

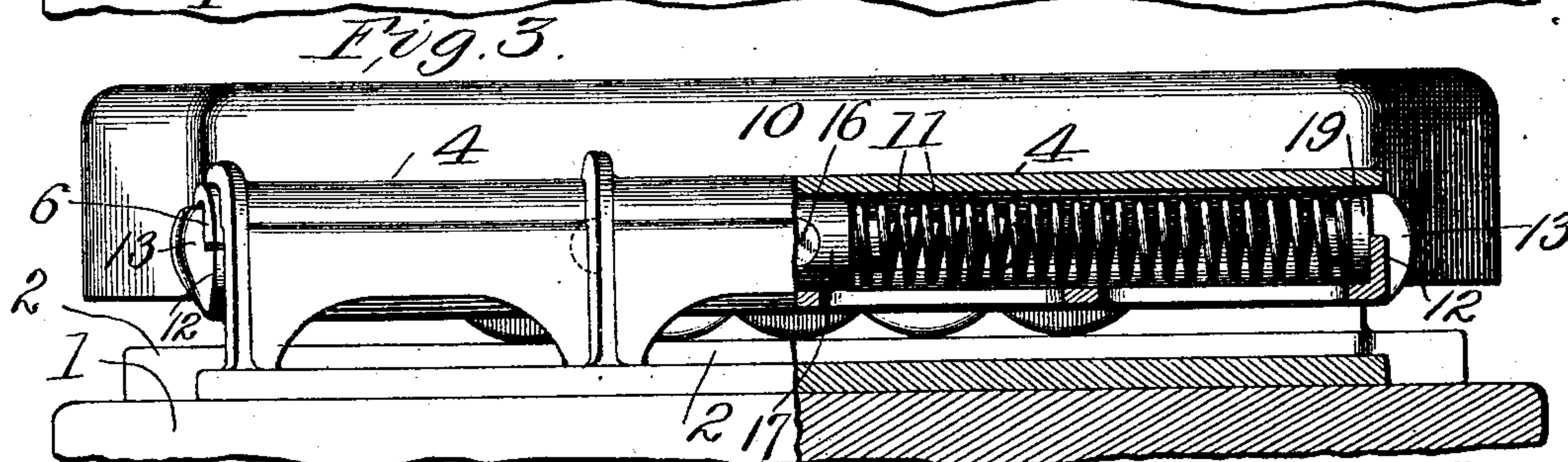
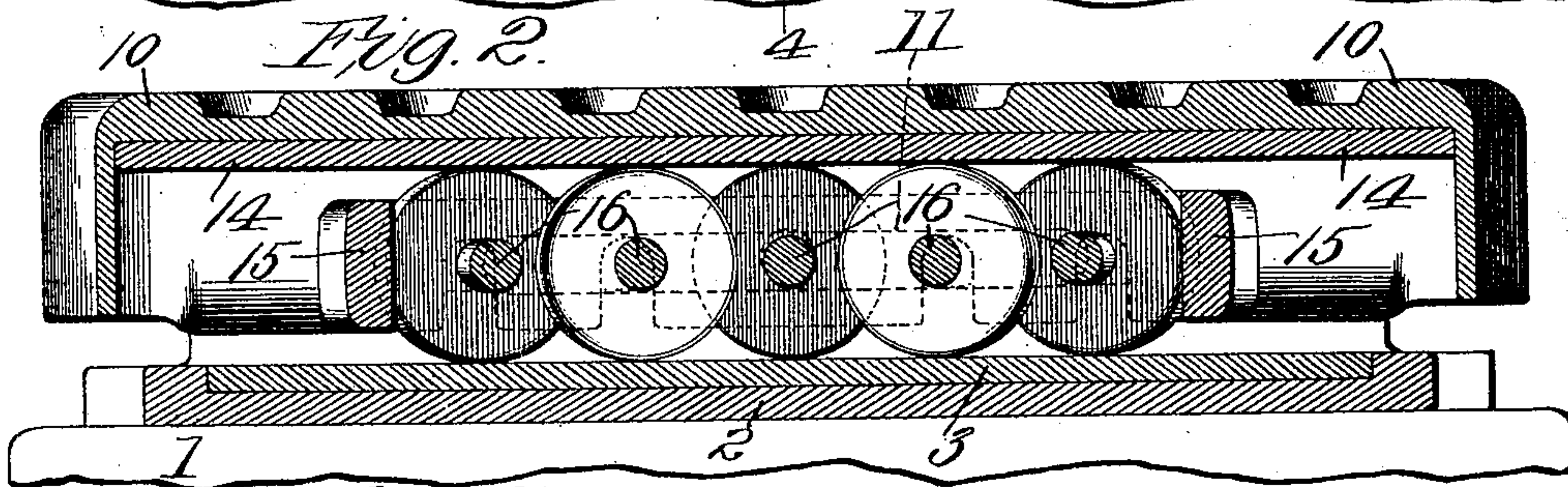
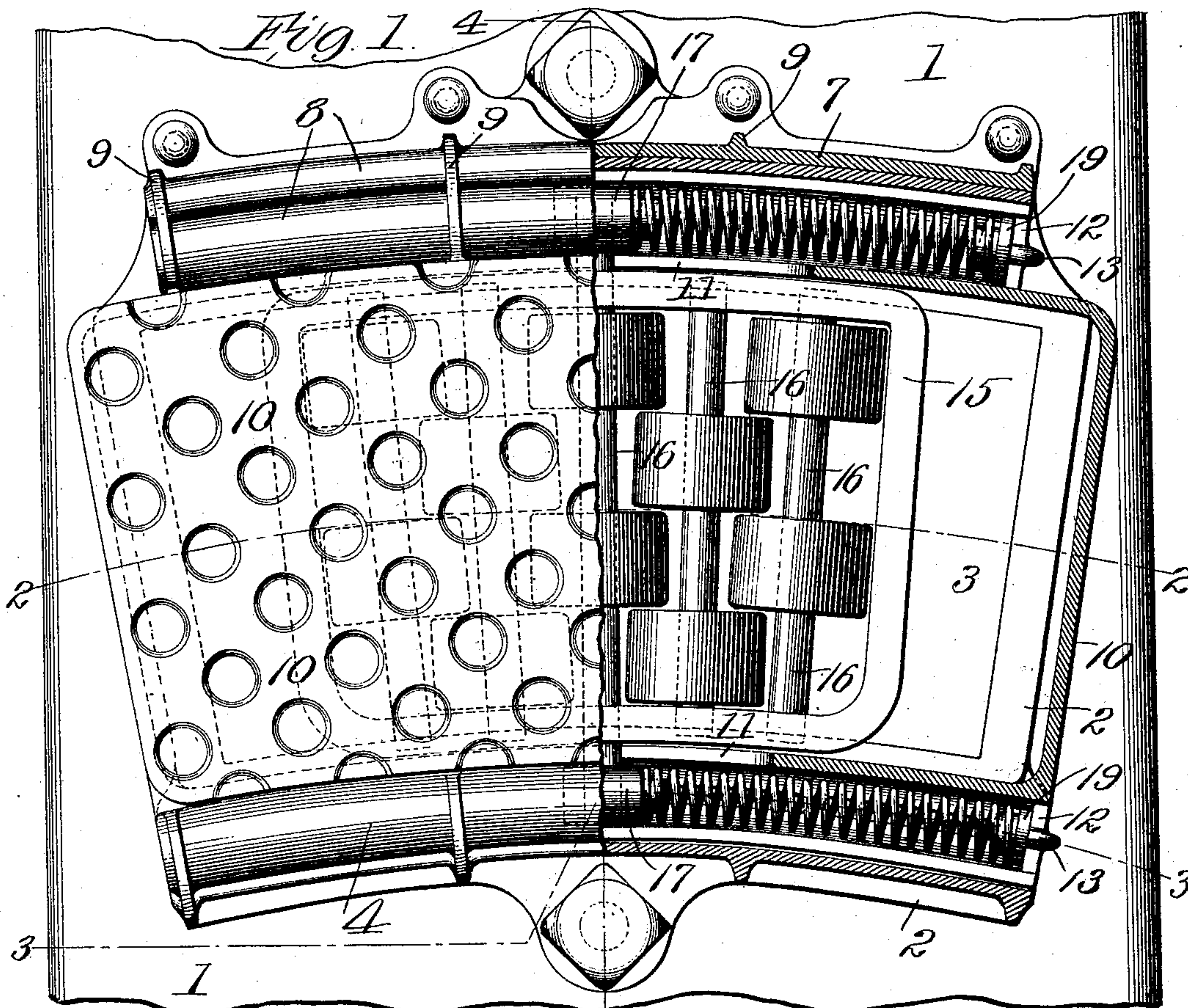
No. 694,503.

