

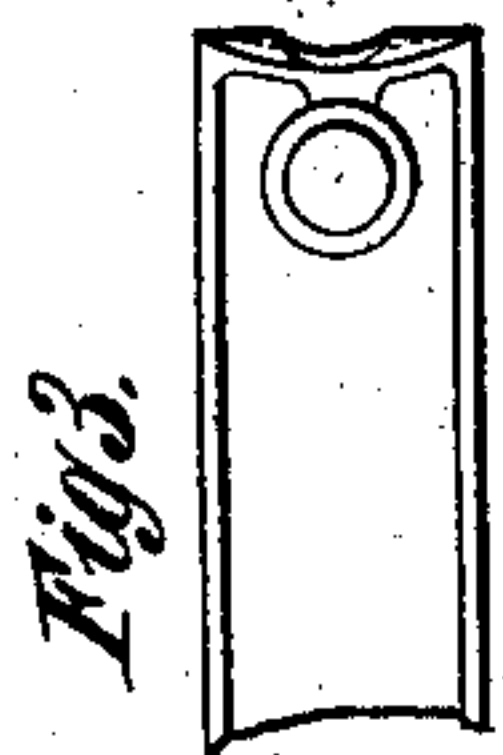
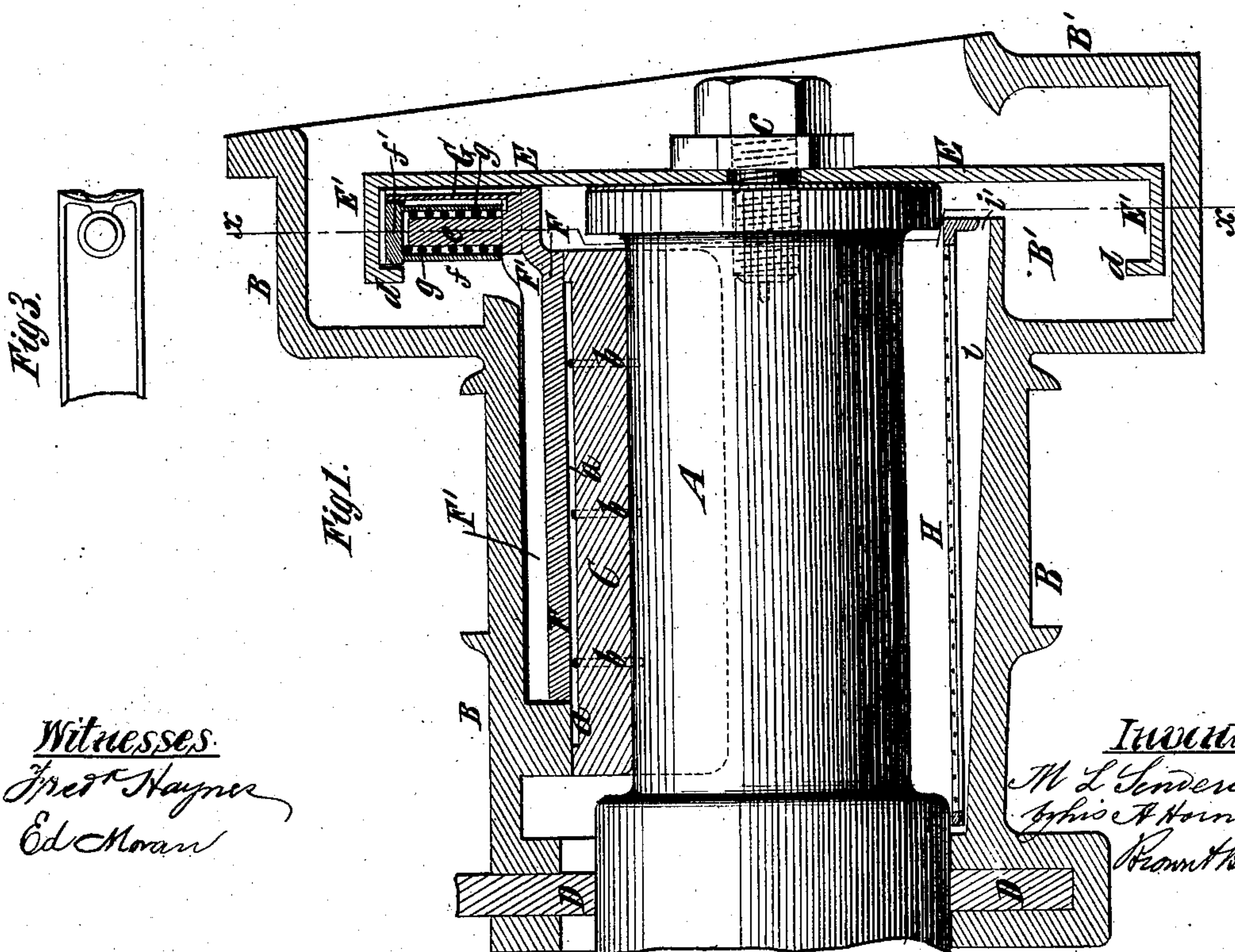
