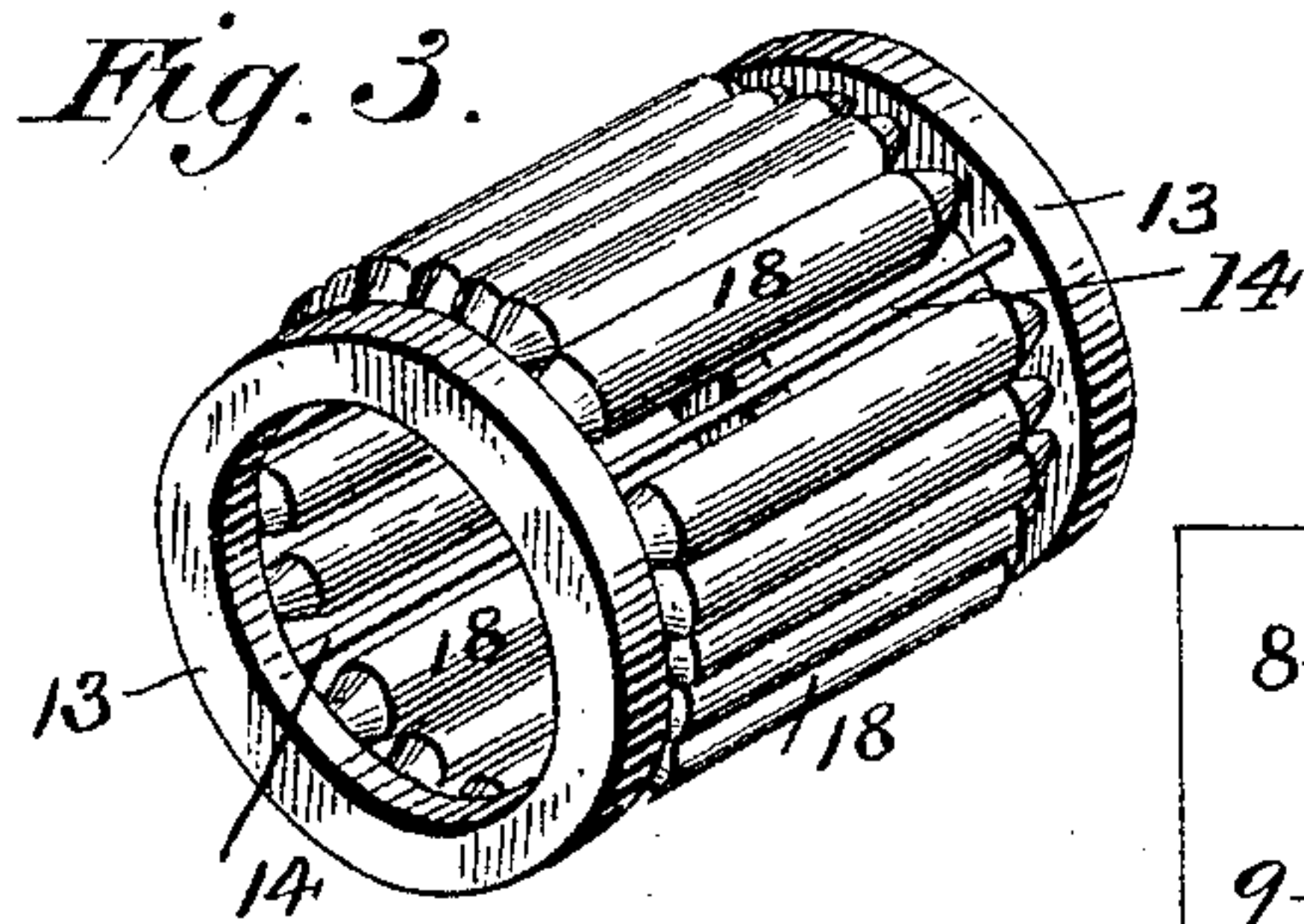
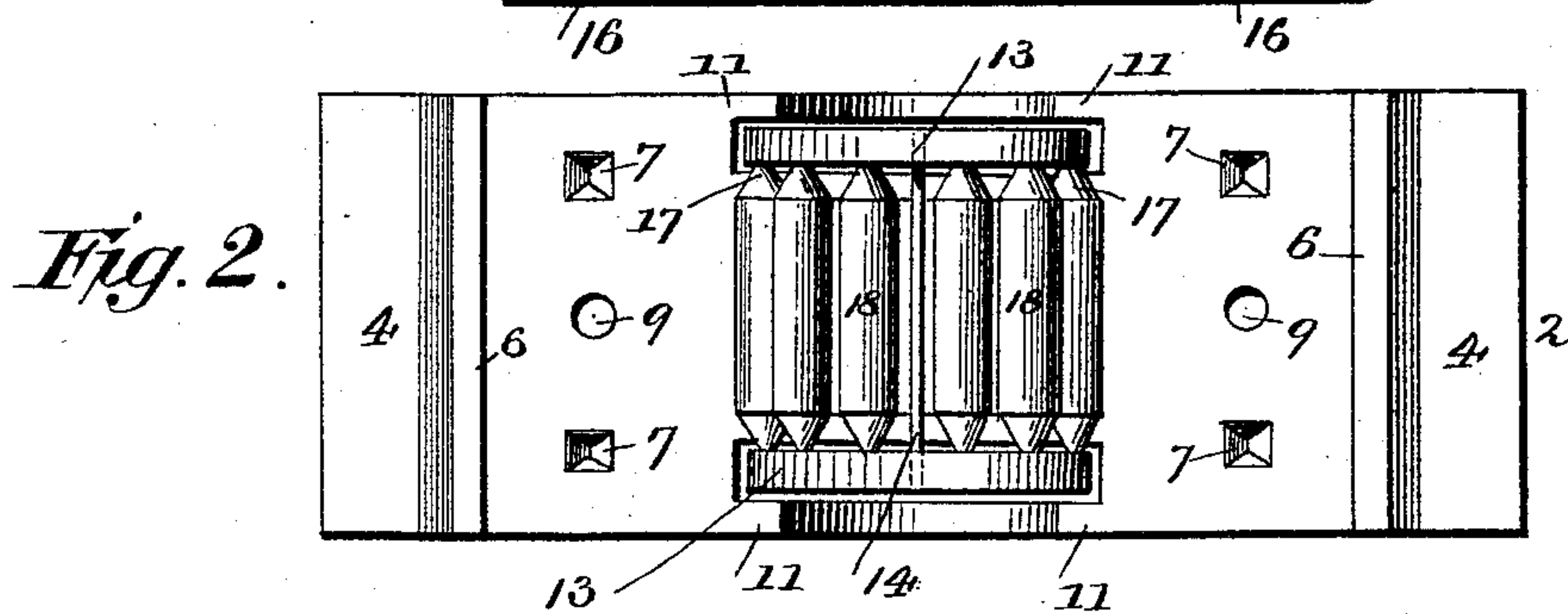
