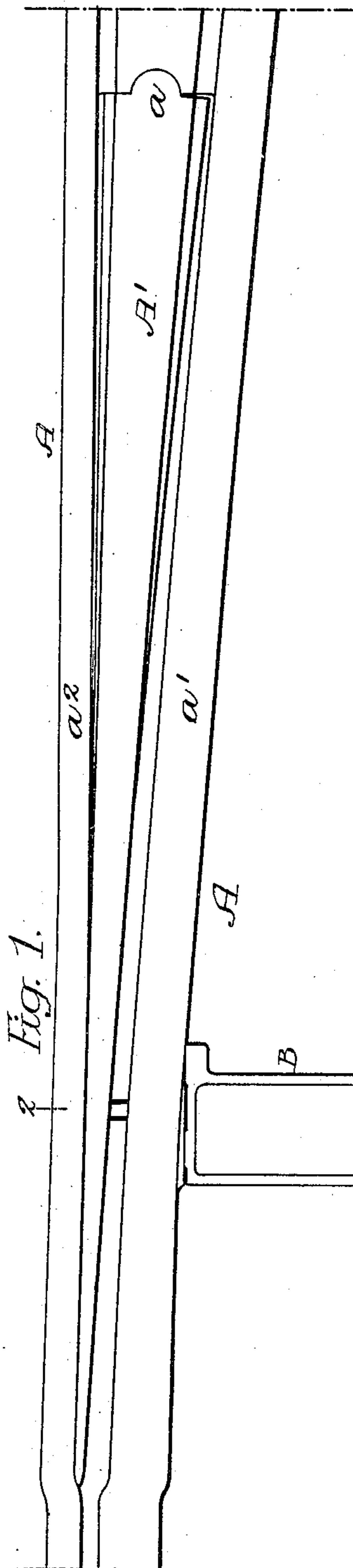


A. B. DAVENPORT, JR. & C. REIGART.
 ACTUATING AND LOCKING MECHANISM FOR TONGUE SWITCHES.
 APPLICATION FILED JULY 20, 1908.

