

(No Model.)

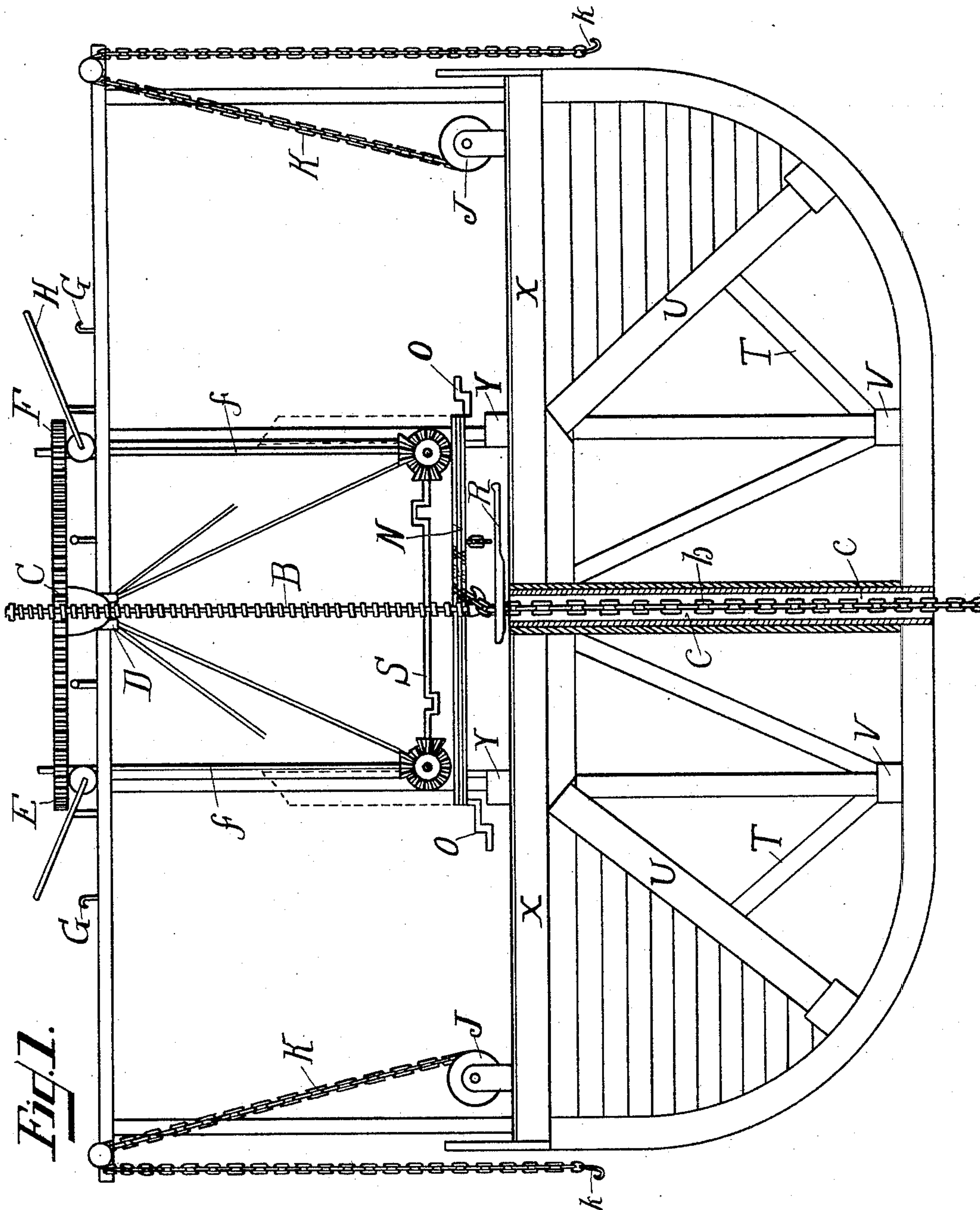
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N. McARTHUR & M. LUTZ.

SCREW PURCHASE POWER FOR RAISING SUNKEN VESSELS.

