

(No Model.)

2 Sheets—Sheet 1.

C. O. HEGGEM.
STEAM ENGINE.

No. 441,160.

Patented Nov. 25, 1890.

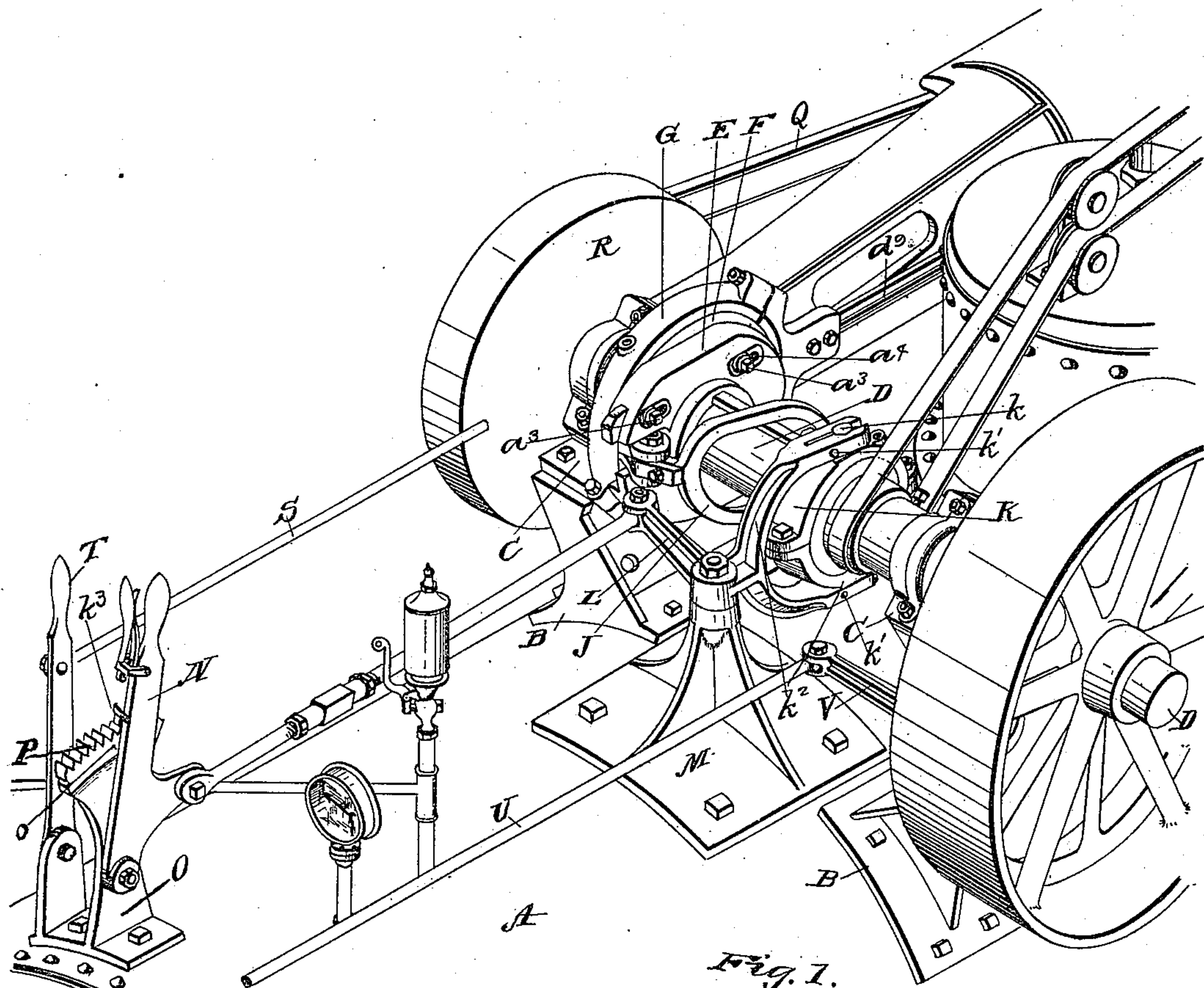


Fig. 1.