Patented Mar. 4, 1902.

J. C. WANDS.
ROLLER SIDE BEARING.
(Application filed June 21, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Attest:
Ralph Kalish

Inventor:
John C. Wands,
by Barlow & Cornwell Attys.

No. 694,503.

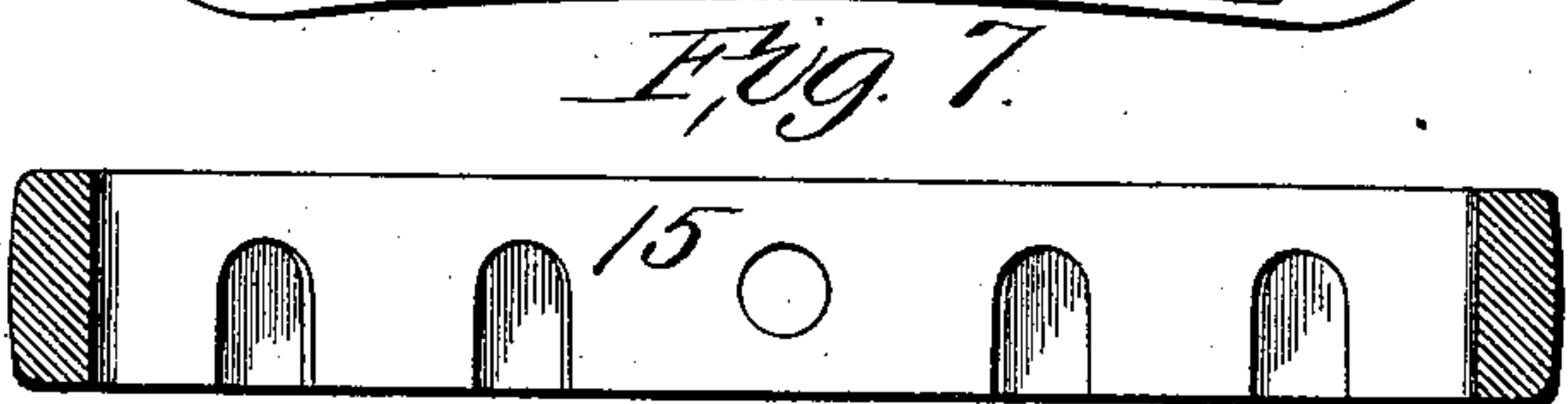
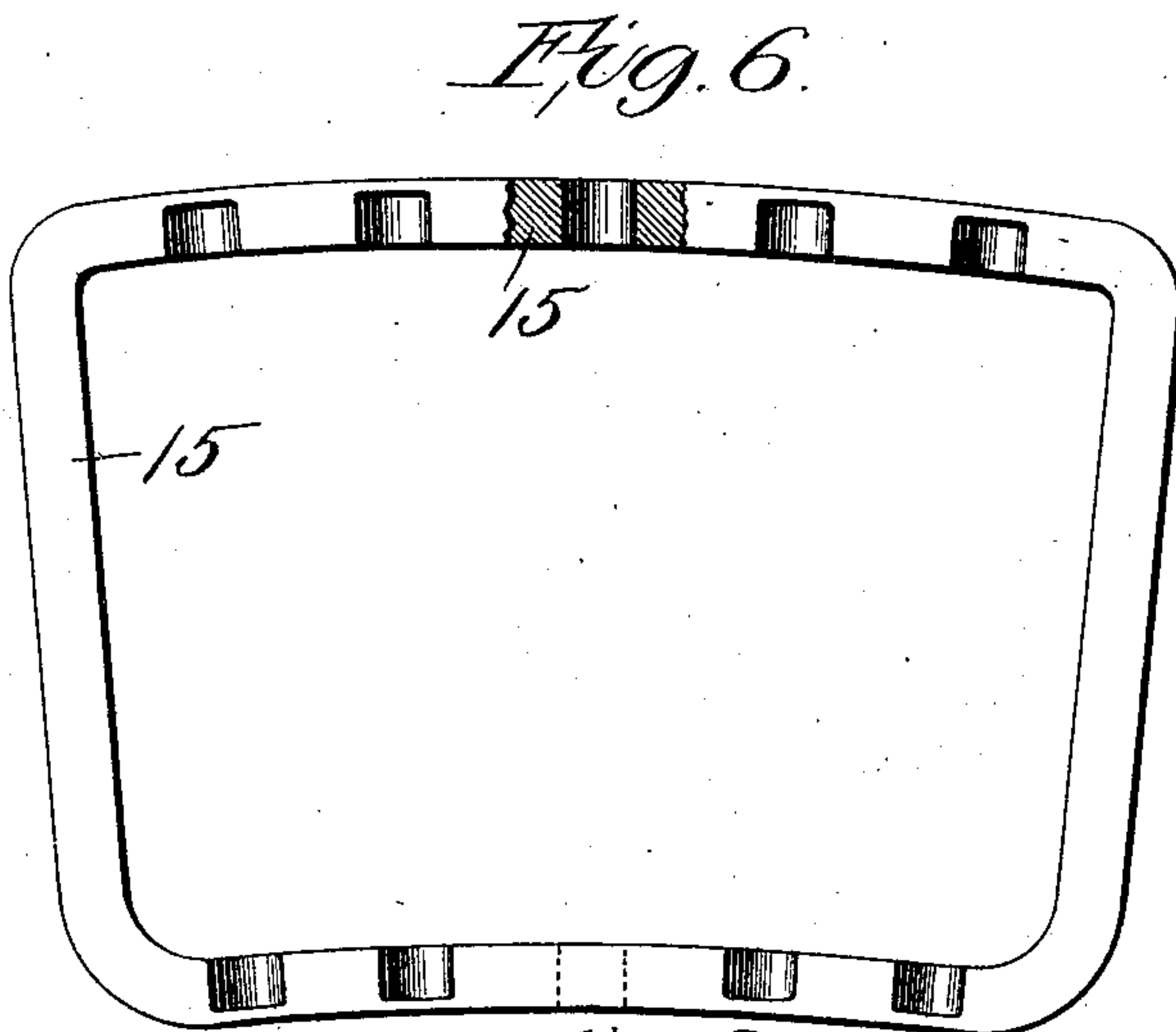
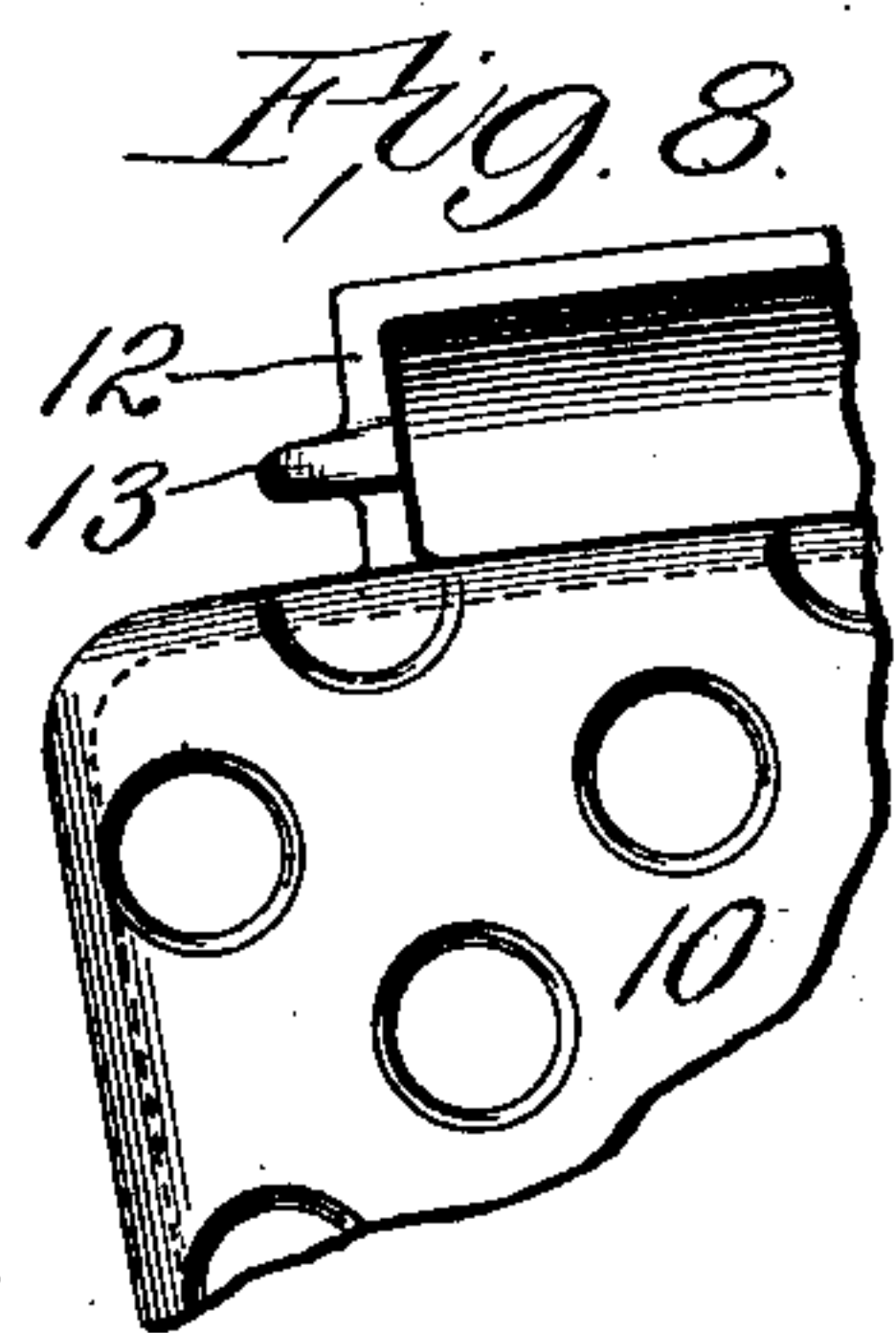
