

No. 889,737.

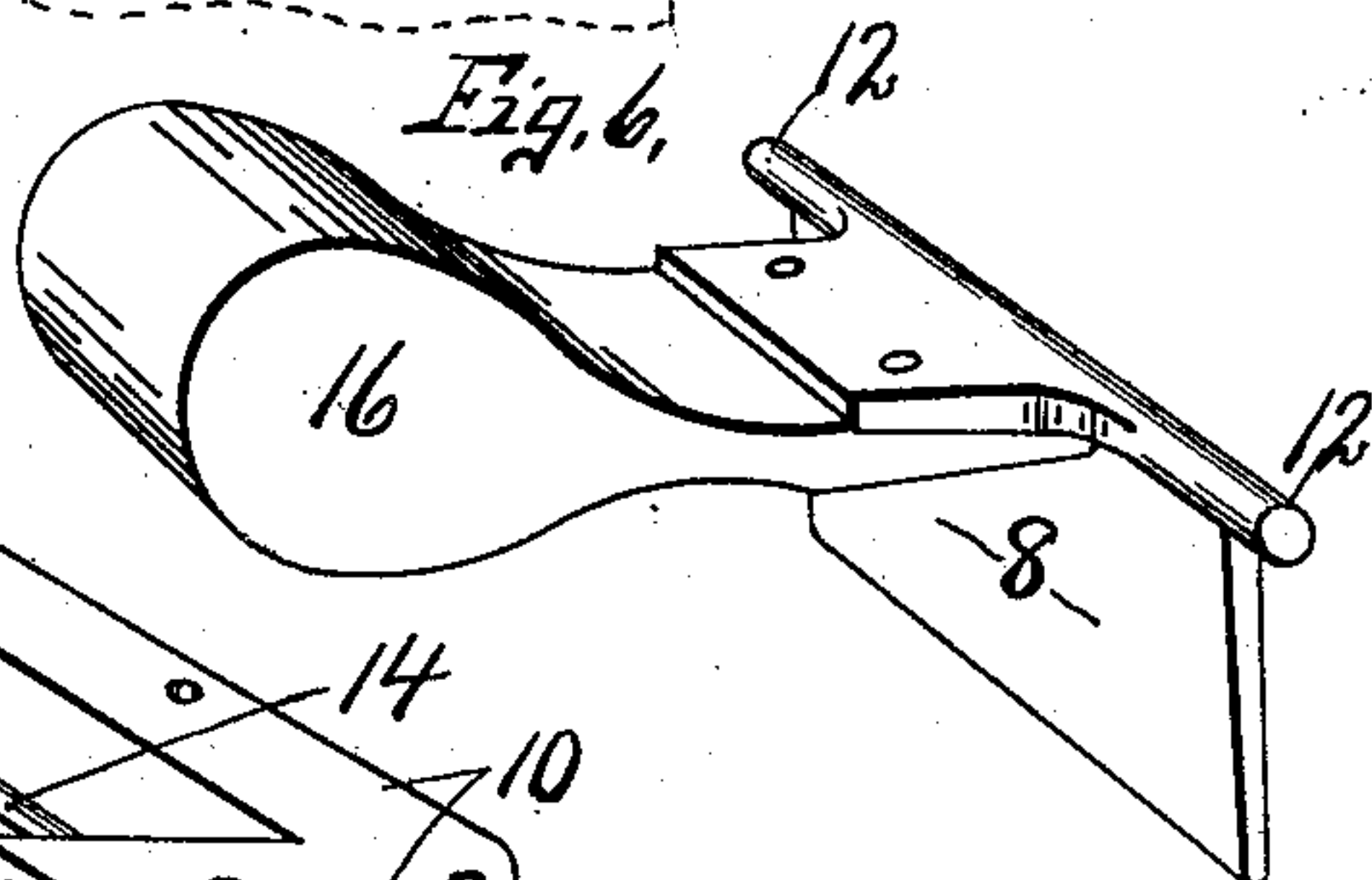
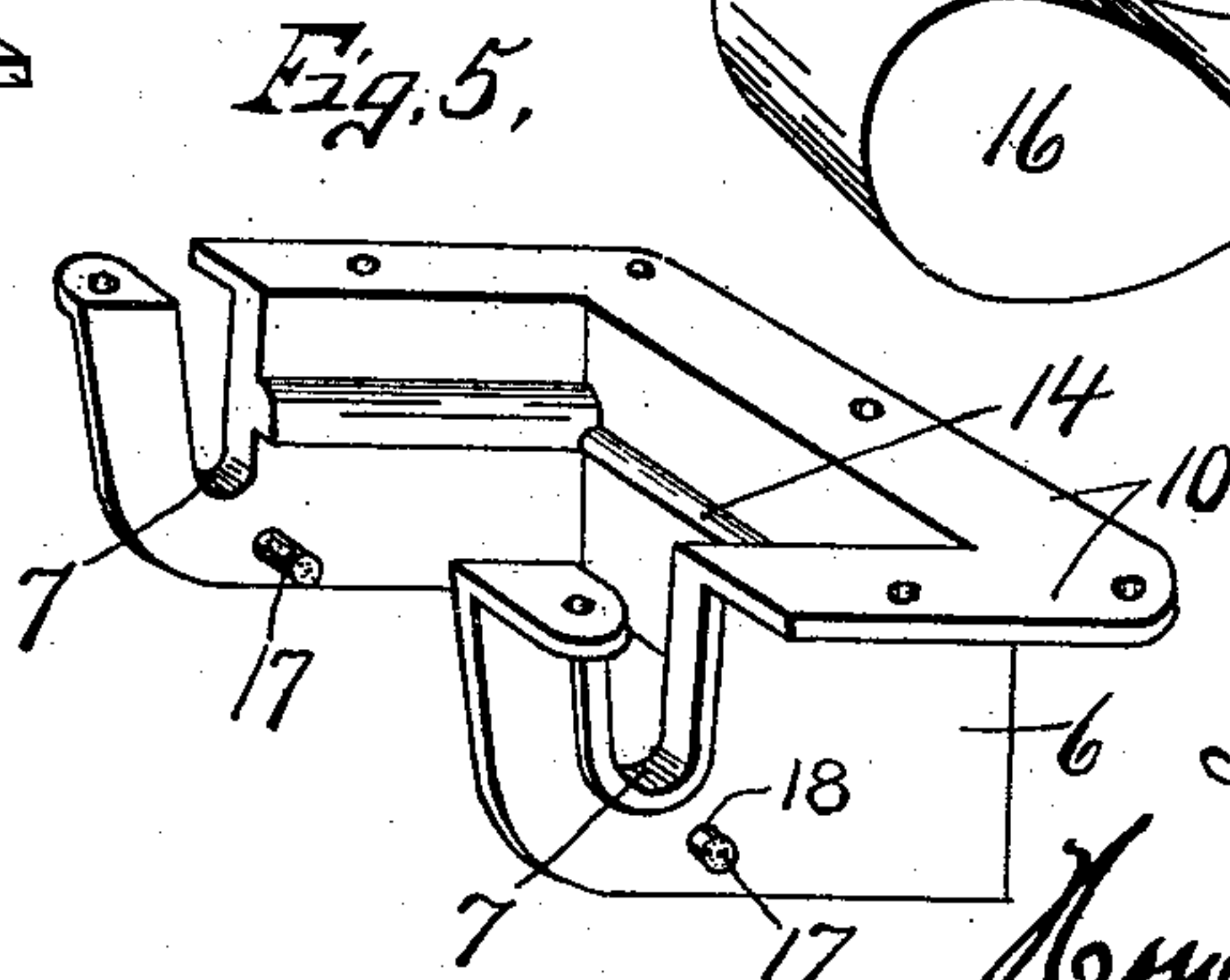