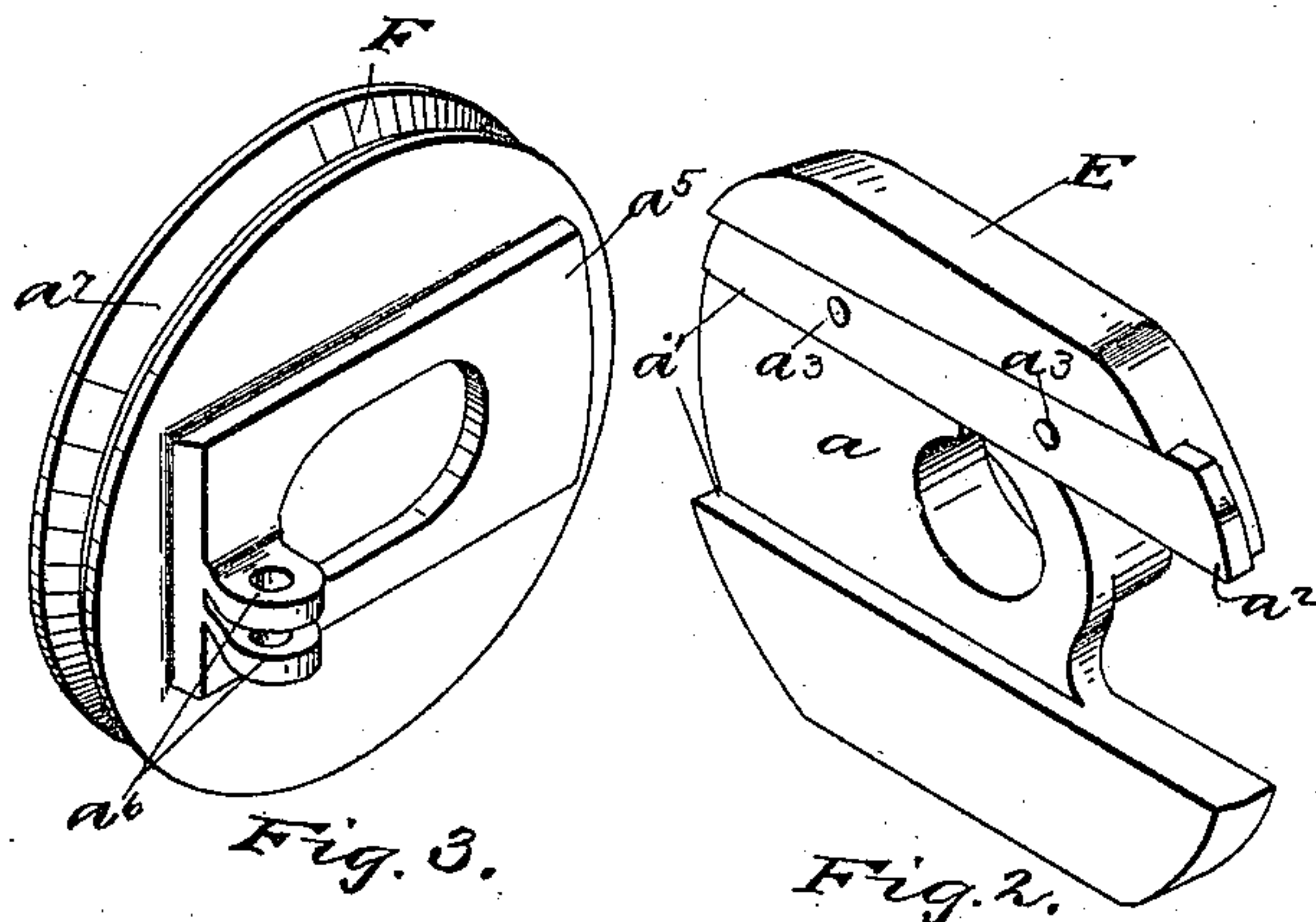


Fig. 2.