No. 467,515.

Patented Jan. 26, 1892.



# FiLi.

*WITNESSES*

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J. C. Lough.  
Effie J. Craft.

*INVENTORS,*

Neil McArthur  
Martin Lutz

by Parker & Burton their Attorneys.

N. McARTHUR & M. LUTZ.

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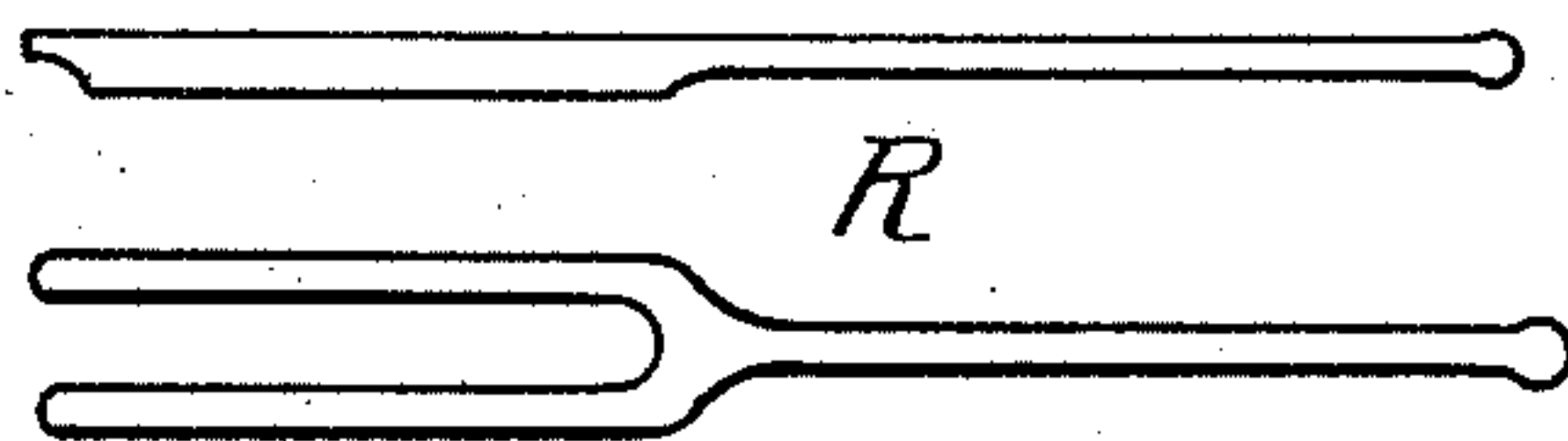