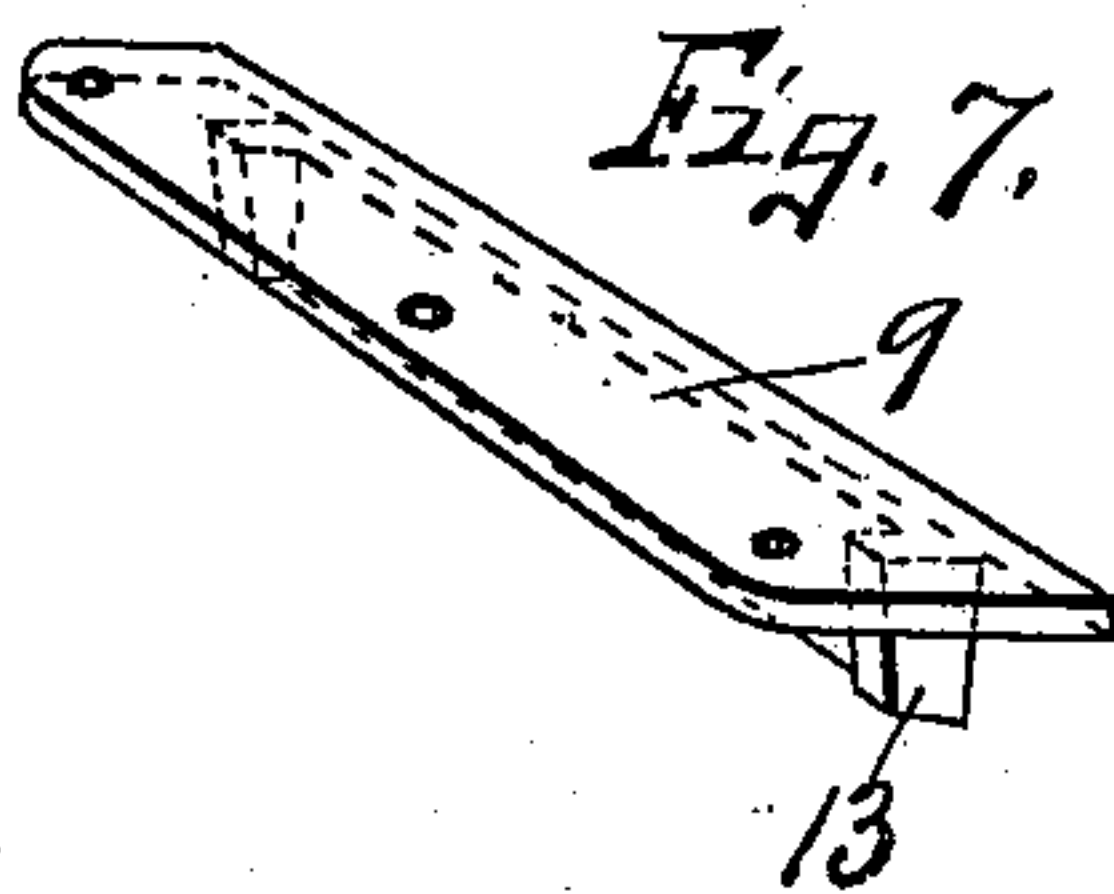
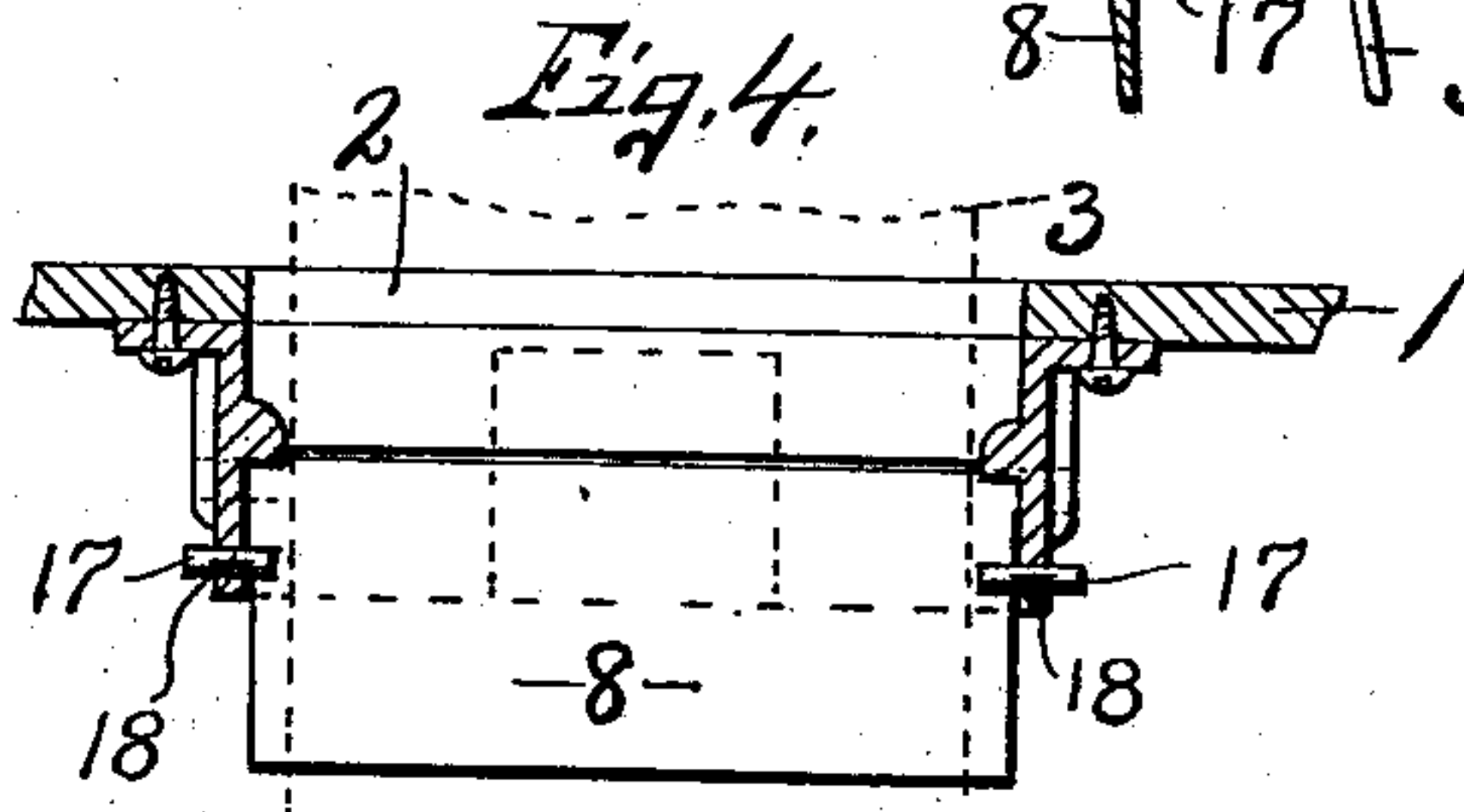