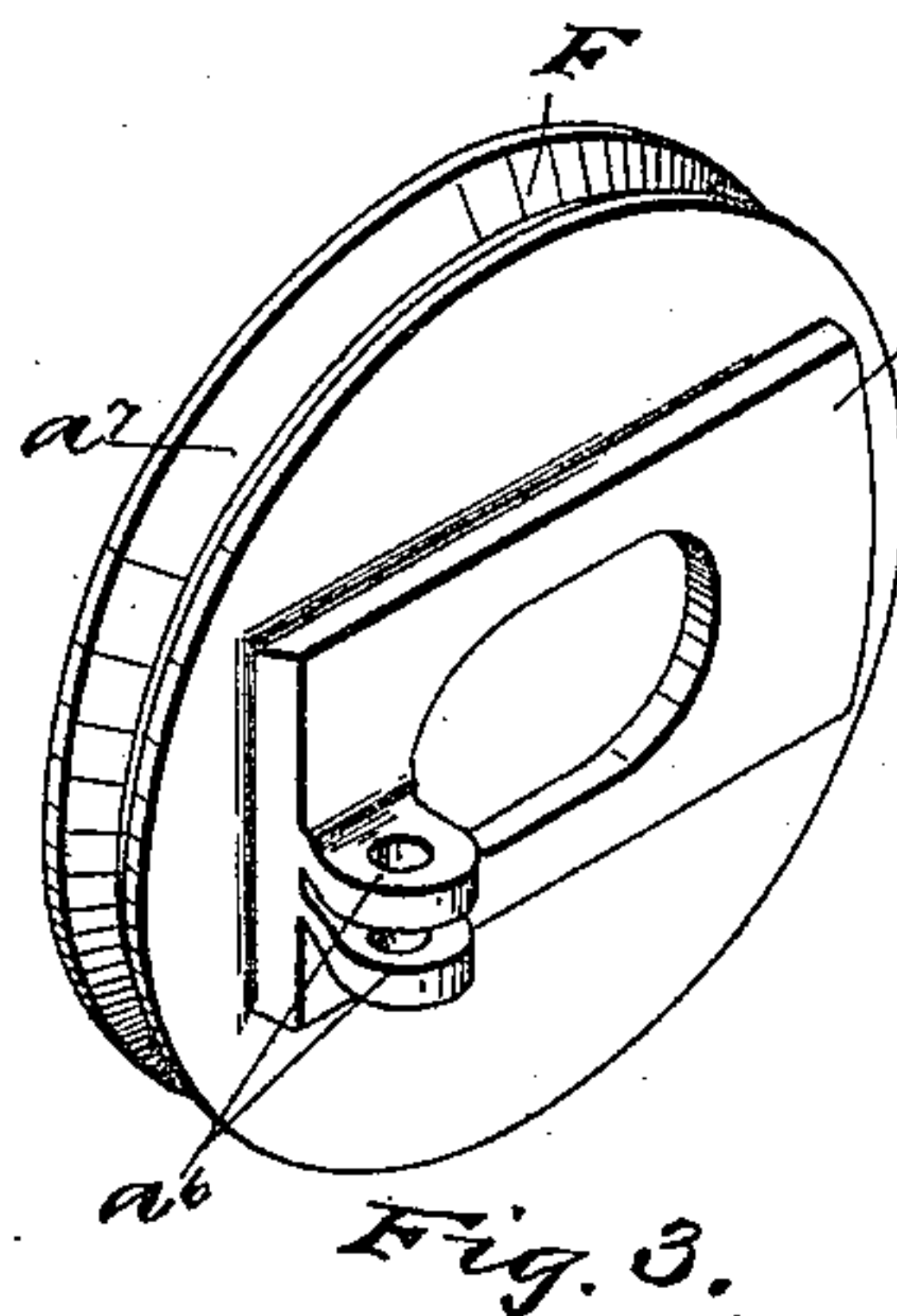


Fig. 3.