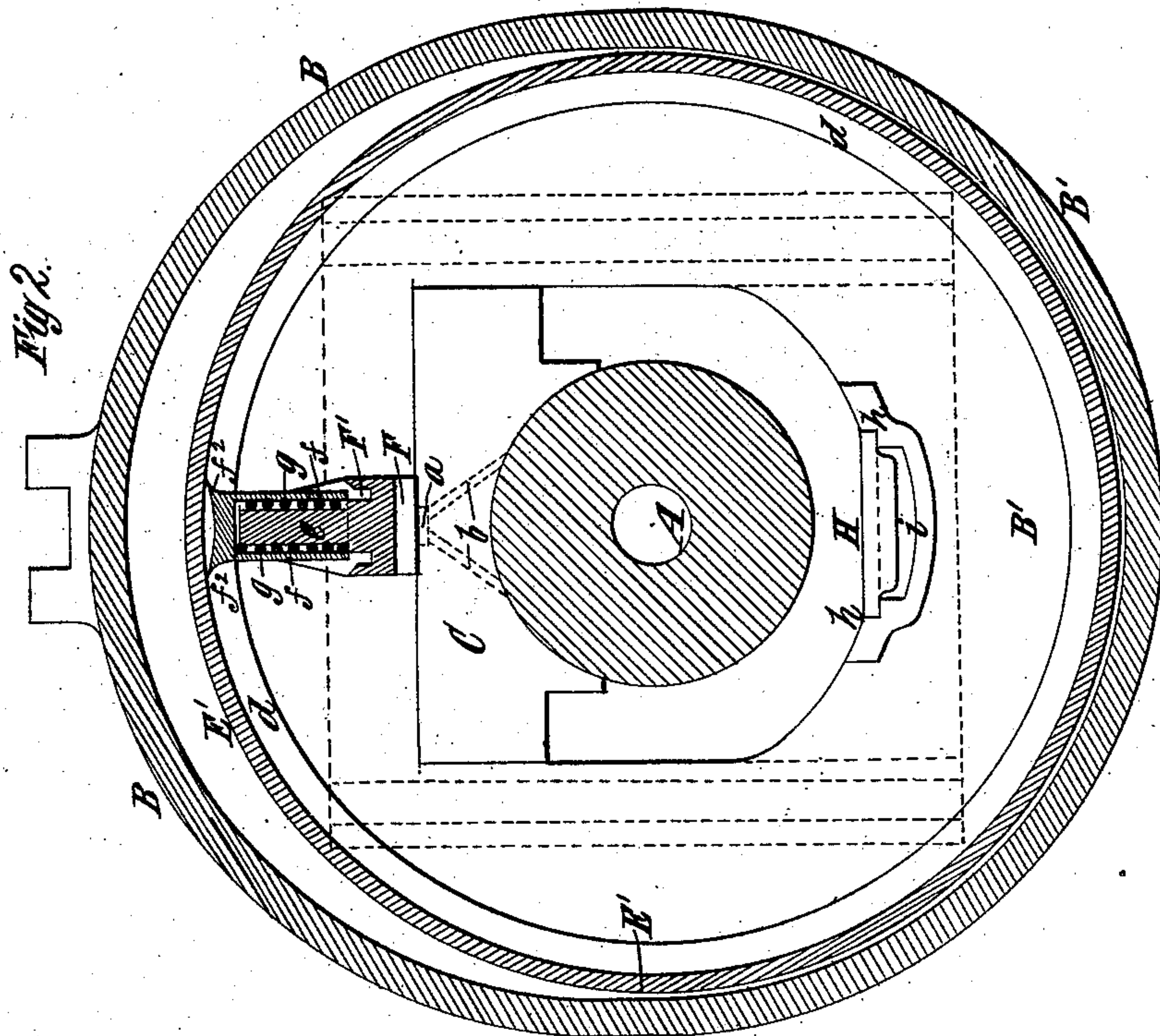
(No Model.)