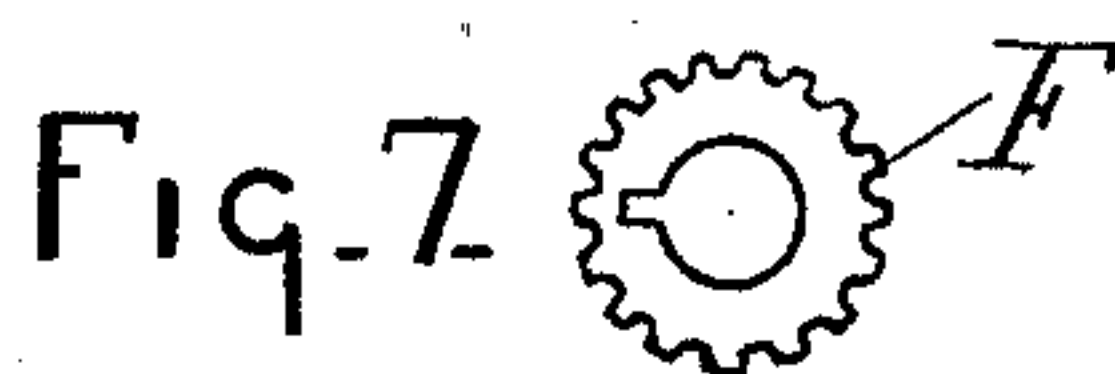
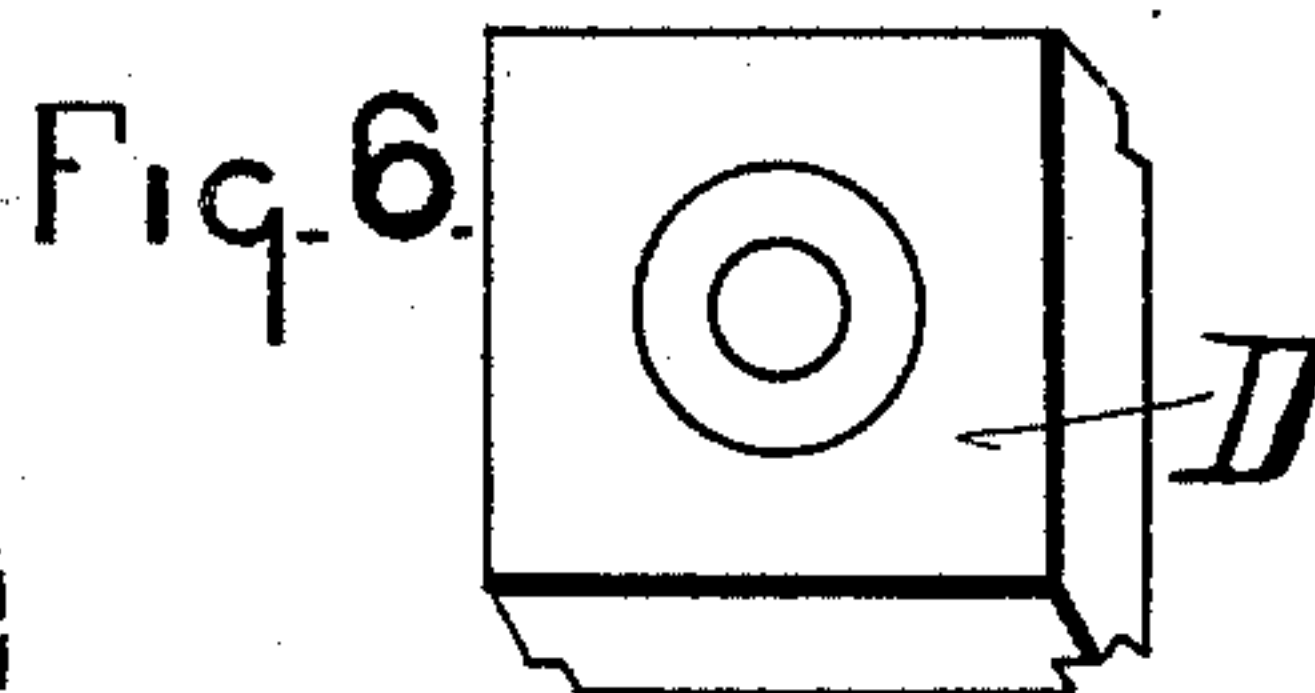
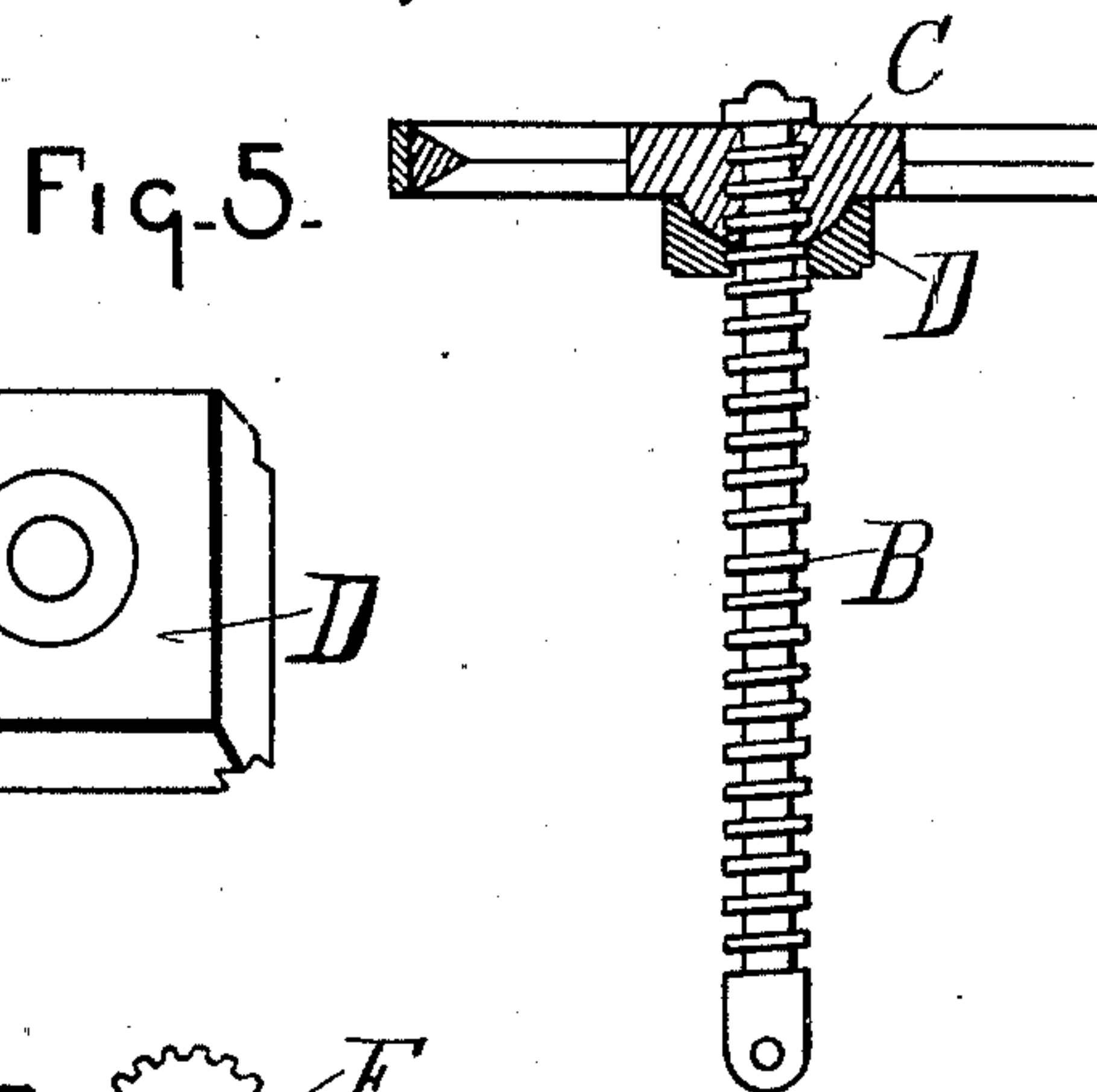
