

D. S. WATSON.
FIRE PROTECTIVE SHIELD.
APPLICATION FILED MAR. 16, 1908.

900,243.

Patented Oct. 6, 1908.

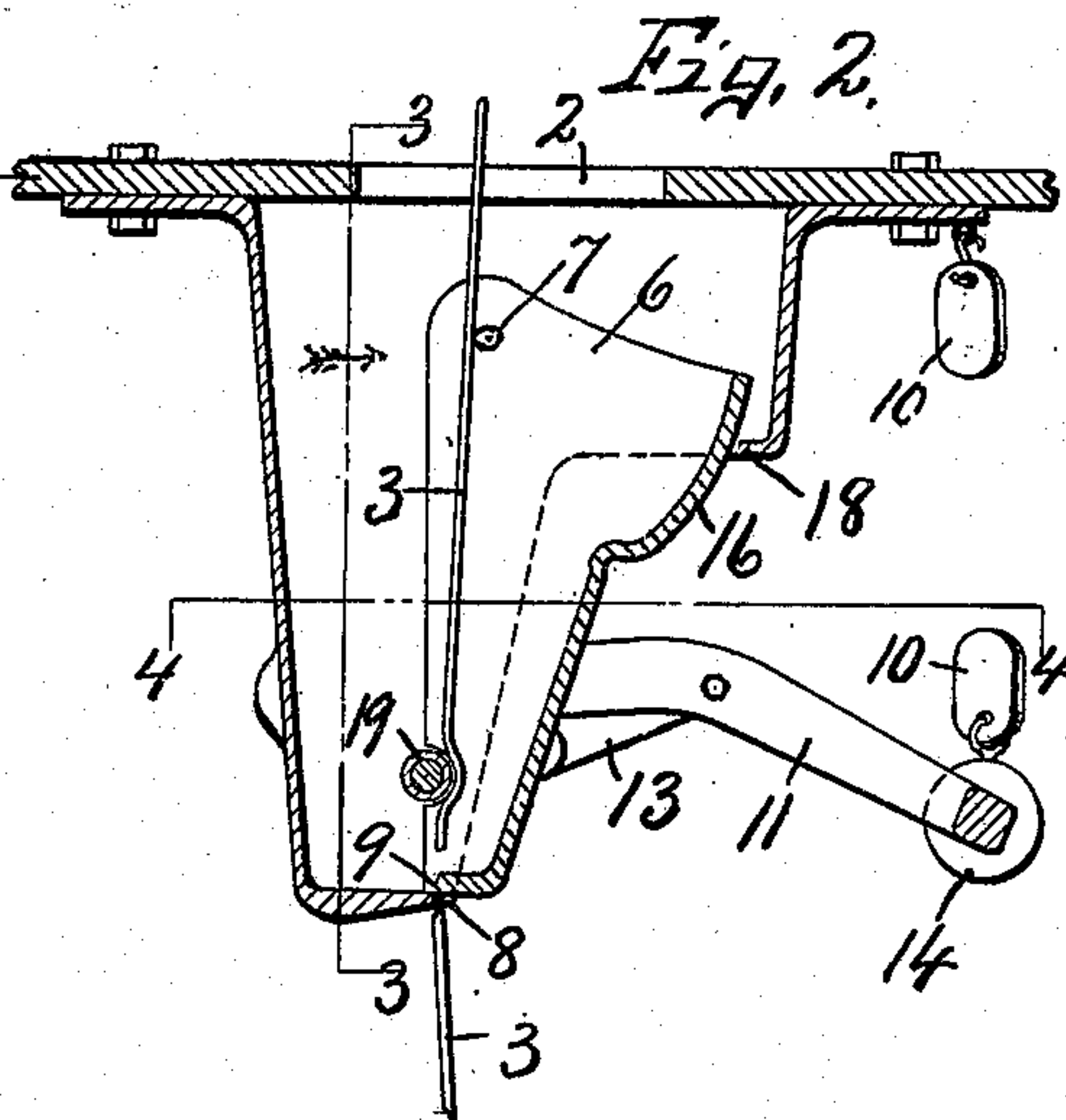
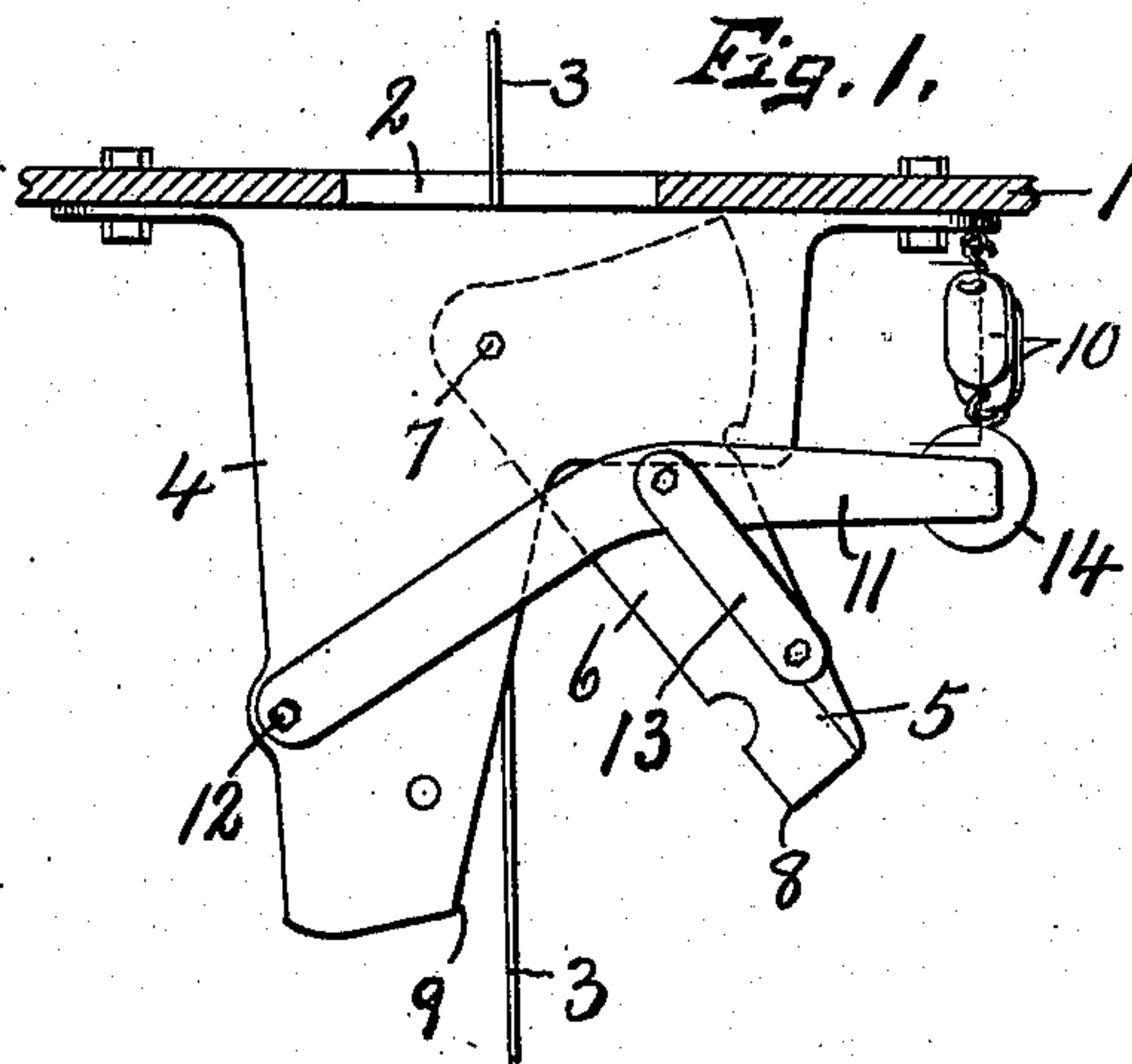