WITNESSES:

E. J. Lane
Chas. R. Milles

Charles O. Heggem INVENTOR

BY

W. K. Miller

ATTORNEY.

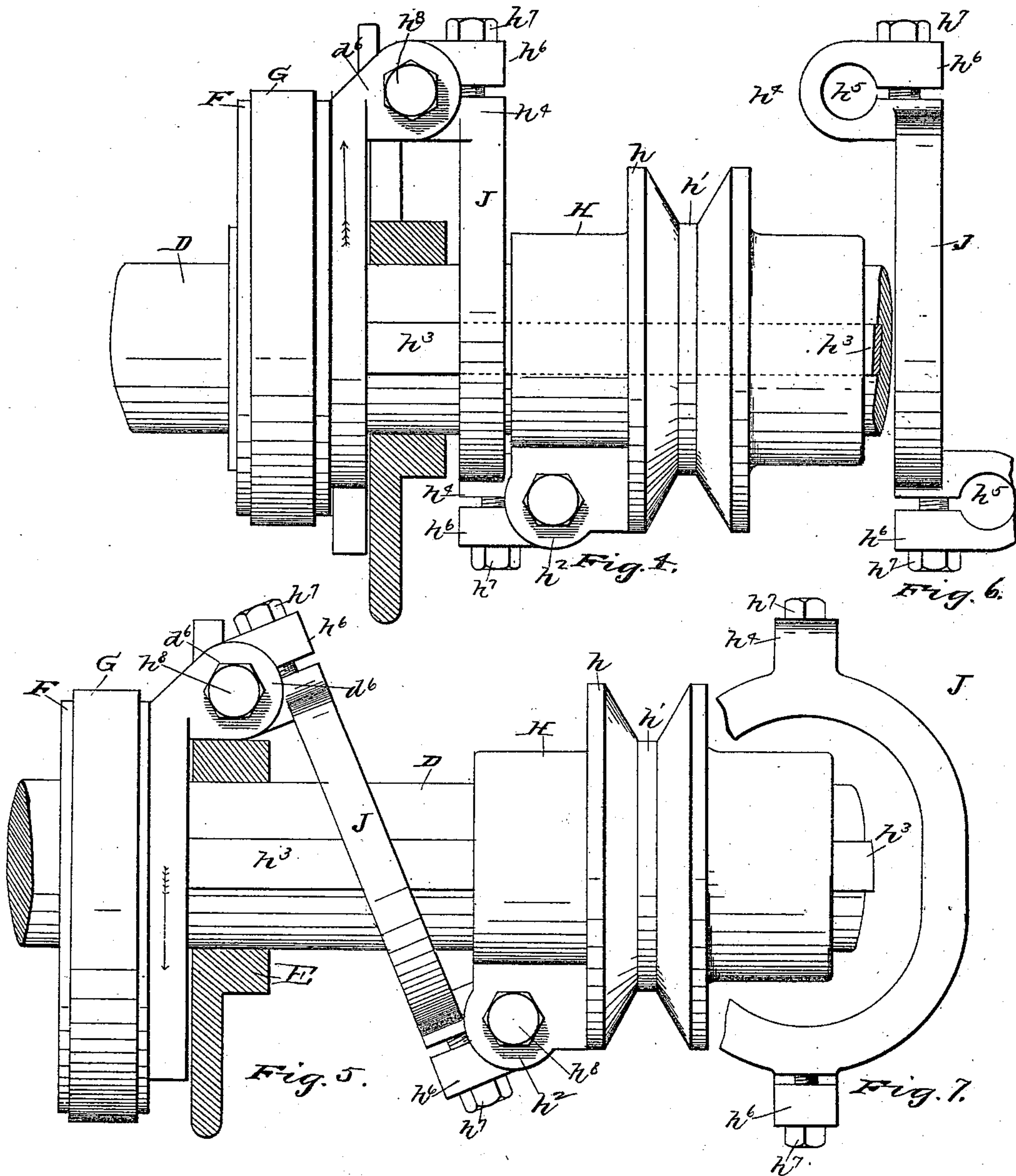
(No Model.)

