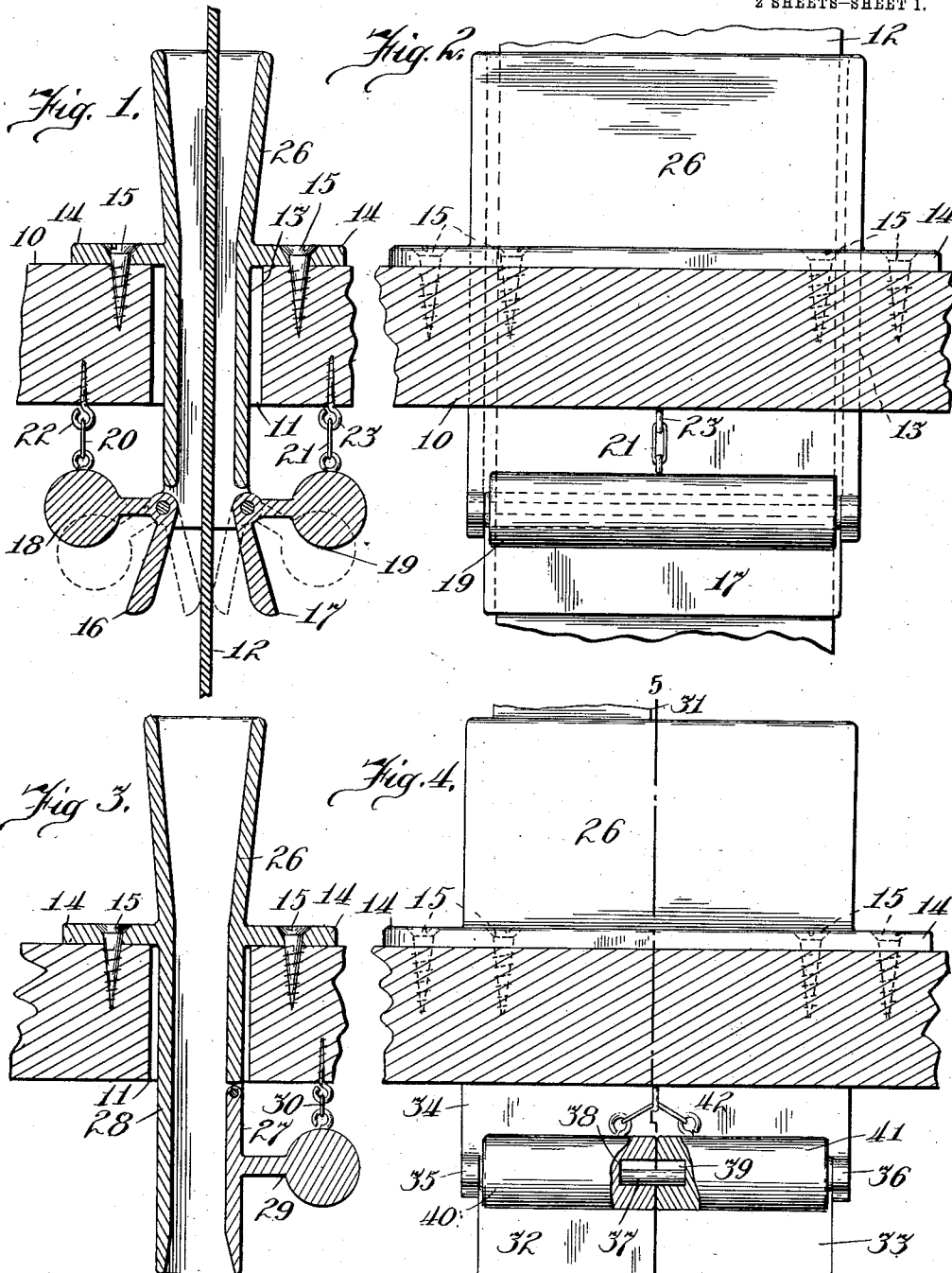


R. J. KITTREDGE.
CLOSURE FOR FLOOR OPENINGS.
APPLICATION FILED MAY 9, 1910.

1,021,535.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses
Milton Lenoir
E. M. Klatchers