Fig. 3.

Fig. 4.

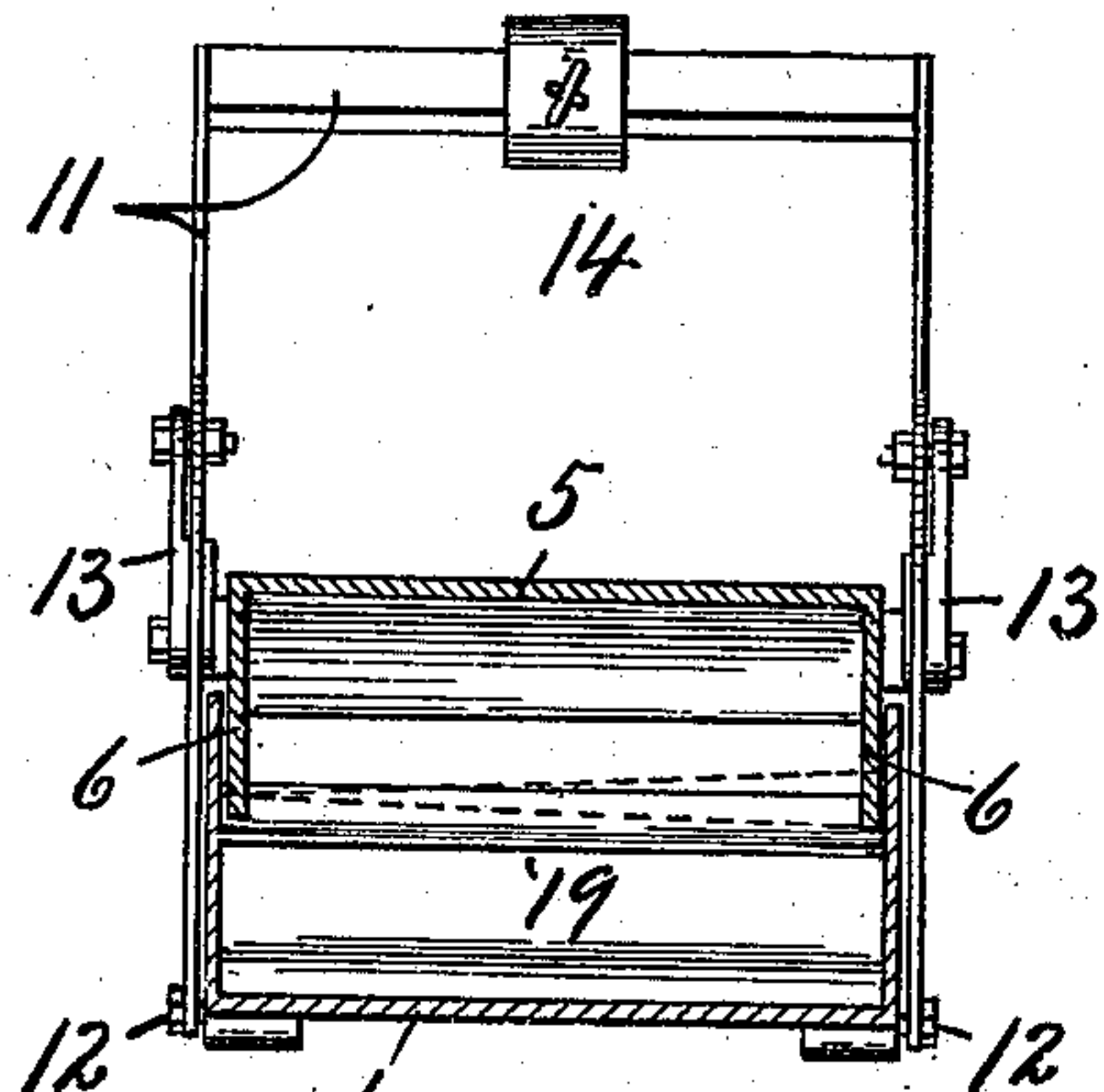
