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(54) Door locks.

(57) A door assembly has a locking arrangement comprising a pair of downwardly open strike sockets (20) mounted on respective portions of the door assembly which move relatively when the door is opened and a yoke (24) having a pair of generally parallel bolts (28) insertable upwardly into the

sockets to hold one of the bolts in its socket and can be withdrawn to permit the bolts to be released from the sockets.

The locking arrangement is particularly applicable to emergency-exit doors or fire doors.

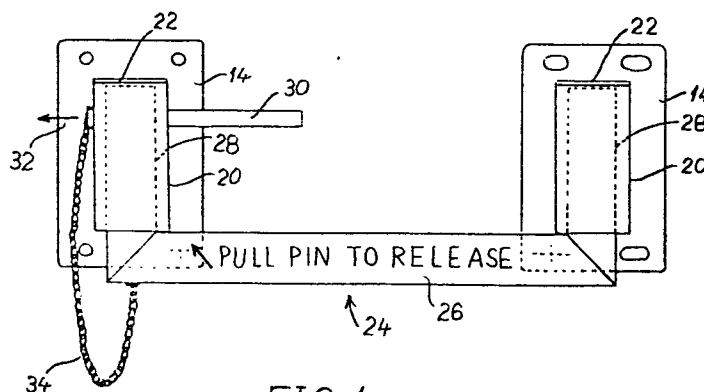


FIG. 1

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DOOR LOCKS

This invention relates to emergency-exit or fire door locks and in particular to locks for, example, cinema fire doors or emergency-exit doors which enable people to escape easily in an emergency, but which hinder entry the opposite way through the door.

A conventional form of such a lock has a transverse bar at about hand height which is pivotally mounted at one end near one edge of the door and is connected at the other end to a mechanism near the other edge of the door. From the mechanism, long bolts extend upwardly and downwardly along said other edge of the door and are engageable in respective sockets in the top of the door frame and in the ground. In operation, the transverse bar is pushed towards the door, and this motion is transmitted by the mechanism to the long bolts to retract them and thus unlock the door. Such locks are frequently used on double doors with separate bars, bolts and mechanisms for each door.

The conventional form of lock suffers from a number of disadvantages. The mechanism may become jammed or the bolts, due to their length, may become bent in their

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runners, and thus the lock will not operate in an emergency. Furthermore, it is not easy to detect from a casual glance that the door is not fully locked, and therefore if somebody puts the door in the state where the bolts are not properly engaged in the sockets, the door may remain closed, unnoticed, due to engagement of the bolts with the surrounding door frame, but others can obtain unauthorised access through the door. There has therefore been a tendency for some cinema or football ground proprietors, for example, to put a padlock and chain around the bars of the locks to hold the doors closed. In recent years, such action has led to the loss of many lives when fires have arisen but the escape route has been blocked.

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In accordance with the present invention, there is provided a door assembly having a locking arrangement comprising a pair of downwardly open strike sockets mounted on respective portions of the door which move relative to each other when the door opens, a yoke having a pair of generally parallel bolts insertable upwardly into respective ones of the sockets to hold the door closed, and means releasably to hold the bolts in the sockets.

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The invention therefore provides a very simple locking

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arrangement. The state of the lock can be seen at a glance, and the lock can be constructed so as not to provide any means by which the door can additionally be easily chained or padlocked.

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A similar construction of yoke and sockets is known from GB 812585, but not arranged in the particular orientation required by the present invention and not with the releasable holding means. Another form of lock employing a yoke is known from GB 364731, but not with respective strike sockets mounted on relatively moveable portions of the door and not in the particular orientation required by the invention. Neither of these prior specifications is concerned with emergency exits.

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Preferably, the yoke of the locking arrangement according to the invention is arranged to drop from the strike sockets under the influence of gravity when the releasable holding means is released.