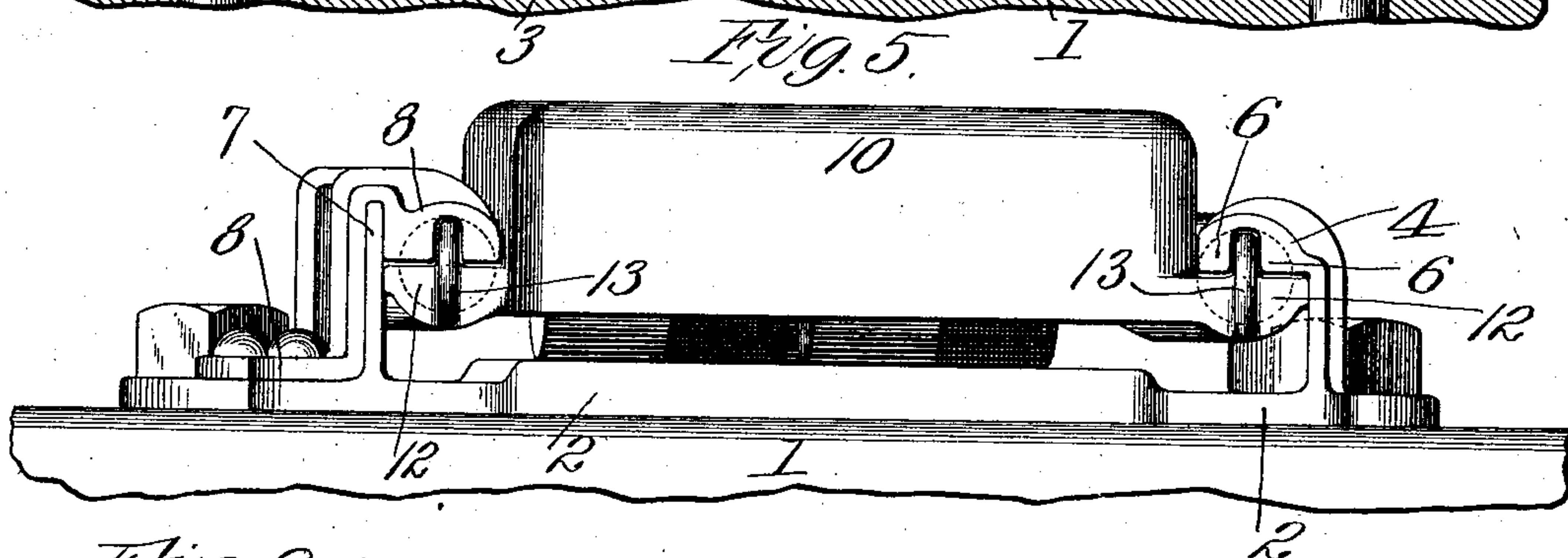
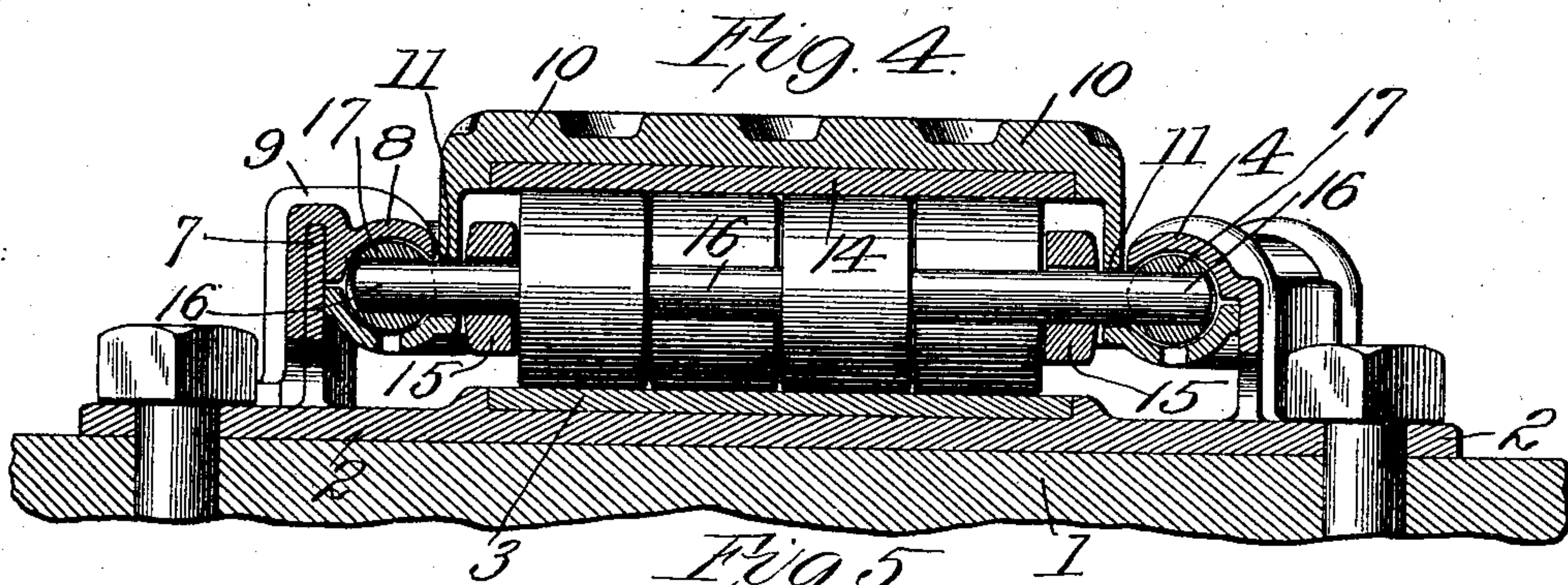
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(No Model.)

