No. 824,127. PATENTED JUNE 26, 1906.

G. L. MANSFIELD.

DUST GUARD FOR JOURNAL BOXES.

APPLICATION FILED JULY 6, 1905.

2 SHEETS—SHEET 1

Fig. 1.

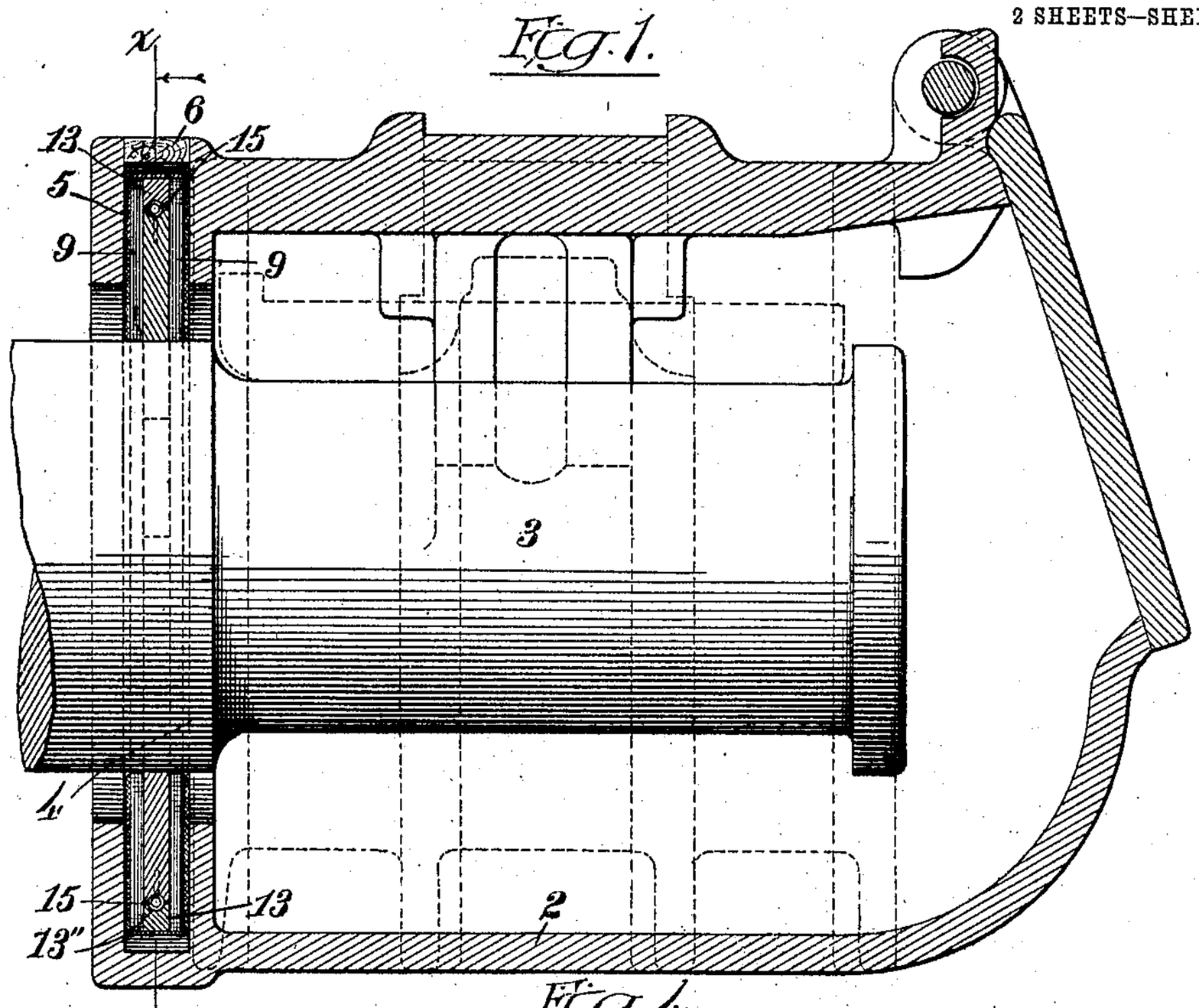
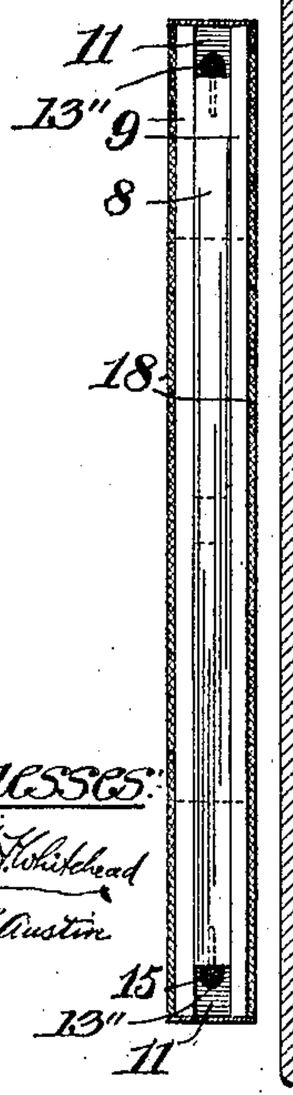


