

No. 635,279.

Patented Oct. 17, 1899.

J. S. CORBIN.
LAND ROLLER.

(Application filed May 18, 1892.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

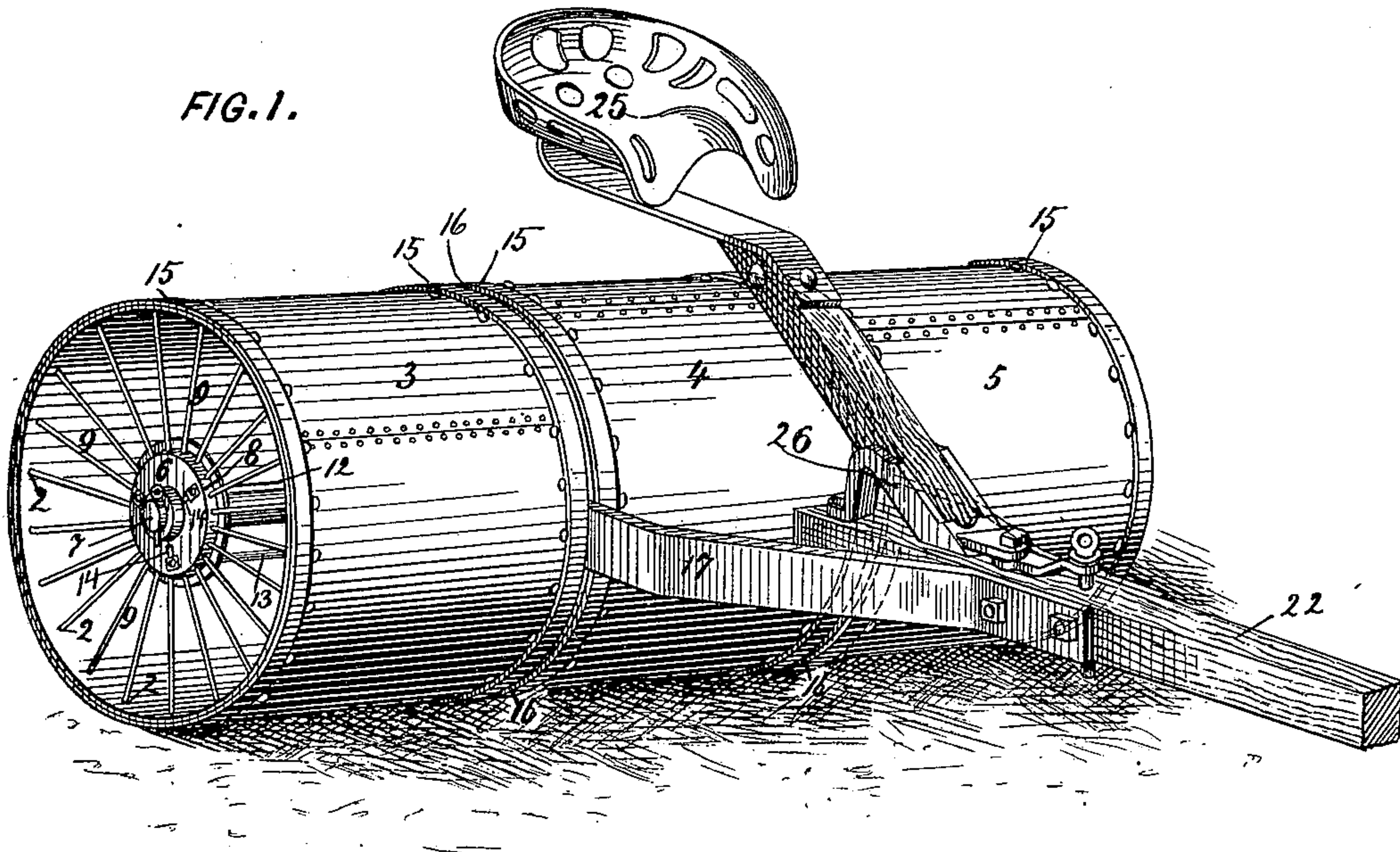
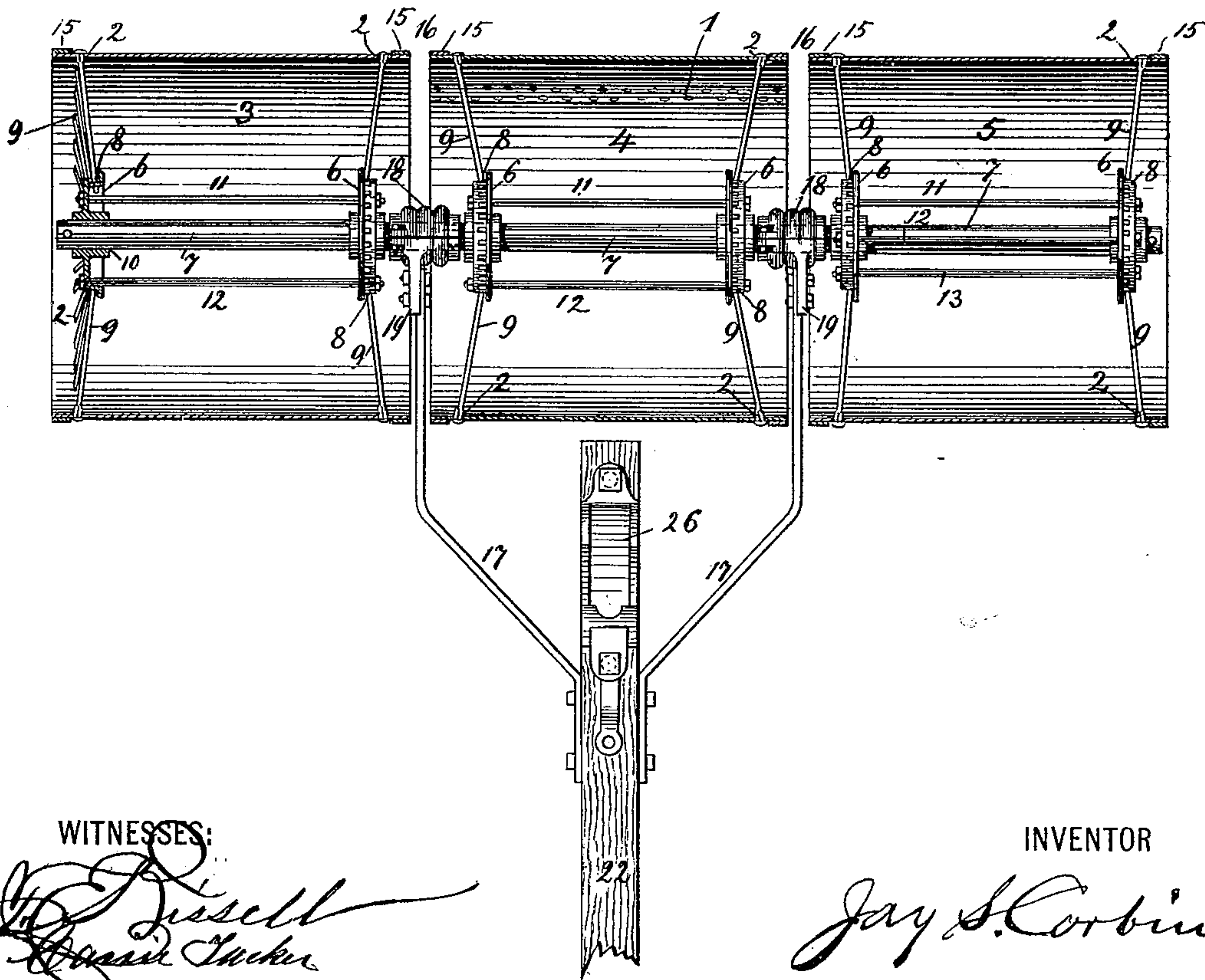