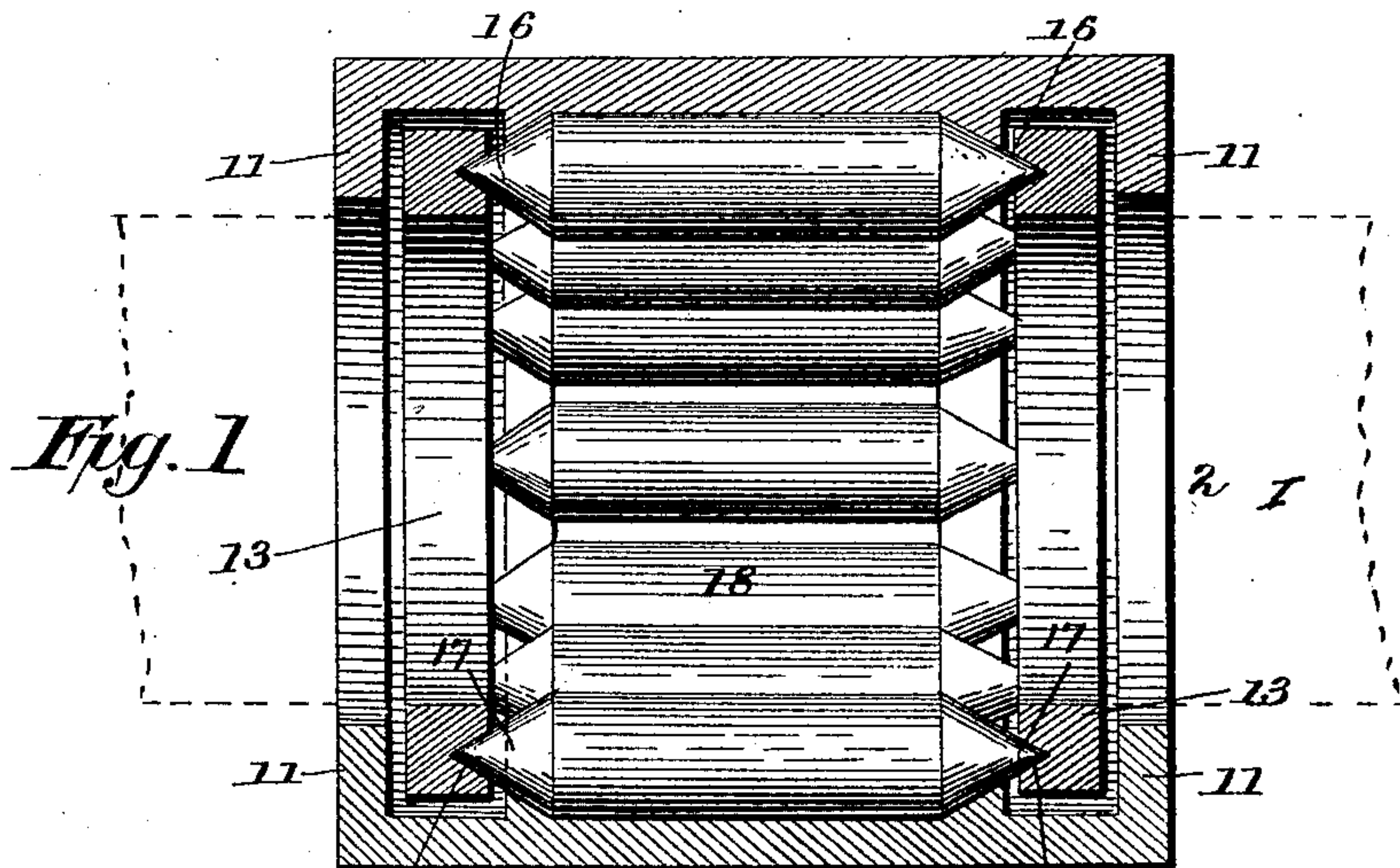