Fig. 4.

Fig. 3.



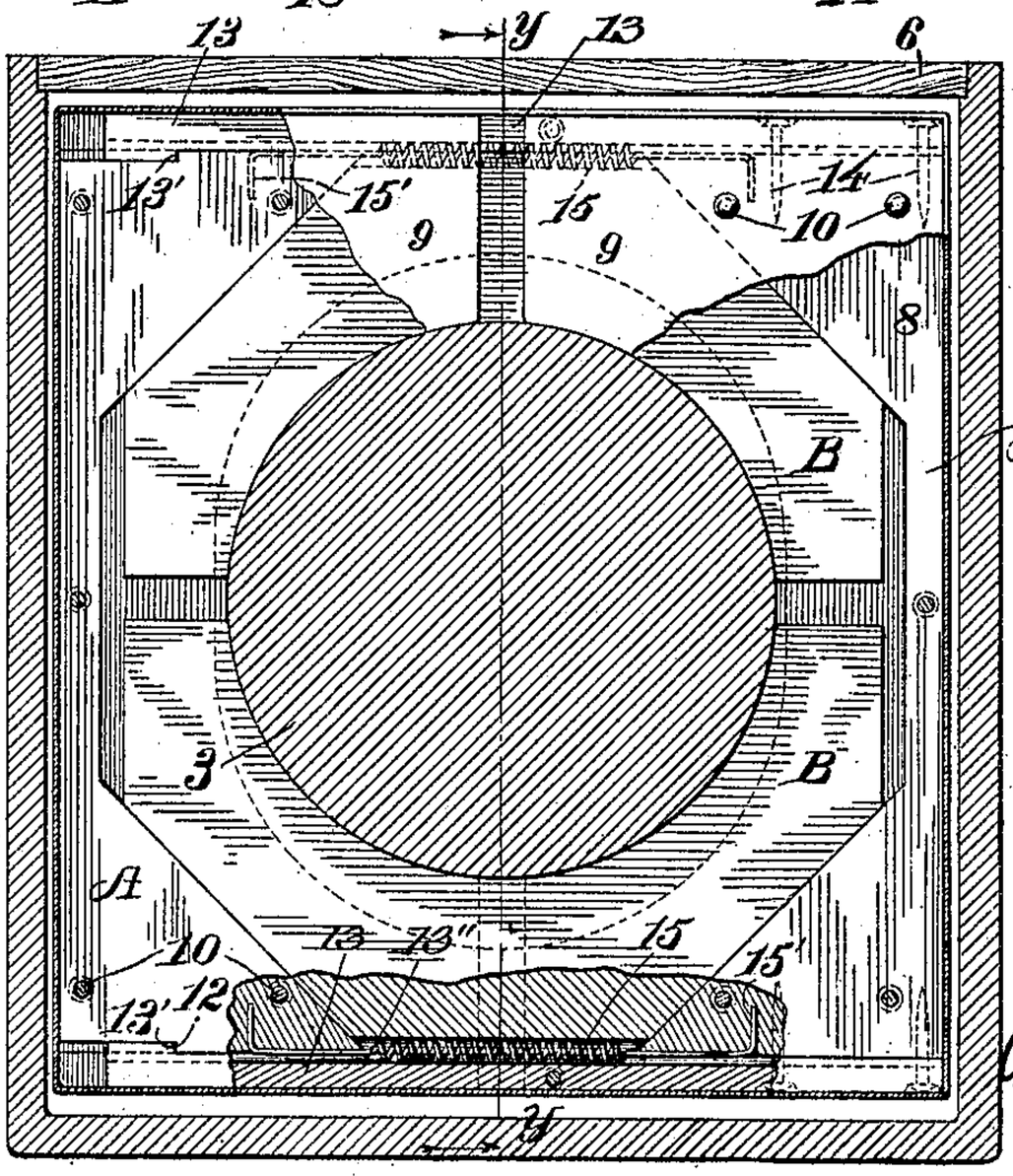


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 5.

