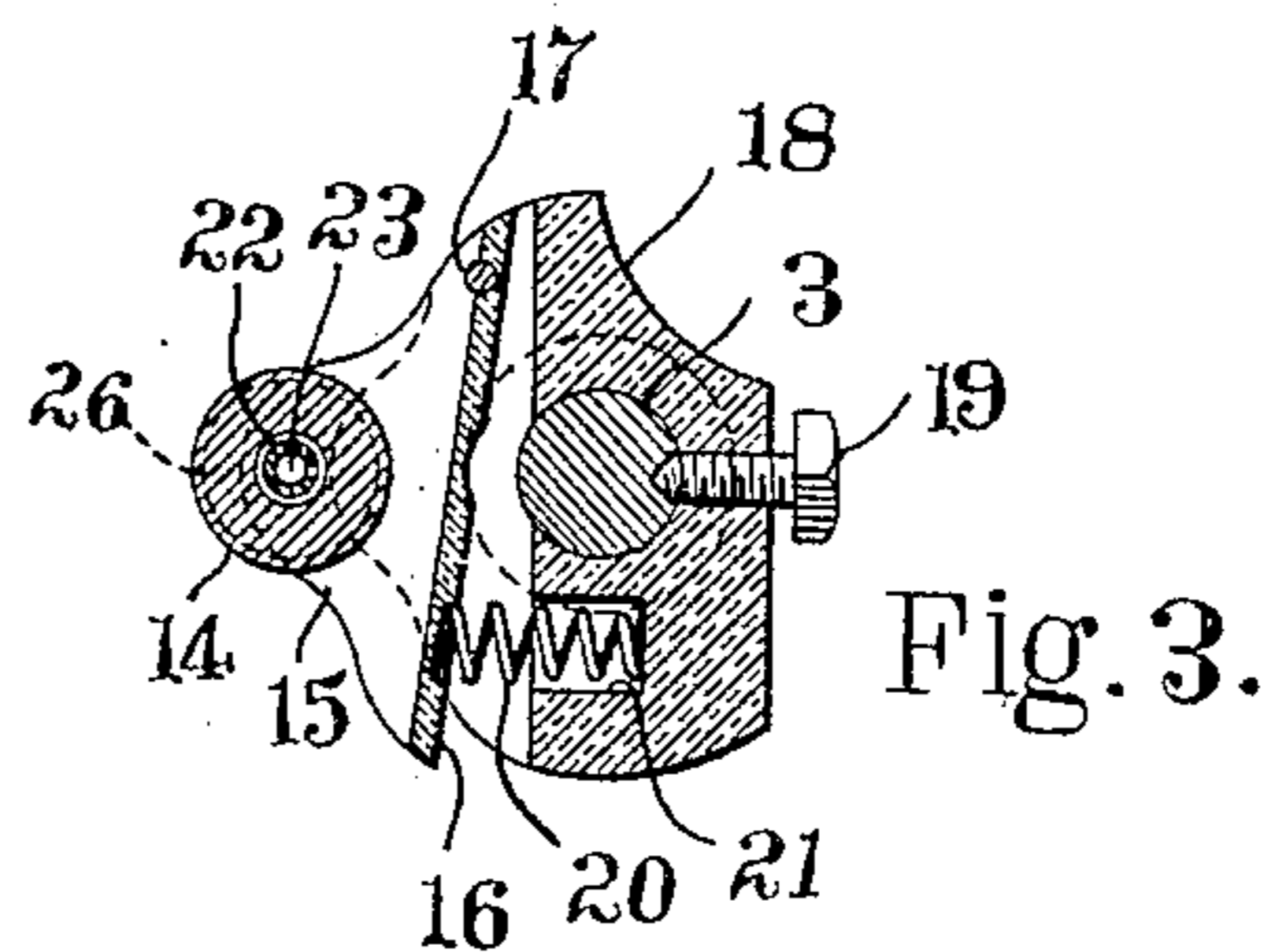