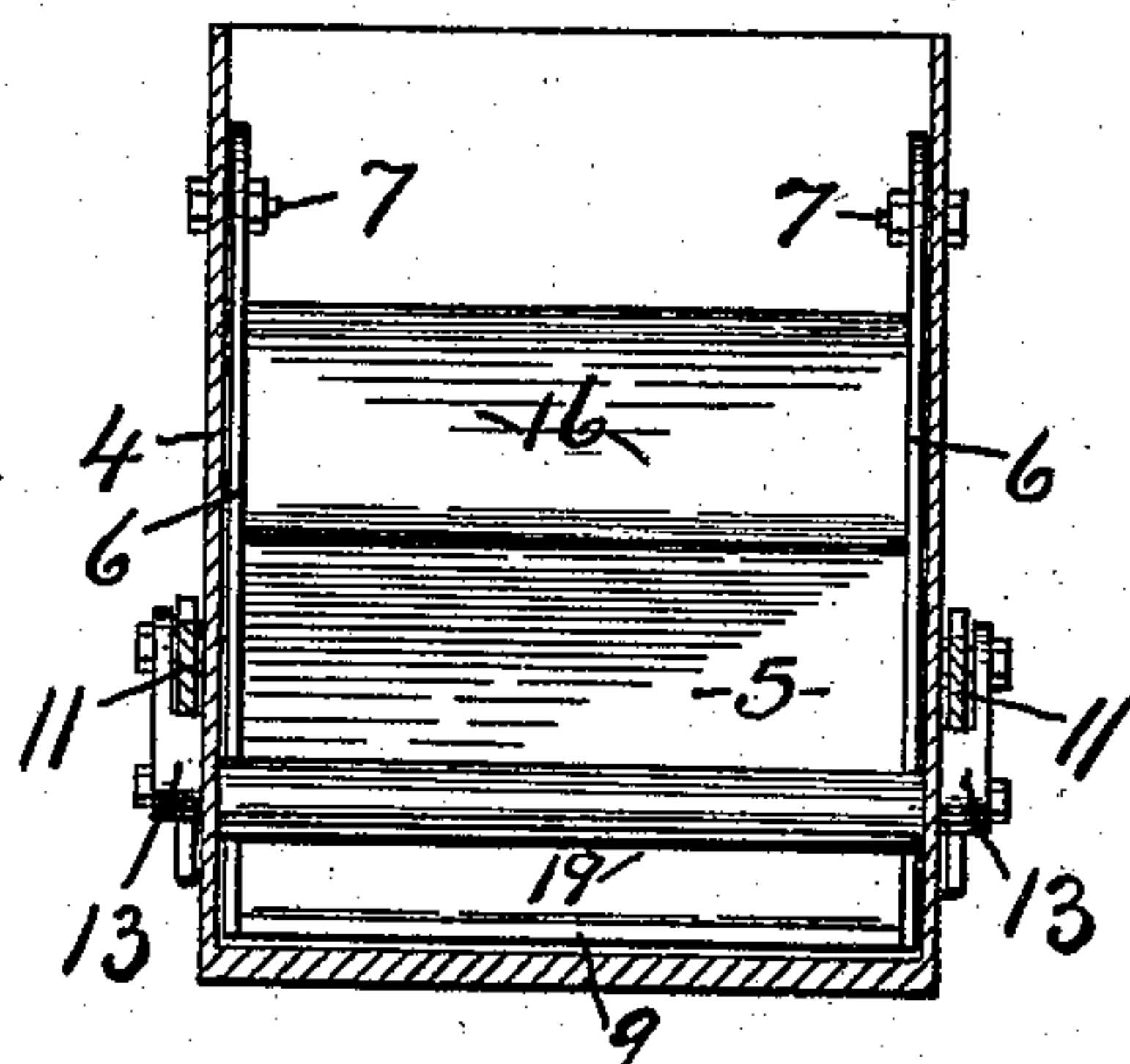