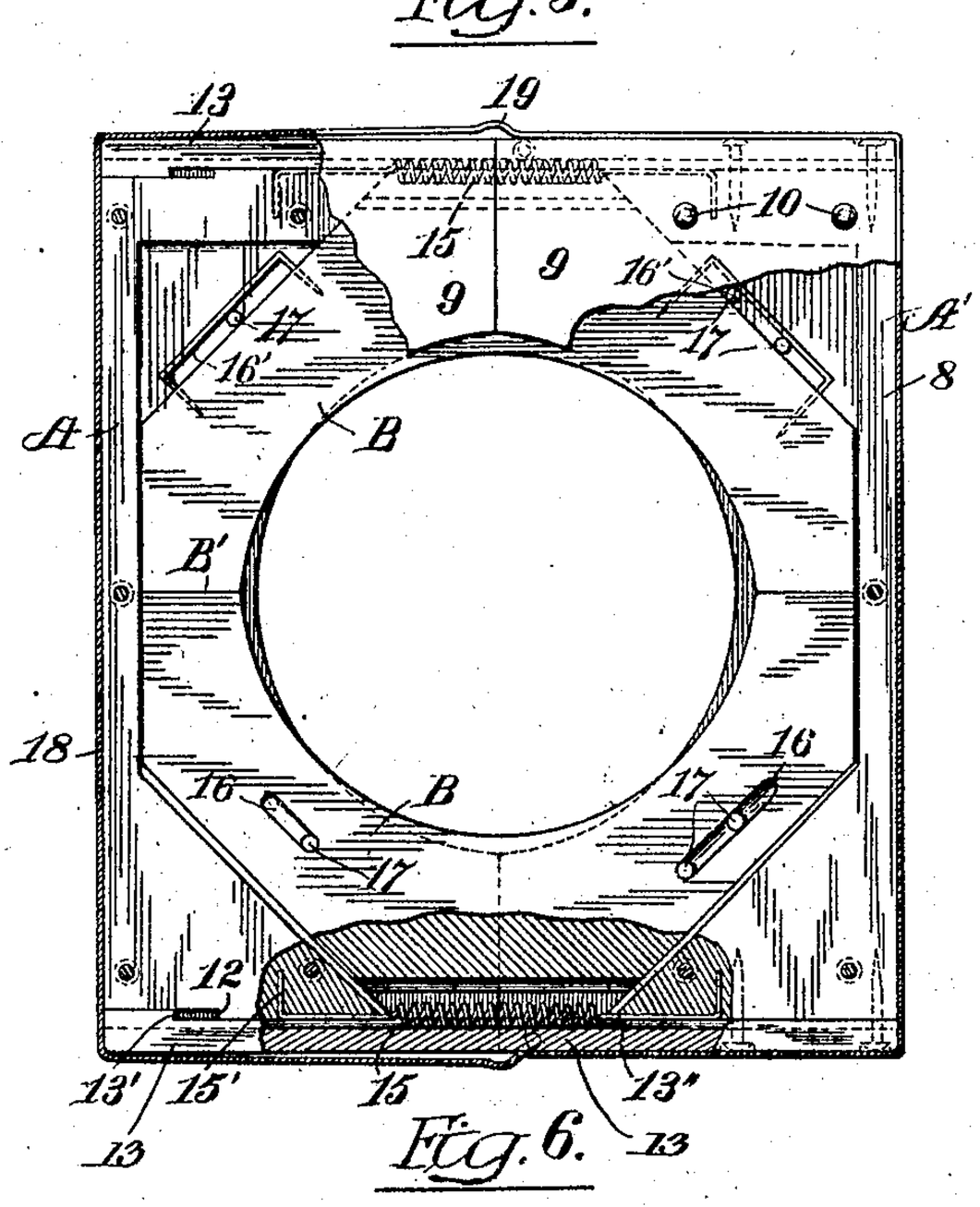