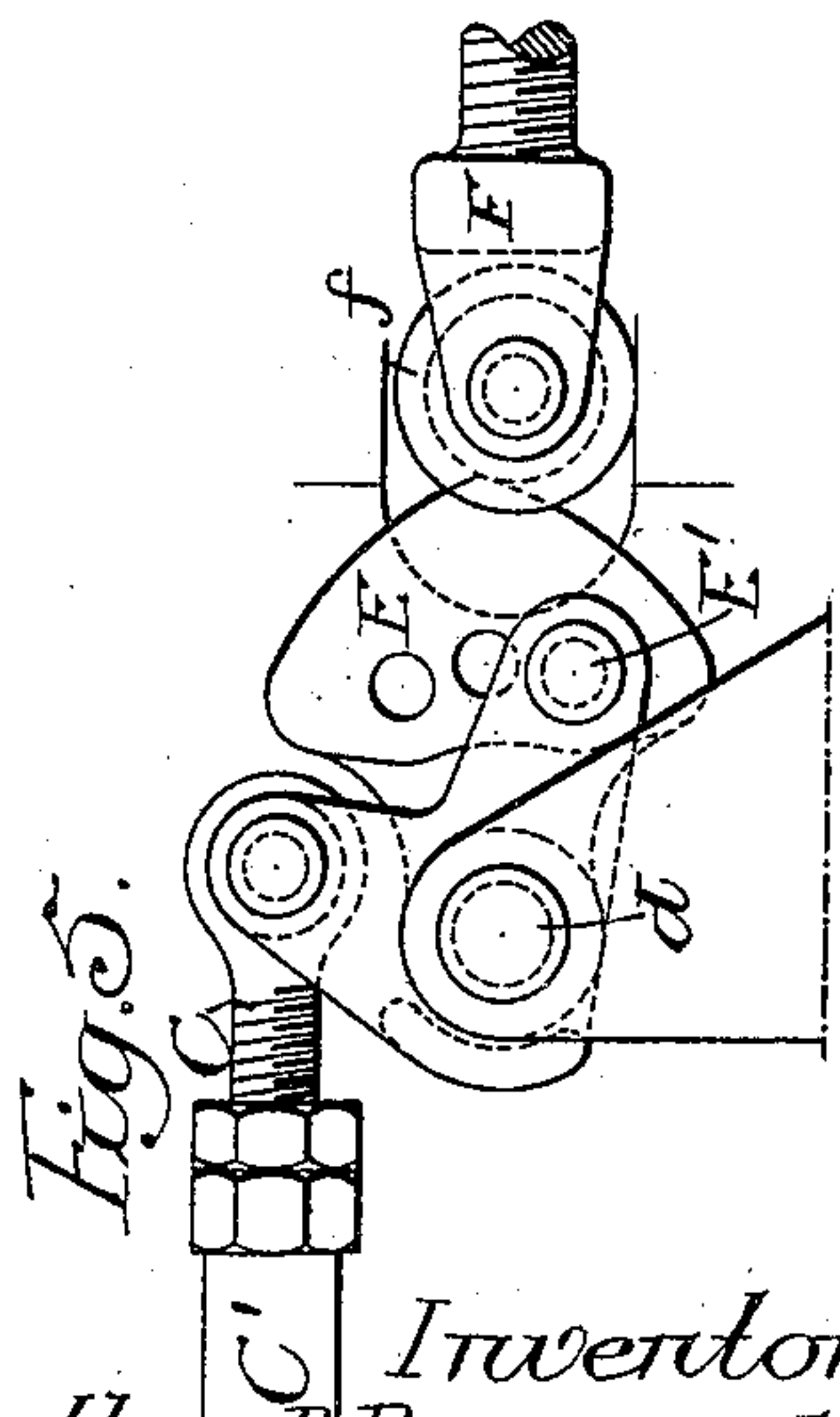