Fig. 5.

Fig. 6.

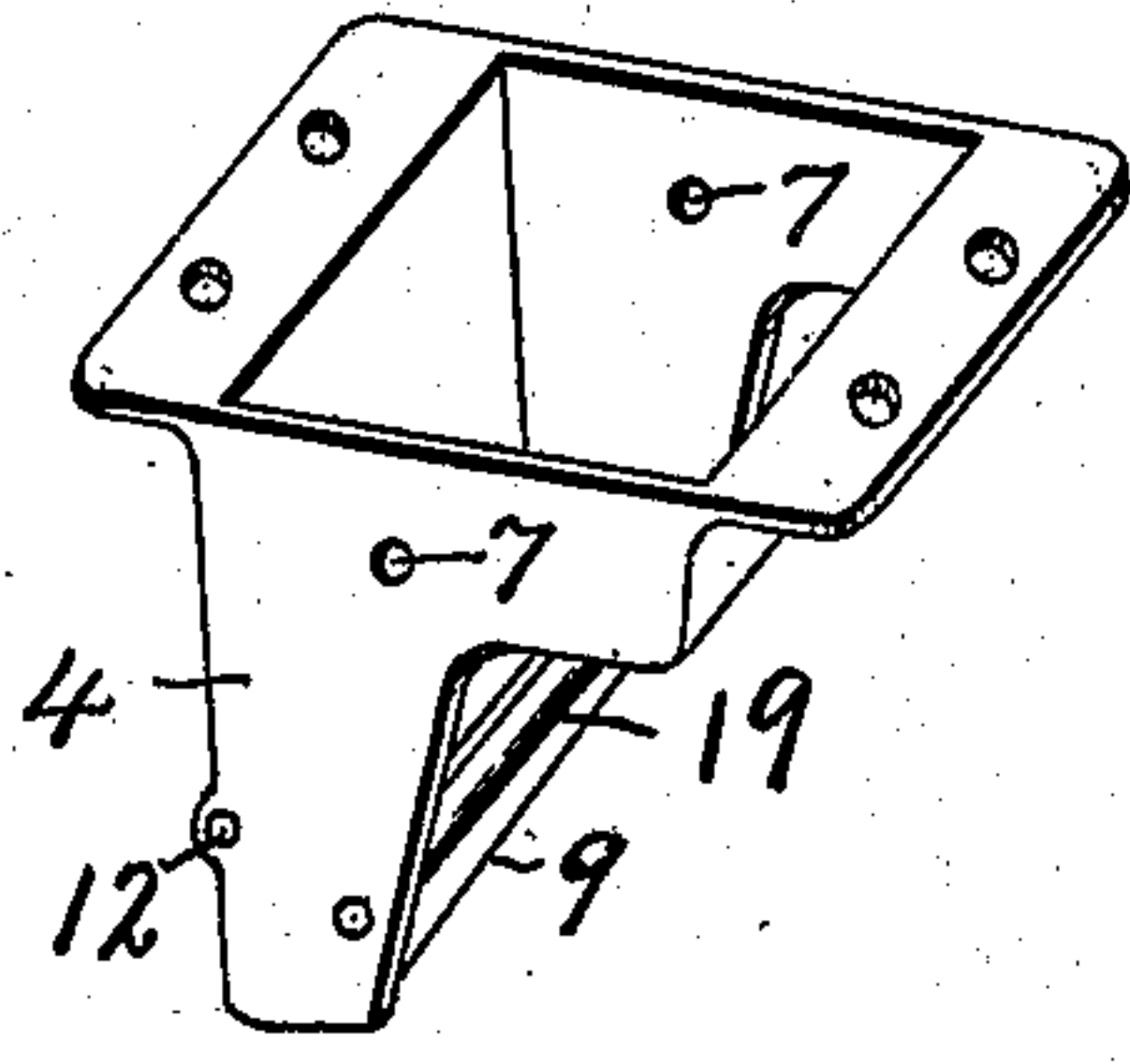
