

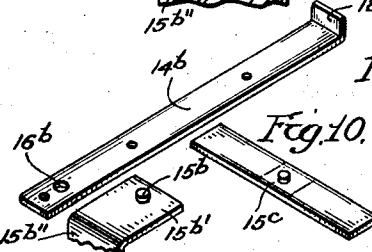
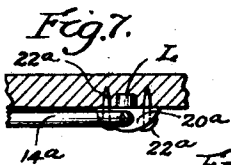
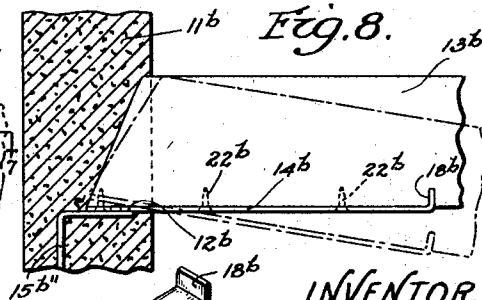
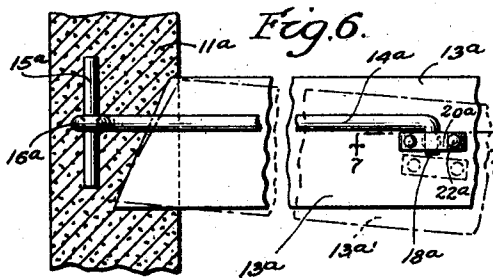
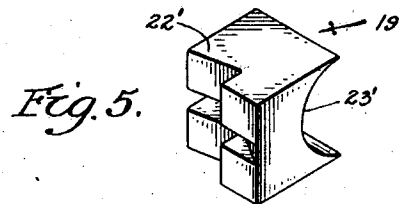
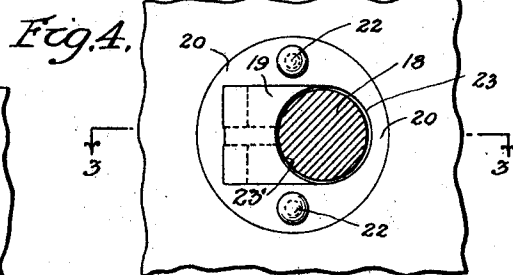
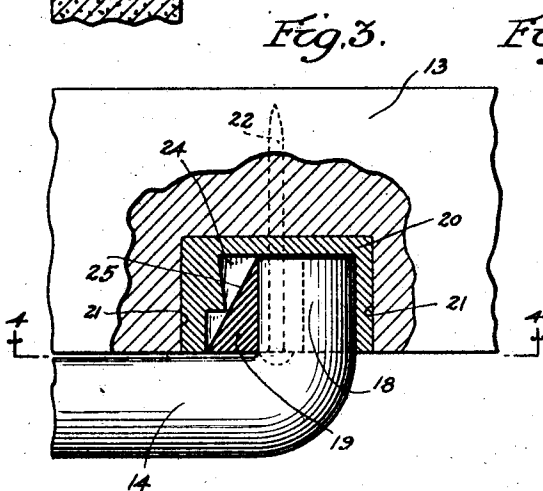
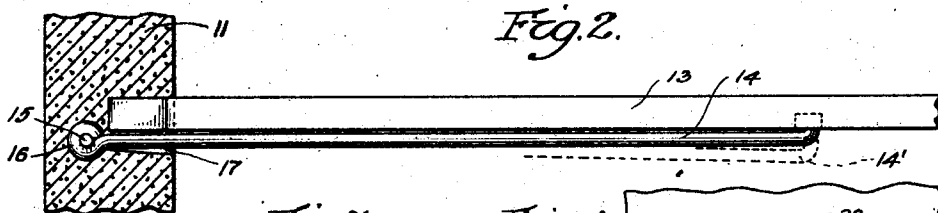
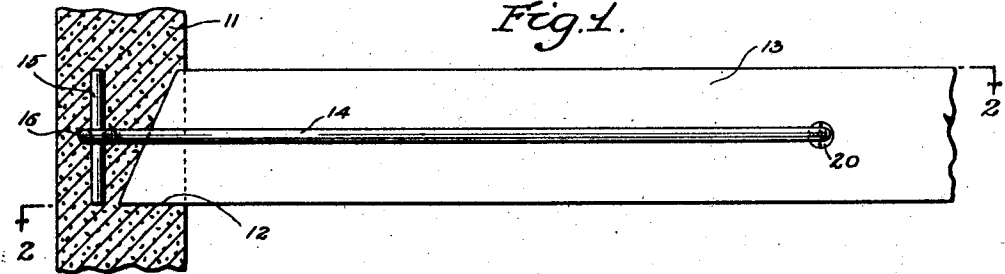
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F. B. FORBES

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SELF-RELEASING JOIST ANCHOR

Filed Jan. 3, 1927



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SELF-RELEASING JOIST ANCHOR.