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The releasable holding means is preferably operable between only one of the bolts and its respective socket, and also preferably comprises a pin insertable through transverse holes in the bolt and the wall of

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the socket, which holes are aligned when the bolt is inserted in the socket.

5 The accompanying drawings show a specific embodiment of the present invention which is described below by way of example.

Figure 1 is an elevation of the locking arrangement.

10 Figure 2 is a plan view of the locking arrangement.

Each of two dance-hall fire-doors 10 has a socket member 12 secured thereto at the same height and adjacent the abutting edges of the doors on the internal sides of the doors. Each socket member 12 has a base plate 14 secured by four coach bolts and a backing plate 16 to the door. A square-section length of tube 18 is welded with its axis vertical to the base plate 14 to form a spacer, and a circular-section length of tube 20 is welded with its axis vertical to the spacer tube 18 to form a downwardly open socket. The top of the socket tube 20 is capped by a disc 22 welded thereto.

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A yoke 24 has a horizontal portion 26 with upwardly extending portions 28 welded to the ends thereof to form bolts insertable upwardly into the socket tubes 20. The portions of the yoke 24 are of square-section tube.

In order to hold the yoke 24 in position with the bolts in the socket tubes so as to lock the doors together, a headed pin 30 extends through aligned transverse holes in the left-hand bolt 28 and the left-hand socket tube 20.

In order to unlock the doors 10, the pin 30 is withdrawn in the direction of the arrow 32. The yoke 24 is then free to drop under its own weight and may be assisted by downward manual pressure on the horizontal portion 26. The pin 32 is attached to the yoke 24 or the left-hand socket member 12 by a chain 34, and the chain 34 may conveniently be used to withdraw the pin 30 as described above.

A suitable clearance is provided between the bolts and the sockets.

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The socket member 12, yoke 24 and pin 30 are made of mild steel.

5 When the locking arrangement is used for a single door, one of the socket members 12 (preferably the one with the pin 30) is secured to the door frame or some other part of the door surround.

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CLAIMS:

1. A door assembly having a locking arrangement comprising a pair of downwardly open strike sockets (12) mounted on respective portions (10,10) of the door which move relative to each other when the door opens, a yoke (24) having a pair of generally parallel bolts (28) insertable upwardly into respective ones of the sockets to hold the door closed, and means (3) releasably to hold the bolts in the sockets.

2. A door assembly as claimed in claim 1, wherein the releasable means is operable between one of the bolts and its respective socket.

3. A door assembly as claimed in claim 2, wherein the releasable means comprises a pin (30) insertable through holes in the bolt and the wall (20) of the respective socket which are aligned when the bolt is inserted in the socket.

4. A door assembly as claimed in any preceding claim and one of the double-door type, wherein each strike socket (12) is mounted on a respective one of the doors.

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5. A door assembly as claimed in any of claims 1 to 3 and one of the single-door type, wherein one of the strike sockets is mounted on the door and the other on the door surround.

