No. 820,009. PATENTED MAY 8, 1906.

J. S. PATTEN.

JOURNAL BOX AND DUST GUARD.

APPLICATION FILED AUG. 17, 1904.

2 SHEETS—SHEET 1.

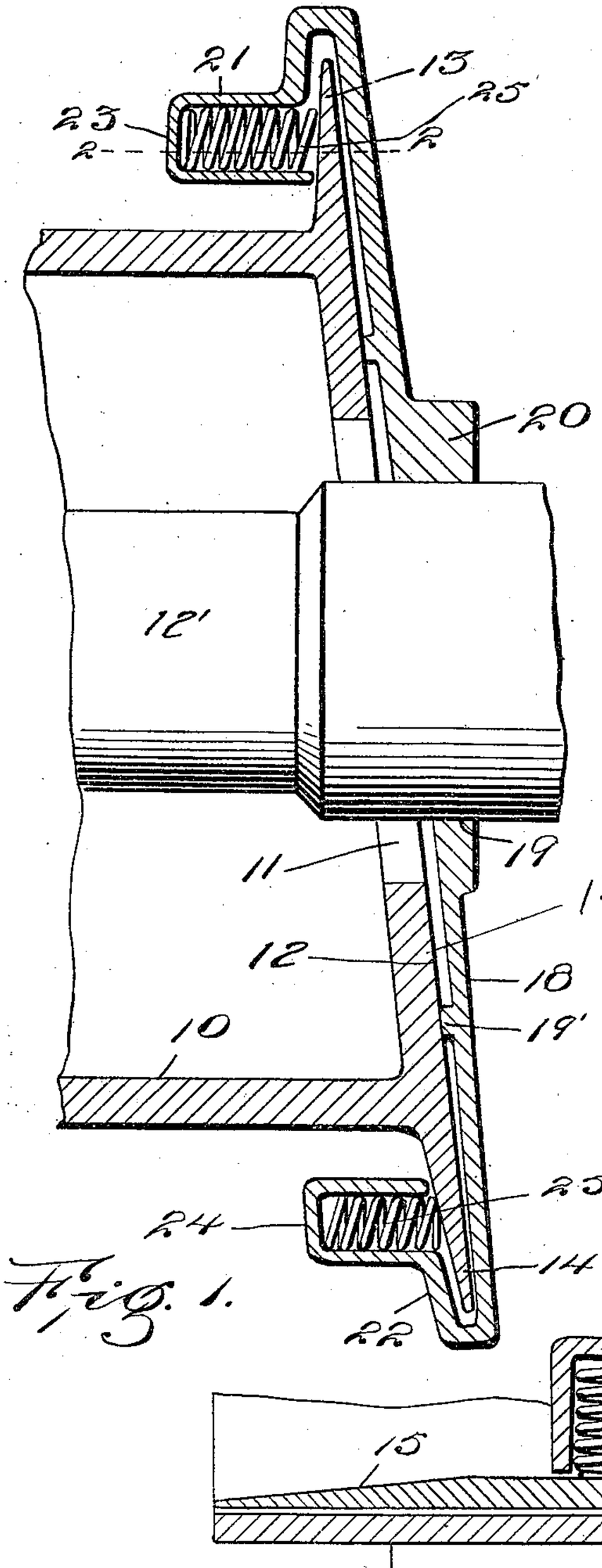

Fig. 1.