(No Model.)

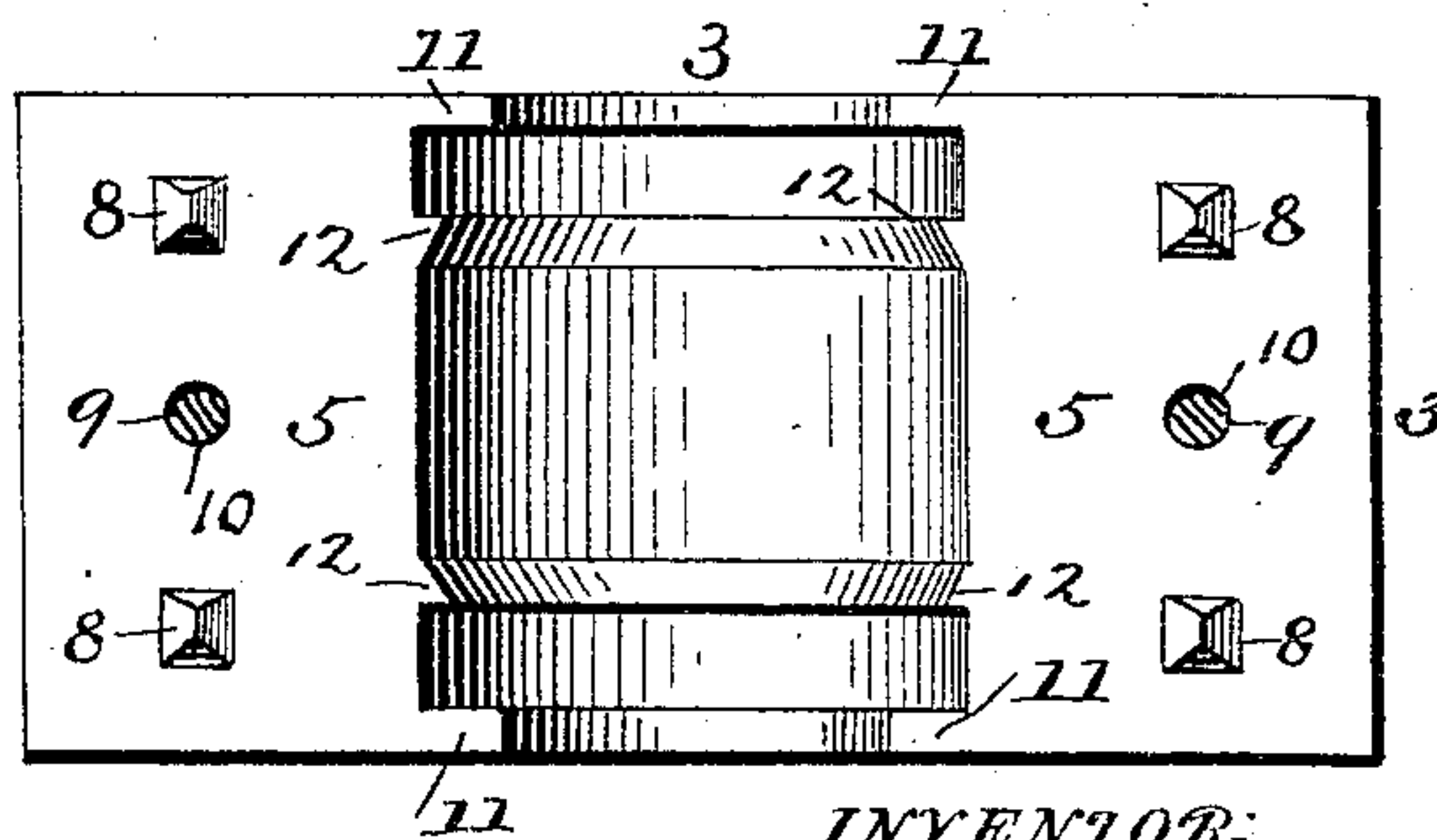
W. L. EVELAND.  
AXLE AND JOURNAL BOX.