FIG. 2.



WITNESSES:

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2 Sheets—Sheet 2.

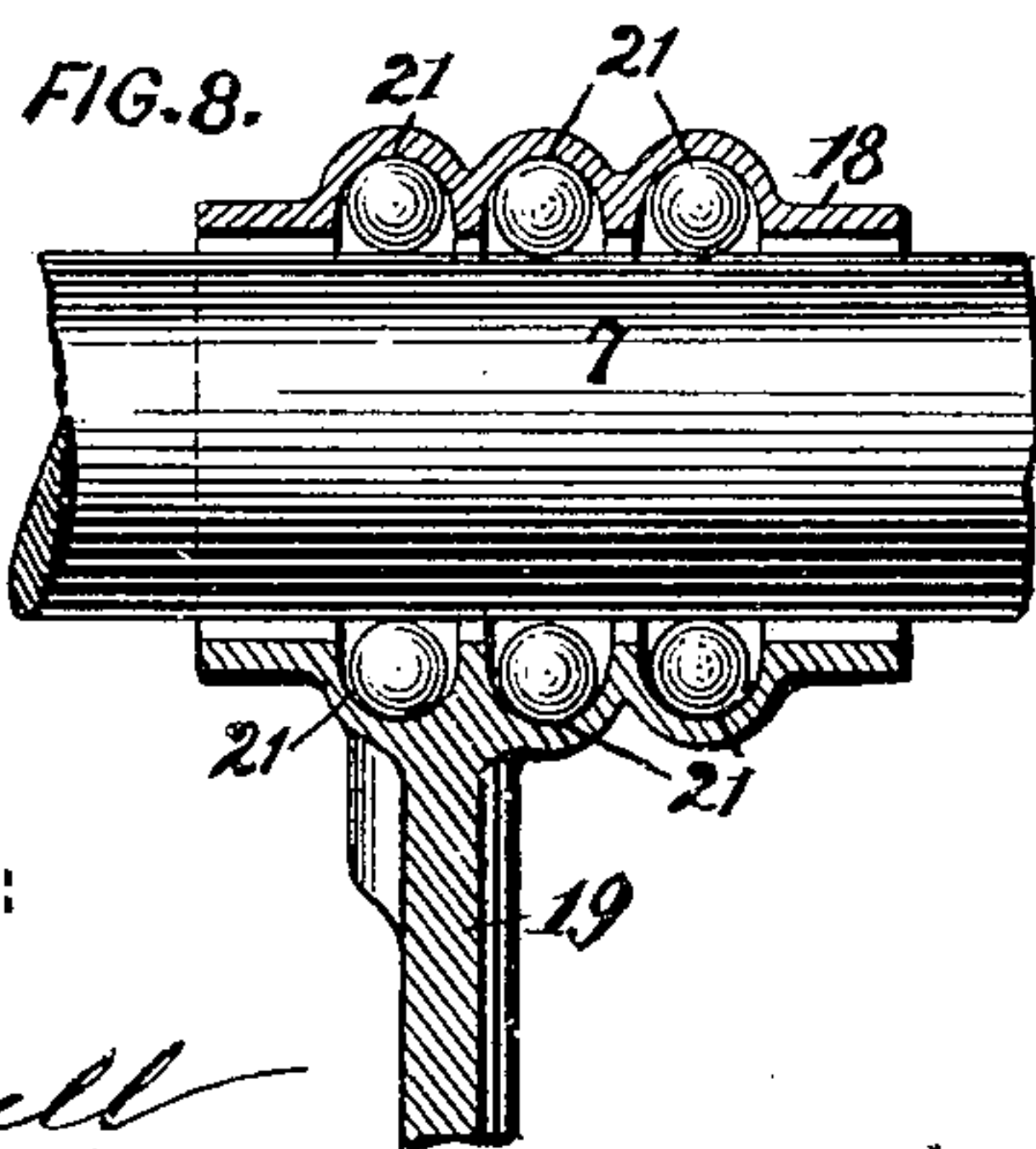
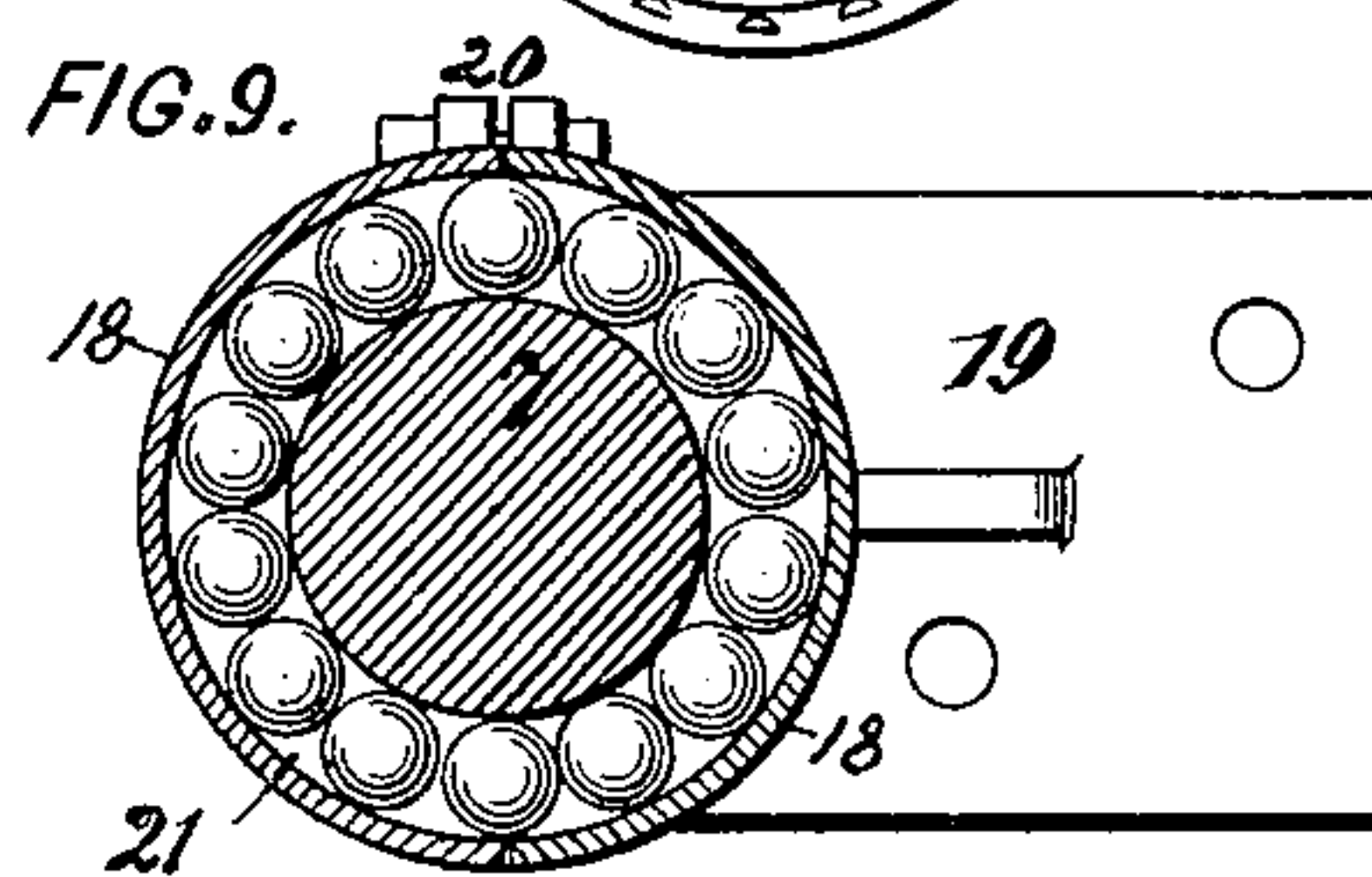