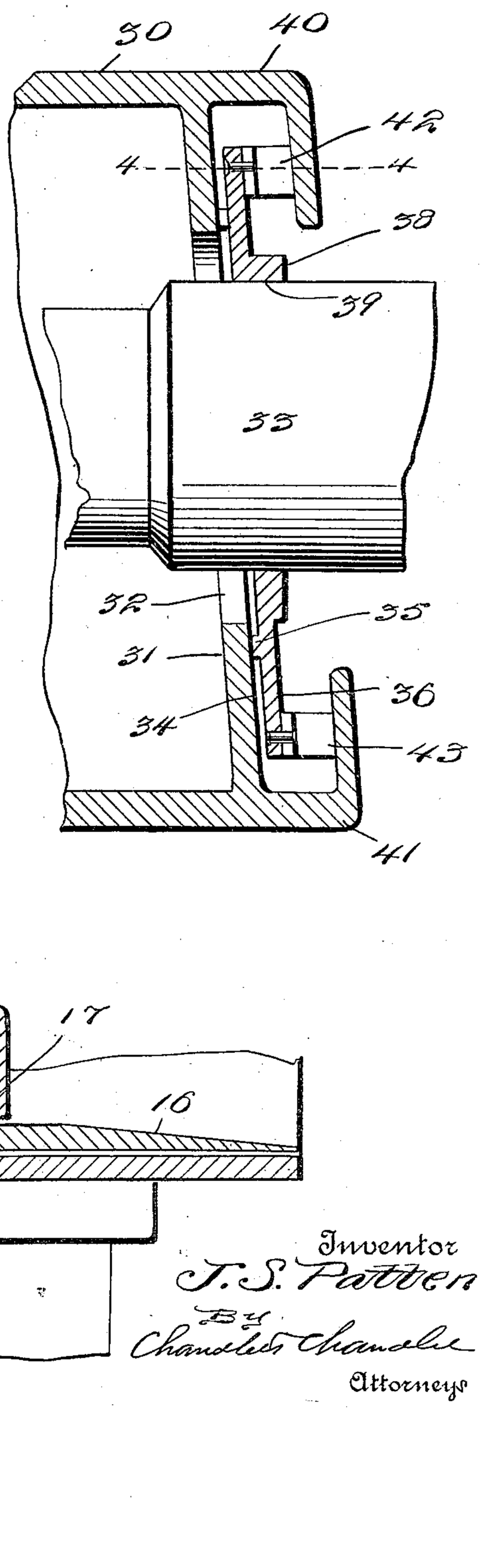

Fig. 3.

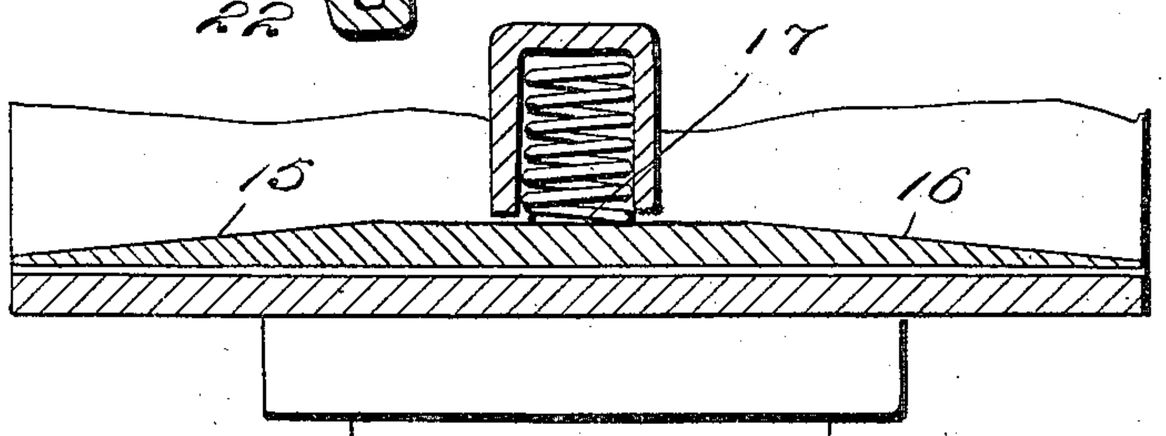

Fig. 2.