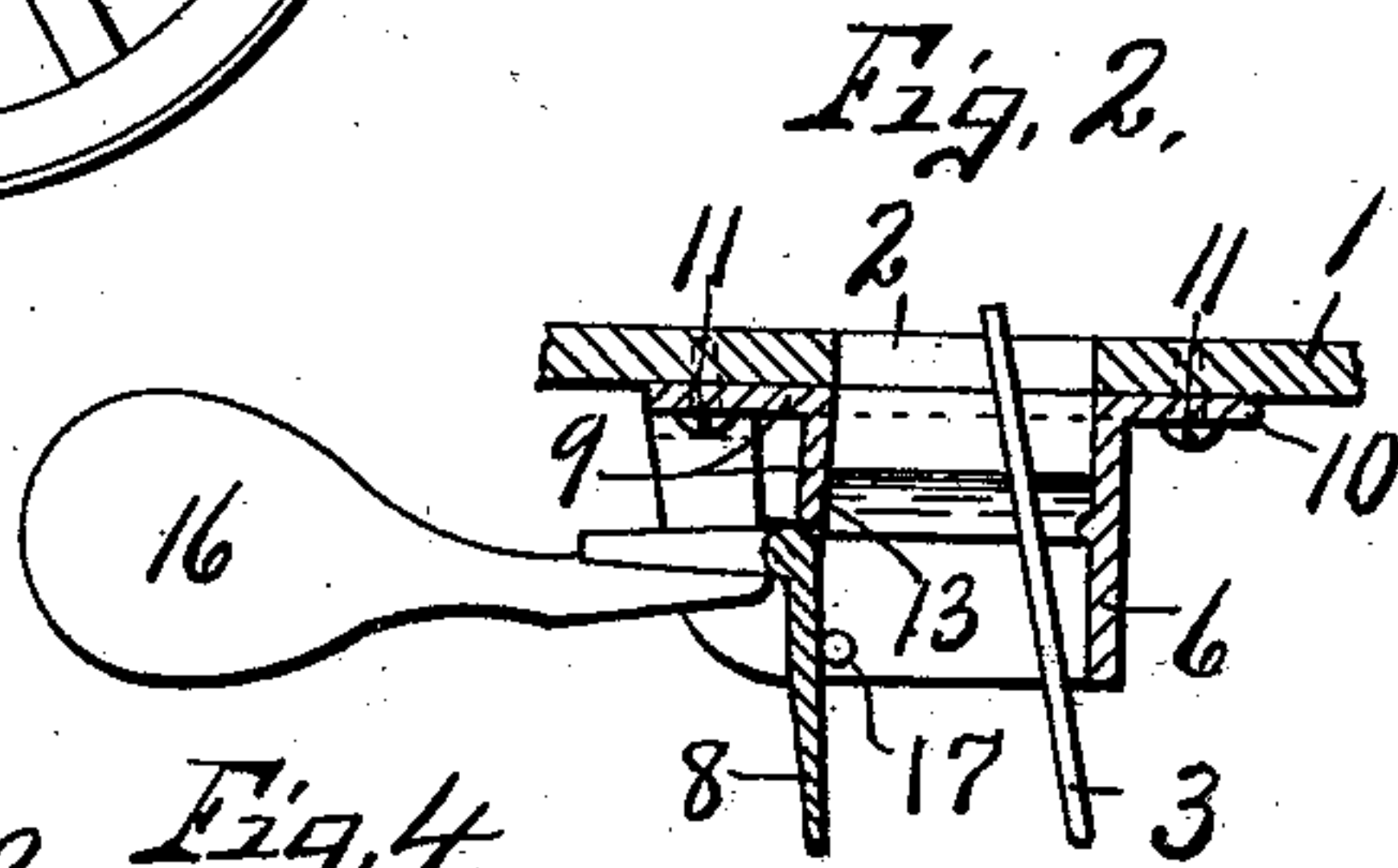
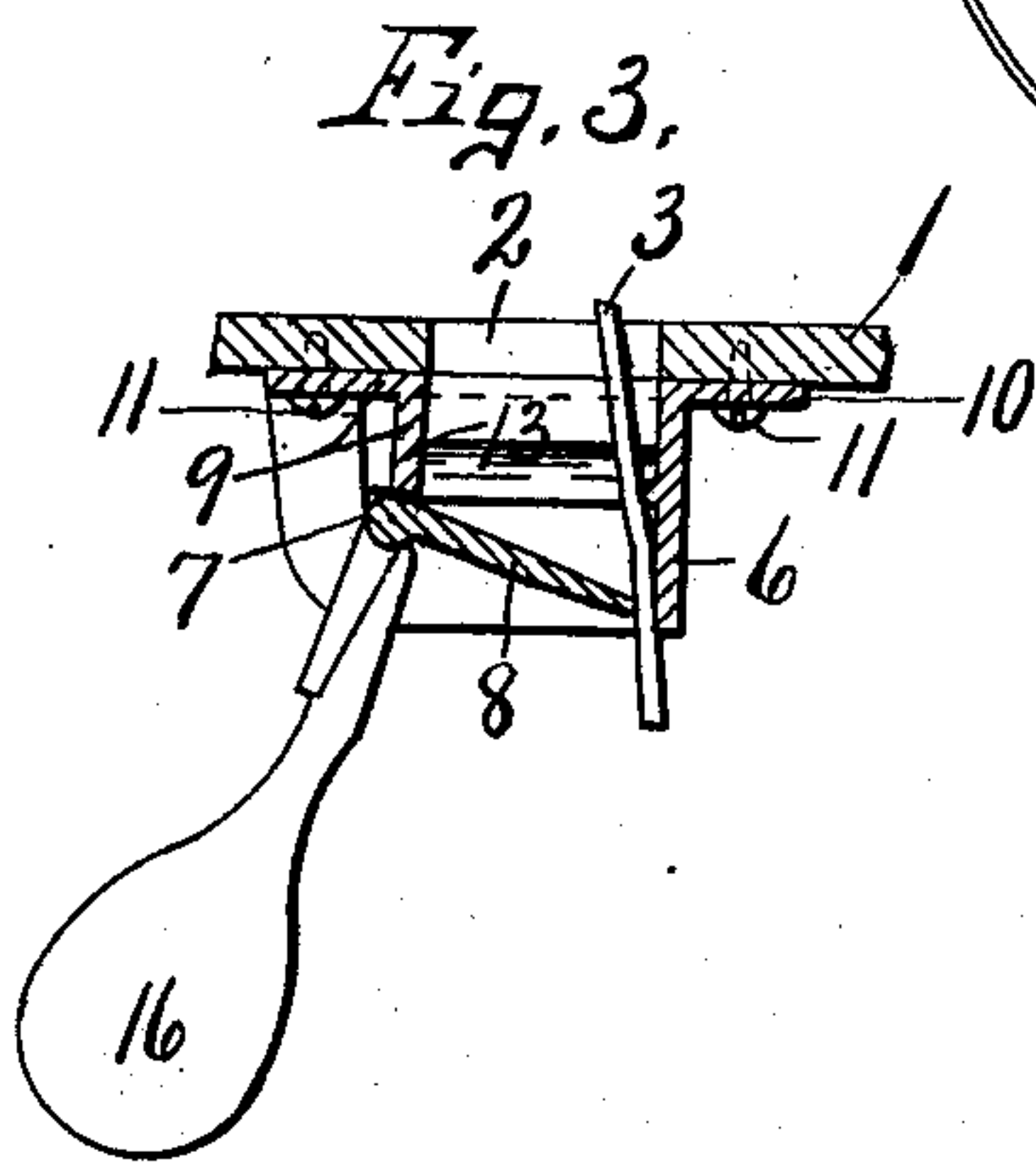