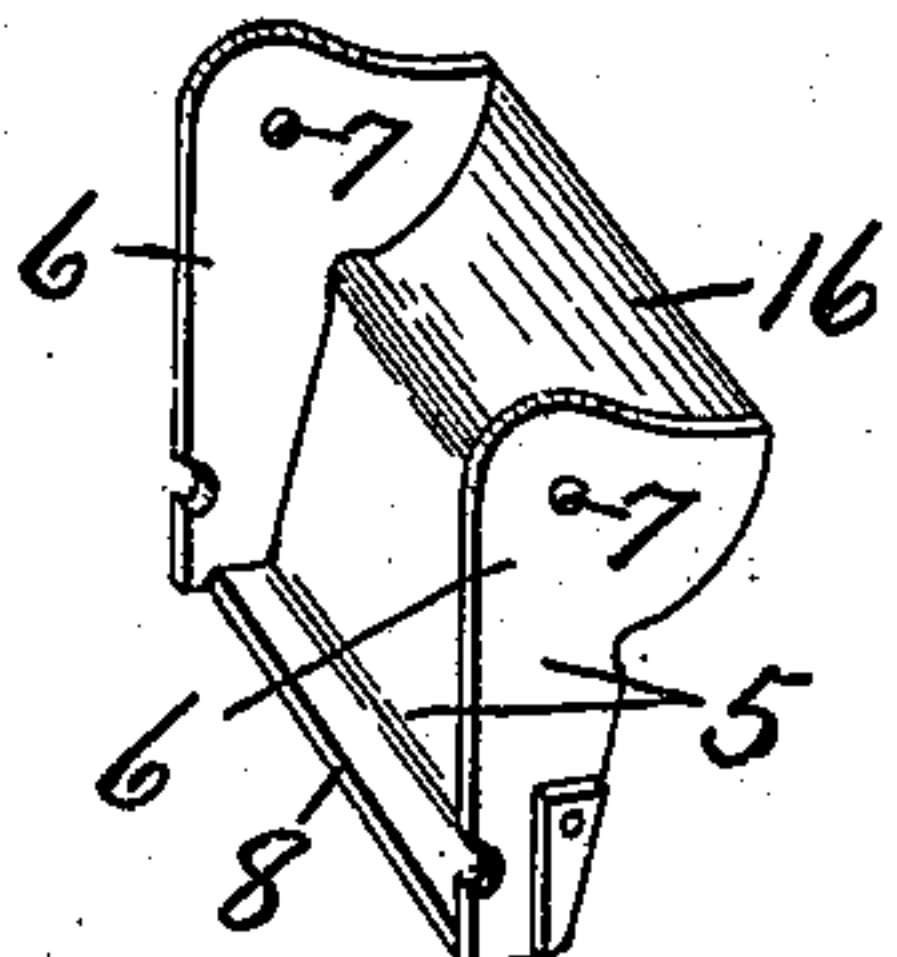
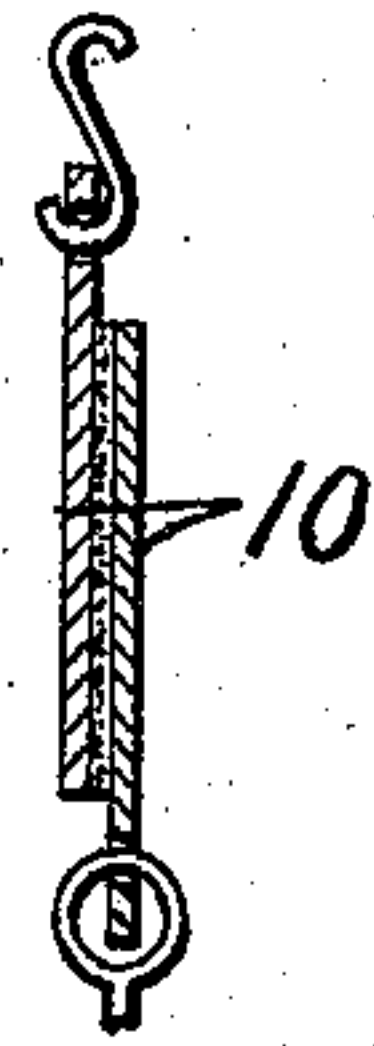


