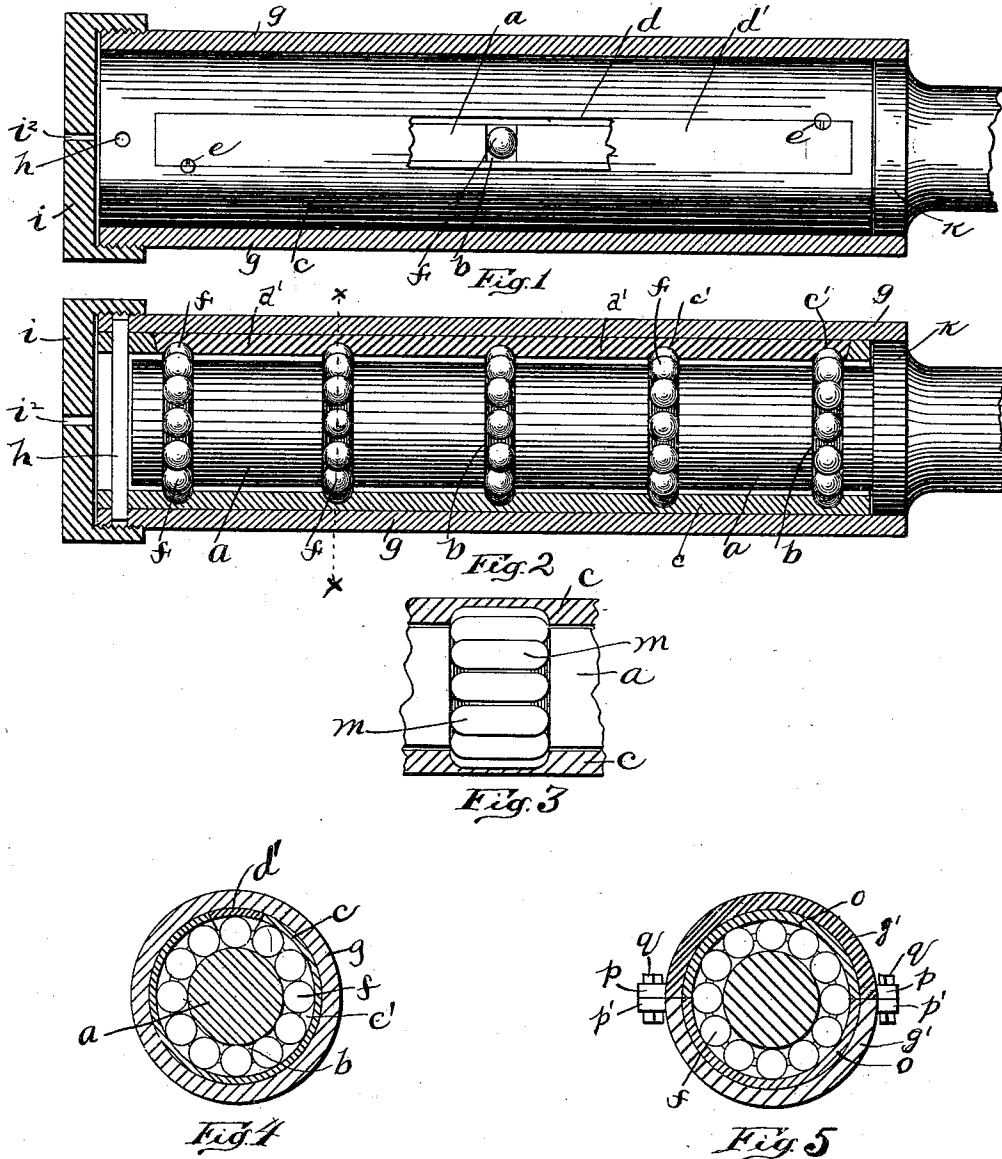


(No Model.)

F. M. LECHNER.
ANTIFRICTION BEARING.

No. 543,875.

Patented Aug. 6, 1895.



WITNESSES:

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FRANCIS M. LECHNER, OF COLUMBUS, OHIO.

ANTIFRICTION-BEARING.

SPECIFICATION forming part of Letters Patent No. 543,875, dated August 6, 1895.

Application filed November 27, 1893. Serial No. 492,038. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS M. LECHNER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Antifrictional Bearings, of which the following is a specification.

My invention has relation to antifrictional bearings; and it consists in certain peculiarities in the construction thereof, substantially as hereinafter described, and particularly pointed out in the subjoined claim.

The particular object of my invention is to so construct antifrictional bearings, especially that type thereof in which the rolls are located in series at different points throughout the length of the bearing, that access may be had to the innermost parts without removing all of the surrounding parts, and in less time and with less labor than is now required, and also in which the parts may be quickly and readily assembled properly into position for use by inexperienced persons, and when assembled and secured will not be liable to displacement or improper movement.

A further object of my invention is to provide a simple and cheap construction of bearing, which may also have practical provision for oiling the rolls and for reducing to a minimum the liability of dust or dirt reaching the rolls, which, separately considered, are not new in this class of invention.

