A hoisting mechanism having a frame, a shaft adapted to turn in bearings in the frame, a hoisting wheel mounted to turn upon said shaft, and a driving pulley free to turn independently of said shaft in hoisting, and means for causing the shaft to turn with the driving pulley for lowering, and at a different speed from the hoisting wheel.

2. A hoisting mechanism having a frame, a hoisting wheel, a shaft in bearings in the frame and upon which said wheel is mounted to turn independently of said shaft when hoisting, and means for turning the said shaft in a direction opposite to that of the hoisting wheel for lowering, substantially as described.

3. A hoisting mechanism having a hoisting wheel, a shaft supporting said wheel, a frame having one or more friction bearings for said shaft, a driving pulley free to turn independently of the shaft in hoisting, and means for causing the shaft to turn with the driving pulley for lowering at a different speed from the hoisting wheel.

4. A hoisting mechanism, comprising a

shaft, a hoisting wheel mounted to turn on said shaft, a driving pulley geared at all times to said hoisting wheel, the said driving pulley being free to turn independently of said shaft in hoisting and means for causing the shaft to turn with the pulley for lowering at a different speed from the hoisting wheel.

5. A hoisting mechanism comprising a main shaft, a hoisting wheel mounted to turn on said shaft, a driving pulley having affixed to or formed in one with it a pinion adjacent to it, gearing connecting said pinion with the hoisting wheel, the driving pulley being free to turn independently of the main shaft in hoisting and means for causing the shaft to turn with the driving pulley for lowering.

6. A hoisting mechanism comprising a shaft, a hoisting wheel mounted to turn upon said shaft, a driving pulley, gearing to transmit motion to the hoisting wheel, the said pulley being mounted to turn upon the shaft in hoisting with means for automatically locking the said shaft to the driving pulley when not hoisting.

7. A hoisting mechanism, comprising a frame, a shaft mounted to turn in the frame, one or more friction bearings for the shaft, a hoisting wheel free to turn upon the shaft, a driving pulley also free to turn upon the shaft in hoisting, means for locking it to the shaft at other times and connecting gearing consisting of a pinion on the pulley, gears F F', pinions F' F' and a gear on the hoisting wheel, all substantially as described.

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

BENJAMIN LOUIS TOQUET.

Witnesses:

EDITH J. GRISWOLD,
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