Fig. 7.



WITNESSES.
J. A. Bowles.
H. E. Chas.

Inventor.
D. S. Watson
By
Howard P. Kinsley
Attorney.

UNITED STATES PATENT OFFICE.

DAVID S. WATSON, OF CANASTOTA, NEW YORK.

FIRE-PROTECTIVE SHIELD.

No. 900,243.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed March 16, 1908. Serial No. 421,470.

To all whom it may concern:

Be it known that I, DAVID S. WATSON, of Canastota, in the county of Madison, in the State of New York, have invented new and useful Improvements in Fire Protective Shields, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in fire protective shields for belt openings of the class set forth in my pending application Serial Number 350,799 filed January 4, 1907 and is particularly useful in connection with the belt openings in floors to prevent the spread of the fire which may occur on one floor to the next floor above through the belt openings in the floor.

The main object as described in my application previously referred to, is to associate with the belt and belt opening a fire proof shield adapted to surround the opening and adjacent portion of the belt and to be secured to the under side of the floor so as to project a sufficient distance downwardly into the room to prevent passage of the fire or flame which may arise to the ceiling along said ceiling and through the belt openings and still form a passage through which the belt may operate freely or without friction therewith.

Another object is to provide the shield with a movable closure which in the absence of fire or under normal conditions is held in its open position by one or more fusible detents susceptible to being melted under a comparatively low temperature from the heat of the flame in case of fire in proximity thereto.

A further object is to provide the shield with means for severing or cutting the belt when the movable closure is released by the fusing of its detent.

Other objects and uses relating to specific parts and combinations of parts will be brought out in the following description.

In the drawings—Figure 1 is an elevation of my improved fire shield shown as operatively secured to the under side of the ceiling of a building, the ceiling and belt opening therethrough being shown in section. Fig. 2 is a sectional view of the same fire shield showing the closure as released and closed by fusing of the detent, the belt being shown as severed by the cutting means actuated by the shutting of the closure. Figs. 3 and 4 are sectional views taken respectively on

lines 3—3 and 4—4, Fig. 2. Figs. 5 and 6 are perspective views respectively of the fixed and movable sections of the shield. Fig. 7 is a sectional view of the detached detent plates.

In order to demonstrate the practicability of my invention I have shown the ceiling —1— of a building as provided with a belt opening —2— for a belt —3—, a portion of which is shown in Figs. 1 and 2.

Secured to the under side of the ceiling —1— with its upper end surrounding the opening —2— is a fire shield —4— of metal or other fire proof material, said shield extending downwardly some distance from the under side of the ceiling and having a vertical belt opening therethrough registering with the belt opening —2— in the floor and through which the belt is passed.

The interior form and dimensions of this shield conforms somewhat to the width of the belt being usually rectangular in cross section and of sufficient interior dimensions to permit the belt to operate therethrough freely or without friction.

One side of the shield as —5— is fitted within the main body of the shield and provided with end pieces —6— which are pivoted at —7— to the ends of the main body near the lengthwise center and also near the top constituting a movable closure having its lower end provided with a knife edge —8— which coacts with a similar fixed knife edge —9— on the lower end of the fixed part of the shield for severing or cutting the belt by the shutting of the closure in case of fire. This closure is normally held in its open position by links —10— and a fusible detent consisting of soft solder or similar material which is susceptible to being melted under a comparatively low temperature.

One end of the link —10— is hooked or otherwise fastened to the under side of the ceiling or adjacent portion of the shield —4— while its opposite end is similarly connected to one end of a weighted lever —11— which is pivoted at its opposite end at —12— to the fixed part of the shield —4—.

The free lower end of the closure —5— is pivotally connected to one end of a link —13— having its opposite end pivoted to the intermediate portion of the lever —11— as best seen in Fig. 1, said link serving as a means for transmitting motion from the lever —11— to the closure —5— during the opening and closing of the latter and also

serves to hold the closure in its open position when the lever is held in its extreme up position by the fusible detent.

As shown in the drawings the lever —11— preferably consists of a U-shape bar having its opposite arms embracing and pivoted at one end to the fixed body of the fire shield some distance below the ceiling or rather a short distance above the lower end of the shield, the cross arm of said U-shape lever being free to play vertically at the opposite side of the shield to that upon which the lever is pivoted and this cross bar preferably bears a suitable weight —14— for depressing the lever and closure connected thereto with sufficient force to sever the belt —3— between the knife edges —8— and —9— when the movable parts are released by the melting or fusing of the detent. This force or power of action of the lever closure —5— when released is augmented by the position of the links —13— relatively to the ends of the levers and to the lower end of the closure by reason of the fact that it is connected to said closure a considerable distance from the swinging axis of the closure and also below the lever. The distance between the pivot —12— and pivotal connection of the link —13— with the lever is greater than the distance between the same pivot —12— and swinging axis of the closure. The pivotal connection between said link and the closure is in a position at one side of a plane drawn through the swinging axis of the closure and pivotal connection of said link with the lever nearest the pivot —12— so as to prevent a dead lock between the lever and closure and also to insure shutting of the closure when the lever is released by fusing or breaking of the detent.