Application filed January 3, 1927. Serial No. 158,562.

As may be inferred from the above title, it is an object of this invention to provide, for use at the ends of horizontal or other floor or ceiling joists, or equivalent members, anchoring or retaining devices so constructed that, in case a central or intermediate support or section gives way, the said joists shall drop without dragging down those walls by which the ends thereof may be normally supported.

It being a matter of common observation that the damage and loss of life which results from fires, earthquakes, or the like, is avoidably increased by any force which tends to drag inward the walls of a building; and that walls which might otherwise remain standing, and even be suitable for further use, are often caused to totter and fall by reason of the permanency of the connection of joint-ends therewith, it is an object of my invention to provide means whereby, as a result of heat due to combustion therebelow, or as a result of the tilting of a joist or part thereof (as may be occasioned by a fire or from other causes) retaining members, normally holding the joists to walls, shall let go,—permitting the joists to drop without dragging the walls therewith.

Other objects of my invention, all forms of which may involve the use of retaining members whose outer ends are bent substantially at right angles to the longitudinal axis thereof, and means for automatically disconnecting the same in case of fire, or the like, (a fusible member being optionally employed at the outer end of each retaining member) may be best appreciated from the following description of illustrative embodiments of my invention, taken in connection with the appended claims and the accompanying drawings, in which:

Fig. 1 is a fragmentary vertical section, showing a portion of a vertical wall having one end of a joist secured therein.

Fig. 2 is a view taken substantially as indicated by the broken lines 2—2 of Fig. 1.

Fig. 3 is a detail view, on a larger scale, corresponding to a portion of Fig. 2 near the right end thereof,—parts being cut away to substantially the plane indicated by the line 3—3 of Fig. 4.

Fig. 4 is a view taken substantially as indicated by the line 4—4 of Fig. 3.

Fig. 5 is a perspective view showing a preferred type of fusible member, herein-

after referred to as employed in organizations such as are illustrated in Figs. 1-4 (and optionally also in such as are shown in Figs. 6 and 7).

Fig. 6 is a view corresponding to Fig. 1, but showing an alternative form in which release of an anchor may be effected by a pivotal movement of a joist, relative to the supporting wall.

Fig. 7 is a detail view, taken substantially as indicated by the line 7—7 of Fig. 6.

Fig. 8 is a view comparable with Figs. 1 and 6 but showing a further alternative embodiment of my invention.

Fig. 9 shows, in perspective, certain irons suitable for use in that embodiment of my invention illustrated in Fig. 8.

Fig. 10 is a view showing an alternative form of one of the irons disclosed in Fig. 9.

Referring to the details of that specific embodiment of my invention illustrated in Figs. 1 to 5 inclusive, I show wall 11 as providing a ledge or ledges 12 for the support of joists 13, or the like; and I may provide each of the latter with anchoring means comprising a retaining member 14, extending longitudinally thereof and secured at its inner end in any suitable way, as by means of an imbedded pin 15 extending through an eye 16,—the direction in which the pin 15 extends being relatively immaterial except that, in case the retaining member 14 is intended to be capable of a pivotal movement thereon (as may be permitted by a slight clearance, such as is shown at 17, Fig. 2) the axis of said pin may advantageously be approximately vertical.

Whether or not the retaining member 14 is pivotally movable upon a pin 15, or its equivalent, said member may be of such length and form as to permit the same to be wedged out, by any suitable means, from a position such as that in which it is shown in full lines in Fig. 2, (in which it may be resiliently held) to a position such as that suggested by the dotted line 14'; and, in case it is desired to render this pivotal or other swinging movement contingent upon the occurrence of a fire, an inwardly bent end 18 of said retaining member (whether or not disposed as shown, at right angles thereto) may be releasably secured by means of the general character best illustrated in Figs. 3 to 5 inclusive.