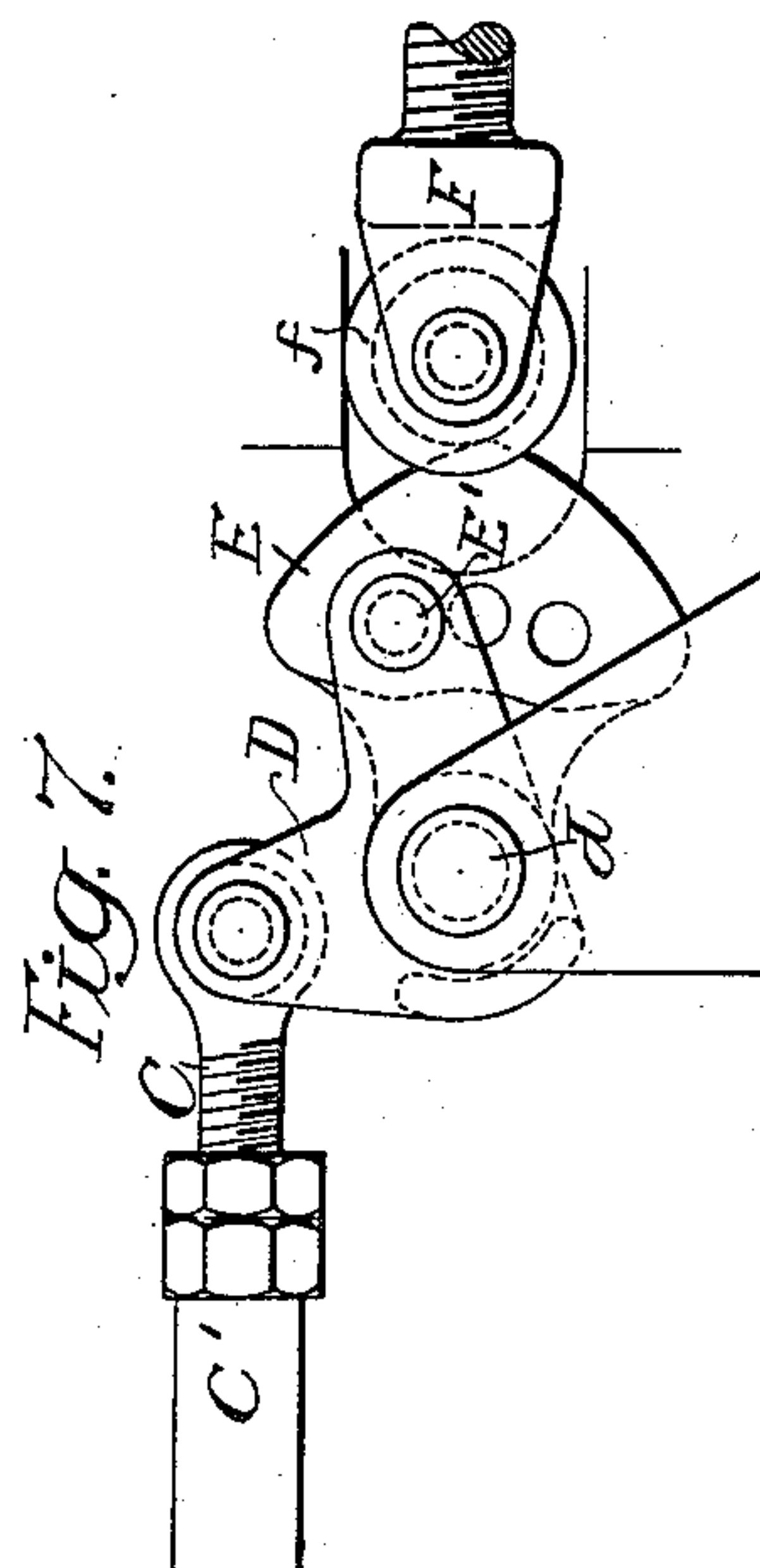
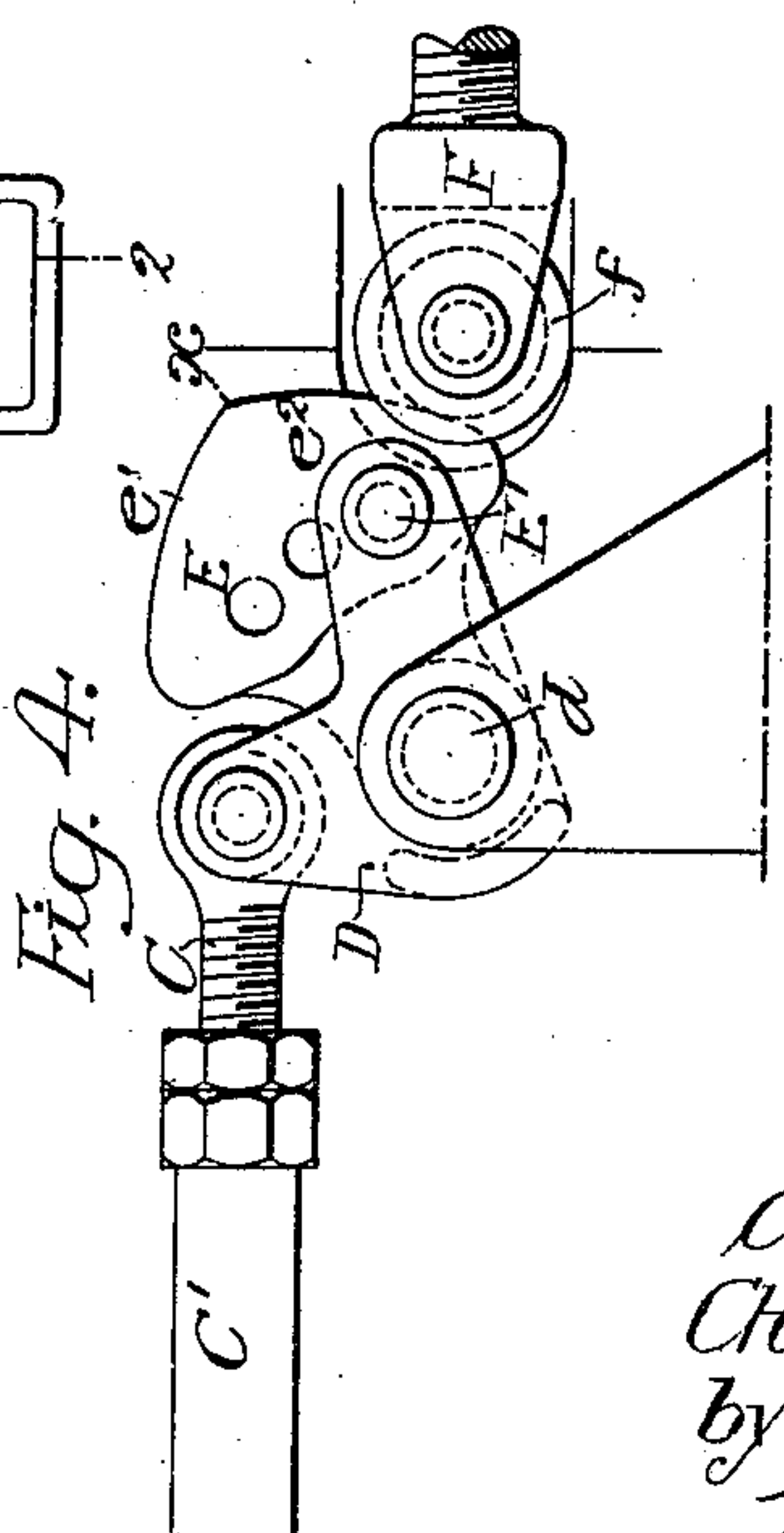