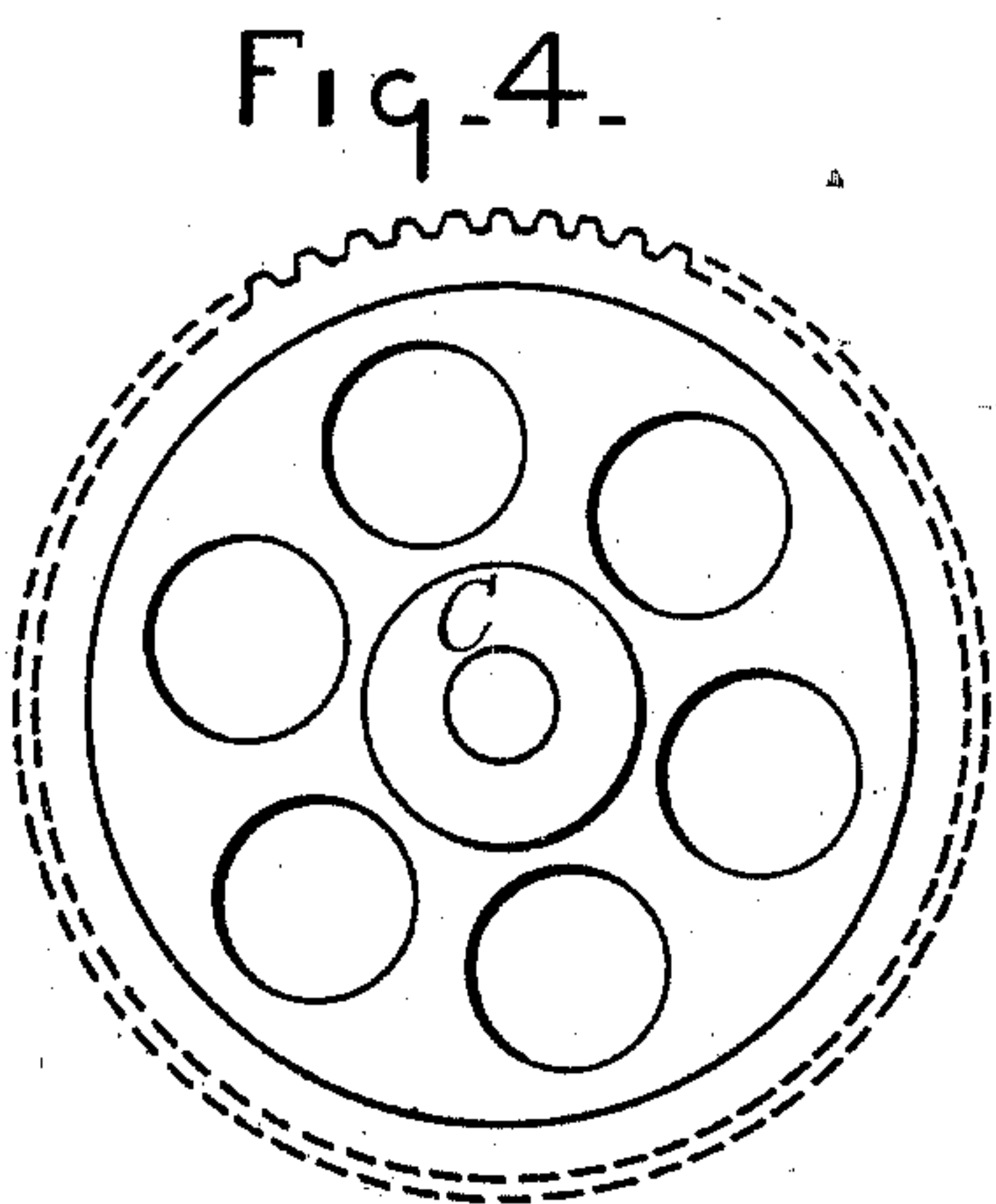
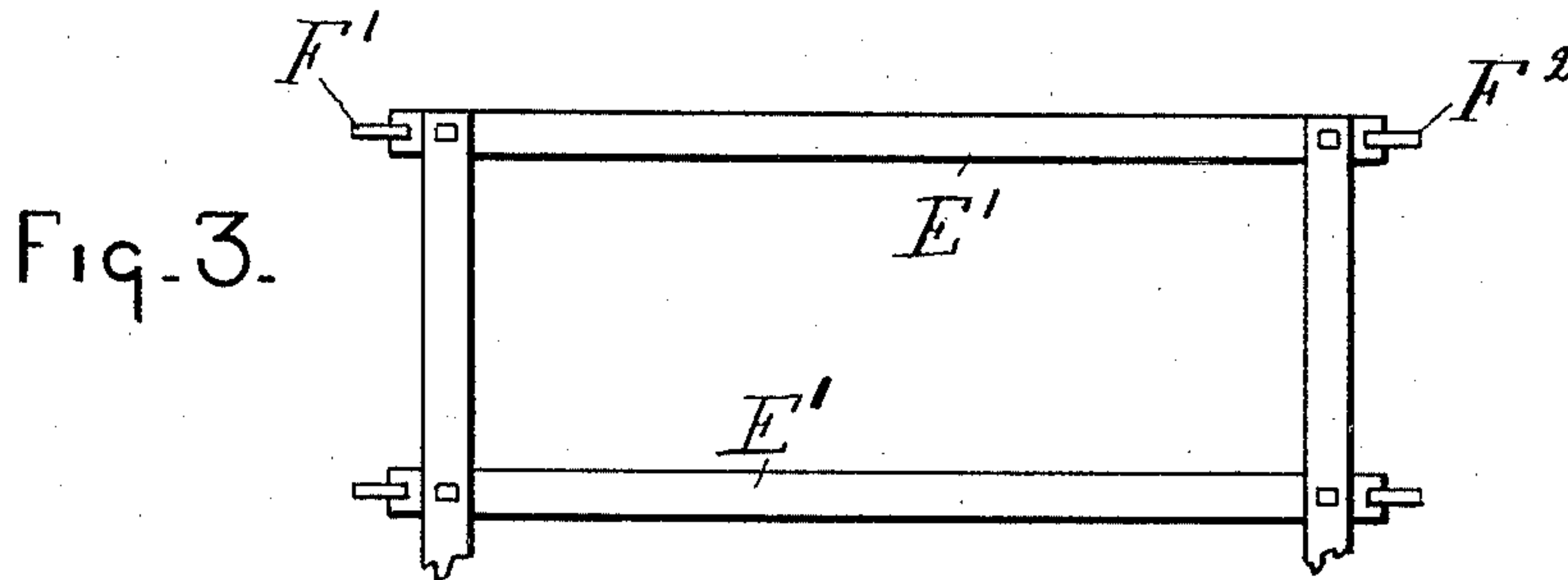
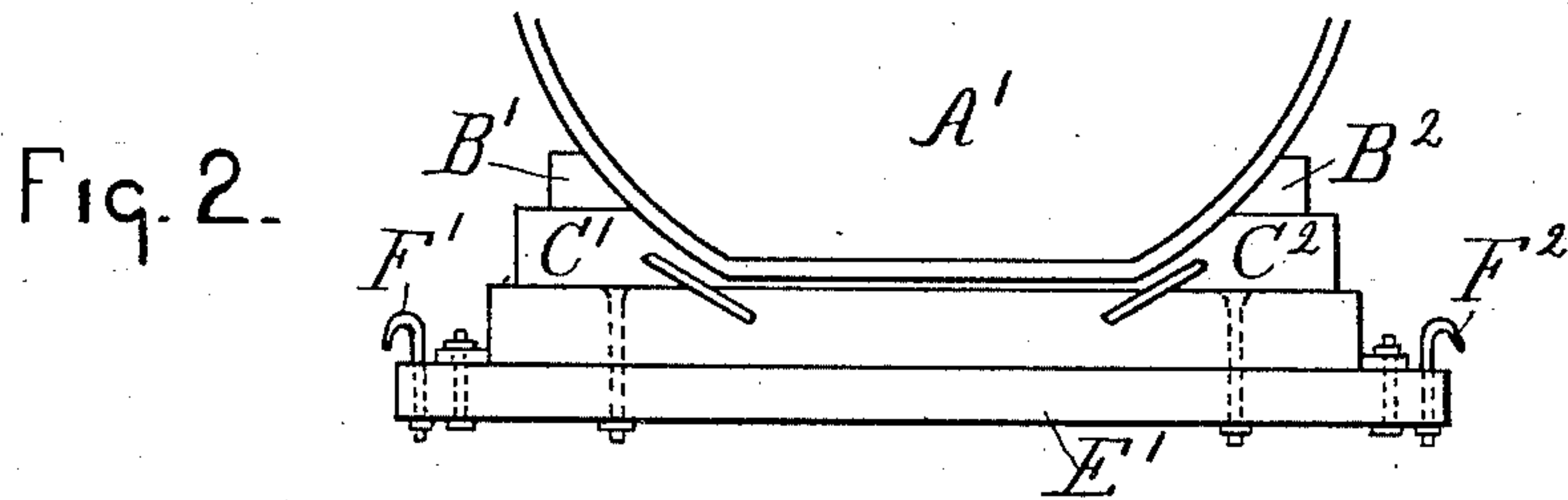