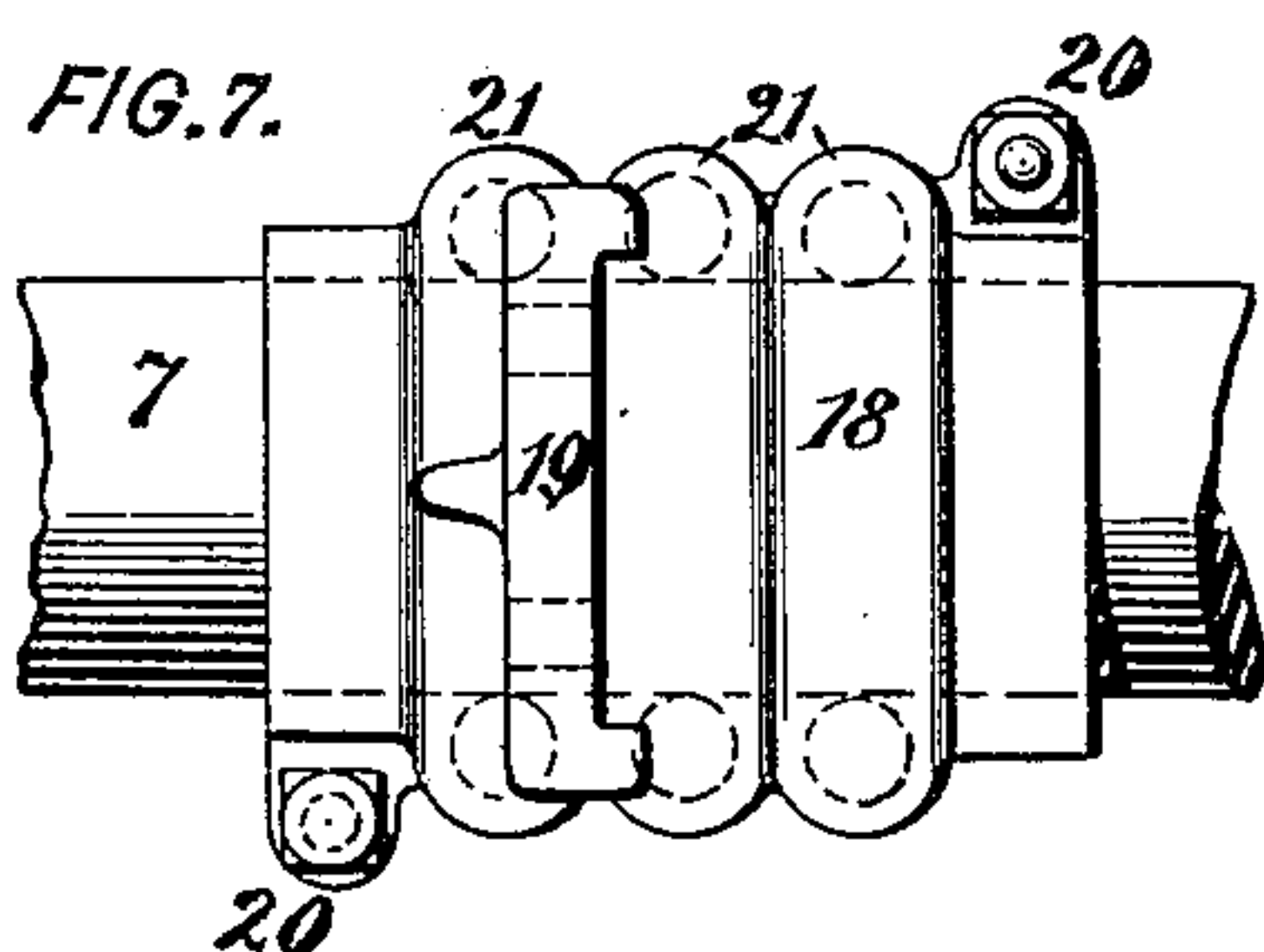
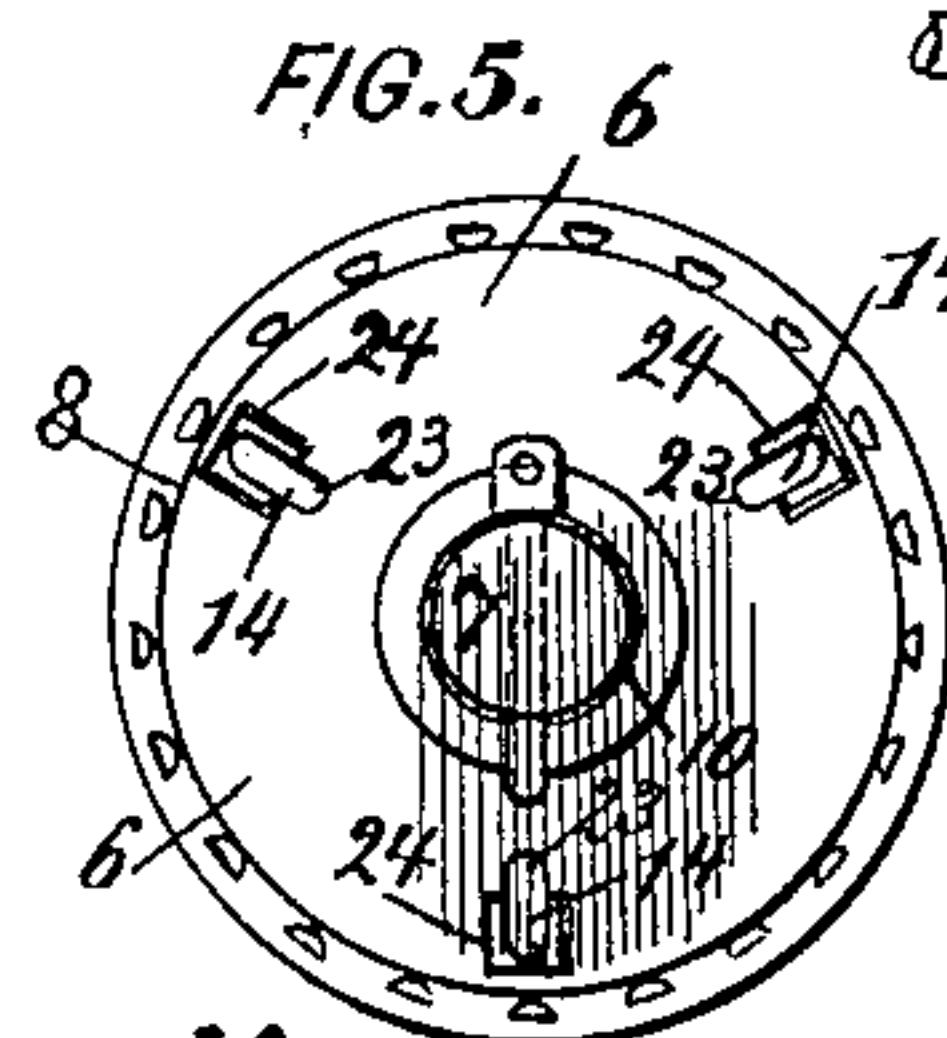