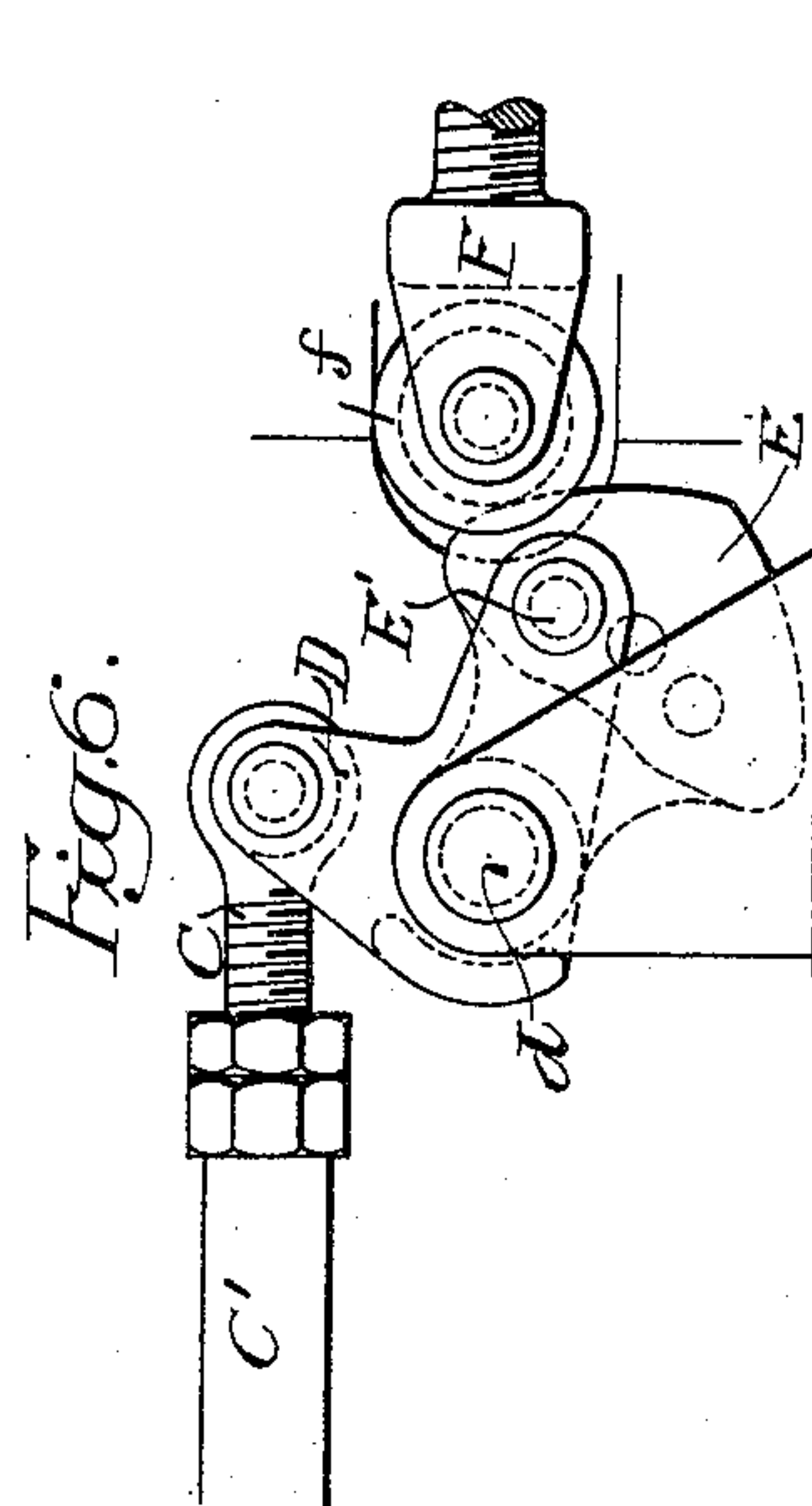
922,396.