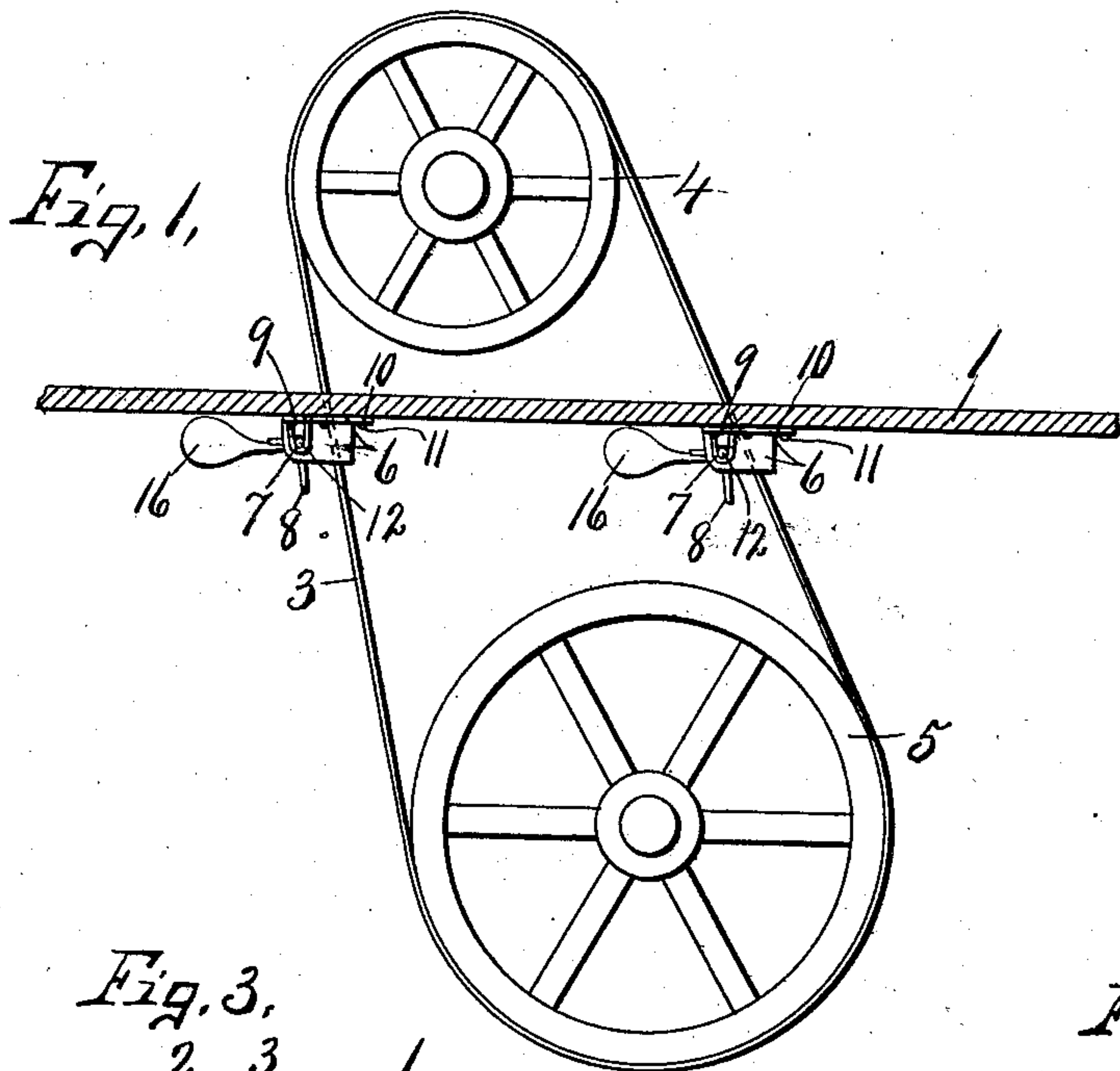
PATENTED JUNE 2, 1908.