Fig. 8.

WITNESSES  
*F. Clough.*  
*Effie J. Coft.*

INVENTORS,  
*Neil McArthur*  
*Martin Lutz*  
*by Parker & Ruston their attorneys.*



# UNITED STATES PATENT OFFICE.

NEIL MCARTHUR AND MARTIN LUTZ, OF DETROIT, MICHIGAN.

## SCREW-PURCHASE POWER FOR RAISING SUNKEN VESSELS.

SPECIFICATION forming part of Letters Patent No. 467,515, dated January 26, 1892.

Application filed January 2, 1891. Serial No. 376,555. (No model.)

*To all whom it may concern:*

Be it known that we, NEIL MCARTHUR and MARTIN LUTZ, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Screw-Purchase Power for Raising Sunken Vessels; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to wrecking apparatus and has for its object the production of a wrecking-barge with a powerful lifting device arranged thereon and the accessories to be used in connection with such wrecking-barge to form a complete outfit by means of which sunken vessels may be raised, or which may be used for lifting or raising any article or thing in or on the water.

In carrying out and operating this invention twin barges are employed, one such barge being placed on each side of the vessel to be raised, and as soon as practicable a platform is built under the vessel to be raised and the lifting-chains extending from the twin barges made fast to the ends of the platform and vessel and platform are raised together. In each one of the barges there are a number of separate lifting devices similar in construction and all operated by a single driving-engine or motive power, but otherwise distinct from one another.

A description of the details of construction on a single one of the lifting devices and its connection with and location in the barge will give a clear understanding of an entire barge and its lifting appliances when it is understood that the lifting appliances are all alike in construction.

In the drawings, Figure 1 represents a cross-section of the barge and of one of the lifting devices. Fig. 2 shows an elevation of the platform designed to be built under a sunken vessel. Fig. 3 is a plan view of the base-timbers of Fig. 2. The remaining figures are details of the lifting device, Fig. 4 showing the geared nut to the screw, Fig. 5 showing in section the screw, the nut, and the socket in which the nut turns. Fig. 6 is a perspec-

tive of the socket or pillow block. Fig. 7 shows the pinion used to turn the geared nut. Fig. 8 shows a holding-fork used to retain the lifting-chain in position when it is necessary to loosen it temporarily from the screw.

Within the interior of a strongly-built barge is supported on a central frame-work running from fore to aft of the barge a frame supporting a concaved pillow-block D. This is a heavy metallic block having a hemispherical cavity on its upper side, from the bottom of which a hole extends through the block downward. The block itself is supported by strong braces or struts resting at their lower ends on the timbers Y Y, which are in turn supported by cross-timbers X and the trusswork T U V arranged to receive the downward thrust from the pillow-block D and distribute it in the most advantageous way to the barge-timbers at and below the water-line. Through the perforation of the pillow-block D is passed a strong screw which does not quite fill the perforation, a small annular space being left to permit the screw to swing slightly. Above the pillow-block D is a nut made in the shape of a toothed wheel, the hub C being internally threaded and being provided on its under side with a convex boss that rests in the concavity of the pillow-block D, the two parts together forming a ball-and-socket joint which permits the upright screw to have the slight play spoken of above. The concavity within the pillow-block D forms a bearing, within which the nut has motion in any direction. To the lower end of the screw B is temporarily attached the chain b. The chain b passes from the lower end of the screw B down through a small pipe or well-hole c, through the bottom of the barge, and is made fast either to the article to be lifted or to the frame-work hereinafter described. In the first instance it is generally necessary to make the chain b fast to some part of the vessel to be raised or to connect it to the corresponding chain of the twin barge and pass the loop under the vessel to be raised; but as soon as the vessel to be raised has been lifted sufficiently to place the frame-work of Fig. 2 underneath it the chain b is made fast to the hooks F' F<sup>2</sup>.

