

A. M. Allen.

Cut-Off for Steam Engines.

N^o 89,457.

Patented Apr. 27, 1869.

Fig. 1.

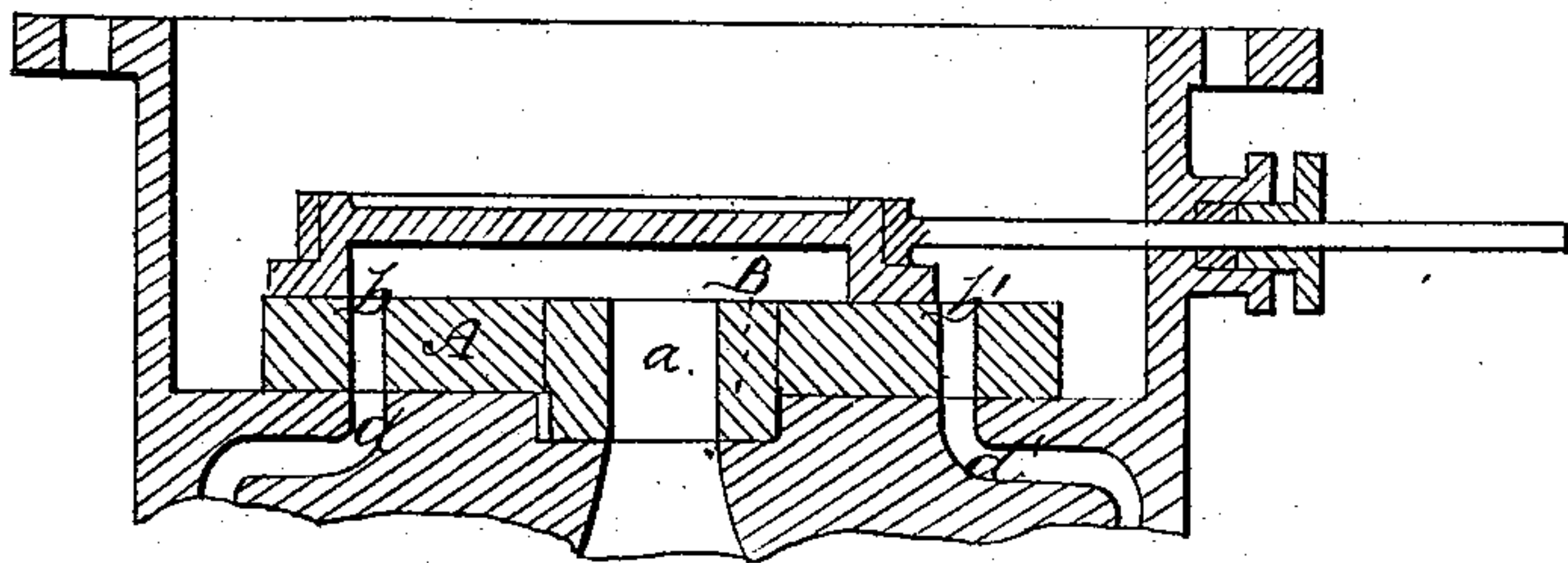


Fig. 2.