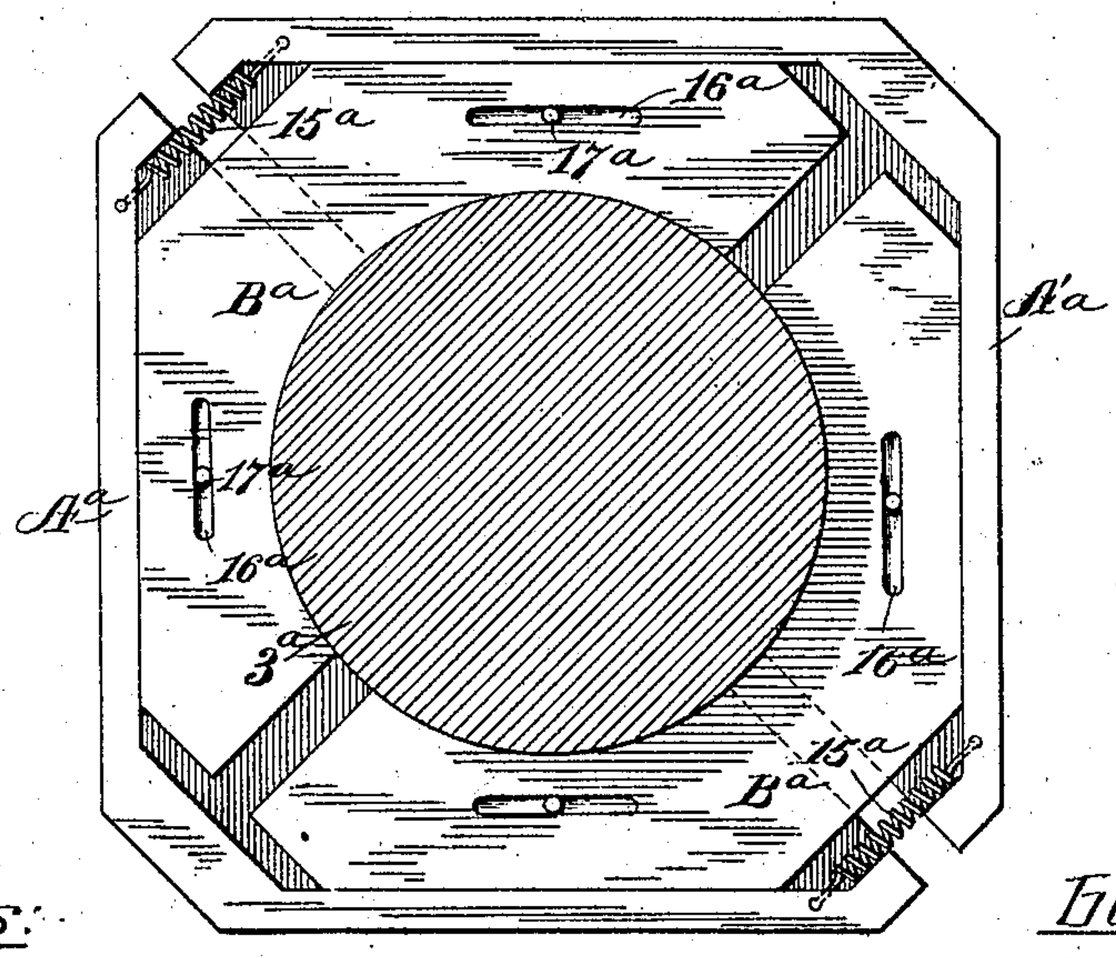


Fig. 6.