In the figures last referred to, I show the inwardly bent pin 18 as disposed beside

and as serving to retain a fusible member 19, of somewhat special shape, adapted to inter-fit within a socket member 20,—the latter being, in turn, retained within an opening or pocket 21, cut in each joist 13, either by means such as a drive fit or by means such as mere screws or nails 22. In order that concurrent presence of the laterally or inwardly bent end 18 of the retaining member 14, or its equivalent, shall assure a retention of the fusible member 19, under all normal conditions, thereby effectively anchoring the joists 13, an inner portion 22' of said member may constitute a dovetail expansion; and, in order that, upon melting of the fusible member 19, or its equivalent, an outward pull upon the joist 13, or its equivalent, shall automatically force the bent end 18 outward, permitting the joist to fall, the interior of the socket member 20 may be so shaped as to provide not only a cylindrical surface 23, adapted to cooperate with a corresponding surface 23', provided by the fusible member 19, or its equivalent, in the retention of the bent end 18, but also a protected web 24, including an inclined or wedge surface 25, up which the said bent end may be forced to completely release any joist in case of a fire of sufficient intensity to melt the fusible member 19, or its equivalent.

In the alternative form illustrated in Fig. 6, I show a retaining member 14^a as inwardly terminating in an eye 16^a, held by an imbedded pin 15^a; but I show the bent end 18^a as downwardly inclined in such manner that, whether or not a fusible plug organization of the described character is used therewith, an automatic disconnection may be effected, in case a joist 13^a swings downward in the manner suggested by the dotted line 13^a,—a socket member 20^a then disengaging said bent end and thereby enabling the joist 13^a to fall, without dragging the wall 11^a therewith.

It will be seen that the socket members 20^a may be provided with retaining lugs L, and need not be in this case, entirely external, even if retained by means such as screws or nails 22^a; but it should nevertheless be understood that, if desired, fusible plugs such as are shown in Fig. 5 may be used therewith,—this joint use of the last-described disconnecting means and said fusible plugs being favorable to automatic disconnection not only in case of fire but in case an earthquake, or a like disaster, deprives joists of their usual support.

In the form of my invention illustrated in Figs. 8 and 9, joists 13^b are shown as provided with longitudinally-extending retaining members 14^b,—which may be secured to the lower surfaces thereof by means comprising screws or nails 22^b and/or inwardly bent ends 18^b; and the straps 14^b may be normally prevented from displacement rela-

tively to ledges 12^b by means such as pin-and-slot connections at the inner ends thereof. For example, I may provide each strap 14^b not only with holes for the mentioned nails or screws and/or with an inwardly bent end 18^b but also with a hole 16^b, near the inner end thereof, adapted to receive a pin 15^b, projecting upwardly from an imbedded plate 15^b'. The plate 15^b' is shown as having a downwardly turned inner end 15^b'',—a longer plate 15^c being shown, in Fig. 10 as practically straight.

Although I have herein described several alternative embodiments of my invention, it should be understood not only that various features thereof are capable of independent use but that numerous additional modifications might be devised by those skilled in the art to which this case relates,—without the slightest departure from the spirit and scope of this invention, as the same is indicated above and in the following claims.

I claim as my invention:

1. In combination: a wall providing a ledge for a joist; a joist whose end normally rests on said ledge; a retaining member extending longitudinally of said joist, having opposite ends supported by said joist and said wall and adapted to normally retain said joist against longitudinal displacement; and fusible means, providing a bearing for one end of said retaining member, adapted to automatically disconnect the same, in case of disaster, to permit said joist to drop free of said wall.

2. In combination: a wall providing a ledge for a joist; a joist whose end normally rests on said ledge; a retaining member extending longitudinally of said joist, normally to retain the same against longitudinal displacement; and the fusible member mounted on said joist in releasable engagement with said retaining member and adapted to form a bearing surface between said retaining member and said joist.

3. In combination: a wall providing a ledge for a joist; a joist whose end normally rests on said ledge; a retaining member extending longitudinally of said joist, normally to retain the same against longitudinal displacement; and a fusible member mounted on said joist in releasable engagement with said retaining member; said fusible member being provided with a dovetail expansion, and said joist being provided with a suitable non-fusible containing member adapted to receive said fusible member,—said longitudinal retaining member having its outer end bent inwardly to provide a bearing contact between said fusible member and said longitudinal member.

4. In a combination: a wall providing a ledge for a joist; a joist, the end of which normally rests on said ledge; a retaining member having an inner end supported by

said wall and extending longitudinally of said joist, normally to retain the same against longitudinal displacement; and means for connecting said longitudinal retaining member with said joist; comprising a pocket member imbedded in said joist, and an angularly extending pin, formed on the outer end of said extending member and adapted to be received by said pocket member.

ing member in the general manner described: a socket member provided with an inner wedge surface and adapted to receive an end of said retaining member; and a fusible part normally interposed between said wedge surface and the received end of said retaining member.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 29th day of December, 1926.

FREDERICK B. FORBES.

5. For use in combination with a retain-