Patented May 18, 1909.

2 SHEETS—SHEET 1.



Witnesses:
 Willard Burrone
 Walter Blum



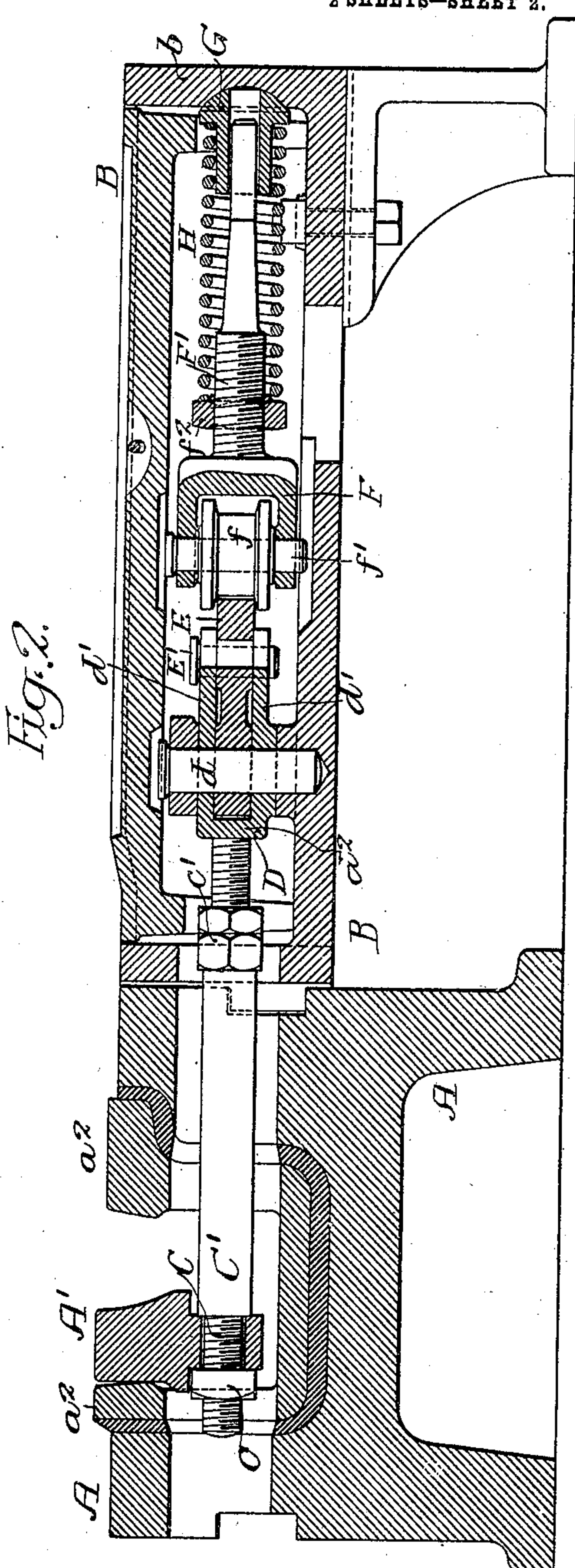
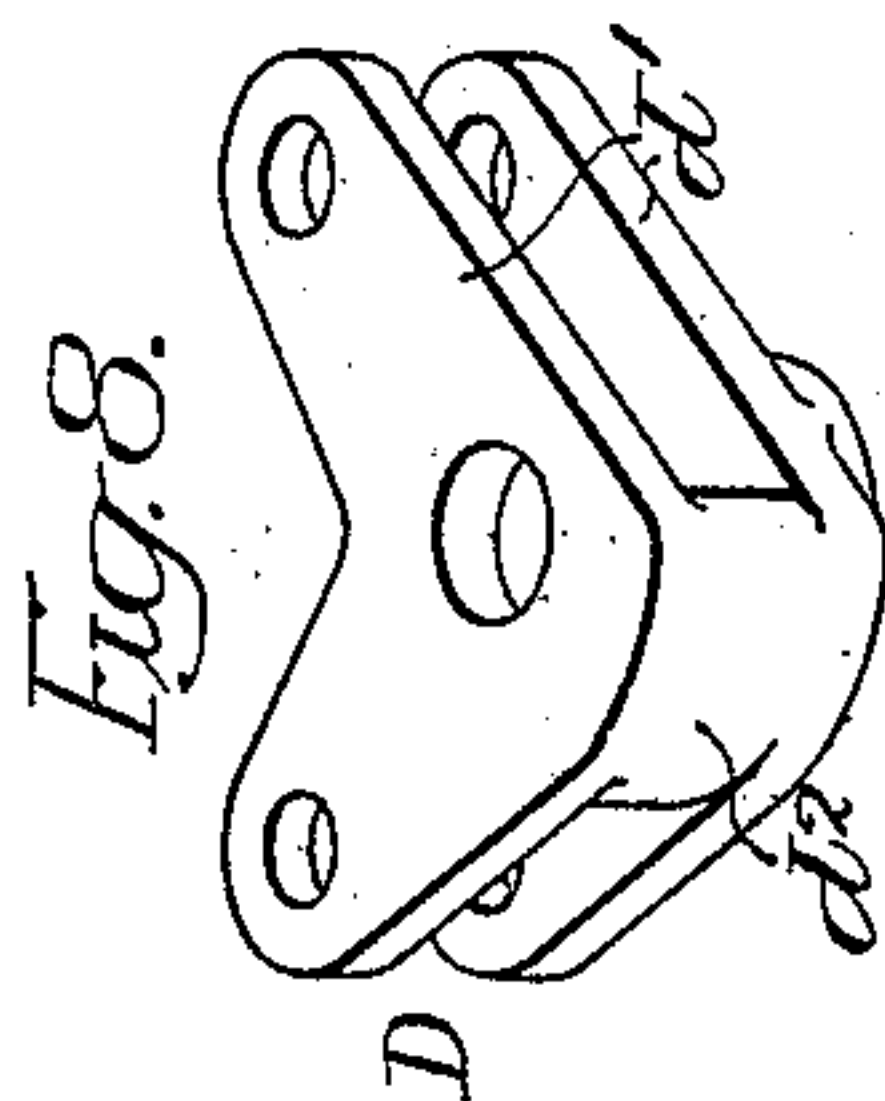
