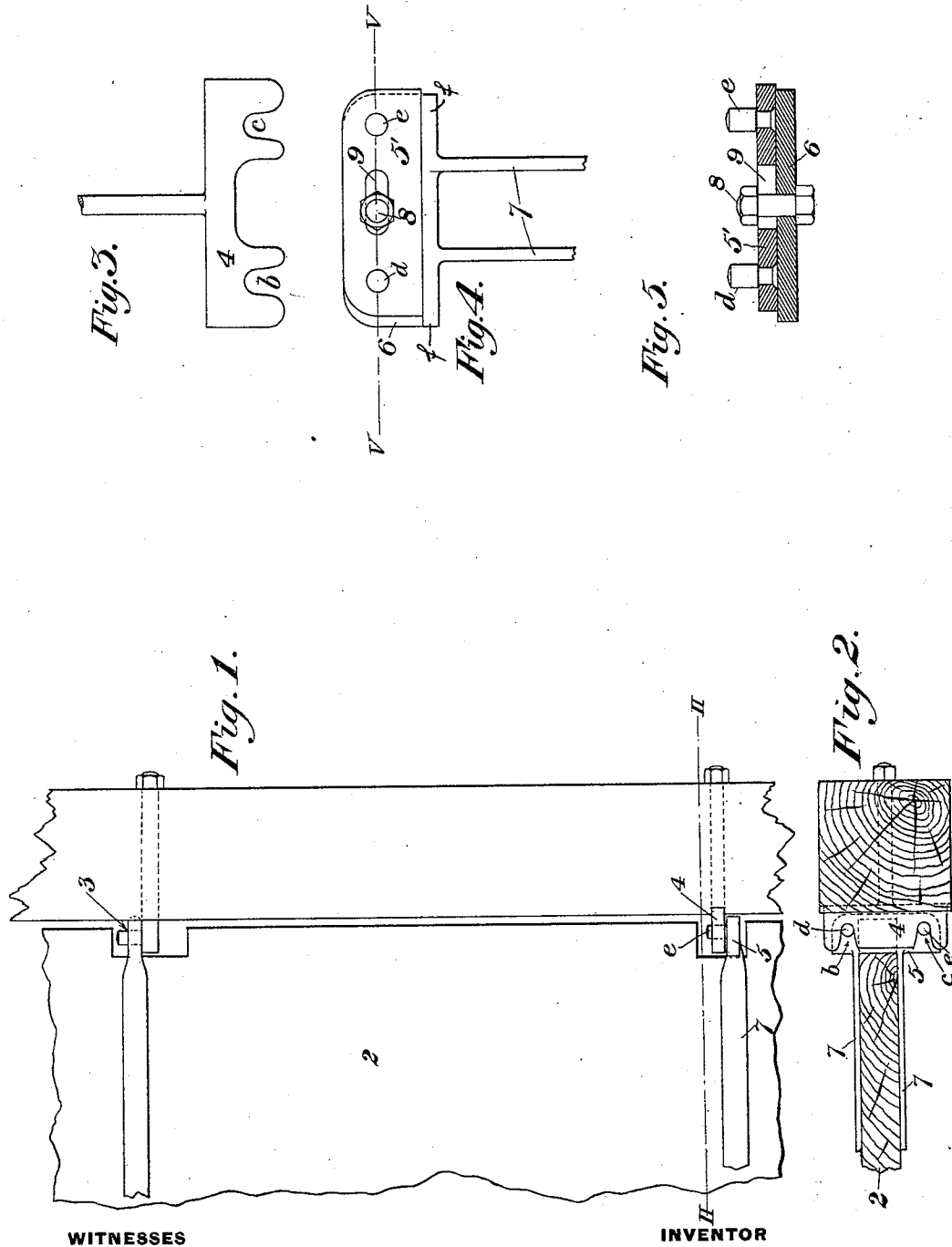


(No Model.)

W. P. McMASTERS.
DOOR HINGE.

No. 471,133.

Patented Mar. 22, 1892.



WITNESSES

INVENTOR

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WILLIAM P. McMASTERS, OF MUNHALL, PENNSYLVANIA.