These objects are accomplished by the constructions illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of the bearing-casing, showing the bearing-sleeve in elevation therein, and for the sake of clearness showing a part of the removable section of said sleeve broken away. Fig. 2 is a similar sectional view through both the casing and sleeve, showing the spindle in elevation. Fig. 3 is a detail sectional view of a part of the spindle-sleeve and spindle, showing a modification in the form of rolls. Fig. 4 is a transverse section on the line xx of Fig. 2. Fig. 5 is a transverse section showing a modified construction.

Similar reference-letters designate similar parts in the several views.

a represents a spindle, which may be that

of a wheel, shaft, or other rotary body, and b represents peripheral grooves distributed throughout the length of said spindle at equidistant points. c represents a sleeve of slightly-greater diameter than said spindle, and which surrounds the latter, said sleeve having formed on its inner surface a number of grooves c , which coincide with the grooves b of said spindle when the parts are together, said grooves of the spindle and sleeve thereby jointly forming substantially tubular ways, which are supplied with shaftless rolls. These rolls may be ordinary balls, as shown at f , Figs. 1 and 2, or they may be elongated, as shown at m , Fig. 3, and they are of such size and number as to fit within and fill said grooves. In order to permit said rolls to be readily introduced into said grooves without removing the entire sleeve c , said sleeve is made in two parts, removable the one from the other. In Figs. 1 and 2 the sleeve is shown as formed with a longitudinal opening d , which extends nearly the entire length thereof, and is normally closed by the removable section d' , which fits therein, and is held in its normal position, preferably by half-round latch-heads e , the stems of which are pivoted in the periphery of the sleeve c and the counter-sunk heads of which are adapted to be turned into correspondingly-shaped recesses in the edges of the removable section. This construction permits access to be had to the rolls without removing the entire sleeve; but more complete access to the rolls may be had with the construction of sleeve shown in Fig. 5, in which construction the sleeve is made in two half-cylindrical sections o and o' , which when together form a complete cylindrical body. Either of these forms of sleeve may be employed without departing from the spirit of my invention; but I prefer the form last described in some respects, because, as above stated, it affords more complete access to the rolls, and for the further reason that its use dispenses with the necessity of employing the latches, which have some disadvantages, in that they add expense and require to be manipulated in the application and removal of the sleeve.

When the removable section is in its normal position and the bearing-balls and spin-

dle thus inclosed, the sleeve is provided with an outer cylindrical casing, which fits closely thereon and is further connected therewith by means of a removable transverse pin *h*, which passes through the outer projecting ends of said sleeve and external casing on the outer end of the spindle. Said casing may be made of a single part, as shown at *g*, Fig. 1, but if made in a single piece it is difficult to apply and remove it. Obviously, the object of my invention will be more completely fulfilled if said casing is made so that it may be removed or applied with a minimum of labor and in the shortest space of time, and therefore I prefer to construct it in two half-cylindrical sections *g'* and *g''*, Fig. 5, detachably secured together at their meeting edges. A simple means by which said sections may be secured together consists of flanges *pp'*, projecting outward from the edges of these sections, and a securing-bolt *q*, passing through said flanges at each side of the casing. Although this two-part casing is shown only as surrounding the form of sleeve consisting of two half-cylindrical sections, it is not to be understood thereby that its use is limited to said particular form of sleeve. It is adapted equally as well for use with one form of sleeve as for the other, and is intended to be used with either of said sleeves. The purpose in view in showing it in connection with one form of sleeve only is to avoid a multiplicity of figures.

On the outer end of the casing is screwed a cap *i*, which serves to close one end of the bearing. The other end of the bearing may be closed by any suitable means—such, for example, as a ring *k*, formed on or secured to

the spindle. The cap *i* may also be provided, as shown, with a small central oil-opening *i'*.

It is evident that the external casing or boxing may form the hub of the wheel or fixed boxing-section, or that it, together with the sleeve, may rotate around the spindle while the latter remains at rest.

From the above it will readily be seen that I have provided in a simple and cheap construction an antifrictional bearing in which the interior parts may be lubricated from the outside and will be protected from dust and dirt, and also in which when the parts are secured together they will be solidly joined, yet may be quickly and easily assembled and secured together and removed when desired.

Having now described my invention, what I believe to be new and desire to secure by Letters Patent, and what I therefore claim, is—

The combination of the spindle provided with a collar, and having a series of equidistant peripheral grooves, the sleeve formed with a series of corresponding grooves and having a longitudinal slot, the plate seated in said slot, said plate being flush with the sleeve both internally and externally and provided with grooves corresponding with the grooves in the sleeve, the countersunk half round latch heads pivoted to said sleeve, the roller bearings located in said grooves, the casing fitting over said sleeve, and the screw cap at the outer end thereof, substantially as described.

FRANCIS M. LECHNER.

In presence of—

FRANKLIN RUBRECHT,
H. B. BRADSHAW.