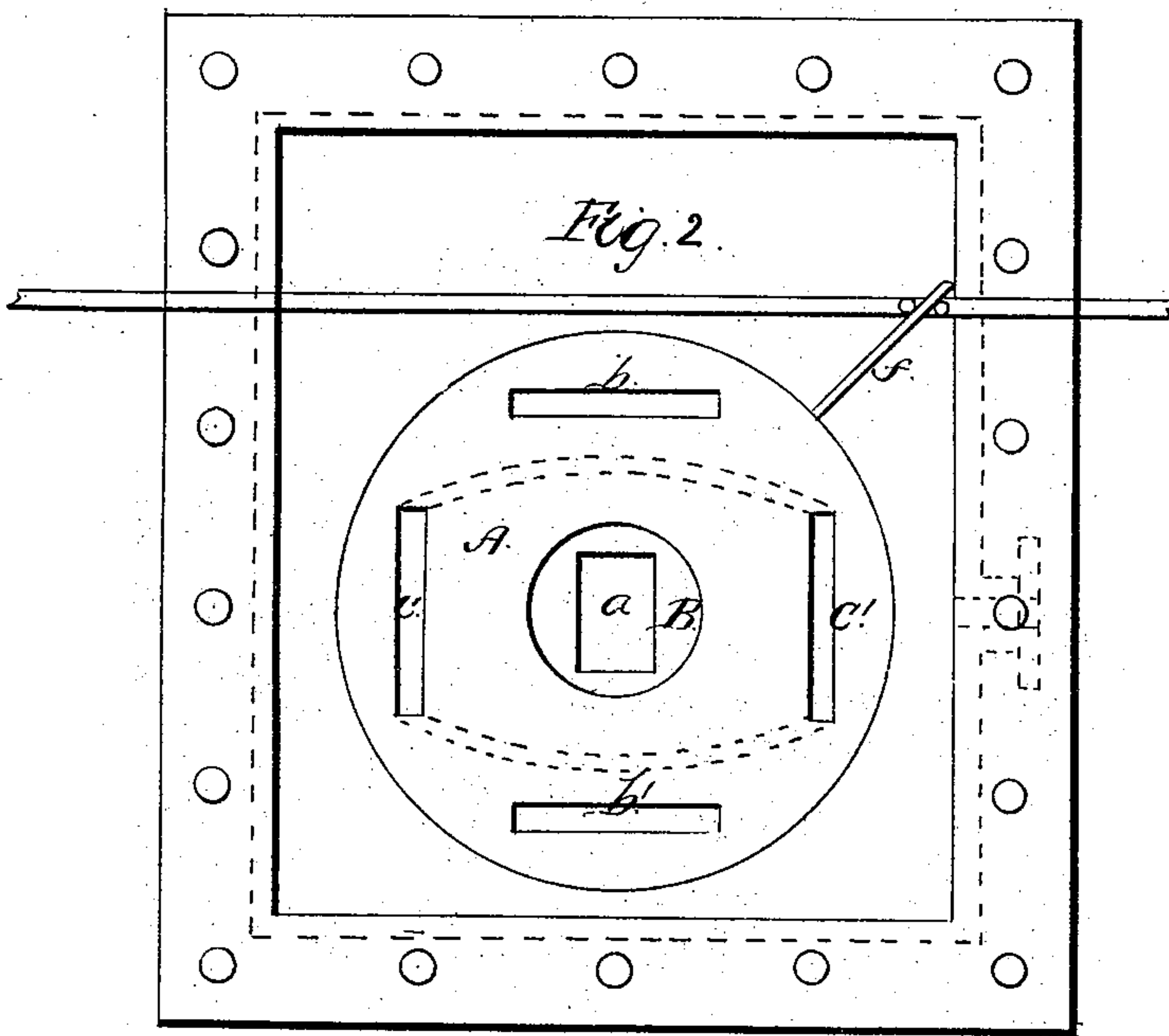
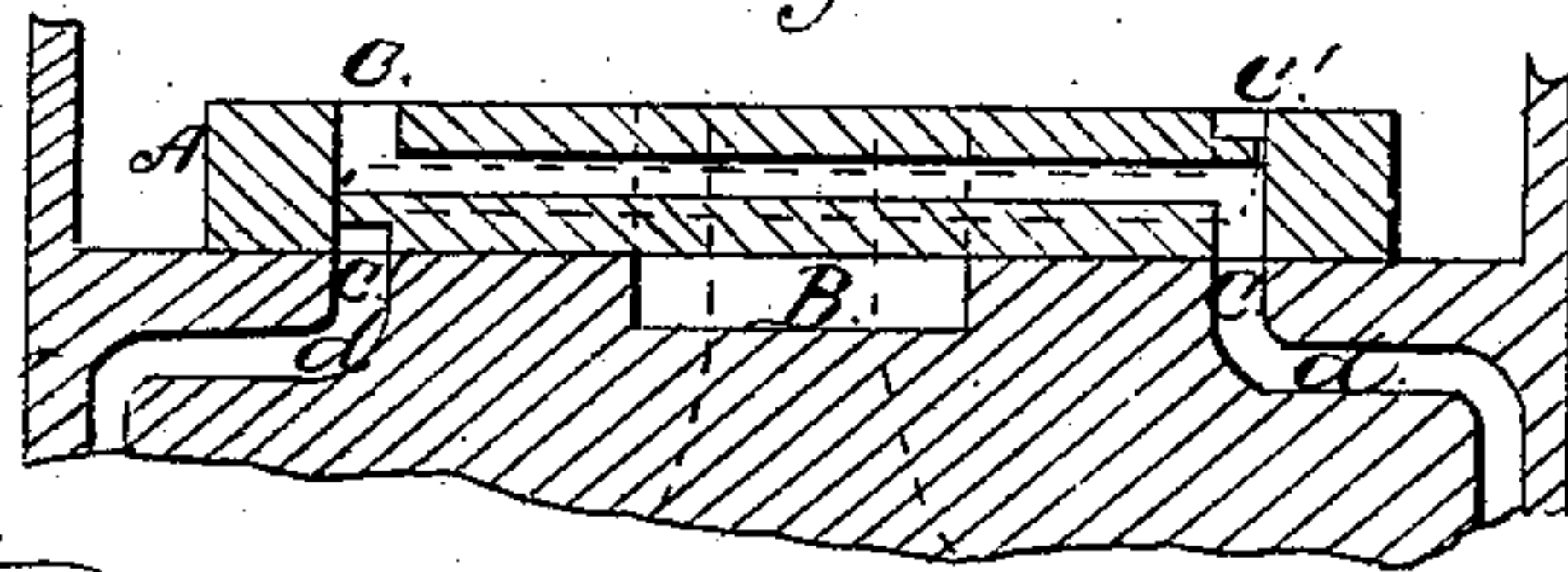