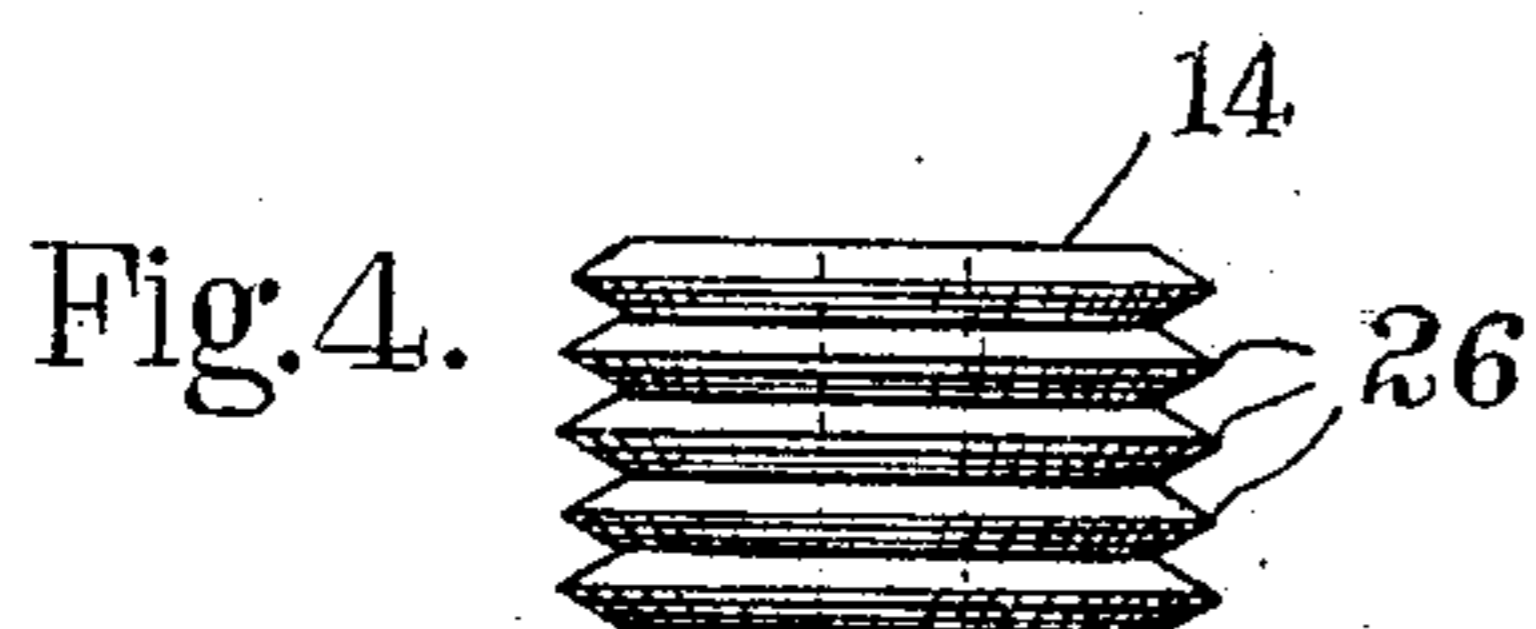
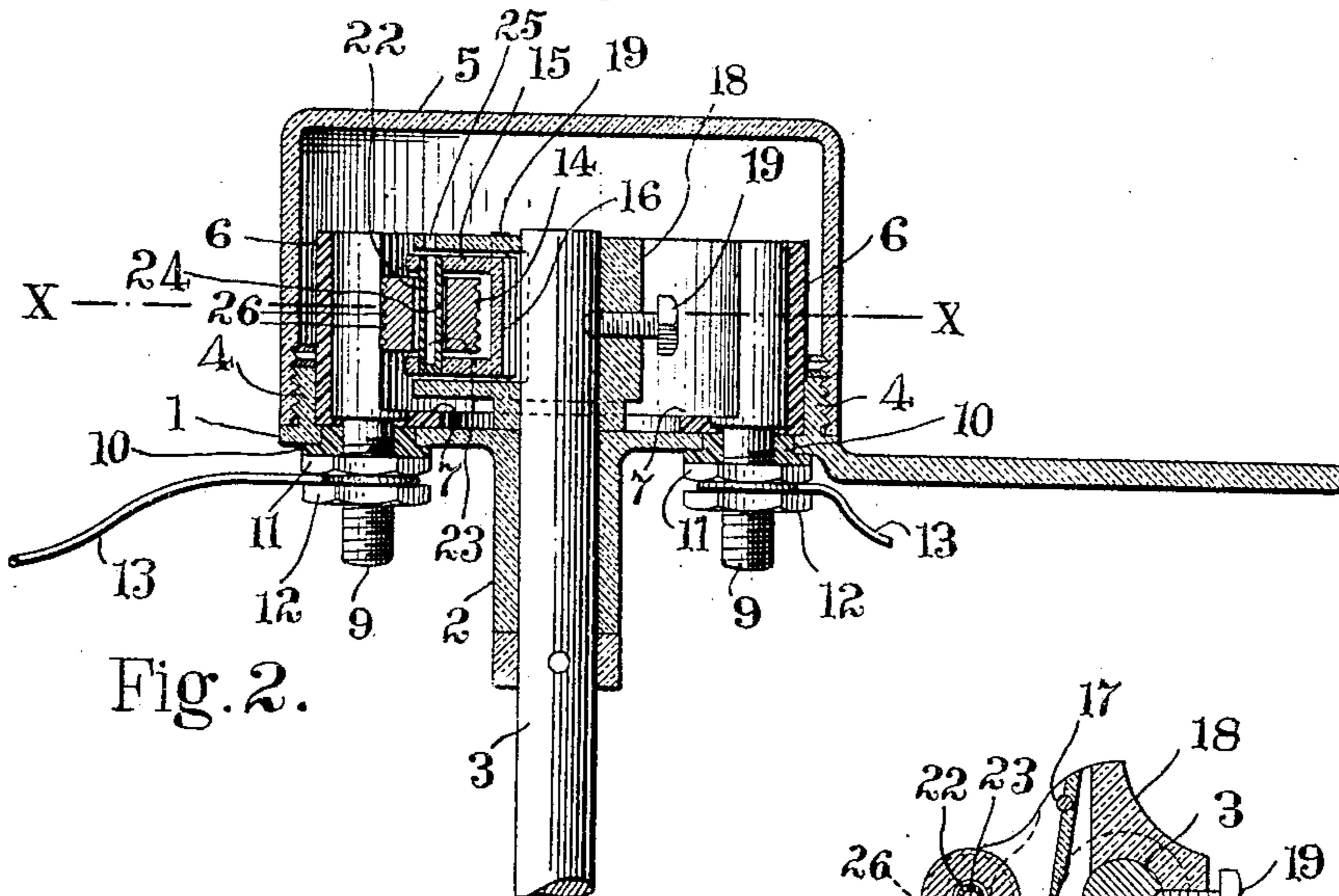