2 Sheets—Sheet 2.



Attest:
Ralph L. Lisk

Inventor:
John C. Wands,
by *Baker & Cornwall*
Attys.

UNITED STATES PATENT OFFICE.

JOHN C. WANDS, OF ST. LOUIS, MISSOURI.

ROLLER SIDE BEARING.

SPECIFICATION forming part of Letters Patent No. 694,503, dated March 4, 1902.

Application filed June 21, 1901. Serial No. 65,415. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WANDS, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Roller Side Bearings, 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, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view, partly in horizontal section, of my improved roller side bearing. Fig. 2 is a vertical sectional view on line 2 2, Fig. 1. Fig. 3 is a side elevational view, partly in section, on line 3 3, Fig. 1. Fig. 4 is a vertical sectional view on line 4 4, Fig. 1. Fig. 5 is an end elevational view. Fig. 6 is an inverted plan view of the roller-frame. Fig. 7 is a vertical sectional view through the same, and Fig. 8 is a plan view of a portion of the bearing-plate.

This invention relates to a new and useful improvement in side bearings designed particularly for use in connection with railway rolling-stock.

The side bearing shown in the accompanying drawings is of that type known as "roller side bearing," and in practice is arranged near the ends of the truck-bolster and on each side of the center plate or bearing, said truck-bolster side bearings coöperating with the side bearings arranged on the body-transom, which transom forms the support for one end of the car-body.

The objects of this present invention are to arrange a bearing-plate which coöperates with the side bearing of the body-transom, said bearing-plate being movable in an arc of a circle described from the king-pin of the truck. Antifriction-rollers are arranged under the bearing-plate, and in addition to forming supports therefor also facilitate the movement thereof. These antifriction-rollers are nested or grouped in a frame which is independently movable with respect to said bearing-plate, but which frame has a connection with said bearing-plate, said connection or connections being in the form of resilient means so arranged as to permit a greater travel of the bearing-plate and to return or restore both

the bearing-plate and the frame with its group of antifriction-rollers to a normal or central position. This resilient means is preferably in the form of a plurality of springs so constructed and arranged as to accomplish the above, and in order to distribute the work among them when the bearing-plate is moved in either direction all of said springs are compressed by the movement of the bearing-plate and exert their energies to restore the bearing-plate to its central or normal position. These springs in their normal state are compressed to some extent and are arranged in sets, the springs of the two sets employed opposing each other, and when the bearing-plate moves in either direction the springs which bear at the four corners thereof exert their combined efforts to restore not only the bearing-plate but the frame containing the antifriction-rollers to their normal position, which is determined by the opposing springs establishing a position of equilibrium with respect to the frame of grouped rollers and the bearing-plate.