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GEORGE L. MANSFIELD, OF CHICAGO, ILLINOIS.

DUST-GUARD FOR JOURNAL-BOXES.

No. 824,127. Specification of Letters Patent. Patented June 26, 1906.

Application filed July 6, 1905. Serial No. 268,328.

To all whom it may concern:

Be it known that I, GEORGE L. MANSFIELD, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a certain new, useful, and Improved Dust-Guard for Journal-Boxes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to dust-guards for employment in journal-boxes, the office thereof being to exclude dust from the journal-boxes.

My invention further and particularly relates to improvements in dust-guards of the class known as "adjustable" dust-guards, from the fact that such guards are adapted to take up their own wear.

The object of my invention is to provide a dust-guard that shall be composed of a plurality of sections held in suitable form and together providing an opening to receive the car-axle journal.

The particular object of the invention is to provide a dust-guard of general rectangular form, but composed of distensibly and collapsibly connected sections that shall be normally collapsed by spring-pressure applied to two of the sections and affecting all thereof.

Further and special objects of my invention will appear hereinafter.

My invention consists generally in a dust-guard comprising a plurality of sections composing a body of rectangular form provided with a normally non-circular opening, two of said sections being guided upon each other and inclosing or incasing the other sections, the latter being adapted when distended to distend the incasing sections, there being also a spring or springs arranged to resist the distension of the parts or sections and said sections being of such form that when they are distended the journal-opening in the guard is made substantially circular preparatory to placing the guard upon the journal; and, further, my invention consists in various details of construction and in combinations of parts, all as hereinafter described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a vertical longitudinal section of a journal-box and a dust-guard embodying my invention on the line *y y* of Fig. 2. Fig. 2 is a vertical section of the dust-guard substantially on the line *x x* of Fig. 1, the walls of the journal-box being also shown in section. Fig. 3 is an edge view of the guard with the flexible edging removed. Fig. 4 is a similar view of the top of the dust-guard. Fig. 5 is a side view of the dust-guard in collapsed condition, the side plates of the outer sections being broken away to disclose the inner sections; and Fig. 6 illustrates a modification of my invention.

As shown in the drawings, 2 represents a journal-box of ordinary construction, and 3 is the axle-journal, having the usual shoulder 4. The journal-box is provided with a dust-guard pocket 5, containing the dust-guard and having its top closed by a removable wooden strip 6. The dust-guard is a thin rectangular body composed of a number of sections having a central opening to fit the shoulder of the journal. The sections combined to form the guard are so constructed and related that, as hereinafter explained, they exert substantially uniform pressure at all points around the guard. They are composed of wearable material, such as wood, and as they are worn by the rotation of the journal they automatically close upon the same to keep a tight joint between the guard and the journal. The principal members of the guard are the sections A A′ and B B. The sections A A′ are slightly different in form and will be described separately, while the sections B B are identical in form, and the specific description of one will serve for both. The sections A A′ are alike in this: Each is made up of a middle bar or plate 8 and two side plates 9 9, the latter being of somewhat greater length than the former and secured thereto by a number of nails or rivets 10. The extensions of the plates 9 9 form grooves 11 11 in the ends of the sections A A′, and the groove in section A is deepened at the end to form a shoulder 12 in each case. The end grooves of the sections A′ are occupied by cross bars or strips 13, secured by nails 14, driven through the same into the middle bar or plate 8. It is in these particulars—to wit, the bars 13 13—that the section A′ differs from the section A. The bars 13 13 slidably occupy the grooves 11 of the section A and serve as guides for said section. Stop-shoulders 13′ on the free ends of bars 13 coöperate with the shoulders 12 of the section A and limit the separation of the sections A A′, as shown in Figs. 2 and 5. Obviously slots and

stop-pins may take the place of the stop-shoulders 12 and 13′.