D. S. WATSON.

FIRE SHIELD.

APPLICATION FILED AUG. 2, 1907.

2 SHEETS—SHEET 1.



Witnesses
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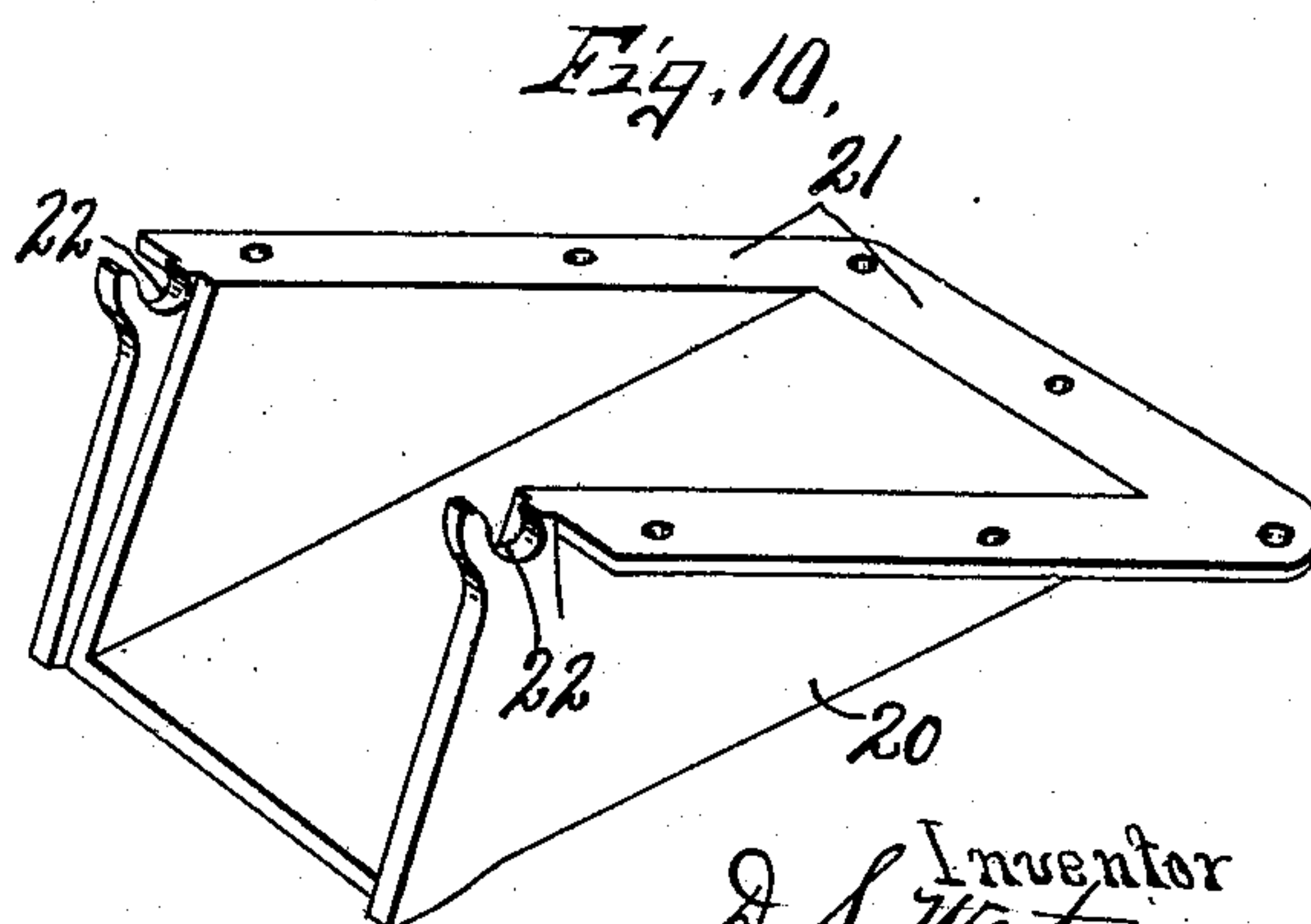
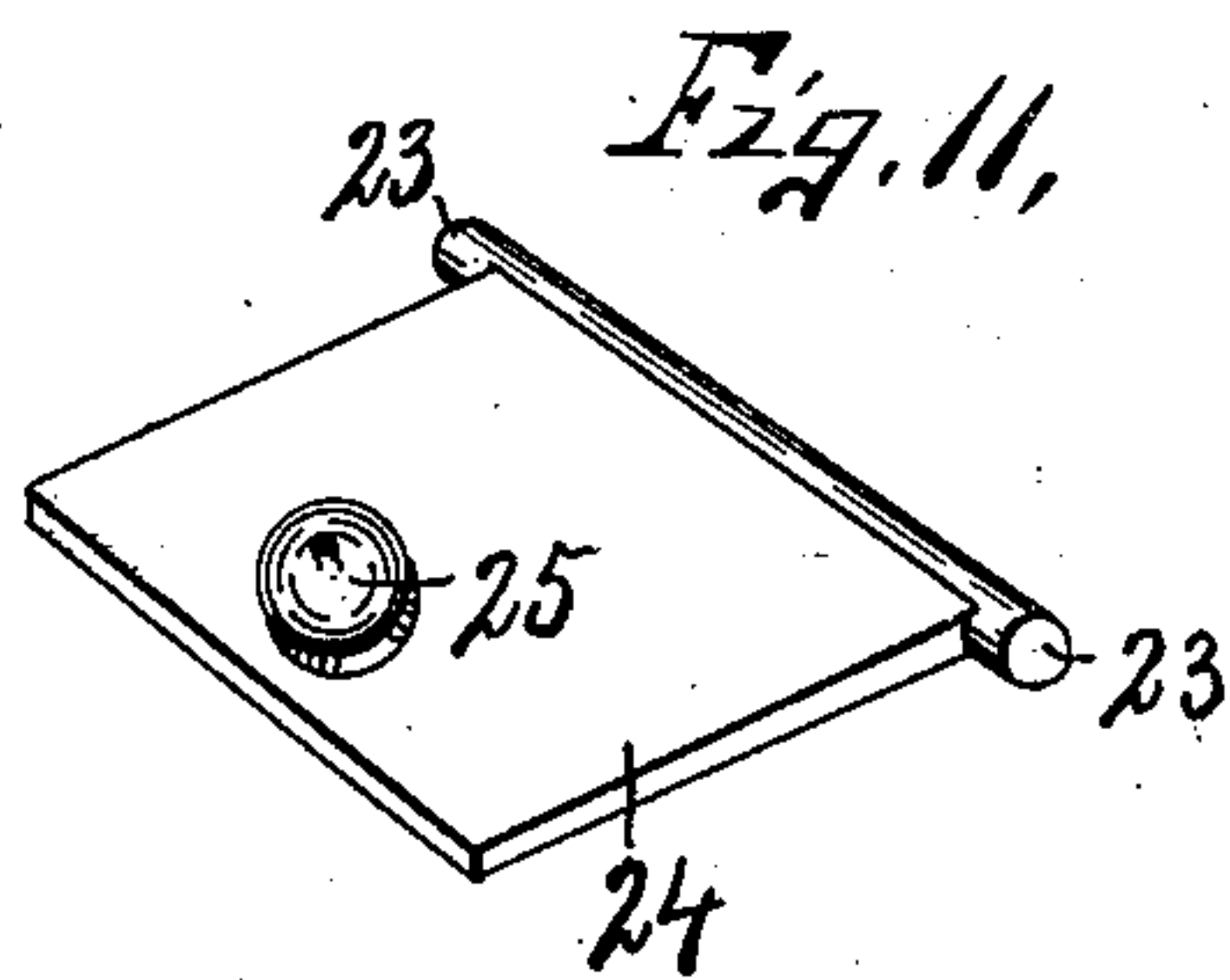
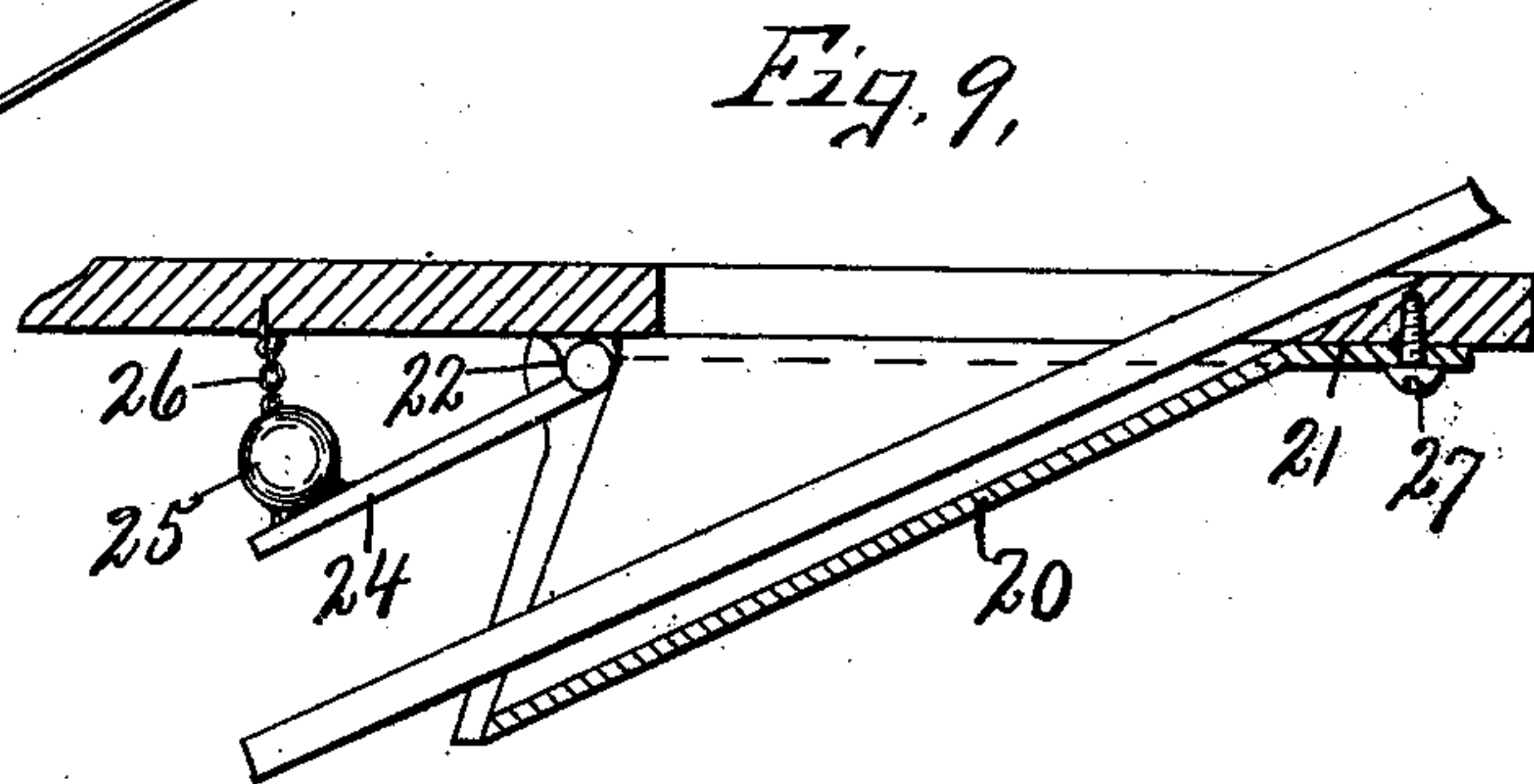