The sets of springs referred to are on each side of the side bearing, which arrangement requires the employment of four springs bearing, respectively, against the four corners of the bearing plate at their outer extremities, the alining springs on each side of the bearing-plate bearing at their inner ends against a projection on the frame which carries the grouped rollers. By this arrangement equal pressure can be exerted on both sides of the bearing-plate and the frame which carries the grouped rollers, so that there is little or no liability of said parts binding in their ways, and consequently they are permitted to travel freely along their defined paths, respectively.

In addition to arranging the parts as above described and taking advantage of such an arrangement to accomplish the objects and results above set forth I also prefer to leave an open space between the bearing-plate and the track-plate upon which the rollers run for the purpose of permitting air to freely pass therethrough in order that foreign particles, such as dust and cinders, will be swept away.

With these objects in view the invention consists in the construction, arrangement,

and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, 1 indicates a portion of the truck-bolster, which may be of any ordinary or approved type.

2 indicates a base-plate, preferably in the form of a casting, which is secured in some suitable manner to the bolster 1.

3 indicates a track-plate, preferably separable from the base-casting, but introduced into the upper surface thereof and held in a fixed position by appropriate abutments.

4 indicates an overhanging hood, preferably integral with the base-plate 1, which hood, as shown in the drawings, extends along the inner side of the base-plate from end to end thereof. This hood is preferably curved in an arc of a circle described from the king-pin.

Referring to Figs. 1 and 4, it will be seen that this hood is reinforced by strengthening-ribs arranged at suitable distances apart, between which the vertical web which supports the hood is cut away (see Fig. 3) for the purpose of admitting free circulation of air through the openings thus provided. Referring to Fig. 5, it will be observed that the hood is provided with end walls 6, which form abutments for the spring-follower received by the hood. 7 indicates a fin arranged on the opposite side of the casting, said fin being preferably curved, the curve thereof being described from an arc of a circle having the king-pin for its center.

8 indicates a hood corresponding substantially in all respects to the overhanging hood 4, with the exception that the overhanging hood 8 is removable and is secured by suitable fastening devices to the base-plate 1 and preferably against the fin 7, which fin adds considerable strength and rigidity to the overhanging hood 8. The fin and vertical web of this overhanging hood are also formed with openings to permit air to circulate freely there-through, and hood 8 is also provided with strengthening-ribs and end abutments 9.

10 indicates the bearing-plate, whose upper surface is preferably provided with a series of pockets, in which dust and cinders may accumulate. These pockets provide a roughened bearing-surface designed to cooperate with the side bearing of the body-transom.

The bearing-plate 10 is in the form of an inverted box, the end walls thereof terminating above the base-plate 1, while the side walls extend laterally, forming what might be termed "trough-shaped flanges," which cooperate with the overhanging hoods 4 and 8 and form housings for the springs. These trough-shaped flanges are preferably provided with openings or slots in their bottom walls, so as to permit the escape of dust and cinders, while the side walls of the bearing-plate are formed with elongated openings or slots 11. The trough-shaped flanges are provided with end walls 12, which are reinforced by ribs 13, said ribs extending above the end

walls and passing through suitable openings in the end walls of the overhanging hoods.

14 indicates a wear-plate arranged on the under side of the bearing-plate and designed to cooperate with the antifriction-rollers.

15 indicates a frame, (see Figs. 6 and 7,) which frame is preferably formed with recesses on its underface, forming aligned pockets for receiving the spindles of the antifriction-rollers. This frame is also formed with alining openings at about its middle portion.

16 indicates the spindles of the antifriction-rollers, those at the ends of the frame being received in the recesses, while the medial or centrally-located spindle finds a bearing in the aligned openings and projects laterally beyond the frame on each side thereof. The projecting ends of this spindle are received in sliding heads or abutments 17. All of the spindles above mentioned are provided with sectional rollers staggered with relation to the rollers of adjacent spindles, the edges of said rollers overlapping each other, as shown. These nested rollers, grouped as above described, are supported by the track-plate, and in turn said antifriction-rollers support the bearing-plate. The heads 17 on the ends of the medial spindle are preferably provided with extensions on each end, forming centering devices for the springs which are seated against the head. These springs bear at their outer ends against followers 19, which preferably have centering devices and are free to move in the spring-housings. These followers in the normal position of the parts bear against the end walls of the overhanging hood and trough-shaped flanges, or, in other words, the springs referred to bear at their inner ends against the roller-frame and at their outer ends against fixed supports afforded by the end walls 6 and also against the four corners of the bearing-plate.