2 Sheets—Sheet 2.

C. O. HEGGEM.
STEAM ENGINE.

No. 441,160.

Patented Nov. 25, 1890.



WITNESSES:
Edw. S. Lane
Chas. R. Miller

Charles O. Heggem INVENTOR
BY
W. K. Miller
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES O. HEGGEM, OF MASSILLON, OHIO, ASSIGNOR TO THE RUSSELL & COMPANY, OF SAME PLACE.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 441,160, dated November 25, 1890.

Application filed April 2, 1890. Serial No. 346,262. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. HEGGEM, a citizen of the United States, and a resident of Massillon, county of Stark, State of Ohio, have invented a new and useful Improvement in Steam-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to improvements in steam-engines, and particularly to the class known as "traction-engines;" and it consists in providing means for moving the steam-valve-actuating cam from a position concentric with the engine-shaft to a position eccentric thereto and at either side of said shaft for the purpose of varying the throw of said valve and to reverse the movement of the machine.

With these ends in view my invention consists in certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

Figure 1 of the accompanying drawings is a perspective of the top portion of a traction-engine illustrating my invention; Fig. 2, a similar view of the eccentric drive and slide; Fig. 3, a similar view of the eccentric-plate; Fig. 4, a plan view showing the several parts in position, with the eccentric thrown to one side of the shaft; and Fig. 5 is a similar view showing the eccentric thrown to the opposite side of the shaft. Fig. 6 is a side elevation of the eccentric shipping-link, and Fig. 7 a plan view of same.

As my invention is alike applicable to many of the steam-engines now in use, I will proceed with the description, referring to other parts of the machine only as conjunctive thereto.

A represents the upper portion of a traction or portable engine-boiler; B, the bracket-support for pillow-blocks C, that support the journal-boxes for the engine-shaft D. On said shaft is mounted a plate E, to carry the cam or eccentric plate F, plate E having on its front face a through-raceway a , the walls a' of which are undercut or dovetailed. On one side of said raceway is provided a gib a^2 , secured in adjustment in said plate by the bolts a^3 , passed through the elongated apertures a^4 , hereinafter explained. The cam or eccentric plate F, as shown in Fig. 3, has on its reverse

side a raised portion a^5 , having its edge portions cut under to correspond with the undercut walls a' of the raceway a . At the end of said raised portion are provided perforated lugs a^6 , and about the periphery of said plate is provided a groove a^7 , in which is placed the yoke G, said yoke having a link-connection with the steam-valve or valve-gear by the rod a^9 . The eccentric-plate F is placed over the end of and about the shaft D, the raised portion a^5 into the raceway a , the gib pressed into to engage one side of said raised portion, and when adjusted to hold the plate F in a sliding adjustment with plate E is secured in position by the bolts a^3 , hereinbefore referred to.

A sleeve, as H, is placed on the shaft D, said sleeve having a collar portion h , in which is provided a peripheral groove h' , and on the inner end portion of said sleeve are provided perforated lugs h^2 . Said sleeve is adapted to slide longitudinally on the shaft and is held against rotation upon said shaft by the spline h^3 .

The sleeve H and plate F are connected by a link J, said link having an elongated central aperture through which the shaft D is passed, the link embracing the shaft and having at its end portions heads, as h^4 , projected from opposite sides, having perforations h^5 , which are opened out at one side, as shown, the prong or free end portion h^6 secured to the body of the link by a screw-bolt h^7 , which lost motion or wear may be taken up. The heads of the link are placed between the lugs d^6 on the plate F and between similar lugs h^2 on the sleeve and pivotally secured therein by the bolts h^8 .

A loose collar K is placed in the groove h' in the sleeve H, having at its upper and lower portions trunnions, as k . A bell-crank shipping-lever L is pivotally secured to a supporting-pedestal M. One end of said lever is bifurcated, the prongs k^2 embracing the collar K and the trunnions k , the ends of said prongs divided to embrace said trunnions and provided with screw-bolts k' to take up lost motion.