No. 452,751.

Patented May 19, 1891.



*Fig. 4.*



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIAM LOWRANCE EVELAND, OF PORT STANLEY, CANADA, ASSIGNOR  
OF ONE-HALF TO HUGH STEPHENS, WILLIAM STEPHENS, AND JOSEPH  
STEPHENS.

## AXLE AND JOURNAL BOX.

SPECIFICATION forming part of Letters Patent No. 452,751, dated May 19, 1891.

Application filed February 28, 1891. Serial No. 383,203. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LOWRANCE EVELAND, a subject of the Queen of Great Britain, and a resident of Port Stanley, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Axle and Journal Boxes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Figure 1 is a longitudinal vertical sectional view of a journal-box provided with my improvements. Fig. 2 is a top view of the box, showing the upper half of the box removed. Fig. 3 is a perspective view of the frame and its anti-friction rollers, and Fig. 4 is a view of the upper half of the box.

Similar numerals of reference indicate corresponding parts in all the figures.

My invention has relation to that class of anti-friction journal-boxes in which a number of longitudinal rollers are arranged around the shaft within the box, having their ends journaled or pivoted in rings around the shaft, and bearing with their sides against the shaft and against the inner sides of the box; and it consists in the improved construction and combination of parts of such a journal-box as hereinafter more fully described and claimed.