In operation the parts are assembled first by arranging the frame and its rollers in the bearing-plate and then introducing the springs into the trough-shaped flanges. The trough-shaped flange is then introduced under the fixed overhanging hood with which it cooperates and the bearing-plate and its roller-frame moved down in position and the removable overhanging hood secured in place. As the spindles are liable to fall out of the notches or recesses at the ends of the frame in the operation of assembling the parts, a thin piece of metal or pasteboard may be employed to hold them in place until the side bearing is assembled. When the parts are assembled, as shown in the drawings, all of the springs are in compression to some extent, and the springs on opposite sides of the sliding heads are under equal compression, so that the roller-frame is held in a position of equilibrium. In the event of contact of the bearing on the body-transom with the bearing-plate, which contact tends to move the bearing-plate along its ways, one set of springs will be placed under compression by having

their followers abut against the end walls 6 of the overhanging hoods, while the other set of springs is likewise placed in compression by the end walls in the trough-shaped flanges of the bearing-plate lifting the followers off of their respective end walls 6. The bearing-plate, traveling twice the distance of the roller-frame, will thus compress this set of springs, which for the purposes of distinction we will designate as the "rear set" of springs. In the above it will be seen that the forward set of springs is compressed by the follower-plates having a bearing against the fixed end wall 6 at one end and against the movable heads at the other end. The rear set of springs is similarly compressed between the movable heads on the roller-frame and the end walls in the trough-shaped flanges of the bearing-plate, which bearing-plate moves twice as fast and in the same direction as the antifriction-roller frame.

It will be observed from an inspection of the drawing that the track-plate upon which the rollers are supported is practically open on all sides, so that a free circulation of air is permitted on said track-plate and around the antifriction-rollers, which air tends to keep the track-plate clean of dust and cinders, so that the rollers may freely move. Any dust or cinders accumulating in the spring-housing will find an exit through the slots or openings in the bottom walls of the trough-shaped flanges. The slots in the side walls of the bearing-plate through which the medial spindle passes limit the movement of the bearing-plate with respect to the travel of the roller-frame.

I am aware that minor changes in the arrangement, construction, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, a bearing-plate, and resilient means located externally the frame for cooperating with the frame and bearing-plate to restore said parts to normal position; substantially as described.

2. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, a plurality of opposing springs arranged at the sides of said frame and in alignment with the direction of movement of said frame, said springs engaging the frame and being placed in compression, and means cooperating with said springs whereby they exert their combined energies in opposition to movement of the frame in either direction; substantially as described.

3. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, opposing springs ar-

ranged at the sides of the frame and bearing against lateral projections carried by the frame, said springs acting to center said frame, and means cooperating with said springs for utilizing their combined energies to restore the frame after said frame is shifted in either direction; substantially as described.

4. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, a track-plate upon which said antifriction device is mounted, springs arranged on opposite sides of the frame, the inner ends of said springs finding a bearing on said frame, said springs being placed in compression and opposing each other, and movable bearings for the outer ends of the springs; substantially as described.

5. In a side bearing for cars, the combination with a shiftable bearing-plate mounted in suitable guideways, and opposing springs arranged on each side of said bearing-plate, the combined energies of said springs being utilized to restore the bearing-plate to a central position when the latter is shifted in either direction; substantially as described.

6. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, springs acting in opposition to the movement of said frame in either direction, a bearing-plate in contact with the frame of the antifriction device for advancing the same, fixed bearings for the outer ends of said springs, and bearings at the four corners of the bearing-plate for cooperating with the outer ends of said springs, and lifting them from their fixed bearings; substantially as described.

7. In a side bearing for cars, the combination with an antifriction device, of a frame cooperating therewith, two sets of springs arranged at the side edges of said frame and parallel with the path of movement thereof, the inner ends of said springs finding a bearing upon said frame, fixed bearings for the outer ends of said springs, and a bearing-plate having abutments at its four corners for cooperating with the outer ends of the springs and lifting the same from their fixed bearings when the bearing-plate is shifted in either direction, whereby, the movement of the bearing-plate in either direction effects the compression of all of the springs whose combined energies are exerted to restore the bearing-plate and the roller-frame to their normal position; substantially as described.

8. In a side bearing for cars, the combination with an antifriction device and its frame, of two sets of springs arranged at the sides and extending beyond opposite ends of said frame, the proximate ends of said springs engaging the frame and opposing its advance toward the sets of springs, respectively, followers supporting the ends of the springs remote from the frame, and a bearing-plate provided with means for lifting and carrying with it the spring-followers; substantially as described.

9. In a side bearing for cars, the combination with a track-plate, of an antifriction device arranged thereon, a frame for said antifriction device, sets of expansion-springs arranged at the sides and extending beyond the opposite ends of said frame, said springs extending parallel with the direction of movement of said frame, the proximate ends of said springs having a bearing upon said frame, followers against which the outer ends of the springs are seated, said followers being movable in the direction of movement of the frame, fixed stops for limiting the movement of the followers in a direction away from the frame, and a bearing-plate overlying the antifriction device and provided at its corners with projections adapted to engage the respective followers and carry them with the bearing-plate when the latter is moved in a certain direction; substantially as described.

10. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, of an antifriction device, a frame for said device, coiled springs housed in said overhanging hoods, and a bearing-plate provided with trough-shaped flanges for receiving said springs; substantially as described.

11. In a side bearing for cars, the combination with a base-plate provided with a track-plate, of overhanging hoods supported upon the base-plate, coiled springs arranged in said hoods, an antifriction device arranged on the track-plate, a frame for said antifriction device, lateral projections extending from said frame against which the proximate ends of the springs bear, followers for the outer ends of the springs which normally rest against the end walls of the hoods, a bearing-plate overlying the antifriction device and provided with trough-shaped flanges for receiving the springs, the end walls of said flanges being adapted to engage and carry the spring-followers when the bearing-plate is shifted, said plate being guided in its movement by the overhanging hoods; substantially as described.

12. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods forming spring-housings, an antifriction device having a path of movement between said hoods, a bearing-plate overlying the antifriction device and interlocked with the overhanging hoods, and springs in said hoods cooperating with the bearing-plate and antifriction device; substantially as described.

13. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, one of which is removable, of an antifriction device between said hoods, a bearing-plate overlying said antifriction device, means for limiting the movement of said bearing-plate with respect to said antifriction device, flanges on the bearing-plate

extending under the overhanging hoods, and springs; substantially as described.

14. In a side bearing for cars, the combination with a base-plate provided with spring-housings at its side edges, of an antifriction device arranged to travel between said housings, a bearing-plate overlying said antifriction device and having a differential movement with respect thereto, means for limiting the movement of said bearing-plate, abutments at the corners of said bearing-plate, and springs; substantially as described.

15. In a side bearing for cars, the combination with a base-plate having fixed spring-housings along its side edges forming guideways, of followers arranged in said housings and cooperating with the end walls thereof, springs bearing against said followers at their outer ends, an antifriction device against which the inner ends of said springs bear, whereby the energies of said springs are opposed, a bearing-plate overlying the antifriction device and provided with lateral flanges extending under the spring-housings for supporting said springs, and abutments at the ends of said flanges and in line with the followers for the springs, said abutments being free to pass the end walls of the spring-housings for the purpose of lifting the followers and carrying said followers with the bearing-plate; substantially as described.

16. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, the spindle of one roller projecting laterally beyond the frame, heads on the projecting ends of said spindle, guideways for said heads, and springs cooperating therewith; substantially as described.

17. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, one of the roller-spindles projecting laterally beyond the frame, heads on the ends of said spindle, fixed guideways for receiving said heads, abutments at the ends of said guideways; and springs interposed between said abutments and the heads on the ends of the spindle; substantially as described.

18. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, one of the spindles of said rollers projecting laterally beyond the sides of the frame, heads on the ends of said spindle, overhanging hoods forming guideways for said heads, the end walls of said hoods providing abutments for spring-followers, springs bearing upon the heads and against the followers which are seated against said end walls, a bearing-plate resting upon the antifriction-rollers, and having trough-shaped flanges which cooperate with the overhanging hoods to form housings for the springs, and guideways for the heads on the ends of the roller-spindle, the vertical side walls of the bearing-plate being slotted for the passage of the projecting ends of said spindle, and walls at the ends of the trough-shaped flanges for cooperating

ating with the spring-followers when the bearing-plate is moved in a certain direction; substantially as described.

19. In a side bearing for cars, the combination with spring-housings which are provided with openings for permitting a circulation of air thereunder, of an antifriction device guided in its movement by said housings, a bearing-plate arranged upon said antifriction device so as to permit a circulation of air thereunder and around said antifriction device, and springs in said housings for cooperating with said roller-frame, and with said bearing-plate; substantially as described.

20. In a side bearing for cars, the combination with an antifriction device, of springs cooperating therewith for restoring said device to its normal position, and housings for said springs, said housings being provided with openings in their bottom walls for the escape of dirt, dust, &c.; substantially as described.

21. In a side bearing for cars, the combination with an antifriction device, of coiled springs cooperating with said device, and trough-shaped flanges in which said springs are received, said flanges being provided with openings for the discharge of dust, dirt, &c.; substantially as described.

22. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, an antifriction device, a frame for said device, coiled springs housed in said overhanging hoods, and a bearing-plate provided with trough-shaped flanges for receiving said springs, said flanges having openings in their bottom walls for the escape of dirt, dust, &c.; substantially as described.

23. In a side bearing for cars, the combination with an antifriction device, of a track-plate, upon which the same is arranged, guides rising from opposite sides of the track-plate, said guides being provided with openings so as to enable air to sweep over the track, and resilient means cooperating with said antifriction device to restore it to its normal position; substantially as described.

24. In a side bearing for cars, the combination with an antifriction device, of a track-plate upon which the same is arranged, guides rising from opposite sides of the track-plate, said guides being provided with openings for

the circulation of air, the ends of the bearing being open so as to permit air to sweep over the track-plate, and mechanism cooperating with the antifriction device to restore it to its normal position; substantially as described.

25. In a side bearing for cars, the combination with a base-plate having a way in which operates an antifriction device, said way being free from pockets or other obstructions thereby preventing the lodging or packing of dust, dirt &c., an antifriction device traversing said way, guides rising from the opposite side of said base-plate for guiding the antifriction device in its movement, and resilient means supported by said guides and cooperating with the antifriction device for restoring the same to its normal position; substantially as described.

26. In a side bearing for cars, the combination with a way free from pockets and open at its ends thereby admitting an unobstructed circulation of air over said way and around the antifriction device arranged thereon, an antifriction device traversing said way, an antifriction device, a bearing-plate cooperating with said antifriction device, the ends of said bearing-plate being cut away to permit the air to sweep over the way, and resilient means cooperating with the antifriction device and the bearing-plate for restoring said parts to normal position; substantially as described.

27. In a side bearing for cars, the combination with a way free from pockets or obstructions, thereby preventing the lodgment or packing of dust, dirt, &c., on the way, said way being open at its ends, guides on opposite sides of the way, openings in the guides the open ends of the way and the openings in the guides permitting a circulation of air over said way and around the antifriction device arranged thereon, an antifriction device traversing said way, and resilient means cooperating with the antifriction device for restoring it to a central position; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 19th day of June, 1901.

JOHN C. WANDS.

Witnesses:

GEORGE BAKEWELL,
BESSIE McELLIGOTT.