The free end of lever L has a linked connection with the hand-lever N, pivotally secured to a standard O, said standard having at its upper end a rack P, said lever pro-

vided with a spring-actuated bolt to engage the teeth of said rack, by which said lever is held in engagement with the rack P and the sleeve H and plate F in desired adjustment.

5 Q is the connecting-rod leading from the crank-pin (not shown on plate R) to the cross-head, (not shown;) S, a rod connecting the hand-lever T with the throttle-valve, (not shown,) and the rod U connects the clutch-lever V to a hand-lever, (not shown.) The parts E, F, H, and J rotate with the shaft D. When the lever N is thrown forward, as shown in Fig. 1, the sleeve H thrown to the right will move the plate F across the shaft and
10 plate E in the direction of the arrow, as shown in Fig. 5. A reverse movement of said lever will slide the sleeve H to the left, placing the link J transverse the shaft D, and the plate F is moved across the plate E in the direction of
15 the arrow, as shown in Fig. 4, which is a throw of the plate F in a direction opposite that shown in Fig. 5, by which the movement of the shaft D will be reversed.

In operation the lever N is thrown from
25 one end of the rack P to the other to reverse the engine, and to reduce the stroke or opening of steam-inlet the lever is brought nearer to the zero-point, at which no steam will be admitted. The plate F being concentric with
30 shaft D, no movement will be given to the steam-valve, which then covers the inlet-port.

Having thus fully described the nature and object of my invention, what I claim, and desire to secure by Letters Patent, is—

35 1. The combination, with the main shaft, of the plate E, mounted thereon to turn therewith and having a raceway, the eccentric-plate F, having a raised portion adapted to slide in said raceway and provided with an
40 elongated aperture the wall of which embraces said shaft, and a gib a^2 to secure the plate E in a sliding relation to the eccentric-plate, the said eccentric-plate provided with a grooved periphery, a yoke G, located in said
45 groove, a valve-rod connected with said yoke, a sleeve mounted on said shaft to rotate therewith and slide thereon, a link connecting said sleeve and the eccentric-plate, and means for sliding said sleeve, substantially as set forth.

2. The combination, with the main shaft, 50 of the plate E, mounted thereon to turn therewith, an eccentric-plate F, a gib a^2 to secure the plate E in sliding engagement with said eccentric-plate, said eccentric-plate provided with ears a^6 , a sliding and rotatable sleeve H, 55 provided with ears h^2 , and a link, each end of which is provided with a head having an eye h^5 and a member h^6 and a screw for connecting said member to the head, one end of said link located between the ears of the said
60 sleeve and the other end located between the ears of the eccentric-plate, and pivotal bolts for uniting the ends of said link to their respective ears, substantially as set forth.

3. The combination, with the shaft D, of 65 the plate E, mounted on said shaft, having a groove or raceway therein, an eccentric-plate F, having a portion adapted to slide in said raceway, a gib a^2 to secure said plate in said sliding relation to the plate E, lug
70 d^6 on the plate F, a sleeve H, adapted to slide longitudinally on said shaft, having lugs h^2 , a link J, adapted at its end portions for pivotal connection with said lugs on diametrically opposite sides of said shaft, and means
75 for moving said sleeve longitudinally on said shaft and said eccentric-plate on the plate E transversely to said shaft, substantially as described, and for the purpose set forth.

4. The combination, with the shaft D, the 80 plate E, mounted thereon to turn therewith, an eccentric-plate F, a gib a^2 to secure the said plate F in sliding engagement with said plate E, a sleeve H, having a sliding engagement with said shaft, a link connecting said
85 eccentric-plate with the said sleeve, a collar mounted on said sleeve and provided with trunnions, a bell-crank lever having one of the members in yoke form, the branches of which are connected with said trunnions, and
90 means for operating said bell-crank lever, substantially as set forth.

In testimony whereof I have hereunto set my hand this 25th day of March, A. D. 1890.

CHARLES O. HEGGEM.

Witnesses:

J. J. PITTS,

W. T. HAMILTON.