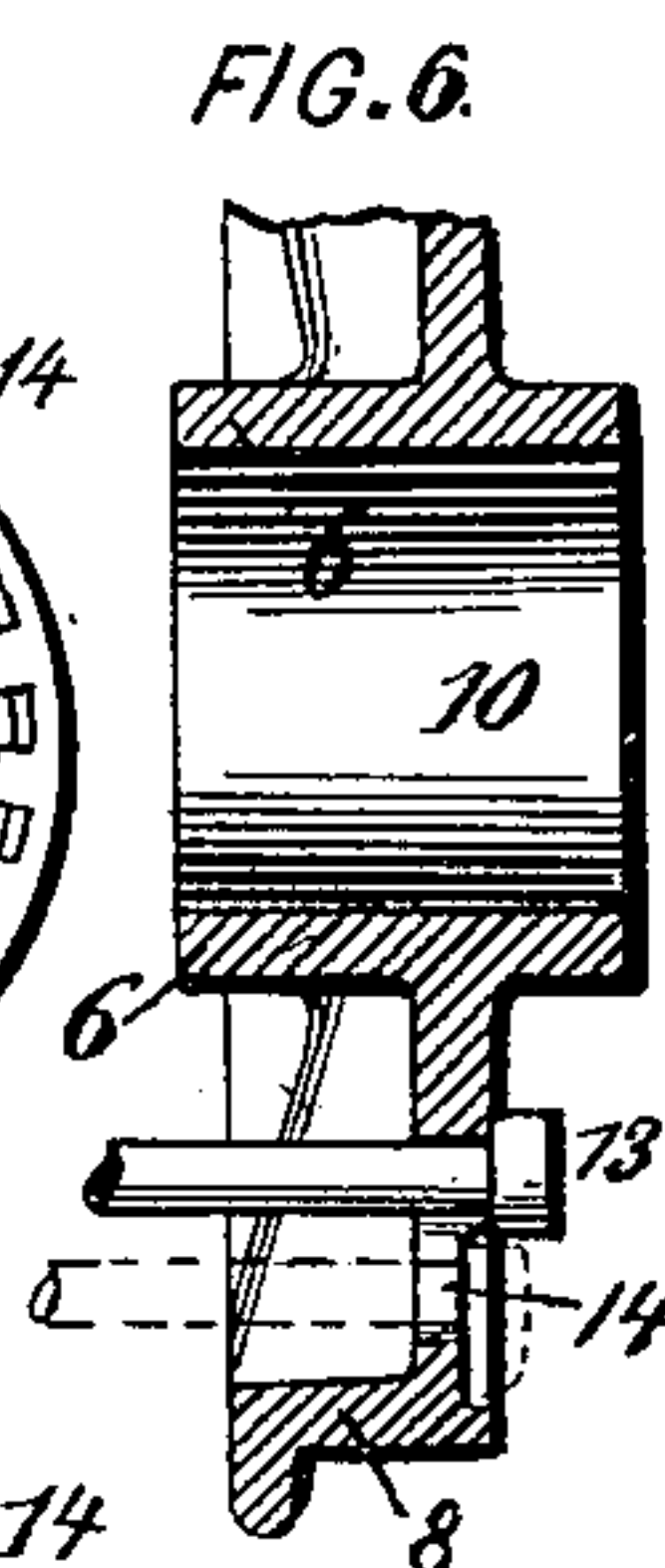
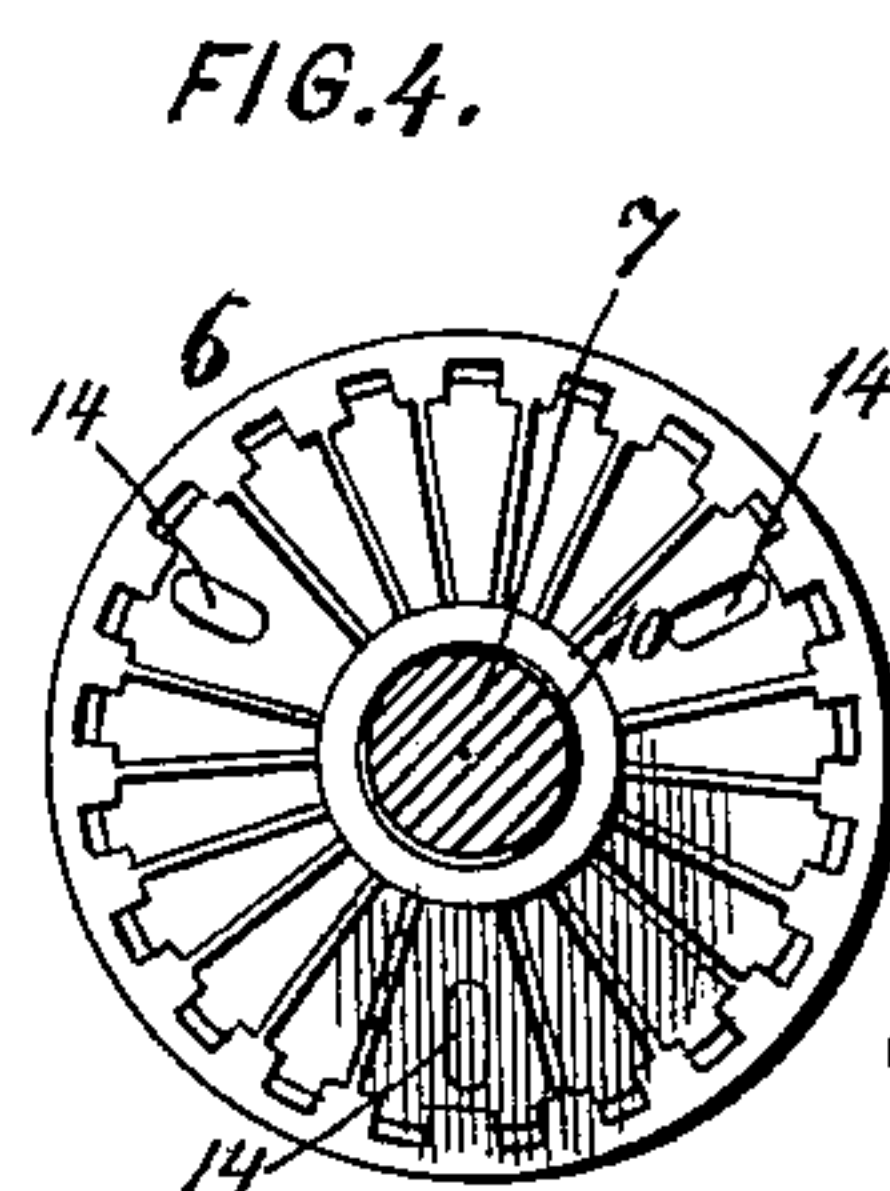