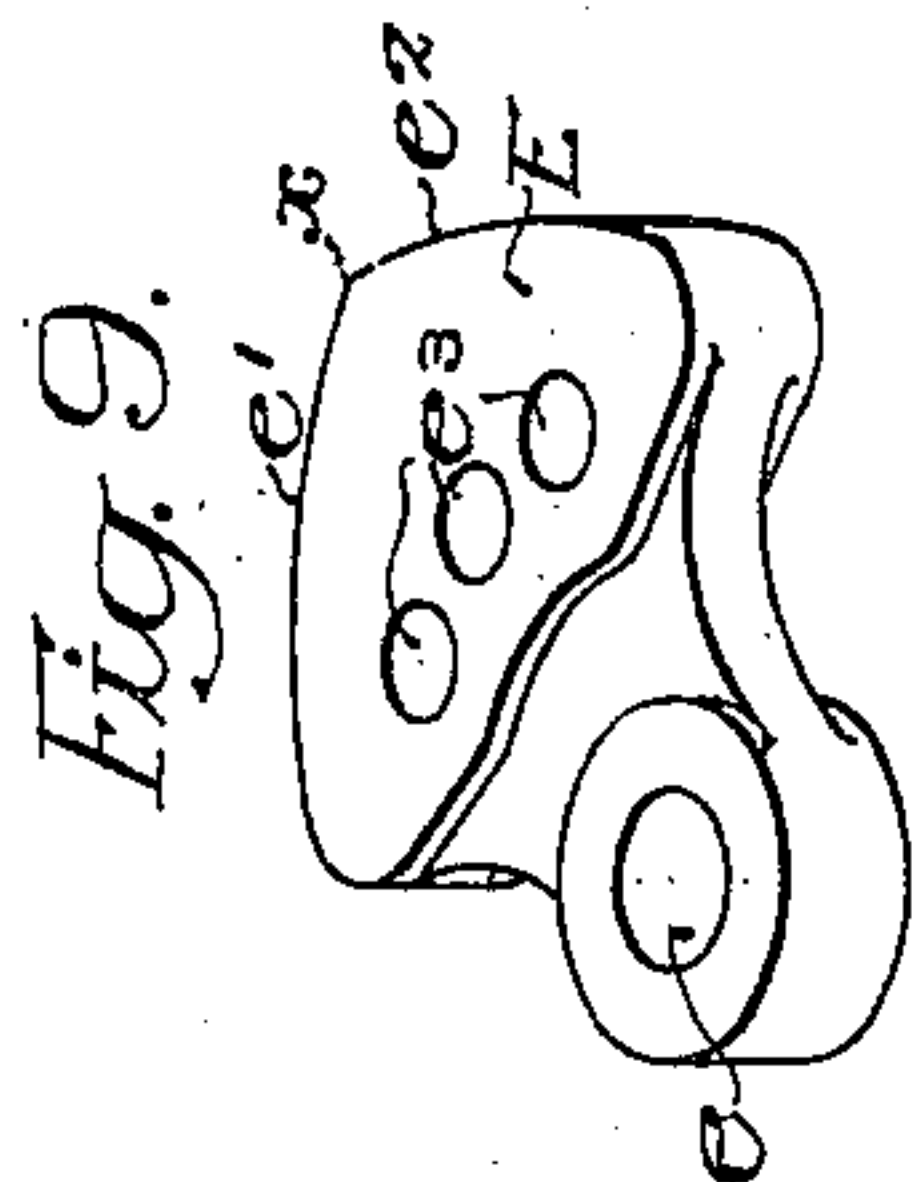
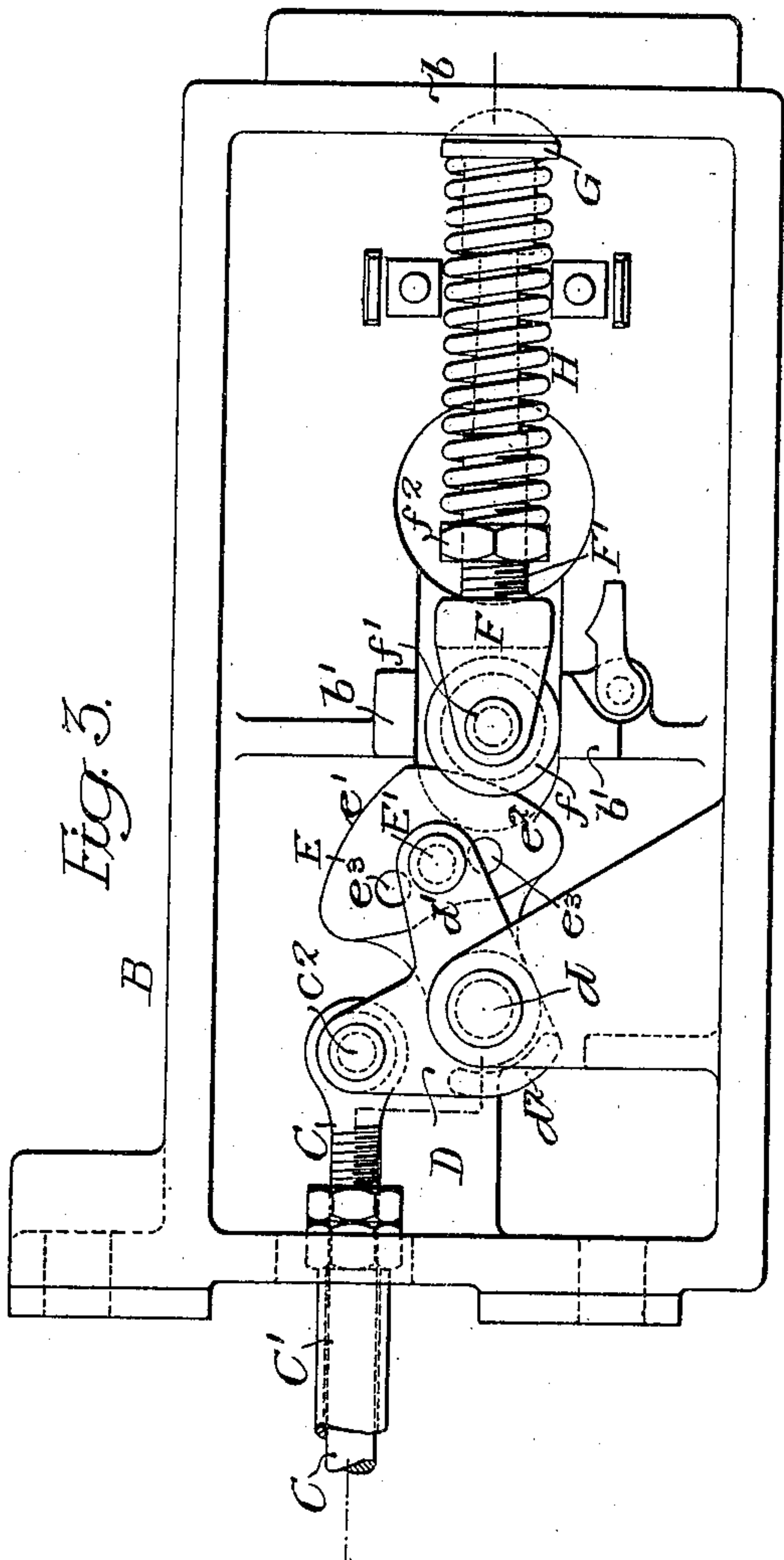
Inventors:
 Arthur B. Davenport, Jr.
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 by their Attorneys
 Norman Norman