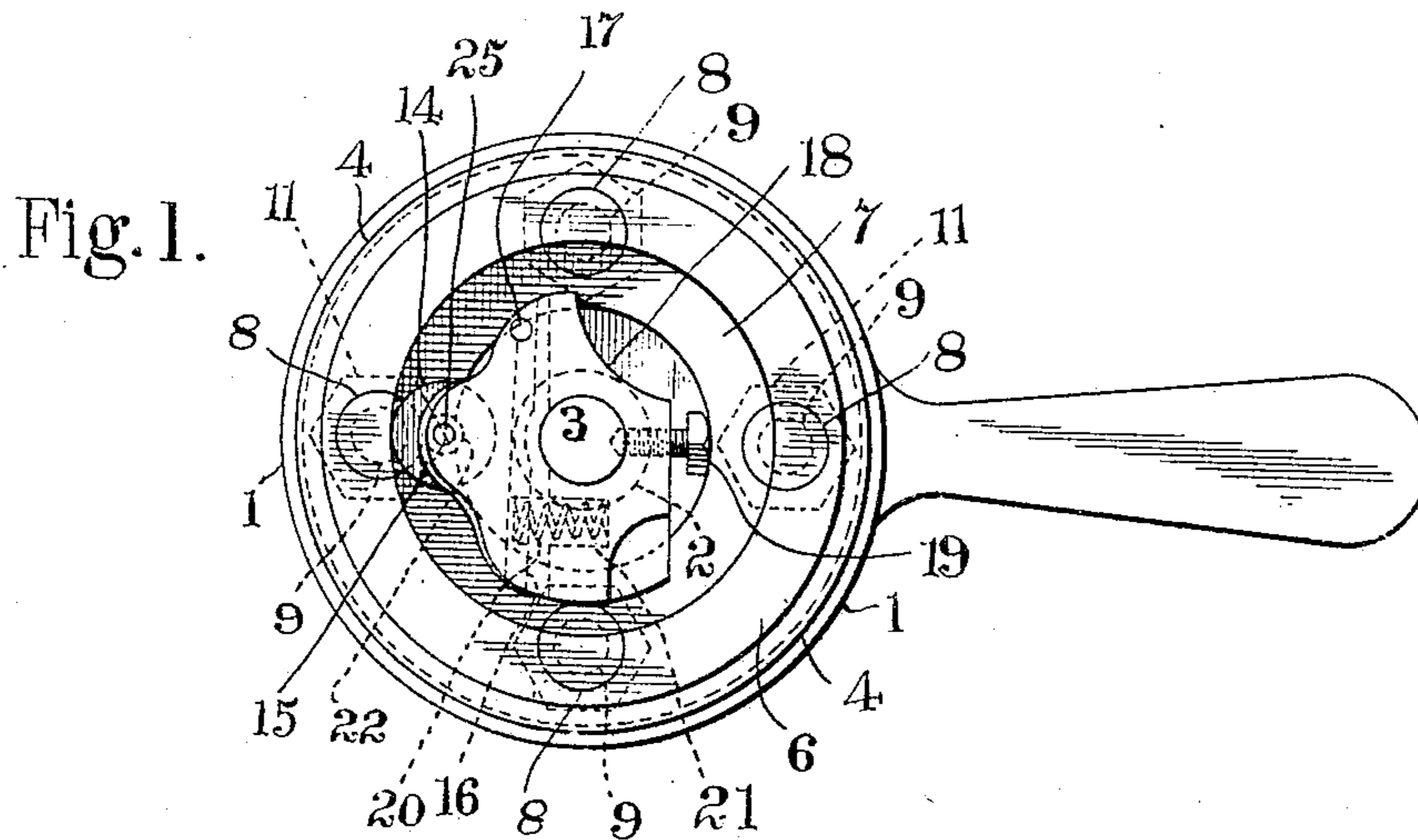