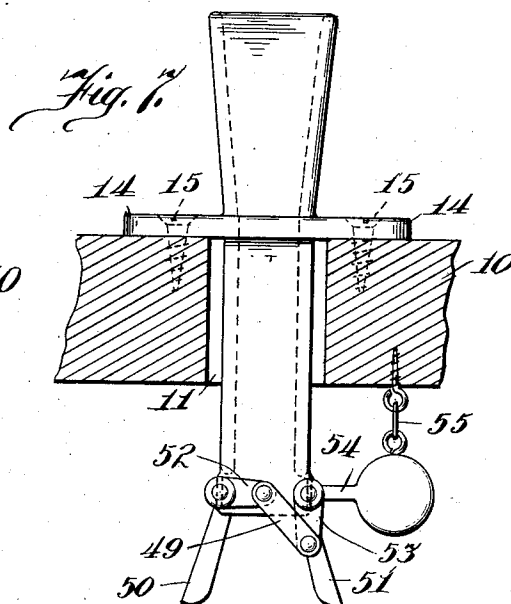
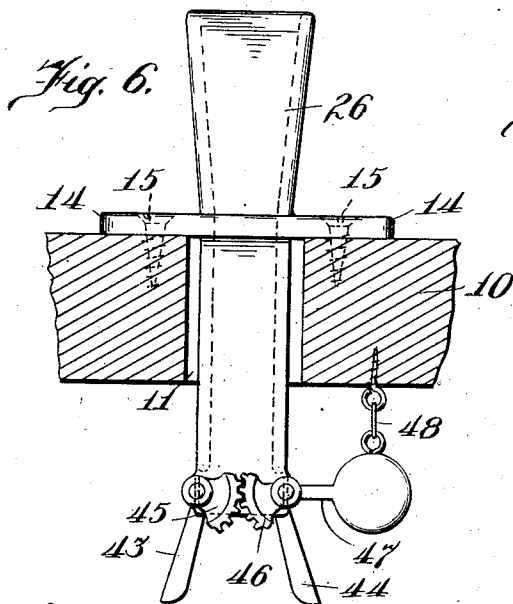
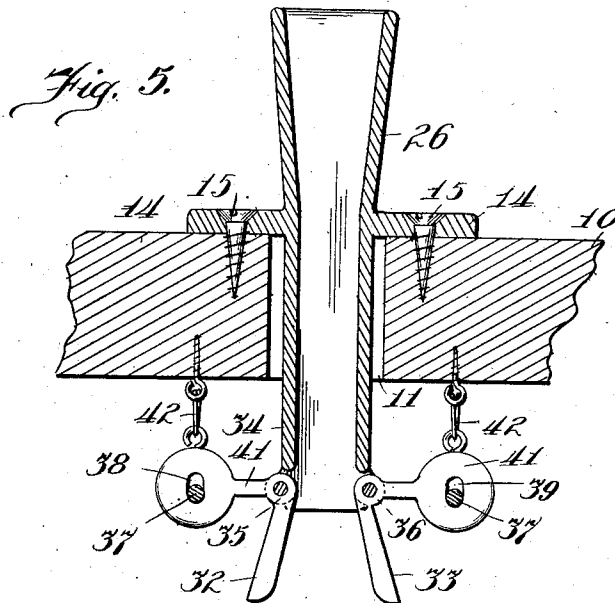
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UNITED STATES PATENT OFFICE.

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CLOSURE FOR FLOOR-OPENINGS.

1,021,535.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed May 9, 1910. Serial No. 560,353.

To all whom it may concern:

Be it known that I, RUFUS J. KITTREDGE, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Closures for Floor-Openings, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to a device adapted to automatically close floor openings in the event of fire, and is especially applicable to openings accommodating driving belts.

It has for a further object the provision of means for preventing the flow of water through such openings.

The invention consists in a device such as is hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a transverse vertical section of one form of the structure as applied to a floor shown in sectional detail; Fig. 2 is a side elevation of the device, the floor being shown in sectional detail; Fig. 3 is a view similar to Fig. 1, showing a modified form of construction; Fig. 4 is a view similar to Fig. 2, showing the device as adapted to use in connection with a shiftable belt; Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4; Fig. 6 is an edge elevation of the device, showing a modified form of construction; and Fig. 7 is a similar view showing a still further modification.