The closure —5— as previously stated forms a portion of one side of the fire shield and is provided with a curved portion —16— concentric with the swinging axis or pivot —7— which curved portion travels in close proximity to an inwardly projecting flange —18— on the adjacent side of the shield to maintain a fire proof joint between the closure and main body of the shield when the closure is in either its open or closed position.

It is evident from the foregoing description that the belt travels through the opening —2— and also through the shield and between said parts to clear the knife edges —8— and —9— when the closure is in its open position as shown in Fig. 1 and in order that the belt may be kept from coming in contact with the knife edge —9— during normal conditions or when the belt is in action, I provide a roller bearing —19— running transversely of the belt in a horizontal position a short distance above the knife edge —9— and having its opposite ends supported in the ends of the fixed section of the

fire shield and having its side adjacent the belt projecting a slight distance beyond the plane of the knife edge —9— so as to protect the belt against contact with and cutting by said knife edge.

What I claim is:

1. In combination with a floor and ceiling having a belt opening therethrough, a fire shield consisting of a casing secured to the ceiling around the opening to surround the adjacent portion of the belt and projecting downwardly some distance from the ceiling, said shield having a portion of one side movable to and from the opposite side, means including a heat destructible detent for holding said movable portion open, said movable portion being released to close the lower end of the belt opening in the fire shield when the heat destructible detent is destroyed by heat.

2. In combination with a floor and ceiling having a belt opening therethrough, a fire shield secured to the under side of the ceiling around said belt opening to surround the adjacent portion of the belt and having a portion of one side hinged to the main body and movable toward and from the opposite side to open and close the lower end of the shield, means including a heat destructible detent for holding the movable side of the shield open, said movable side being self-closing when the heat destructible detent is disintegrated.

3. A fire protective shield for belt openings comprising a fixed part and a movable part forming a casing through which the belt passes, means to hold the movable part in its open position, said movable part being self closing, the two parts having coacting shearing edges to sever the belt when the movable part closes.

4. In combination with a floor having a belt opening, a fixed part secured to and extending downwardly from the floor and a self-closing movable part, said parts having coacting lower edges to engage opposite sides of the belt when the part is closed, and means including a heat destructible detent for holding the movable part in its open position.

5. A fire shield for belt openings in floors and ceilings comprising a fixed part secured to the under side of the ceiling around the belt opening and adjacent portion of the belt, and a movable part coacting with the fixed part to close the lower end of the belt opening in the shield, means including a heat destructible detent for holding the movable part in its open position, and means for forcibly closing the movable part when the detent is destroyed.

6. A fire shield for belt openings in floors and ceilings comprising a fixed part secured to the under side of the ceiling around the belt opening and adjacent portion of the

belt, and a movable part coacting with the fixed part to close the lower end of the belt opening in the shield, means including a heat destructible detent for holding the movable part in its open position, and means for forcibly closing the movable part when the detent is destroyed, said fixed and movable parts being provided with shearing blades operating to impinge against opposite faces of the belt when the movable part is closed.

7. A fire shield for belt openings in floors and ceilings comprising a fixed part secured to the under side of the ceiling around the belt opening and adjacent portion of the belt, and a movable part coacting with the fixed part to close the lower end of the belt opening in the shield, means including a heat destructible detent for holding the movable part in its open position, means for forcibly closing the movable part when the detent is destroyed, said fixed and movable parts being provided with shearing blades operating to impinge against opposite faces of the belt when the movable part is closed, and a guard transversely of the shield to

prevent contact of the belt with the shearing edge of the fixed part when the movable part is in its open position.

8. A fire shield for belt openings in floors and ceilings, said fire shield comprising a fixed part and a movable part between which the belt passes, said fixed and movable parts having their lower edges adapted to impinge against opposite faces of the belt when the movable part is closed, a lever pivoted to the fixed part and connected to the movable part to control the opening and closing of said movable part, and means including a heat destructible detent for holding the lever in position to hold the movable part open, said lever and movable part operating by their own gravity to close the movable part when the detent is destroyed.

In witness whereof I have hereunto set my hand this 22nd day of February 1908.

DAVID S. WATSON.

Witnesses:

C. G. FOWLER,
H. E. CHASE.