M. L. SENDERLING.

JOURNAL LUBRICATOR.

No. 290,937.

Patented Dec. 25, 1883.



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JOURNAL-LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 290,937, dated December 25, 1883.

Application filed January 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. SENDERLING, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Means of Lubricating Journals, of which the following is a specification.

Although my invention is particularly applicable to car-axle boxes, it may be embodied in the journal bearings or boxes of various kinds of machinery.

The invention relates to the class of self-lubricating journal-boxes in which a disk is attached to the journal so as to be rotated therewith, and in some cases to dip into the lubricating material in the journal-boxes, and in which are employed one or more knives or other devices to remove or scrape the lubricating material from said disk, and a conductor to deliver upon the journal the lubricating material so removed.

An important object of my invention is to provide for a more copious lubrication of the journal in such a journal-box.

The invention, consists, essentially, in the combination, with a journal and journal-box, of a disk secured to and adapted to rotate with the journal, and having a peripheral rim, in the inner side of which is formed an annular trough, a knife or other device for removing lubricating material from said trough, and a delivery-conductor for receiving the lubricating material so removed and delivering it upon the journal. The internal annular trough in the rim is a very important feature, as it catches and retains a large quantity of lubricating material, which is carried round by the rotation of the disk, and is removed by the knife or device. The lubrication thus provided is very copious, and the trough retains the lubricating material and prevents it being thrown off by centrifugal force. I also preferably combine with the above a knife or device for removing the lubricating material from the inner face of the disk at the same time that it is removed from the trough in the rim.

The invention also consists in other details of construction and combinations of parts, hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a side view of a journal and a lon-

gitudinal section of a journal-box embodying the invention. Fig. 2 represents a transverse section in the dotted line *x x*, Fig. 1; and Fig. 3 represents a plan of a portion of a delivery-conductor and a knife or scraper attached thereto.

Similar letters of reference designate corresponding parts in all the figures.

A designates the journal of a car-axle.

B designates the axle or journal box, which resembles those now in use; and C designates the journal brass or bearing, which is constructed with a small channel or groove, *a*, in its top, and with holes or passages *b* leading therefrom through it to its bearing-surface, as shown in dotted lines in Figs. 1 and 2.

D designates the ordinary dust-ring.