A. LAMONT & L. C. STEERS.  
TIMING DEVICE FOR EXPLOSIVE ENGINES.  
APPLICATION FILED JULY 20, 1908.

920,159.

Patented May 4, 1909.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALEXANDER LAMONT AND LILLION C. STEERS, OF DETROIT, MICHIGAN.

## TIMING DEVICE FOR EXPLOSIVE-ENGINES.

No. 920,159.

Specification of Letters Patent.

Patented May 4, 1908.

Application filed July 20, 1908. Serial No. 444,465.

*To all whom it may concern:*

Be it known that we, ALEXANDER LAMONT and LILLION C. STEERS, citizens of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Timing Devices for Explosive-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to timers for the ignition systems of explosive engines, and more especially to certain arrangements and provisions therein for insuring proper electrical contact between the several parts and for preventing interruption by dirt, dust and the like.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan view with casing removed, of a timer embodying features of the invention. Fig. 2 is a view thereof in vertical section. Fig. 3 is a view in detail in section on or about line  $x-x$  of Fig. 2 of a wiper head and contact roll. Fig. 4 is a view in detail of the roll.

Referring to the drawings, a circular base plate 1 has a central depending hub 2 in which an upright shaft 3 is rotatable, the latter being adapted to be operatively connected in any preferred manner to the crank-shaft, cam-shaft or other like part of an explosive engine. A peripheral flange 4 on the plate is exteriorly screw-threaded or otherwise fitted for detachably engaging a cover 5. A bushing 6 of insulating material with inner rim 7 on its lower end, is held on the plate in the flange 4 by symmetrically disposed studs 8 each having a reduced stem 9 passing through insulating ferrules 10, with clamping nut 11 and outer bur 12 for binding a terminal wire 13. The bodies of the studs are faced off flush with the interior periphery of the bushing and form contact surfaces which are swept by a roll 14. The latter is journaled between parallel lateral lugs 15 of a rock arm 16 and intermediate the ends thereof. The arm is pivoted at one end by a pin 17 in a bearing slot of a head 18 adapted to be secured as by a set screw 19 on the shaft 3. A suitably disposed spring 20 seated in a socket 21 in the bottom of the groove, projects the free end of the arm and holds the roll in yielding contact with the inner periphery of the bushing. A pivot stud 22 on

which the roll turns has a central duct 23 with lateral discharges 24, an oil hole 25 in the upper slot wall of the head which may be made to register with the stud duct permitting introduction of the lubricant. The roll, which may be of hardened metal has a series of peripheral grooves 26, either straight or sinuous, the resultant ridges being sharp edged.