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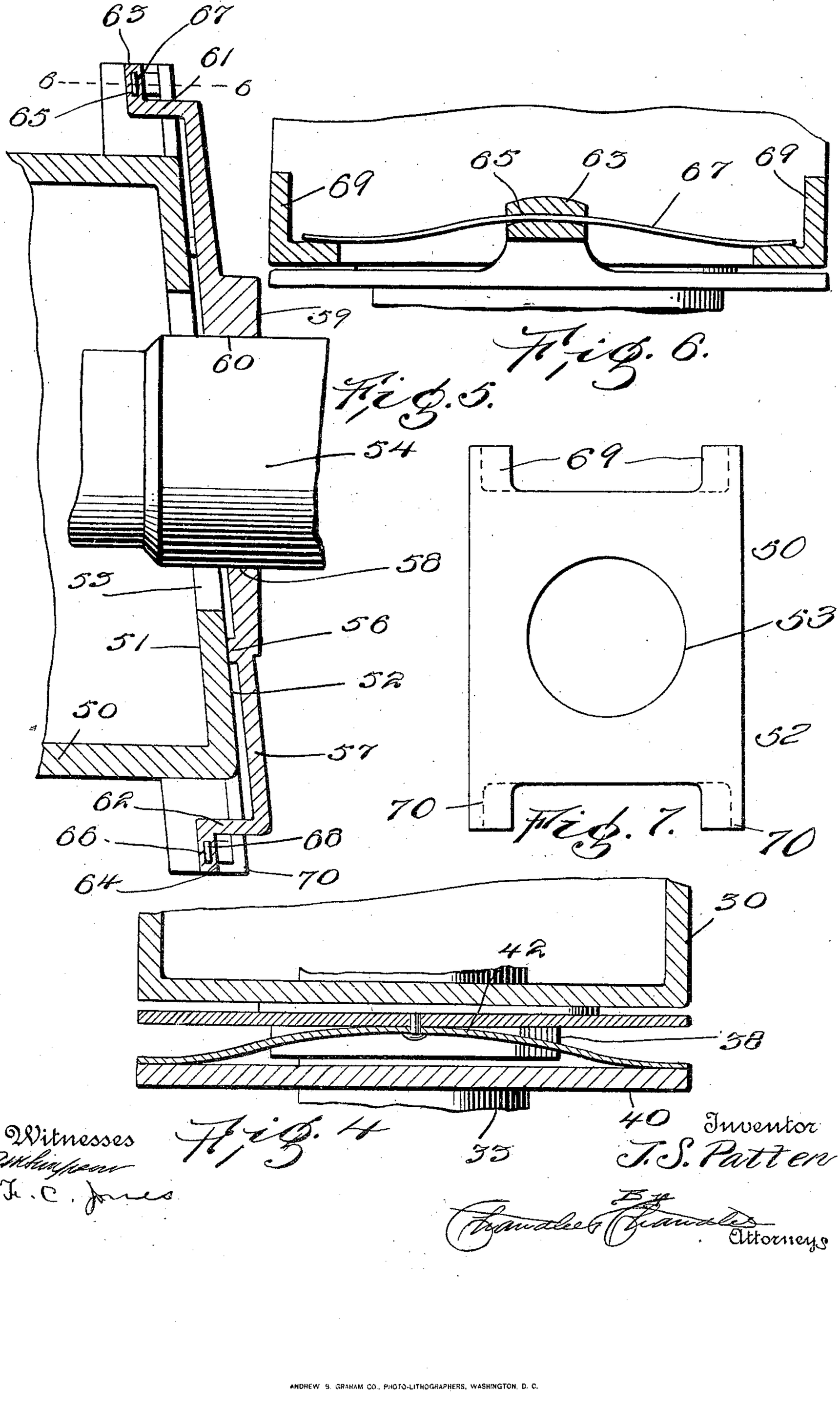

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4

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UNITED STATES PATENT OFFICE.

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JOURNAL-BOX AND DUST-GUARD.

No. 820,009. Specification of Letters Patent. Patented May 8, 1906.

Application filed August 17, 1904. Serial No. 221,042.

