

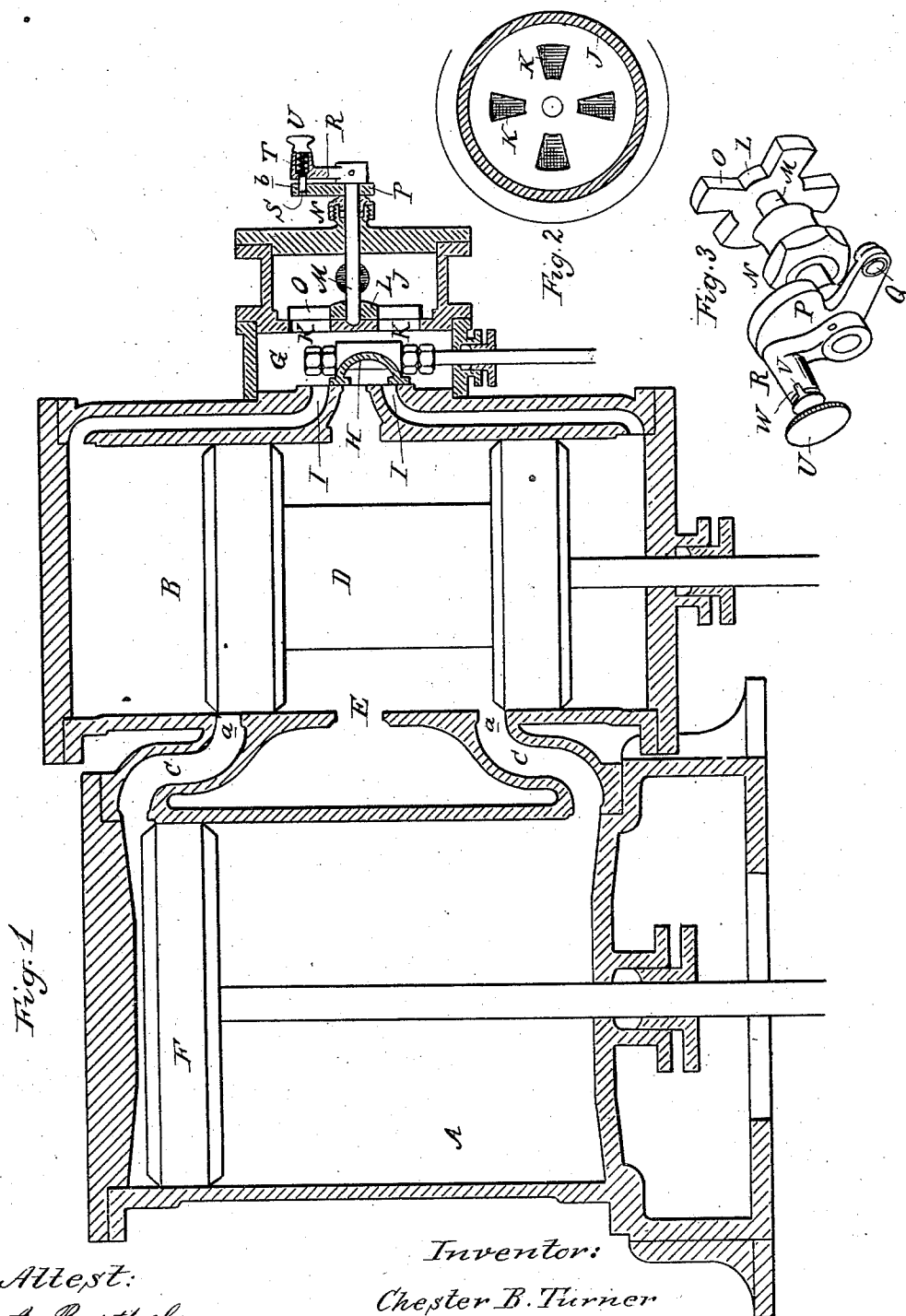
(No Model.)

C. B. TURNER.

CUT-OFF VALVE.