E designates a circular disk, which is secured to the end of the journal A by a bolt, *c*, but which may be secured to the end or other part of the journal in any other desirable manner. This disk is adapted to rotate with the journals in a plane transverse to the axis thereof. At the front end of the box B is a depressed or sunken portion, *B'*, which forms a well or reservoir for the reception of lubricating material, and into which the disk E dips or enters to a considerable depth. The disk E is formed with a peripheral cylindrical rim or flange, *E'*, projecting inward toward the journal, and having at its inner edge, as here shown, an inwardly-projecting lip or flange, *d*. The lip *d* forms an annular trough on the inner side of the rim *E'*, and such trough prevents the lubricating material from being thrown off the disks by centrifugal force, and retains a large amount of lubricating material, which is carried around with the disk. The depth of this trough may be varied by varying the projection of the lip *d* toward the center of the disk.

In the upper part of the box B, and resting upon the brass C, is a piece or block, F, which extends longitudinally of the journal for the principal part of its length, and is channeled or grooved on its upper surface at *F'*, so as to form a channel, conductor, or conduit for oil or other lubricating material which is used in the box. At the end of the piece or block F, which is in proximity to the disk E, is an upwardly-extending knife or scraper, G, which bears against or is in very close proximity to

the face of the disk, and this knife may be slightly concaved on its face, as clearly shown in Fig. 3. The knife or scraper G extends nearly or quite to the cylindric rim or flange E' of the disk E. The knife or scraper G is held against the inner face of the disk E by the knife *f'* bearing against the lip *d*, and the knife *f'* may therefore be considered as a device on which the lip bears for this purpose.

On the piece or block F, in rear of the knife G, is an upwardly-projecting stud or pin, *e*, upon which is arranged a cylindric sleeve, *f*, and upon the upper end of said sleeve is a knife or scraper, *f'*, which bears against or is in very close proximity to the inner surface of the rim or flange E', and serves to remove lubricating material from the annular trough.

Surrounding the stud or pin *e*, and between it and the sleeve *f*, is a spiral spring, *g*, which tends to raise the sleeve and its knife, and which serves to hold the knife against the rim or flange E', and compensates for wear.

In the lower part of the box B is a strainer, H, which may be composed of wire-gauze or other suitable material, and which fits in a slideway, *h*, in the box, as seen clearly in Fig. 2. Below the strainer a channel or gutter, *i*, is formed in the box B, and at the front end thereof is an opening or passage, *i'*, between the box and the strainer H, as seen in Fig. 1. When thus arranged, the strainer H can be readily withdrawn for the purpose of cleaning it, and can be replaced by another, if desired. The disk E must be removed in order to permit of the strainer being drawn out, and the opening *i* delivers lubricating material within the rim E'.

In the operation of my invention a quantity of oil or other lubricating material sufficient to fill or partly fill the well or reservoir B' is placed in the box B. When the journal A rotates, the disk E also rotates, and a quantity of oil or lubricating material corresponding to the depth to which the disk dips therein will be carried upward and round upon the face of the disk. A comparatively large quantity of oil or lubricating material will also be retained within the flange or rim E' by the lip or flange *d*, and as the disk rotates the oil or lubricating material will be thrown outward by centrifugal force and distributed on the inner surface of said rim. As the disk E rotates past the knives or scrapers G *f'* the former scrapes off or removes the oil or lubricating material from the face of the disk and the latter removes the oil or lubricating material from the inner surface of the rim or flange E'. The oil or lubricating material removed by the knives G *f'* is delivered into the channel or conduit F, and thereby is delivered into the groove or cavity *a* in the brass C, from whence it passes through the holes *b* to the journal A and lubricates the same. The supply of oil or lubricating material thus delivered to the journal is very copious and amply sufficient for the purpose of keeping the same cool. From the journal the oil or lubricating material must pass

through the strainer H to reach the well or reservoir B', and is thereby freed from dirt and mechanical impurities.