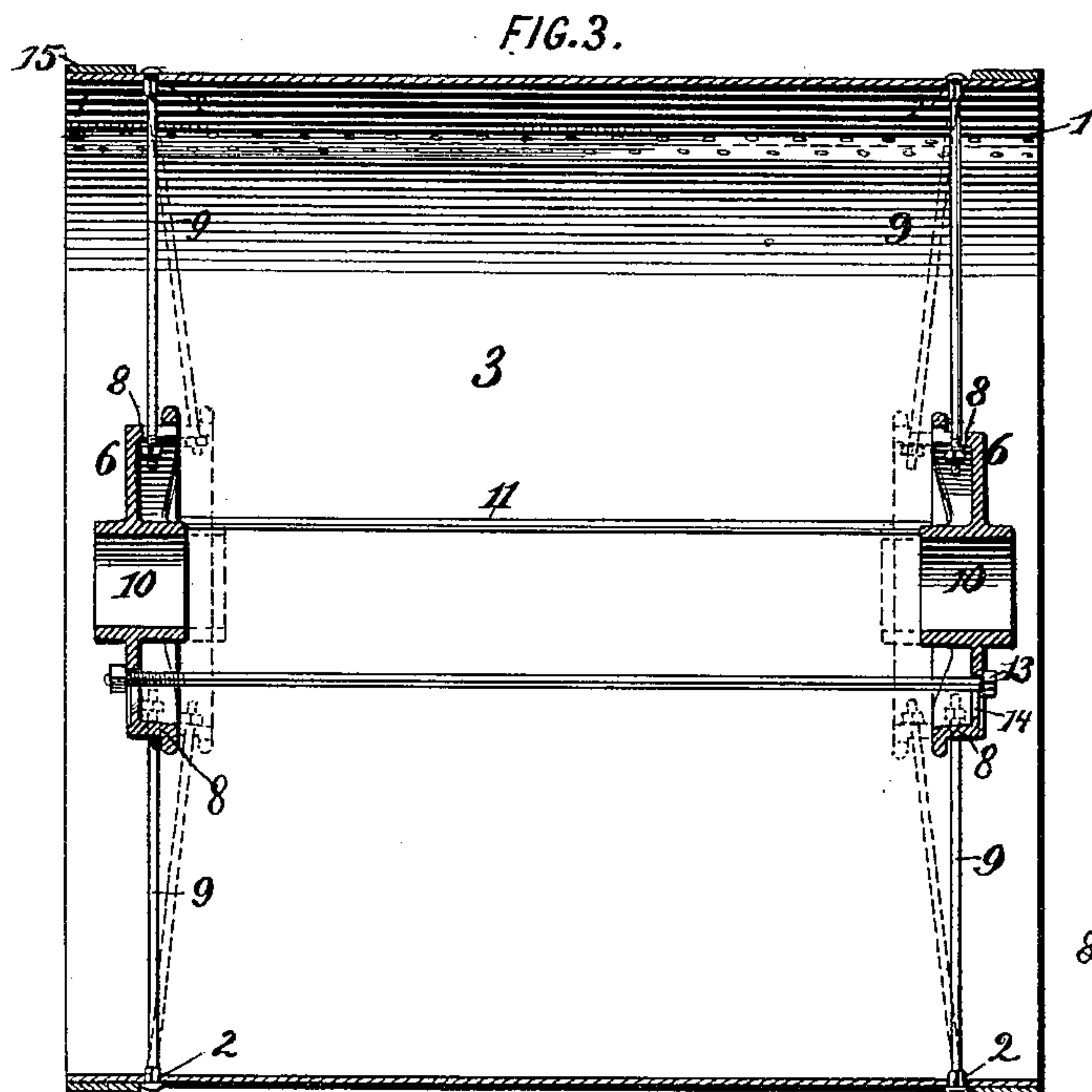
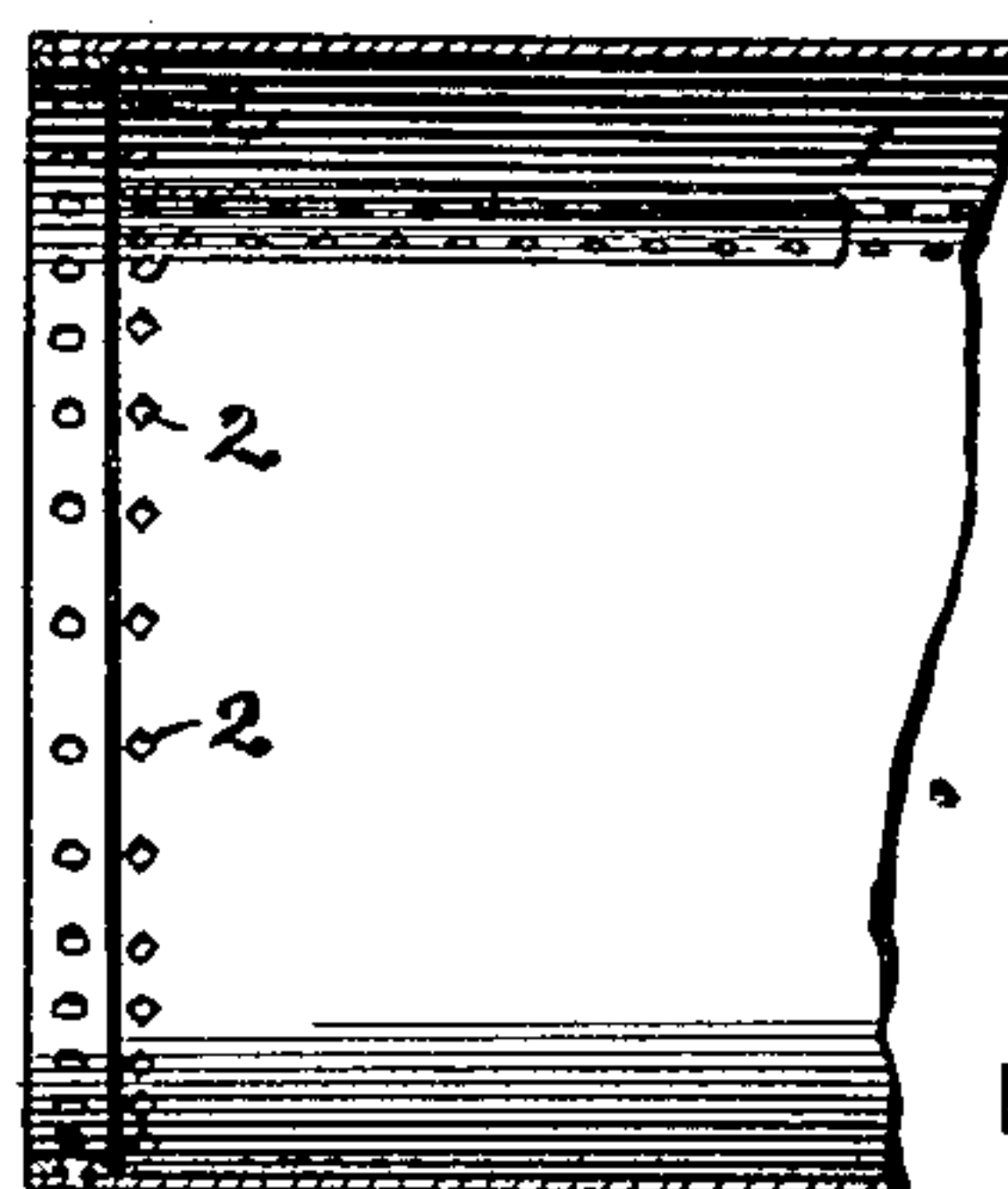