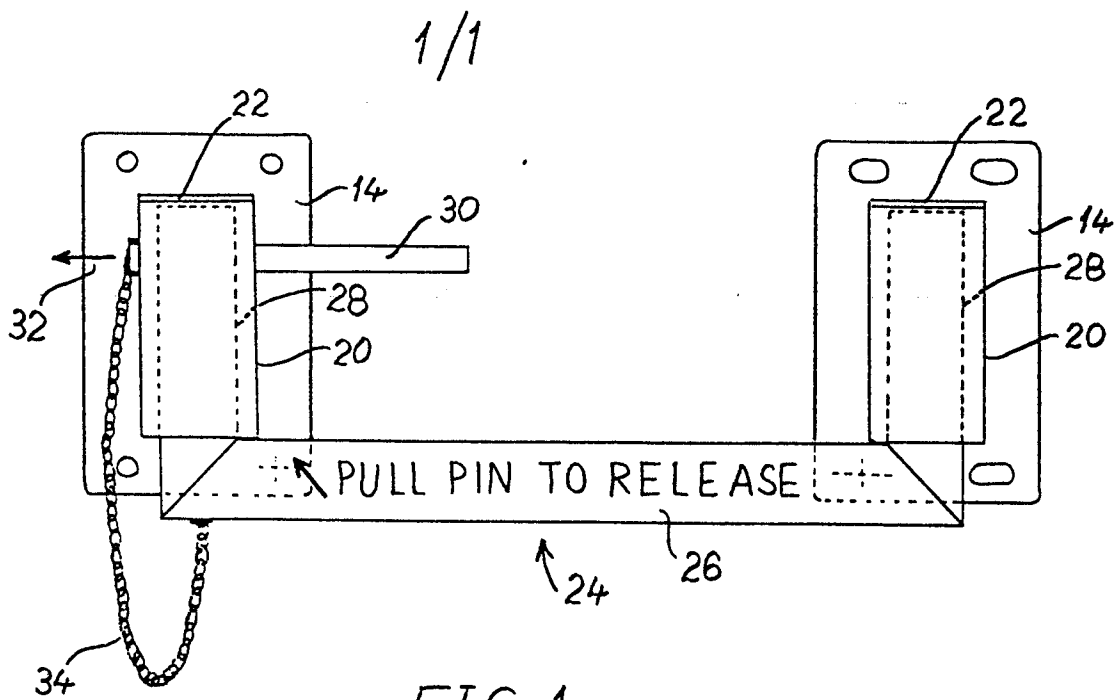


FIG. 1

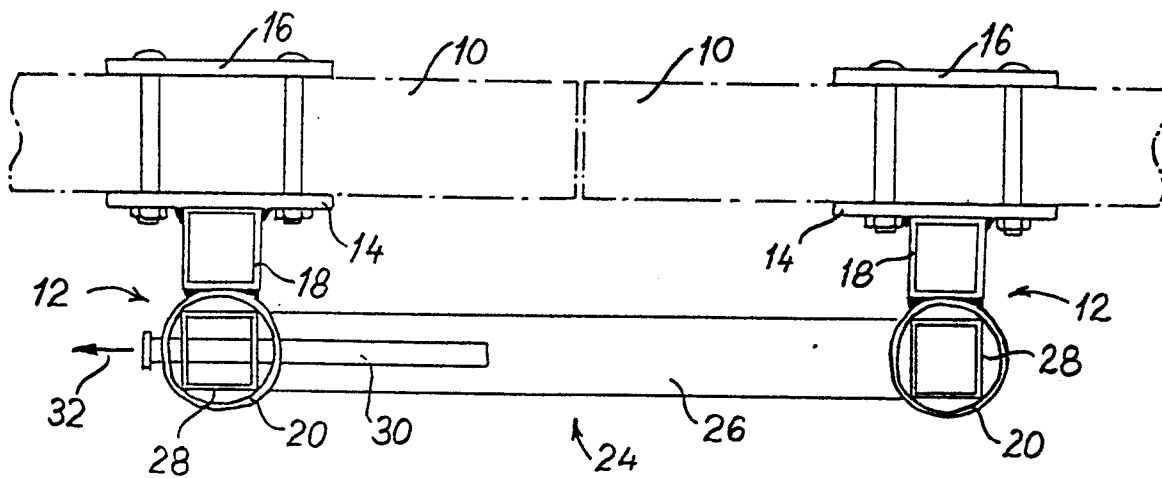


FIG. 2



DOCUMENTS CONSIDERED TO BE RELEVANT			EP 86308086.7
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	GB - A - 812 585 (SYDNEY ABBOTTS) * Fig. 1-4 *	1,2,5	E 05 B 65/10
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A	AU - B - 49 172/79 (R.B. DAINTREE) * Claims 1-9 *	1,2,3,5	

			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			E 05 B
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 16-12-1986	Examiner CZASTKA
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			