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2 SHEETS—SHEET 2.



Witnesses:
 Wills A. Burnome
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UNITED STATES PATENT OFFICE.

ARTHUR B. DAVENPORT, JR., AND CHAUNCEY REIGART, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO WILLIAM WHARTON, JR., & COMPANY, INCORPORATED, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ACTUATING AND LOCKING MECHANISM FOR TONGUE-SWITCHES.

No. 922,396.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed July 20, 1908. Serial No. 444,450.

To all whom it may concern:

Be it known that we, ARTHUR B. DAVENPORT, Jr., and CHAUNCEY REIGART, citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain improvements in Actuating and Locking Mechanism for Tongue-Switches, of which the following is a specification.

The object of our invention is to construct a switch mechanism in such a manner that the tongue will return automatically to the position in which it is set after it has been forced open by the passing of car wheels through the switch. The tongue can be set to be returned either against the head of the rail or against the guard when opened the full width or can be set so as to return either to the rail side or to the guard side of the switch. This object we attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a plan view of a tongue switch; Fig. 2, is an enlarged sectional view on the line 2—2, Fig. 1; Fig. 3, is a plan view of the mechanism illustrated in Fig. 2; Figs. 4, 5, 6 and 7 are diagram views illustrating different positions of the mechanism; and Figs. 8 and 9 are detached perspective views of detail parts of our device.

A is a switch structure.

A' is the tongue pivoted at α to the switch structure.

α' is the rail and α^2 is the guard.

B is the box situated at one side of the switch structure A and mounted in this box is the mechanism for actuating the switch tongue. In switch structures of this type, it is desirable to hold the switch tongue against the guard as shown in Fig. 1, or against the rail so that when the tongue is moved by a wheel passing through the switch it will return to the position to which it is set. On the other hand it is desirable in some instances to allow the tongue to return either to the guard or to the rail according to the position in which the tongue is thrown, so that if the tongue passes the center it will be thrown to the opposite side, but if it does not pass the central position it will return to the same side in which it was placed originally.

In the construction which we will proceed to describe we provide mechanism for returning the tongue to a predetermined po-

sition depending upon the arrangement of the mechanism in the switch box. Attached to the tongue A' is a rod C, screw threaded in the present instance, and having on it nuts c placed on one side of the tongue A' while a sleeve C' is mounted on the rod, and bears against the opposite side of said tongue. A nut c' on the rod clamps this sleeve firmly in place and it is obvious that by adjusting the nuts c — c' the position of the tongue can be fixed as desired. The rod C is pivoted at c^2 to a bell crank lever D Fig. 3, and this lever in turn is pivoted to bearings on the box; the pivot pin d extending through the upper bearings and through the lever. Said lever is made in two parts d' d' connected together by a web d^2 , as shown in Fig. 8, and mounted in the lever is a loose cam E having an opening e through which passes the pivot pin d . This cam has at its outer end two curved portions e' — e^2 giving it a heart shaped form and is provided with a series of holes e^3 , three in the present instance; there being a pin E' which passes through holes in the arms d' and through any one of said holes e^3 of said cam E. By adjusting this pin the switch tongue can be adjusted to return to either the rail side or guard side of the switch structure or to either side, if shifted past the center.

In line with the cam E is a roller f mounted on a pin f' carried by a plunger F movably mounted in a bearing G and having a rounded end resting in a cavity b in the casing B. The plunger F is forked at the outer end to form the bearings for the pin f' and the shank F' of the plunger is screw threaded for the reception of a nut f^2 , between which nut and the bearing G is a coiled spring H. By adjusting the nut the pressure of the spring H can be increased or decreased as desired.

The roller f is mounted between the two cheeks b' projecting from the casing, and has a very slight lateral motion so as not to bind between said cheeks, otherwise the roller and its plunger are free to bear against either face e' or e^2 of the cam E. Thus it will be seen that if the tongue A' is set so as to bear normally against the guard as in Figs. 1 and 2, then the pin E' is passed through one of the holes, as illustrated in Fig. 4, and the roller f bears against the cam face e^2 so that when the tongue is pushed by

the flange of a wheel away from the guard the cam E will ride over the face of the roller *f* to the position shown in Fig. 5. In this position the tongue is shifted entirely
 5 over in contact with the rail side *a'* of the switch structure, but as the center point *x* of the cam E has not passed the center of the roller, the spring plunger will exert such pressure on said cam as to return the tongue
 10 to its position against the guard *a*² as soon as it is released from the control of the wheel.

If it is desired to normally hold the tongue against the rail side of the switch structure then the pin E' is placed in the opposite end
 15 hole *e*³ as in Figs. 6 and 7; Fig. 6 showing the position of the parts when the tongue is resting against the side of the structure. When the tongue is moved away from the rail by a car wheel and moved against the
 20 guard *a*², then the parts are in the position shown in Fig. 7, but as the point *x* has not passed the center of the roller, the tongue will be returned to its normal position by the pressure of the spring. When the pin is
 25 in the center hole as shown in Fig. 3, the switch tongue will, if moved past the center in either direction, be returned to one side or the other of the switch structure according to whether or not the point *x* has passed the
 30 center of the roller.