To all whom it may concern:

Be it known that I, JAMES S. PATTEN, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Journal-Boxes and Dust-Guards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to journal-boxes for railway-cars, and more particularly to means for preventing ingress of dust around the journal, the object of the invention being to provide an outside guard which will be held securely in place against the inner end face of the box, while permitting of lateral movement of the guard-plate as well as vertical movement corresponding to the shifting position of the journal relatively to the box.

A further object of the invention is to provide such a shape and arrangement of parts as will relieve the holding-springs to a marked degree and will at the same time obviate the tendency of the packing to creep out through the journal-opening at the inner end of the box.

An additional object of the invention is to provide against rapid wear of the guard-plate upon the journal.

Other objects and advantages of the invention will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a vertical section through the inner end portion of the journal-box and a dust-guard plate embodying the present invention. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1, illustrating a second embodiment of the invention. Fig. 4 is a section on line 4 4 of Fig. 3. Fig. 5 is a view similar to Fig. 1, illustrating a third embodiment of the invention. Fig. 6 is a section on line 6 6 of Fig. 5. Fig. 7 is an end view of the journal-box.

Referring now to the drawings, and more particularly to Figs. 1 and 2 thereof, there is shown a portion of a journal-box 10, in the rear or inner end of which is formed the usual opening 11 to receive the journal 12. As journal-boxes are ordinarily constructed the inner end faces thereof are vertical, so that when an outside dust-guard is employed the entire weight of the plate and the parts carried thereby is carried upon the journal with the exception of such part of the weight as is supported by the means which clamps the plate against the end of the box. The extent to which this clamping means supports the plate is determined by the friction with which it holds the plate against the end of the box, and this friction must not be so great as to materially interfere with sliding movement of the plate over the face of the box. In the present construction the inner end face 12′ of the journal-box slants, so that the bottom thereof lies closer to the car-wheel than its top, and from the upper and lower faces of the journal-box project flanges 13 and 14, respectively, the rear or outer faces of which form continuations of the face 12′, as illustrated. The opposite or front faces of the flanges 13 and 14 are beveled at their end portions, as shown at 15 and 16 in Fig. 2, the intermediate portion 17 forming a pressure-surface to receive the clamping-spring of the guard-plate, as hereinafter described. The guard-plate 18 has a central opening 19, which snugly receives the journal 12, and upon the inner face of this guard-plate is formed an annular flange 19′, which makes direct contact with the face 12′ and which under working conditions soon wears to a smooth contacting surface, which by fitting close against the face 12′ effectually prevents passage of dust between it and said face. In use the wall of the opening 19 gradually wears, the maximum wear being of course at the upper portion of the wall, and to retard this wear a boss 20 is formed upon the outer face of the plate 18, the free end face of this boss in use being vertical and standing at an acute angle to the inner face of the guard-plate, so that the upper portion of the boss is thicker than the lower portion and a greater surface is in contact with the journal, thus reducing the wear. The guard-plate 18 extends above and below the flanges 13 and 14, respectively, and then over the edge of the flanges, and then in the direction of the body of the box in hook shape, as shown at 21 and 22, respectively, there being housings 23 and

24, respectively, formed at the end portions of the bills of these hook-shaped portions, and in each housing is disposed a helical spring 25, the outer end of which bears against the corresponding flange. In putting the dust-guard plate in place it is moved laterally, so that the hooked portions will engage around the flanges 13 and 14. The helical springs first engage the beveled faces 15 or 16, depending upon the side with which they are initially engaged, and as the plate is slid into place the springs travel along the beveled faces, during which movement they are compressed or placed under increased tension, so that when the springs finally reach the faces 17 of the flanges they have been given the proper tension to hold the guard-plate with its flange 19′ snugly against the end face of the journal-box. With this construction the guard-plate is supported in a large measure by the slanting inner end face of the journal-box, while it has such a freedom of movement laterally and vertically as not to cause excessive wear of the plate against the journal.