FIG. 10.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAY SPENCER CORBIN, OF PRESCOTT, CANADA.

LAND-ROLLER.

SPECIFICATION forming part of Letters Patent No. 635,279, dated October 17, 1899.

Application filed May 13, 1892. Serial No. 432,840. (No model.)

To all whom it may concern:

Be it known that I, JAY SPENCER CORBIN, a citizen of the United States, and a resident of Prescott, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Land-Rollers, of which the following is a specification.

The invention consists as hereinafter set forth and claimed.

10 In the drawings, Figure 1 is a perspective view of a land-roller containing my improvements. Fig. 2 is a sectional view of the same, taken in a horizontal plane passing centrally through the machine. Fig. 3 is a central longitudinal section of one of the drums. Fig. 4 is a front view of one of the hubs. Fig. 5 is a rear view thereof. Fig. 6 is a vertical central section thereof. Fig. 7 is an external view of one of the ball-bearing journal-boxes shown upon a section of the axle. Fig. 8 is a central longitudinal section of the same. Fig. 9 is a cross-section of the same, taken centrally through one of the ball-bearing boxes, thereby showing the axle and balls bearing thereon in section. Fig. 10 is a view of the periphery of one of the drums, partly in section, showing in detail the construction of some of its parts.

30 I will proceed to describe the construction of one of the drums, all three being alike in their parts.

The sheets forming the drum are bent into a cylindrical form, with their ends abutting and a strip placed on the inside over the joint and fastened with two rows of rivets. This strip is shown at 1, Fig. 10. Square holes 2 are punched on the two edges of the sheet all around the cylinder at a distance of about four inches apart and one inch from the edge before bending. These cylinders so preferably constructed are shown at 3 4 5 in Figs. 1, 2, and 3. 6 6 in the same figures are two hubs, preferably made of cast metal of about eight inches in diameter, having a hole in the center which fits loosely to an axle 7, passing through all the drums. The outer diameter of each hub is composed of a flange 8, provided with the same number of holes as is contained in the periphery of the drum at each side. I pass carriage-bolts 9 one-quarter inch in diameter and ten and a half inches long radially through the holes in the drum and in

hubs, loosely screwing the parts together, with nuts upon the inner peripheries of the hub-flanges. Thus it will be seen that within a short distance of the ends of each drum is contained a hub connected to the periphery of the drum by radial bolts, each hub having a central opening 10, through which passes the axle connecting all three drums together in manner as hereinafter described.