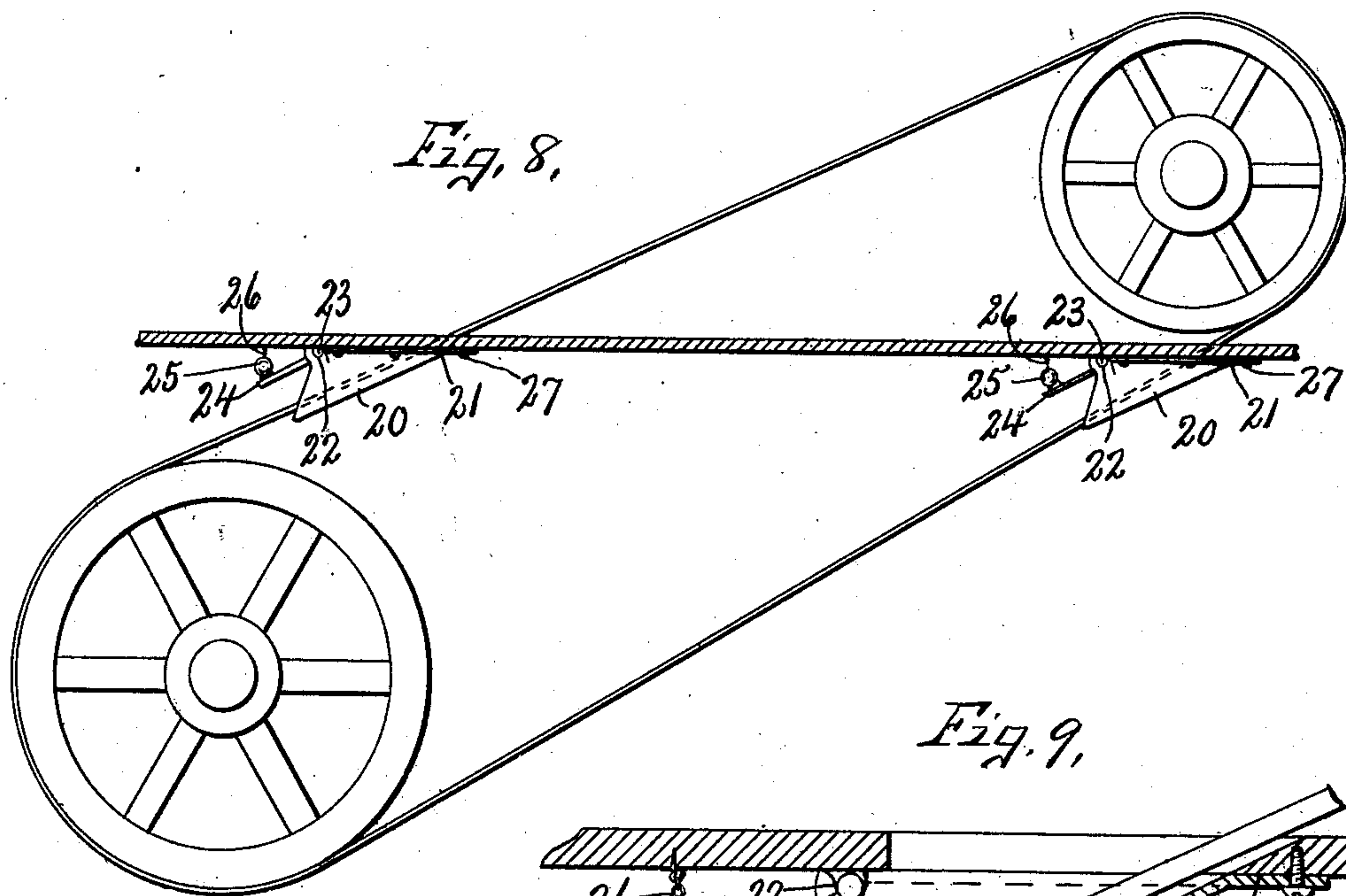
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UNITED STATES PATENT OFFICE.