DOOR-HINGE.

SPECIFICATION forming part of Letters Patent No. 471,133, dated March 22, 1892.

Application filed October 30, 1891. Serial No. 410,325. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. McMASTERS, of Munhall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Door-Hinges, of which the following is a full, clear, and exact description.

The object of my invention is to provide for doors, gates, &c., a hinge of such construction that, without the necessity for using springs or other special appliances, the door or gate shall be adapted to close itself automatically after it has been swung open, and so that it may tend to close with greater force in one direction than in the other. Such construction adapts the door especially to be used in coal mines for closing entries or passages, and thus making it possible to divert the ventilating air-currents into the desired channels. Heretofore it has been the general practice in coal mines to employ boys to stay by such doors and to close them after the passage of the mules drawing the cars through the mines; but the wages necessary to be paid for such service being considerable augments the expense of operating the mine. For a self-closing door for mines it is not only necessary that the door should tend to close automatically in both directions, but it must tend to close with greater force in one direction than the other in order to counteract the force of the currents of air through the mine-passage. It is also necessary in practice that the doors should be cheap, strong, and easy to adjust, because of the rough usage to which they are subject and the ignorant character of the workmen who use them. All these characteristics are present in my invention, which is illustrated in the accompanying drawings, in which—

Figure 1 is a partial front elevation of a mine-door provided with my improved hinge. Fig. 2 is a horizontal section on the line II II of Fig. 1. Figs. 3 and 4 are detail plan views showing the parts of the lower hinge. Fig. 5 is a vertical cross-section on the line V V of Fig. 4.

In the drawings, 2 represents a mine-door fitted with my improved devices and having two hinges. The upper hinge 3 may be of ordinary construction, consisting of an inter-fitted hook and an eyebolt, since it has but a

single pivot or axis. The lower hinge, however, is of peculiar construction. It has a horizontally-projecting plate 4, fitted to the door-post, having two notches *b c*, and a second plate or bar 5, fixed to the door and having two pins *d e*, adapted to fit in the notches. These pins are situate not at equal distances from the middle of the door's edge, but one of them, as shown in Fig. 2, is situate at a greater distance therefrom than the other. Now if the door be opened in either direction it will swing into an inclined position, the door turning on the notch and pin on the side toward which the door is moved, and when released it will tend by gravity to swing back to closed position. If the door be opened toward the side on which is the more eccentric pin, the tendency to close will be stronger than if it be opened in the other direction in proportion to the difference in eccentricity of the location of the pins. Therefore in setting the door and hinges the more eccentric pin is set on the side of the door opposite to that from which the air-currents flow, because in closing from that direction it must swing against the air-pressure, whereas in closing from the other direction it is aided by such pressure. In order that this differential action of the hinge may be variable to suit the location of the door, I prefer to construct the hinge as shown in Figs. 3, 4, and 5, in which construction the hinge-plate 5' bearing the pins is set movably on a second lower plate 6, which is fixed to the shank 7, by which the hinge is fixed to the door. These plates are held together by a bolt or stud 8, passing through a slot 9, so that their relative positions may be adjusted and that they may be fixed in proper adjustment. The plate 6 is provided with a rib or flange *f*, against which the edge of the plate 5' has a bearing and which prevents the latter plate from turning.

The form of the hinge may be varied. Thus the notched member of the hinge may be secured to the door and the other member having the pins may be fixed to the door-post. It may also be the notched member which is made eccentric, instead of the part with the pins.

I claim—

1. In combination with a door, a self-closing hinge having two parts, one provided with

two pins and the other with two notches or sockets, the pin and notch on one side of the door being situate at greater distance from the door than are the pin and notch on the
5 other side, substantially as and for the purposes described.

2. In combination with a door, a self-closing hinge having two parts, one provided with two pins and the other with two notches or

sockets, one of said hinge parts having its pins or notches laterally adjustable, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 16th day of October, A. D. 1891.

WILLIAM P. McMASTERS.

Witnesses:

R. H. WHITTLESEY,

H. M. CORWIN.