From an examination of the drawings and the above explanation it will be understood that when the parts are in proper working position each hub and the spokes attached thereto constitute a sort of spider-like support between the axle and the shell or cylinder of the drum and also that said support is dishing or concave upon its face, which is disposed toward the adjacent end of the cylinder, so that when two such cylinders are placed in line the distance between two adjacent hubs is greatly increased by reason of their concavity, thus providing for the reception of a long bearing for a draft-frame, to be described.

I connect the two hubs of each drum by means of three tie-bolts 11 12 13 of about three-eighths of an inch in size and in length about six inches shorter than the length of the drum. These are equally distant apart, passing through the holes 14 in the hubs, and upon being tightened up by nuts there is a tensile strain produced upon all of the radial bolts, thus forcing the drum into a perfect cylindrical form, with the hubs accurately centered. To produce this result, care should be taken, however, to have the radial bolts 9 equal in length and the nuts screwed on the ends thereof at an even distance from the ends of the rods. These drums I prefer also to reinforce at their ends with tires 15, thus preventing their edges from being bent upon sharp rocks and also avoiding all possibility of the bolts 9 when strained up to cause the surface of the drum to bulge out. These tires may be placed either upon the outside or inside of the shell. In the latter case the tires should be riveted to the shell; but when shrunk upon the outside the shrinkage will be sufficient to keep them in place. This construction of the drum makes it exceedingly light and at the same time very durable. I do not limit myself to the sizes or propor-

tions here given, as this is but one size of the drums constructed by me and is my preferred way of making each drum. Other forms of drums can be substituted, my invention consisting principally in the suspending of the drums and connecting the axle-boxes by braces to a pole. The three drums are now placed upon the axle 7, leaving spaces 16 16 between the inner ends of the outer drums and the ends of the middledrum of about one and one-half inches to admit of the draft-bars 17 17 passing through to the journal-boxes 18 18. These draft-bars are connected to lugs 19 19 cast on the journal-boxes. Each of these journal-boxes is in two sections, being clamped together by bolts and nuts at the lugs 20 20. They have ball-bearing chambers 21. In the instance shown in the drawings there are three chambers, each chamber containing fourteen balls of hard metal of five-eighths of an inch in diameter. The separate chambers prevent the balls from interfering with each other and from becoming locked or bound. The chambers are also located near the middle of the boxes, so as to be well protected from dirt. I allow some endwise vibration to the axle in order to prevent the balls from traveling in the same paths continually.

I do not limit myself to so casting the journal-box in two parts and with three separate chambers for the three series of friction-balls. The axle connecting these two journal-boxes and the three suspended drums needs no special preparation further than is necessary to cut it to the length required and to drill holes in its ends for the linch-pins. The draft-bars in the form shown in the drawings I make of heavy bar-iron about seven-eighths by two and one-half inches, the inner ends being firmly bolted, as before stated, to the lugs 19 19 on the journal-boxes and their outer ends firmly bolted to the tongue 22. The tongue and draft-bars, together with the bearings, constitute a draft-frame. There are here no exposed parts moving upon one another subject to the influx of mud and dirt usually carried up by the drums and which are found in land-rollers containing frames.

By my improved boxes I require no oil whatever. It will also be seen that an advantage is obtained by having the radial rods or spokes lie so well within the ends of the drums, as shown in the drawings, that they are well protected from external injury when

in use or in transportation. The axle is also shortened by my construction, so that it is not liable to accident by reason of contact with gateways or other obstructions in passing through narrow openings.

I have placed upon the hubs an exceedingly simple nut-lock. The three bolts 11 12 13 that tie the hubs together in each drum pass through elliptical holes 14 14 14. At the end 23 of the ellipse nearest the center of the hub is placed the rod while tightening up. At the outer end of the ellipse is a countersink 24 a little larger than the head of the nut and about one-eighth inch in depth. When the rods are sufficiently tightened up, they are driven over to the outer end of the hole. Then the nut drops into the countersink 24 and is held there tightly by the elasticity of the parts. A seat 25 is mounted in a socket 26, bolted to the rear end of the tongue 22. It is evident that when two of these drums are placed in line the concave faces of the spider-like supports will be toward each other and that there will be a long place on the axle for the reception of correspondingly long bearing, while at the same time the ends of the drums are close together, with the outer ends of the spokes at their edges, a very desirable feature of construction which is not possible with rollers of prior makes.

What I claim is—

1. In a land-roller, the combination of a drum comprising a sheet-metal cylinder, a series of spokes extending inward from the cylinder, hubs at the inner ends of the spokes, and means for moving the hubs toward each other, and thereby producing tension upon the spokes, substantially as set forth.

2. In a land-roller, a drum comprising a sheet-metal cylinder, a series of spokes extending inward from the cylinder, hubs at the inner ends of the spokes, tie-rods connecting the hubs for moving the hubs toward the center of the drum and thereby producing tension upon the spokes and the cylinder, substantially as set forth.

3. In a land-roller, the combination with the hubs provided with the recessed or countersunk and elongated bolt-holes, of the movable tie-rods, substantially as set forth.

JAY SPENCER CORBIN.

Witnesses:

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T. E. BISSELL.