A portion of the floor of a building is represented at 10, and as being provided with an aperture 11 through which one lead of the driving belt 12 may pass. The automatic closure for this aperture comprises a bushing 13, preferably of cast metal, this bushing being provided with a lateral flange 14 adapted to rest upon the upper surface of the floor, and to be secured thereto by any suitable means, such as the screws 15. To the lower end of the bushing 13 there is pivotally secured, in the preferred form of construction as illustrated in Fig. 1, a pair of depending plates 16, 17, one upon each side. Each of these plates is provided with a laterally projecting weighted arm, as shown at 18, 19, which tend to throw the lower ends of the plates toward each other

and against the belt 12. Fusible links 20, 21, support the arms 18, 19, each being attached to a fixture, such as the screw-eyes 22, 23, set in the floor 10, the plates 16, 17, being thus held apart and out of contact with the belt. Should a fire occur below the floor 10, the links 20, 21, will be fused, permitting the arms 18, 19, to drop and throw the plates 16, 17, against the belt, thus closing the aperture through which it runs and preventing the fire from passing upwardly through the floor. That portion of the face of each of the plates 16, 17, which makes contact with the belt is preferably rounded, in order that the belt may slide freely upon it should the links become fused while the belt is in motion.

The upper end of the bushing 13 is prolonged above the floor 10, as shown at 26. This extension may be of any desired length, and serves the purpose of preventing water which may be thrown upon the floor from passing down through the opening. Should a fire occur above the floor, surplus water thrown upon it will be thus prevented from damaging the contents of the apartments below the floor.

In the modification shown in Fig. 3, but one pivoted plate 27 is provided, and is adapted to be thrown entirely across the opening to the opposite wall of the bushing 28 by the laterally projecting weighted arm 29 when the fusible supporting link 30 gives way. This form of construction is applicable to floor openings through which no belt passes, or which may accommodate a light and limp belt.

In the form of construction shown in Figs. 4 and 5, the device is illustrated as especially adapted for use in connection with a shiftable belt 31. In this instance each of the pivoted leaves is composed of a pair of plate sections 32, 33, the width of each section being substantially that of the belt. Each pair of plate sections is pivoted to the bushing 34, as shown at 35, 36, and the abutting ends of the two sections may be united by a pin 37, set loosely in apertures 38, 39, in the weighted arms 40, 41. The two sections 32, 33, may be supported by a single fusible link 42. When this link becomes fused, both sections of the plate swing inwardly, one being stopped by its contact with the belt, the

other swinging beyond the belt until it makes contact either with the opposite wall of the bushing or a companion plate.

In some instances it may be desirable to use but a single weight for controlling both plates, and in that event it becomes necessary to interlock the two plates in order that they may swing in unison. Such action is provided for in the construction illustrated in Fig. 6, wherein the swinging plates 43, 44, are interengaged through the medium of a pair of gear segments 45, 46, mounted one with each of them. The weighted arm 47 projects laterally from one of the plates, as 15 44, and is suspended by means of a fusible link 48.

In the construction illustrated in Fig. 7, in lieu of the gear segments shown in Fig. 6 there is employed a rigid link 49 for connecting the two leaves 50, 51, the link being attached to the plates at relatively opposite sides of their pivots, as shown such attachment being to arms 52, 53, projecting from the hubs of the plates. A single weighted 25 arm 54 is employed and is shown as connected with the plate 51 and as being supported by a fusible link 55. Upon the fusing of the link the weighted arm swings the plate 51 inwardly, and motion is transmitted from it to the plate 50 through the 30 link 49 for also swinging this plate inwardly.

While the swinging plates are shown as located adjacent the lower end of the bush-

ing, and as being pendent, and while such location and disposition is now preferred, neither is essential.

I claim as my invention—

1. In a closure for an aperture for the accommodation of a belt, in combination a plurality of plates mounted to swing in parallel paths and normally crossing the aperture, and fusible means for holding the plates in a retracted position.

2. In a closure for floor openings, in combination, a bushing, a pair of coaxial plates pivotally attached to the bushing at one side of its chamber and normally inclining inwardly, and fusible means for holding the plates in a retracted position.

3. In a closure for floor openings, in combination, a bushing, two pairs of coaxial plates pivotally attached to the bushing at opposite sides thereof, an outstanding weighted arm attached to each plate for normally inclining the plates inward, and fusible means for suspending the arms.

4. In a closure for floor openings, in combination, a bushing adapted to fit within the opening and having an upstanding flange, a swinging plate attached to the bushing and normally inclined inward, and fusible means for holding the plate in retracted position.

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Witnesses:

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