One advantage of the device is its rigid, simple construction with the running parts well protected.

Another feature is the long bearings or guide walls containing the lever or vibratory roll arm which prevent any side play and consequent chattering of the roll.

Another very important feature is the design of the roll periphery. Any carbon or dirt on the bushing or contact stud faces traversed by the roll is either cut through by the projecting sharp ridges of the roll face, or they are bridged thereby, so that the roll does not jump away from the contact faces of the studs and cause injurious sparking or else interrupt the ignition circuit. Further, the slight endwise play between the parts allows the roll edges to traverse a new path each revolution, thereby keeping the surfaces of the contact studs bright.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention and we do not care to limit ourselves to any particular form or arrangement of parts.

What we claim as our invention is:—

1. A timer for explosive engines comprising a rotatable shaft, a base plate journaled thereon, a cylindrical bushing of insulating material on the plate concentric with the shaft, studs insulated from the plate securing the bushing thereon and presenting faces flush with the inner periphery of the bushing, a head secured on the shaft within the bushing having a bearing slot in one side, an arm pivoted at one end in the slot, a spring projecting the free end of the arm, a roll journaled in the arm between its ends adapted to sweep the inner periphery of the bushing, and a cover detachably secured on the plate in concentric relation to the bushing.

2. A timer for explosive engines comprising a rotatable shaft, a base plate journaled thereon, a cylindrical bushing of insulating material on the plate concentric with the shaft, studs insulated from the plate securing the bushing thereon and presenting faces

flush with the inner periphery of the bushing, a head secured on the shaft within the bushing having a bearing slot in one side, an arm pivoted at one end in the slot, a spring projecting the free end of the arm, parallel marginal flanges on the outer side of the arm, a roll journaled on the arm between the flanges adapted to sweep the inner periphery of the bushing, and a cover detachably secured on the plate in concentric relation to the bushing.

3. A timer for explosive engines comprising a rotatable shaft, a base plate journaled thereon, a marginal flange on the plate, a cylindrical bushing of insulating material on the plate within the flange concentric with the shaft, studs insulated from the plate securing the bushing thereon and presenting faces flush with the inner periphery of the bushing, a head secured on the shaft within the bushing having a bearing slot in one side, an arm pivoted at one end in the slot, a spring projecting the free end of the arm, parallel marginal flanges on the outer side of the arm, a roll journaled on the arm between the flanges adapted to sweep the inner periphery of the bushing, and a cover detachably secured on the plate and flange in concentric relation to the bushing.

4. A timer for explosive engines comprising a rotatable shaft, a base plate journaled thereon, a cylindrical bushing of insulating material on the plate concentric with the shaft, studs insulated from the plate securing the bushing thereon and presenting faces flush with the inner periphery of the bushing,

a head secured on the shaft within the bushing having a bearing slot in one side, an arm pivoted at one end in the slot, a spring projecting the free end of the arm, a roll having a plurality of peripheral grooves journaled on the arm between its ends adapted to sweep the inner periphery of the bushing, and a cover detachably secured on the plate in concentric relation to the bushing.

5. A timer for explosive engines comprising a rotatable shaft, a base plate journaled thereon, a cylindrical bushing of insulating material on the plate concentric with the shaft, studs insulated from the plate securing the bushing thereto and presenting faces flush with the inner periphery of the bushing, a head secured on the shaft within the bushing having a bearing slot in one side, an arm pivoted at one end in the slot, a spring projecting the free end of the arm, a bearing stud secured on the flanges parallel to the shaft and provided with an axial oil duct leading from its upper end discharging through lateral outlets, a roll journaled on the stud having circumferential grooves, and a cover detachably secured on the plate over the bushing, said head having an oil feed hole in its upper side over the slot adapted to register with the roll stud duct.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER LAMONT.  
LILLION C. STEERS.

Witnesses:

RHEA DUNN,  
C. R. STICKNEY.