DAVID S. WATSON, OF CANASTOTA, NEW YORK.

FIRE-SHIELD.

No. 889,737.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed August 2, 1907. Serial No. 386,736.

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-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 shields of the class set forth in my Patent No. 848,583 issued March 26, 1907, and also in my pending application Serial No. 350,799 filed January 4, 1907, the specific object of which is to prevent the passage of flames in case of fire along the ceiling and through the belt openings in the floors of factories and other buildings where it is necessary to project belts through the floors.

The essential object of my present invention is not only to surround the lower side of the belt opening with depending fire-proof flanges, but also to provide a movable closure for the opening held in its open position by a fusible detent and capable of automatically closing the opening upon the destruction of the detent.

It is obvious that many different forms of fire shields for this purpose may be devised, depending somewhat upon the angle of the belt with reference to the floor through which it passes, and also upon the varying structural conditions of the buildings in which these devices may be installed, and while I have shown two different forms of the device for carrying out the same object, it is evident that any suitable closure adapted to be held open by any detent, the whole or a portion of which is fusible under a comparatively low temperature, may serve to carry out the same object so long as the closure is self-acting when released.

In the drawings—Figure 1 is an elevation of a pair of my improved fire shields as operatively associated with a belt passing through a floor, which is shown in section. Figs. 2 and 3 are transverse sectional views through one of the fire shields seen in Fig. 1, showing the closure open in Fig. 2, and closed in Fig. 3. Fig. 4 is a longitudinal sectional view through the same fire shield showing the closure open, and also showing the belt guards in the ends of the shields to prevent contact of the belt with the fusible detents. Figs. 5, 6— and —7— are perspective views respectively of the main body, swinging gate or closure, and cap, constituting practically all of the parts

of the shield. Fig. 8 is an elevation of a pair of modified forms of fire shields, as associated with a belt which runs at a sharper angle with the floor than that seen in Fig. 1. Fig. 9 is a longitudinal sectional view of one of the fire shields seen in Fig. 8. Figs. 10 and 11 are perspective views respectively of the main body and closure of the same shield.

In Fig. 1 I have shown a floor —1— as provided with a plurality of belt openings —2— through which pass the belt —3—, the latter being shown as mounted upon suitable pulleys —4— and —5— above and beneath the floor. Each belt opening is provided with a fire shield, consisting in this instance, of a rectangular tubular body portion —6— having its ends provided with open sided bearings —7— in which is journaled a weighted gate or closure —8—, which is held in place by a removable cap —9— forming a portion of the top and one side of the main body —6— and adapted to cover the open sides of the bearings —7—, as best seen in Figs. 2 and 3.

The tubular body —6— is provided at its upper end with a marginal flange —10—, which, together with the cap —9—, is adapted to be clamped by suitable bolts or screws —11— to the underside of the floor —1— so as to surround the opening —2—.

The main body —6— constitutes one side of the tubular shield and is open at the opposite side for the reception and action of the movable closure —8—, and at the same time permits the shield to be readily placed in operative position around the belt without unlacing or removing the fastenings at the meeting ends of said belt, the side and ends of the tubular body —6— projecting downwardly some distance below the floor so as to prevent the fire or flames from creeping along the underside of the floor and through the belt openings therein.

The movable gate or closure —8— is adapted to be placed between the ends of the tubular body —6— and is provided with laterally projecting trunnions —12— which are journaled or seated in the bearings —7— and are held in place against upward displacement by the cap —9—, which is formed with a depending flange —13— substantially filling the upper portion of the open sides of the bearings above the trunnions —12—.

The gate or closure —8— is of substantially the same length as the distance between the ends of the main body —6— and

its width is substantially the same as the distance between the bearings —7— and opposite side of said main body, which latter side is provided with a lengthwise rib 14— parallel with and in nearly the same horizontal plane as the bearing —7—, against which the lower lengthwise edge of the door abuts when the latter is swung to its closed position, which operation is effected by means of a weighted arm 16— projecting laterally and outwardly from the door or gate —8—. This gate or closure —8— is normally held in its open position by one or more fusible detents —17— of soft lead or other material, which is fusible under a comparatively low temperature, and which, in this instance, are made in the form of pins and pass through apertures —18— in the ends of the tubular body —6— just at the rear of and below the bearings —7— so that when the trunnions of the closure —8— are seated in said bearings the inner ends of the fusible detents 17— will lie in the path of and form abutments for the closure to hold the latter in its open position. In case of fire, however, traveling along the under side of the floor toward the belt openings, the downwardly projecting sides of the tubular body —6—, cap —9— and gate —8—, would prevent the flames from passing directly through the belt openings therethrough, and also in the floor and in a short time would destroy the integrity of the fusible detents —17—, thereby allowing the weight —16— to automatically close the door across the opening, thereby effectively cutting off the passage of the flames through the fire shield, and therefore, through the floor, as best seen in Fig. 3, in which a portion of the belt is shown as firmly impinged by the free edge of the door or closure —8— against the opposite side of the tubular body —8—. If, however, the belt should burn off at this point, which it most likely would do, shortly after the flames come in contact therewith, the free edge of the door would automatically be forced against the underside of the rib or flange 14—, thereby further cutting off even the slightest communication to the overlying rooms through the opening in the fire shield.

The fire shield shown in Figs. 8 to 11 inclusive comprises essentially a triangular box —20— having a marginal flange —21— and open sided end bearings —22— for receiving the pivotal ends —23— of a weighted swinging closure —24—. This shield is especially adapted for belts which are arranged at an acute angle with the floor, as shown in Figs. 8 and 9, and the main body is, therefore, provided with an inclined bottom and substantially vertical sides and is open at one end to permit it to be placed around the belt without detaching the meeting ends of said belt, but before securing it to the underside of the floor, the movable closure —24— is hung

in the bearings —22— and is held therein against upward displacement by the superposed portion of the floor. This closure is provided with a suitable weight —25— adapted to quickly close the door when released, but is held in its open position by a suitable detent —26— connecting the weight with the underside of the floor, and having one or more fusible members which are adapted to be destroyed under comparatively low heat temperature, thereby allowing the door to drop by gravity to its closed position, or at least, to impinge the belt against the opposite side or bottom of the main body 20—.

When the parts are assembled in the manner just described around the belt and opening in the floor the shield is clamped to the under side of the floor by suitable fastening means, as screws 27, which are passed through apertures in the marginal flange 21.

It is evident from the foregoing description that each of these shields comprises essentially a box-like body secured to the underside of the floor around the belt opening and adjacent portion of the belt and provided with a normally open closure held in this position by a fusible detent and adapted to close automatically when the detent is destroyed by heat, thereby closing the belt passage through the fire shield and effectively preventing the passage of fire therethrough.

What I claim is:

1. A fire shield for belt openings consisting of a body of fire proof material having a belt opening therethrough, a belt in said opening, self-closing closure for said opening adapted to close against said belt, and a fusible detent for holding said closure open.

2. In combination with a floor having a belt opening therethrough, a belt in the opening, a fire shield secured to and projecting downwardly from the under side of the floor around the belt and floor opening, said shield having a belt opening therethrough and provided with a movable closure therefor, fusible means for holding the closure in its open position, and means for closing said closure against the belt when the fusible holding means is destroyed.

3. In combination with a floor having a belt opening and a belt in the opening, a box-like fire shield secured to and projecting downwardly from the under side of the floor around said opening and adjacent portion of the belt, and itself provided with a belt opening therethrough, a self-closing gate for the opening in the shield and adapted to close against the belt and a heat-destructible detent for holding the gate in its open position.

In witness whereof I have hereunto set my hand this 27th day of July 1907.

DAVID S. WATSON.

Witnesses:

C. M. WOOD,
L. R. McLEAN.