

UNITED STATES PATENT OFFICE.

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HINGE FOR MINE-DOORS.

SPECIFICATION forming part of Letters Patent No. 749,561, dated January 12, 1904.

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To all whom it may concern:

Be it known that I, THOMPSON JEFFREY, a citizen of the United States, residing at Pittsburg, in the county of Laurel and State of Kentucky, have invented new and useful Improvements in Hinges for Mine-Doors, of which the following is a specification.

This invention relates to hinges for mine-doors.

As is well known, the main entry or gallery of coal or other mines is closed by doors which operate to direct the air-blast into butt entries or side galleries in order to effect necessary ventilation. These doors are generally opened and closed by boys to permit passage of the cars along the track laid in the main entry or gallery, and owing to carelessness on the part of these operators the doors are frequently left open, causing thereby the cutting off of the air-supply, and thus inconvenience and often suffering of the miners. Aside from this, the employment of boys for the above purpose is an expensive item in the operation of a mine and one that the present invention aims to eliminate in a thoroughly feasible and practical manner.

The object of this invention, therefore, is in a ready, simple, thoroughly-feasible, and practical manner to effect automatic closing of the doors controlling the passage of the blast into the butt entries or side galleries of a mine, and thereby to dispense with the employment of attendants for the purpose; furthermore, to improve the construction of the doors in such manner as to render them thoroughly durable in use and capable of withstanding the rough usage to which they are necessarily subjected in operation.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of a hinge for mine-doors, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the

same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in side elevation of a mine-door employing hinges constructed in accordance with this invention. Fig. 2 is a view in perspective exhibiting the hinges, the door being indicated in dotted lines and as partly open.

Referring to the drawings, 1 designates the side walls of the main entry, which may be of any material, 2 the lintel or ceiling, and 3 the base, which may be the roadway or road-bed.

The door 4, which may be constructed in any preferred manner, is adapted automatically to be closed after having been opened by the mule drawing the car, and to effect this the hinges employed are so constructed as to permit the door to open outward at an upward inclination, so that when released it will by gravity resume its normal position. In addition to this the hinges, or rather the eye members thereof, are constructed in such manner as to reinforce the door and render it capable of withstanding shocks and rough usage, to which it will be subjected in operation. As herein shown, two hinges are employed, an upper and a lower one. The upper hinge comprises an eye member 5 and a pintle member 6, the eye member being bolted or otherwise firmly secured to the door and the pintle member being provided with a shank 7, which bears upon a filler-block 8 and extends through the side wall of the entry or through a suitable stanchion or stile and is clamped in position by a nut 9, the pintle member being provided with a single pintle 10. The eye of the member 5 comprises a yoke or cleat 11, which is adapted to straddle the door and to be held firmly in position thereon by bolts and nuts, the eye 12 being formed integral with the yoke. The lower hinge comprises an eye member 13 and a pintle member 14, which is secured in position in the same manner as the upper pintle member and carries two pintles 15, which are engaged by a double eye 16, carried by the yoke 17, which

is secured to the door in the same manner as the yoke of the upper hinge. The provision of these yokes is of importance, as it will be seen that they will operate not only to effect
5 a positive connection between the eye members and the door, but also that the latter are reinforced thereby, and thus rendered more durable in use. The cleat or filler-block is provided to close the space between the door
10 and the side wall or stile, so that when the door is shut there will be no escape of air past it, and this is of importance, as otherwise there might be such an escape as would materially interfere with the proper ventilation of the
15 butt entries or side galleries. The cleat or filler-block also operates to remove strain from the pintle member 6 of the upper hinge, as the weight of the door is transferred from this member to the cleat or filler-blocks and is sustained thereby.
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While the door and form of hinges employed in this invention are exceedingly simple in construction, they will be found thoroughly efficient and durable for the purposes designed
25 and will in a ready manner fill a long felt want.

In operation the mule will press against the door and force it open, thereby throwing one of the eyes of the member 10 into engagement with one of the pintles 15 and causing the door
30 to assume an angular position, and as soon as the car has passed the door it will by gravity be caused automatically to resume its normal position.

Having thus described the invention, what I claim is—

The combination with a door for mine-galleries, of a pair of hinges each comprising a yoke to straddle the door, and an eye member projecting beyond the yoke, the upper member being provided with a single eye and the
40 lower member with a pair of eyes, a pair of pintle members secured to the door-frame and projecting beyond the same, the upper member being provided with a single pintle and
45 the lower member with a pair of pintles, and a filler-block interposed between the two pintle members and bearing against the under side of the upper member and the upper side
50 of the lower member, said filler-block performing the double function of a closure for the space between the inner edge of the door and its support, thereby to prevent escape of air, and to transmit the strain from the upper pintle member to the lower pintle member, thereby
55 in a positive manner to prevent sagging of the door with attendant danger of the same binding in its frame, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.
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THOMPSON JEFFREY.

Witnesses:

J. W. BASTIN,

J. P. FOSTER.