Referring now to Figs. 3 and 4 of the drawings, there is shown a journal-box 30, having the slanting inner end wall 31, corresponding to the end wall 29 in Fig. 1 and through which is formed an opening 32 to receive the journal 33. The rear end or inner end face 34 of the journal-box slants in the same manner as the face 12′, and against this face rests the annular flange 35 of the guard-plate 36, which has also an opening 37, which snugly receives the journal. On the outer face of the plate 36 is formed a boss 38, which is thicker at its upper portion than at its lower to present the extended bearing-surface 39. From the upper edge portion of the journal-box 30 at the inner end thereof there projects an angle-flange 40, and from the lower edge portion of the box projects a corresponding angle-flange 41, these angle-flanges forming guides between which and the face 34 the upper and lower edge portions, respectively, of the guard-plate 36 are received. Against the outer face of the guard-plate adjacent to the upper and lower edges thereof, respectively, are riveted plate or leaf springs 42 and 43, the ends of which are in spaced relation to the guard-plate and engage the inner faces of the portions of the angular flanges parallel with the wall 31. These leaf-springs serve to hold the guard-plate against the end of the journal-box in the same manner as the springs 25, above referred to. The guard-plate in this construction also is moved laterally into active position.

In the construction shown in Figs. 5 and 6 of the drawings the journal-box 50 has a slanting rear wall 51 with the corresponding rear or inner end face 52 and with an opening 53 to receive the journal 54. Against the face 52 rests the annular flange 56 on the face of the plate 57, having a central opening 58, which snugly receives the journal 54, and having a boss 59, through which the opening 58 is formed, the boss presenting the extended bearing-surface 60 at its upper portion. The plate 57 extends above and below the journal-box, and from its upper and lower edge portions project arms 61 and 62 beyond the inner end of the box, the end portions of these arms being turned away from the box, as shown at 63 and 64, and having formed transversely therethrough the curved slots 65 and 66, leaf-springs 67 and 68 being engaged in these slots with their end portions projecting therefrom. At the inner end corners of the top and bottom of the journal-box are pairs of angle-flanges 69 and 70, respectively, one side of each angle-flange forming a continuation of the end face 52 of the journal-box or being flush therewith, while the other member is flush with the adjacent side of the journal-box. In putting the guard-plate in place the leaf-spring 67 is first engaged behind the rear end members of the angle-flanges 69, and the plate is then moved downwardly and its lower end pressed in and the plate then moved upwardly to engage the leaf-spring 68 behind the lower angle-flanges 70. The journal 54 when in place prevents sufficient vertical movement of the guard-plate to permit of disengagement of the leaf-springs from the flanges.

Not only does the slanting rear or inner end wall of the journal-box in each instance serve to partially support the guard-plate, but the inner face of the wall by slanting upwardly or toward the outer end of the journal-box prevents the waste or packing from working out through the opening 11 in Fig. 1 and the corresponding openings in the other figures.

What is claimed is—

1. The combination with a journal-box having a slanting inner end face and an opening therethrough to receive the journal, of a dust-guard plate disposed upon such slanting face and a spring for holding the plate against movement from contact with said end face.

2. The combination with a journal-box having a slanting inner end face and an opening therethrough to receive the journal, of a dust-guard plate disposed slidably against and supported in part upon said face and means for holding the plate yieldably against movement from contact with the slanting face, said plate having a boss upon its outer face surrounding the opening, said face having its outer end face vertical.

3. The combination with a journal-box and flanges carried by the box, of a dust-guard plate disposed against the box and springs carried by the plate and engaging the flanges at their opposite sides from the plate that carries the springs.

4. The combination with a journal-box for railway-cars provided with pairs of flanges

on opposite faces, of a dust-guard plate disposed against the inner end of the journal-box and having offset portions each extending between and beyond a pair of flanges, and a leaf-spring carried by each of said offset portions and bearing with its ends against the front faces of flanges.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES S. PATTEN.

Witnesses:
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CURBY S. HURLEY.