For yieldingly connecting the sections A A′, I employ two small spiral springs 15 each formed of a piece of wire and having right-angled ends 15′, that are driven into the middle plates 8 8 of the sections A A′. These springs tend to draw the sections together, as shown in Fig. 5. For convenience and to accommodate the springs 15 I prefer to groove the inner sides of bars 13, as shown at 13″ in Figs. 1, 2, and 5. The side plates of the sections A A′ are provided with openings which are segments of the full journal-opening or circles and slightly less than semicircular. When the two sections are closed together, the opening between them is non-circular, having the form of an ellipse or distorted circle. In this condition the connected sections would not admit a journal, it obviously being necessary to slightly separate them before the opening will have been sufficiently enlarged to receive the journal. What has been said of the openings in the sections A A′ is likewise true of the sections B B. The assembled parts when collapsed form an irregular non-circular opening which, however, is made to conform to a true circle when the parts are distended, as shown in Fig. 2, at which time the four arcs will be made concentric. The section B is thinner than sections A A′ and of less width and length, and the sections B are substantially incased or inclosed in the outer sections A A′. Each section B is provided with two slots 16, arranged at an angle of forty-five degrees with respect to the meeting edges of the inclosing sections A A′. The connection between the sections A A′ and B B is made by one or more nails 17 driven through each slot 16, said nails or pins 17 being held in the side plates of the sections A A′.

The arrangement is such that the edges or ends B′ of the sections B B will substantially meet when the sections A A′ are closed together, as in Fig. 5, and it is obvious that if outward pressure is exerted upon the inner peripheries of the sections B B the latter, acting upon the nails or pins 17 in the sections A A′, will drive the sections A A′ apart, the separation of the latter being equal to the separation of the sections B B by reason of the angular arrangement of the slots 16 in parts B B. (See Fig. 2.) It will be understood that when the incasing sections are thus distended by the separation of the incased sections such movement will be opposed by the springs 15, and when the parts are released said springs will cause the pins 17 in the sections A A′ to press upon the sections B B and operating in the slots therein cause the return of the sections to the collapsed position or until same make contact with the journal, if the latter is in position. By arranging the sections A A′ and B B at right angles I secure the required distensibility of the guard, and by establishing the relations of the parts upon forty-five-degree angles I distribute the force of the springs uniformly upon all sections and cause them to bear upon the journal with equal pressure. From this fact it follows that the wear of the parts will be substantially equal, and danger of eventually elongating the opening in the guard, with consequent admission of dust to the journal-box, is obviated.

The slots 16 may be made directly in the sections B B, as shown in the lower half of Fig. 5, or may be made by applying metal strips 16′ to the sections B, as shown in the upper half of Fig. 5. Furthermore, the slots may be made in the plates 9 of the sections A A′, the pins in this case being driven through the sections B. Because of the ease with which this feature of my invention may be modified I do not confine my invention to the structure illustrated.

My dust-guard may be divided, so to speak, upon any diameter of the rectangle, an example being shown in Fig. 6, wherein the incasing members have a general triangular form. Though slightly different in design, the structure is the same as before described, the only exception being the omission of the guide parts, made possible by the greater width of the incased members B^a B^a. In this figure parts corresponding to those of the other figures are indicated by same characters, but with suffix "a".

No particular care is observed in finishing cast-iron journal-boxes, and the dust-guard pockets thereof vary in width. On the other hand, the dust-guards are of uniform width and thickness and fit loosely in the pockets. To prevent the entrance of dust in such cases, I provide my guard with an edging 18. This edging is a strip of flexible fabric somewhat wider than the edges of the dust-guard, so that it projects over the side of the guard, as shown in Figs. 1, 3, and 4. The strip is tacked all around the guard, except at points near the meeting edges of the sections A A′, where fullness 19 is allowed in order that said sections may be distended, as described. When the guard is placed in the pocket 5 of a journal-box, the flexible edges of the cloth strip 18 engage the walls of the pocket, and thus close all openings between the same and the guard.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A dust-guard comprising, in combination, a plurality of box-like incasing members, together containing a normally non-circular opening, a plurality of incased members, movable within the incasing members and together containing a normally non-circular opening, means pressing said members toward a common center and means whereby

the outward movement of the incased members is communicated to the incasing members, and vice versa, substantially as described.