In the accompanying drawings, the numeral 1 indicates the shaft, and 2 is the lower half of the journal-box, and 3 the upper half of the box.

The two halves of the box are respectively provided with laterally-projecting lips 4 and 5, the lips 4 of the lower half being longer than the lips of the upper box and being provided with transverse ribs 6 near their outer edges, against which the ends of the upper lips bear, and with pyramidal or conical recesses 7, into which correspondingly-shaped lugs 8 upon the inner faces of the upper lips may fit, the lugs and recesses serving to bring the perforations 9, through which the securing-bolts 10 pass, to register with each other.

The ends of the bearing portions of the box are formed with inwardly-projecting flanges 11, the inner edges of which surround the shaft, and ribs 12, beveled upon their inner sides, project from the concave sides of the bearing near the ends of the same. Two rings 13 fit around the shaft (said shaft being shown in dotted lines, Fig. 1) and in the spaces between the flanges and the ribs of the box, and these rings are secured together at their proper distance by means of rods 14, fitting in perforations in the rings, the shoulders formed by the reduced ends serving to keep the rings at their proper distance apart, and the inner faces of these rings are formed with registering conical recesses or bearings 16, into which the conical ends 17 of the anti-friction rollers 18 are pivoted. These rollers are of a diameter greater than the thickness of the rings in which their ends are pivoted, and the sides of the rollers bear against the shaft and against the inner sides of the box in the space between the beveled sides of the annular ribs in the same, the conical ends of the rollers bearing against the beveled sides of the ribs, which thus prevent any longitudinal displacement of the rollers. It will be seen that the rollers being of a greater diameter than the thickness of the rings they will admit of the shaft revolving freely within the frame formed by the rings, rods, and rollers, the periphery of the shaft traveling upon the rollers, and the frame, with the rollers, will travel within the box, so that friction will be considerably reduced, lubricants being unnecessary, and the frame, with the rollers, will be prevented from being longitudinally displaced by the flanges at the ends of the box, while the rollers will be confined by having their tapering or conical ends bearing against the beveled sides of the ribs, besides being confined in their bearings in the rings. The upper box will be held in its proper position upon the lower box by means of the transverse ribs upon the lips, against which the ends of the upper lips bear, and by the lugs upon the upper lips fitting in the recesses in the lower lips, as well as by the bolts.

Besides reducing the frictional resistance



between the shaft and the box the interposed frame, with its rollers, will in revolving produce a current of air, which will pass around in the space between the shaft and the box, 5 cooling the parts, so that there will be no heating of the several parts of the shaft or bearing, the current increasing with the speed of the revolution.

Having thus described my invention, I 10 claim and desire to secure by Letters Patent of the United States—

1. The combination of a box having annular flanges at its ends projecting inwardly and having annular ribs upon the inner side 15 near the ends at a distance from the flanges and formed with beveled inner sides, a frame formed by two rings revolving in the spaces between the flanges and the ribs and spaced by means of longitudinal rods and having 20 anti-friction rollers journaled or pivoted with conical ends in recesses in the faces of the rings and having the conical portions bearing against the beveled sides of the ribs, and the shaft within the frame, as and for the purpose 25 shown and set forth.

2. The combination of a box having inwardly-projecting annular flanges at its ends and having annular ribs upon its inner sides

near the ends at a distance from the flanges and having beveled inner sides, two rings in 30 the spaces between the flanges, and the ribs having conical bearings in their facing sides, spacing-rods secured in the two rings, rollers having their conical ends pivoted in the bearings in the faces of the rings and having a 35 diameter greater than the thickness of the rings, and a shaft journaled within the frame formed by the rings, rods, and rollers, as and for the purpose shown and set forth.

3. The combination of a lower half-box having 40 laterally-projecting perforated lips formed with transverse ribs near the ends and having recesses in their faces, an upper box having perforated lips bearing with their ends against the ribs and having lugs upon their faces fitting in the recesses, and bolts passing through 45 the perforated lips, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature 50 in presence of two witnesses.

WILLIAM LOWRANCE EVELAND.

Witnesses:

COLIN MACDOUGALL,  
MINNIE PINCOMBE.