No. 286,747.

Patented Oct. 16, 1883.



Attest:

A. Barthel
[Signature]

Inventor:

Chester B. Turner

by his Atty *Wm. J. Synner*

UNITED STATES PATENT OFFICE.

CHESTER B. TURNER, OF DETROIT, MICHIGAN.

CUT-OFF VALVE.

SPECIFICATION forming part of Letters Patent No. 286,747, dated October 16, 1883.

Application filed August 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHESTER B. TURNER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful
5 Improvements in Steam-Engines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to certain new and useful improvements in cut-off valves, and is especially designed as an improvement upon the patent issued to me, dated May 3, 1881, and numbered 241,093.

15 The invention consists in the peculiar construction of its parts and their combinations and arrangement, by means of which the engine may be compelled to act as a direct-acting engine or as a compound engine, as desired, and as more fully hereinafter described.

20 Figure 1 is a vertical longitudinal section. Fig. 2 is a plan of the supplemental valve-seat, and Fig. 3 is a plan view of the supplemental valve and its connections detached.

25 In the accompanying drawings, which form a part of my specification, A represents the larger, and B the lesser, cylinder. C are the steam-passages leading from the lesser to the greater cylinder, opening out of the lesser at
30 points *a*, or about one-quarter of the distance from each head thereof as compared to the length of the stroke of its piston D, which is constructed as a valve-piston, between the two heads of which the exhaust-port E of the
35 larger cylinder exhausts. F is the piston of the larger cylinder. G is the steam-chest of the smaller cylinder, and H is the slide-valve, which alternately closes and discloses the ports I and exhaust-port of this latter-named
40 cylinder. The rods of the two pistons of the two cylinders are designed to be connected with the main driving-shaft, as described in the aforesaid Letters Patent. J is a supplemental steam-chest secured to the cover of the
45 steam-chest proper, said cover being provided with radial openings K. M is a stem, the lower end of which is suitably stepped in the cover of the steam-chest proper, and carries the disk-valve L, which is provided with a
50 series of radial arms, O, which are designed to close and disclose the coincident openings in the cover of the steam-chest proper. The stem is made steam-tight where it passes

through the cover of the supplemental chest by means of the stuffing-box N. Outside the
55 stuffing-box the two-armed lever or disk P is sleeved on the stem, and to the hole Q therein the eccentric-connection is made. Secured to the outer end of this stem is the L-shaped lever, R, one arm of which is hollow to inclose
60 the pin S, which is surrounded by the coil-spring T. The pin terminates in the head U, below which is the stop V, which is designed to engage with the corresponding slot W in the hollow part of the arm. The object of
65 this supplemental steam-chamber and its connections above described is to afford means for cutting off the steam at any desired part of the stroke. Steam is taken into the supplemental steam-chest, and when the openings
70 in the disk-valve are coincident with the openings in the cover of the steam-chest proper the steam passes into the smaller cylinder, and thence is allowed, by the position of the
75 piston D, to enter the larger cylinder, as described in my aforesaid Letters Patent.

If it is desired to work the engine as a compound engine, the pin S is engaged with the
80 hole *b* in the disk P, by which means the eccentric is compelled to give motion to the cut-off valve, so that the two pistons are compelled to act by direct pressure and by expansion, as may be desired.

What I claim as my invention is—

1. The combination, with a compound engine, of a supplemental steam-chest arranged
85 over the ordinary steam-chest, and provided with an oscillating valve working over openings in the cover of the main chest, and connections, substantially as described, whereby
90 said valve may be operated or thrown out of gear to operate the engine as a direct or compound engine, as desired.

2. As the means for adjustably controlling the movement of a rotating register-valve in
95 a steam-chest, the two-armed lever or disk P, having hole *b* and sleeved upon the valve-stem M, in combination with the L-shaped arm R and pin S, the parts being constructed and arranged and operating substantially as
100 and for the purposes set forth.

CHESTER B. TURNER.

Witnesses:

H. S. SPRAGUE,
E. SCULLY.