2. A dust-guard comprising, in combination, a plurality of sections together containing a journal-opening and composing a distensible body, and a flexible strip of greater length than the combined edges of said body, when the latter is collapsed, said strip being attached to certain of said edges and being of greater width, substantially as described.

3. In a dust-guard, a pair of incasing sections, together containing a journal-opening, in combination with a pair of incased sections containing a corresponding opening and arranged at right angles to the incasing sections, and means within the incasing sections for imparting the outward movement of the incasing section to the contained sections to distend the same, substantially as described.

4. In a dust-guard, suitably-guided separable incasing sections and suitable incased sections together containing a journal-opening, in combination with an edging-strip of flexible material inclosing or encircling said incasing sections, having fullness to permit movement thereof and also limiting such movement, substantially as described.

5. In a dust-guard, incasing sections, containing a journal-opening and each comprising side plates and a mid-bar, in combination with guide bars or parts attached to said side plates whereby said sections are movably alined, incased sections arranged between the sides of the incasing sections, at right angles to said incasing sections; and containing a journal-opening, springs connecting the incasing sections and concealed beneath said guide-bars, and engaging and connecting means operating angularly with relation to the axes of movement of said members for communicating the movement of the incasing sections to the incased sections and means for simultaneously pressing all of the sections upon a journal, substantially as described.

6. In a dust-guard, box-like incasing sections formed of side plates and mid-bars and guide-bars connecting the same, the latter serving to slidably connect said incasing sections, springs arranged within the incasing sections, incased sections arranged at right angles to the incasing sections, said sections together containing a journal-opening and being normally collapsed by said springs, means limiting the distension of the sections, and means arranged within the incasing sections and whereby the movement of either pair of sections in either direction is communicated to the other pair, substantially as described.

7. A dust-guard for journal-boxes, comprising, in combination, box-like incasing members, other members contained therein, said members together containing a normally non-circular journal-opening, springs pressing said members toward a common center, and means operatively interposed between said incasing and incased members, and adapted to cause the corresponding movement of all of said members when the members of either set are moved toward or away from said center, substantially as described.

8. A dust-guard comprising, in combination, four members, together containing a normally non-circular opening, and means operatively interposed between said members, causing the same to coact upon angles of forty-five degrees to their axes of movement, substantially as described.

9. A dust-guard comprising, in combination, four members, together containing a normally non-circular opening, means operatively interposed between said members causing the same to coact upon angles of forty-five degrees to their axes of movement, and springs connecting two of said members and pressing all thereof toward a common center, substantially as described.

10. A dust-guard comprising, in combination, two box-like incasing members, together forming a rectangular plate and containing a normally non-circular opening, two other members incased therein and containing a like opening, one of the pairs of members having slots occupying angles of substantially forty-five degrees to the edges of said incasing members, and the other pair of members having pins occupying said slots, as and for the purpose specified.

11. A dust-guard comprising a plurality of sections together containing a normally non-circular opening, in combination with means operatively interposed between said members and whereby the same are adapted to open simultaneously and to close simultaneously to enlarge and contract said opening, respectively, substantially as described.

12. A dust-guard comprising, in combination, two abutting sections, another pair of abutting sections arranged at right angles thereto, said sections together containing a normally non-circular opening, means pressing said sections toward a common center, and means operatively interposed between the pairs of sections and whereby said pairs are caused to coact upon angles of substantially forty-five degrees to the lines of abutment, substantially as described.

In testimony whereof I have hereunto set my hand, this 1st day of July, 1905, in the presence of two subscribing witnesses.

GEORGE L. MANSFIELD.

Witnesses:

CHARLES GILBERT HAWLEY,

HOWARD S. AUSTIN.