Two upright shafts f f carry at their upper extremities pinions F F and are turned by



means of a shaft S, common to all the lifting devices in one of the barges and driven from an engine or other proper source of power. The shaft S is geared to the upright shaft F in any of the well-known ways, the form of gearing shown in the drawings being miter-gears being well adapted to accomplish the desired result.

The pinion F at the top of the shaft F is arranged to be held to the shaft *f* by means of a feather on the shaft, (shown best in Fig. 7,) and the pinion F is adapted to slide upward on its shaft out of mesh with the teeth on the geared nut. For the purpose of raising and holding the pinion F there extends under it the inner end of the lever H. When the outer end of the lever H is pressed downward and held down by being caught under the hook G, the nut C is free to revolve and the screw can be dropped quickly downward to take a new hold lower down on the chain *b*. This is done after the screw has been raised, bringing up with it the chain and the vessel to be raised, and when it is desired to lower the screw for the purpose of attaching it lower down the chain is caught and the suspended load is held by means of the fork R, which is slipped over the well-hole *c* astride of one of the links of the chain *b* and receiving the link above it on the prongs of the fork.

The slack of the chain *b* is wound on the windlass N. The windlass N is provided with cranks O to enable the chain *b* to be quickly raised or lowered when it is not sustaining a load attached to its lower end.

As soon as the vessel to be lifted has been raised off the bottom a strong frame E' is pushed under it and a saddle-work built up on the frame E' E' under the overlying vessel, and the chains *b* are then made fast to the frame-work by means of the hooks F' F<sup>2</sup> or by any other appropriate means of attachment, and the frame-work and saddle, with the vessel resting in it, can then be raised farther up until entirely or nearly out of the water, or the entire structure, with the supporting twin barges, can be moved, if necessary, to a place of greater safety.

In Fig. 2 is shown the frame-work E' E', saddle-blocks B' B' C' C', and the outline of a vessel A' resting in the saddle.

To aid in handling the heavy chains *b* there is at either side of the barge with each chain a small lifting-chain K, terminating in a hook *k* and provided with a windlass or drum J, upon which it can be wound. This chain K, with its winding-drum, enables a person on the deck of the barge to assist the diver in

lifting and placing the heavy chain *b*. The outer edges of the geared nut are supported and steadied on friction-rollers E E, there being a sufficient number to each nut to give it the requisite steadiness of motion.

What we claim as novel, and desire to have secured to us by Letters Patent, is—

1. In a wrecking device, the combination of the outer shell of the barge, a truss framework supporting a pair of central timbers and adapted to distribute the downward thrust of a centrally-supported pillow-block, a well-hole extending through the bottom of the barge, a centrally-supported pillow-block having a hemispherical cavity on its upper side, a screw passing through said pillow-block and supported above said well-hole by a nut adapted to rest in said hemispherical cavity and to have a universal motion therein, and a lifting-chain reaching through said well-hole and adapted to be connected to said screw, substantially as and for the purpose specified.

2. In a wrecking device, the combination of a barge, a pillow-block supported by said barge and having a hemispherical cavity in its upper side, a screw passing through the same, a nut turning on said screw and provided with a boss adapted to rest in the cavity in said pillow-block, and a chain adapted to be connected to the lower end of said screw and passing downward through a well-hole in the supporting-barge, substantially as and for the purpose described.

3. In a wrecking device, in combination with a barge, a pillow-block centrally supported therein, a lifting-screw, a geared nut turning thereon, and geared driving-pinions meshing in said nut and adapted to be thrown out of mesh to enable said screw to be lowered rapidly, substantially as and for the purpose described.

4. In a wrecking-barge, the combination of the pillow-block D, screw B, internally-threaded wheel C, provided with gearing, pinions F, and lifting-lever H, adapted to throw said pinions out of mesh with said geared nut, substantially as and for the purpose described.

5. In a wrecking device, the combination of the barge-shell with its contained screw lifting-power and lifting-chains and the framework E', provided with hooks F', and removable saddle-timbers B' C', substantially as and for the purpose described.

NEIL MCARTHUR.  
MARTIN LUTZ.

In presence of—

WILLIAM E. HENZE,  
CHARLES E. EAMES.