I am aware that it is not new to attach to the journal of a car-axle a disk provided with a peripheral rim in which is an annular trough which is intended to take up oil from an oil-box and deliver it upon the top of the journal. Such a disk is shown in English Letters Patent No. 2,495, dated October 13, 1860. There is, however, no knife or scraper used in connection with this disk and trough, and it is obvious that any speed which would cause the oil to be carried in a thick belt in the trough would prevent its being delivered automatically from the upper part of the disk, for the centrifugal force would cause it to remain in the trough. I am also aware that it is not new to attach to a car-axle journal a disk having a peripheral rim which has no internal annular trough, but which has a knife or scraper for removing the lubricating material from the inner surface of the rim. The quantity of lubricating material taken up by the rim will be small, as a thin film only will adhere thereto, and hence the lubrication which can be thus produced will be limited.

I do not believe that, prior to my invention, a knife or scraper has ever been combined with a disk having an annular trough, and by this combination a greatly improved result is obtained. The trough will of course take up a quantity of lubricant many times greater than would be taken up by a disk having a plain rim, and the knife or scraper removes this large quantity of lubricant and prevents its being carried round and round continuously by the disk in its rotation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a journal and journal-box, of a disk secured to and adapted to rotate with the journal, and having a peripheral rim, in the inner side of which is formed an annular trough, a knife or other device for removing lubricating material from said trough, and a delivery-conductor for receiving the lubricating material so removed, substantially as and for the purpose herein described.

2. The combination, with a journal and journal-box, of a disk secured to and adapted to rotate with the journal, and having a peripheral rim, in the inner side of which is formed an annular trough, a delivery-conductor above the journal, and a knife or other device for removing lubricating material from said annular trough, attached to and supported entirely by said conductor, substantially as herein described.

3. The combination, with a journal and journal-box, of a disk secured to the journal and having a peripheral rim, in the inner side of which is an annular trough, a knife or other device for removing lubricating material from said trough, a spring for pressing the knife or device outward into said trough, and a deliv-

ery-conductor for receiving lubricating material from said knife or device, substantially as herein described.

4. The combination, with the journal A and its box B, of the disk E, provided with the peripheral rim E' and the inwardly-projecting lip *d*, the delivery-conductor F', provided with the pin *e*, the cylinder *f*, and its attached knife or scraper *f'*, and the spring *g*, all substantially as herein described.

5. The combination, with a journal and journal-box, of a disk attached to and adapted to rotate with said journal, and having a peripheral rim, in the inner side of which is an annular trough, knives or other devices for removing material from said trough and from the inner face of the disk, and a delivery-conductor or conductors for receiving lubricating material from said knives or devices, substantially as herein described.

6. The combination, with a journal and journal-box, of a disk attached to and adapted to rotate with the journal, and having a peripheral rim provided with an inwardly-projecting lip, a knife or other device for removing lubricating material from the inner face of the disk, a delivery-conductor for receiving the lubricating material so removed, and a device acted on by said lip for keeping the knife or device pressed against the face of the disk, substantially as herein described.

7. The combination, with the journal A and its box B, of the disk E, provided with the rim E' and the lip *d*, the delivery-conductor

F', provided with the pin *e*, the cylinder *f*, and knife *g*, and the knife or scraper G, all substantially as herein described.

8. The combination, with a journal and journal-box, of a disk attached to and adapted to rotate with the journal, and having a peripheral rim, in the inner side of which is an annular trough, a knife or device for removing lubricating material from said trough, and a channel or gutter below the journal for returning the lubricating material directly into said trough, substantially as herein described.

9. The combination, with the journal A, the journal-box B, having the slideway *h*, and the disk E, provided with the peripheral rim E', in the inner side of which is an annular trough, of the strainer H, removably fitted in said slideway *h*, below the journal, and the channel *i*, for delivering into the annular trough of the disk E the lubricating material passing through said strainer, substantially as herein described.

10. The combination, with the journal A and journal-box B, provided at the front end with the well or depressed portion B', and also provided with the slideway *h*, of the strainer H, removably fitted in said slideway, and the channel *i*, for delivering to said well or portion B' the lubricating material passing through the strainer, substantially as herein described.

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