Fig. 3.



Witnesses.

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ARTHUR M. ALLEN, OF NEW YORK, N. Y.

Letters Patent No. 89,457, dated April 27, 1869.

IMPROVEMENT IN REVERSING-GEAR FOR STEAM-ENGINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ARTHUR M. ALLEN, of the city, county, and State of New York, have invented a new and useful Improvement in the Reversing-Gear for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal section of this invention.

Figure 2 is a plan or top view of the same.

Figure 3 is a detached section of the reversing-disk. Similar letters indicate corresponding parts.

This invention consists in the arrangement of a reversing-disk, or plate, provided with four steam-ports and one or more exhaust-ports, and placed between the slide-valve and the bottom of the steam-chest, two of the steam-ports in the reversing-disk, or plate, passing square down, while the other two are provided with reversing-channels, in such a manner, that when the disk, or plate is brought in such a position that the square or forward ports correspond with the steam-ports in the steam-chest, the engine runs forward, but by moving the disk, or plate, so as to bring the reversing-ports over the steam-ports of the steam-chest, the engine is reversed.

In the example which I have represented in the drawing, the letter A represents a disk, made of cast-iron, or any other suitable material, and provided with a round central hole, to admit the nipple B, which is intended to be fastened in the bottom of the steam-chest, and which is perforated with a flat hole, *a*, to correspond to the exhaust-port of the steam-chest, as indicated in fig. 1 of the drawing.

The disk A is provided with four ports, *b b'*, *c c'*, which are situated opposite to each other, and at such a distance from the centre, that by turning the disk, either the ports *b b'* or the ports *c c'* can be brought to correspond with the steam-ports *d d'*, of the steam-chest.

The face of the disk forms the seat for the slide-valve, and the ports *b b'* pass square down through said disk, while the ports *c c'* are provided with re-

versing-channels, as indicated in dotted lines in figs. 2 and 3

If the disk is turned into such a position that the square or forward ports *b b'* correspond with the steam-ports *d d'*, the engine runs in a forward direction; but if the disk is turned so that the reversing-ports *c c'* come opposite the steam-ports *d d'*, the steam admitted through the port *c* passes into the steam-port *d'*, and the steam admitted through the port *c'* passes into the steam-port *d*, and the engine is reversed.

It will be observed that the disk A has to receive a quarter turn, if the engine is to be reversed. This motion I propose to impart to the disk by a rod, which slides in the sides of the steam-chest, and which is provided with two pins, that straddle an arm, *f*, extending from the disk, as indicated in fig. 2 of the drawing; but it is obvious that the required motion can be imparted to said disk by various different means, and I do not wish to confine myself, in this respect, to any particular mechanism.

Instead of using a disk, as above described, I can also use a block or plate, provided with two forward and two reversing-ports, and so arranged that it can be moved in a rectilinear direction. In this case, the exhaust-port in the plate must either be large enough to allow of the motion of the same without covering up the exhaust-port in the bottom of the steam-chest, or two exhaust-ports must be made in said plate, one to act with forward and the other with the reversing-ports.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The reversing-block, or disk, provided with two forward and two reversing-ports, and with one or more exhaust-ports, arranged substantially in the manner set forth.

2. The reversing-disk A, provided with forward ports *b b'* and reversing-ports *c c'*, and revolving on the exhaust-nipple B, under the slide-valve of a steam-engine, substantially in the manner described.

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Witnesses:

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