We claim:

1. The combination in a switch actuating and locking mechanism for tongue switches, of a switch structure, a tongue, a rod con-
 35 nected to the tongue, a lever, an adjustable cam on the lever, and a plunger pressing against the cam to return the switch tongue to its normal position.

2. The combination of a switch structure, a tongue pivoted thereon, a rod extending laterally from the tongue, a lever connected to the rod, an adjustable arm pivoted on the same center as the lever and having bearing
 40 faces, with a spring plunger adapted to press against said bearing faces so as to return the tongue to its normal position after it has been moved therefrom.

3. The combination of a switch structure having a pivoted tongue, a rod extending
 50 from the tongue, a box at one side of the structure, a bell crank lever pivoted to bearings in the box, said rod being connected to one arm of the bell-crank lever, an adjustable cam attached to the other arm of the
 55 said bell crank lever and forming a continuation thereof, said cam having bearing faces, and a spring plunger adapted to press against one of said bearing faces so as to cause the tongue to return to its normal posi-
 60 tion after it has been moved therefrom.

4. The combination of a switch structure having a pivoted tongue, a box at one side of the structure, a bell crank lever mounted in the box, a rod connecting the bell-crank lever
 65 with the switch tongue, a cam pivoted to the

same pivot as the lever and adjustably attached to the other arm of said lever, said cam having a bearing edge more extended at the center than at the sides, a spring plunger adapted to rest against the said bearing edge
 70 so that when the tongue is moved the pressure of the plunger will cause the lever to return the tongue to its normal position.

5. The combination of a switch structure having a pivoted tongue, a box at one side of
 75 the switch structure, a bell crank lever pivoted to bearings in the box, a rod connecting one arm of said bell crank lever with the switch tongue, a cam mounted on the same pivot as the bell-crank lever and having
 80 three perforations, a pin adapted to an opening in the other arm of the bell crank lever and to any one of the perforations in the cam, said cam having end bearing surfaces so as to cause the tongue to normally rest
 85 upon one side of the switch structure.

6. The combination in a switch structure having a pivoted tongue, a bell-crank lever mounted in suitable bearings, a rod connect-
 90 ing the tongue with one arm of the bell-crank lever, a cam pivoted to the same pivot as the bell-crank lever and having a series of openings, a pin adapted to an opening in the other arm of the bell-crank lever and to
 95 any one of the openings in the cam, the end of the cam being substantially heart-shaped, and a spring plunger adapted to rest against the bearing edge of the cam.

7. The combination of a switch structure having a movable tongue, a bell-crank lever
 100 pivoted at one side of the switch structure, a rod connecting one arm of the bell-crank lever with the tongue, an adjustable cam attached to the other arm of the bell-crank lever, and being provided with a bearing
 105 edge, a plunger, a spring adapted to force the plunger toward the pivot of the bell-crank lever, and a roller carried by the plunger adapted to bear against the edge of the cam.
 110

8. The combination of a switch structure having a movable tongue, a box at one side of the switch structure, a bell-crank lever adapted to bearings in the box, a rod connect-
 115 ing the bell-crank lever with the tongue, said lever being made in two connected parts, a cam mounted on the same pivot as the bell-crank lever and situated between the two parts of said lever, a series of openings in the cam adapted to aline with openings in
 120 one arm of the bell-crank lever, a pin connecting the cam to the lever, the end of the cam being shaped to form a central projection and curved bearing edges, and a plunger having a roller adapted to bear against
 125 the edges of the cam.

9. The combination in a switch structure having a movable tongue, a box at one side of the switch structure, a bell crank lever mounted in bearings in the box, a rod con-
 130

necting one arm of the bell-crank lever with
the tongue, a cam mounted on the same pivot
as the bell-crank lever and adjustably con-
5 outer edge of said cam being substantially
heart shaped, a plunger mounted to be mov-
able toward and from the center of the bell-
crank lever, a spring back of the plunger,
means for adjusting the spring, a flanged
10 roller carried by the head of the plunger
and adapted to rest against the bearing edge
of the cam, the parts being so proportioned
that the plunger will allow the switch tongue
to yield, but will throw it back in contact
15 with one side or the other of the switch
structure.

10. The combination of a switch structure,
a pivoted tongue, a box at one side of the
switch structure, a vertical pivot in said box,
20 a bell-crank lever mounted on the pivot, a
rod connecting one arm of the bell-crank
lever with the switch tongue, the said lever
being made in two connected parts, a cam
mounted between said two parts and adapted

to the same pivot as the bell-crank lever, 25
said cam having three holes therein, a hole
in one arm of the bell-crank lever, a pin
adapted to the hole in said lever and to one
of the holes in the adjustable cam, a spring
plunger mounted in the box and having a 30
curved roller adapted to rest against the
bearing edge of the cam, a bearing in the
rear end of the spring, adapted to a socket at
the rear end of the box, with two cheeks on
the box to guide the plunger, the parts being 35
so arranged that the plunger will tend to
hold the switch tongue against one side or
the other of the switch structure and allow it
to yield under pressure.

In testimony whereof, we have signed our 40
names to this specification, in the presence
of two subscribing witnesses.

ARTHUR B. DAVENPORT, Jr.
CHAUNCEY REIGART.

Witnesses:

WM. A. BARR,
JOS. H. KLEIN.