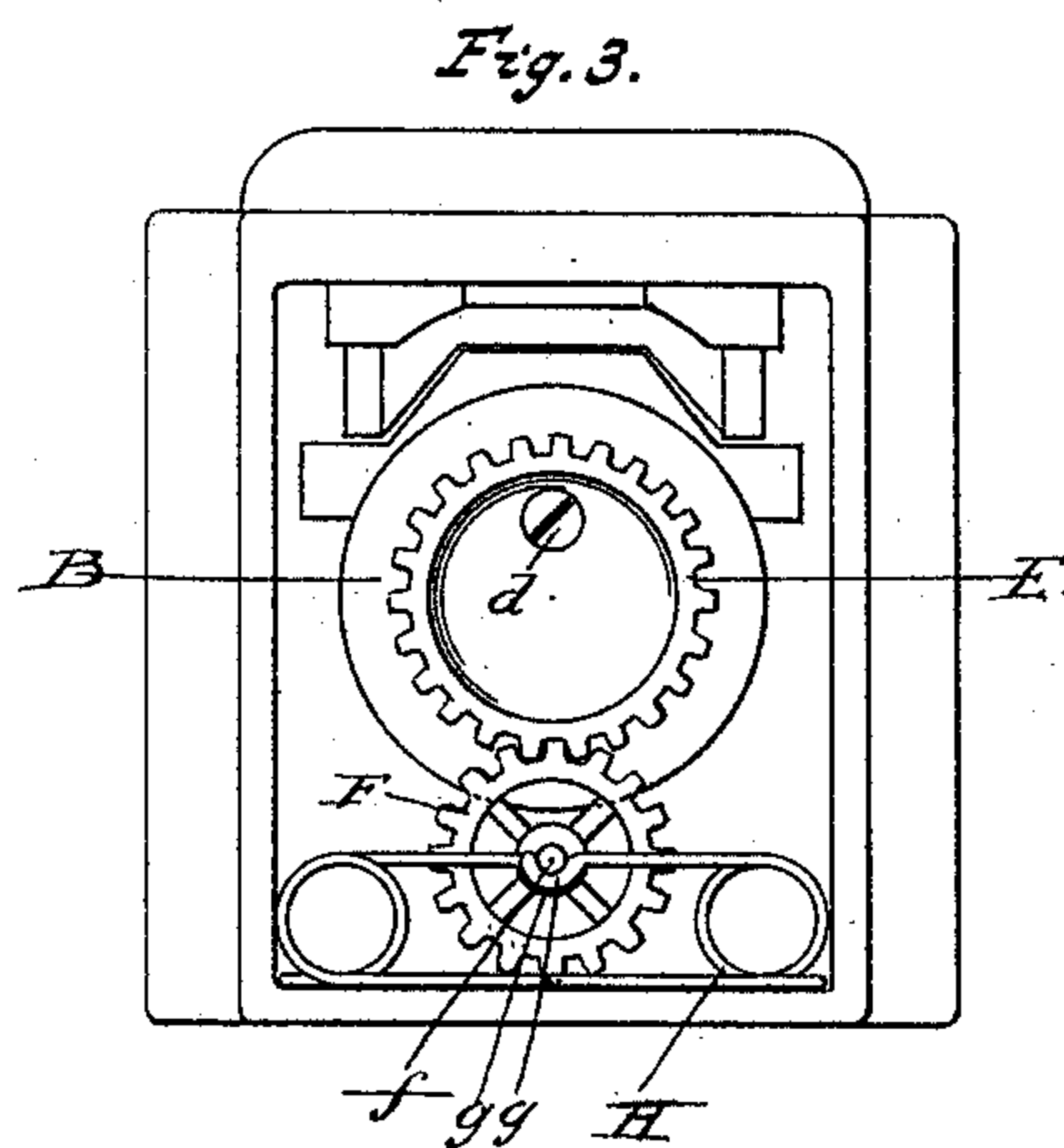
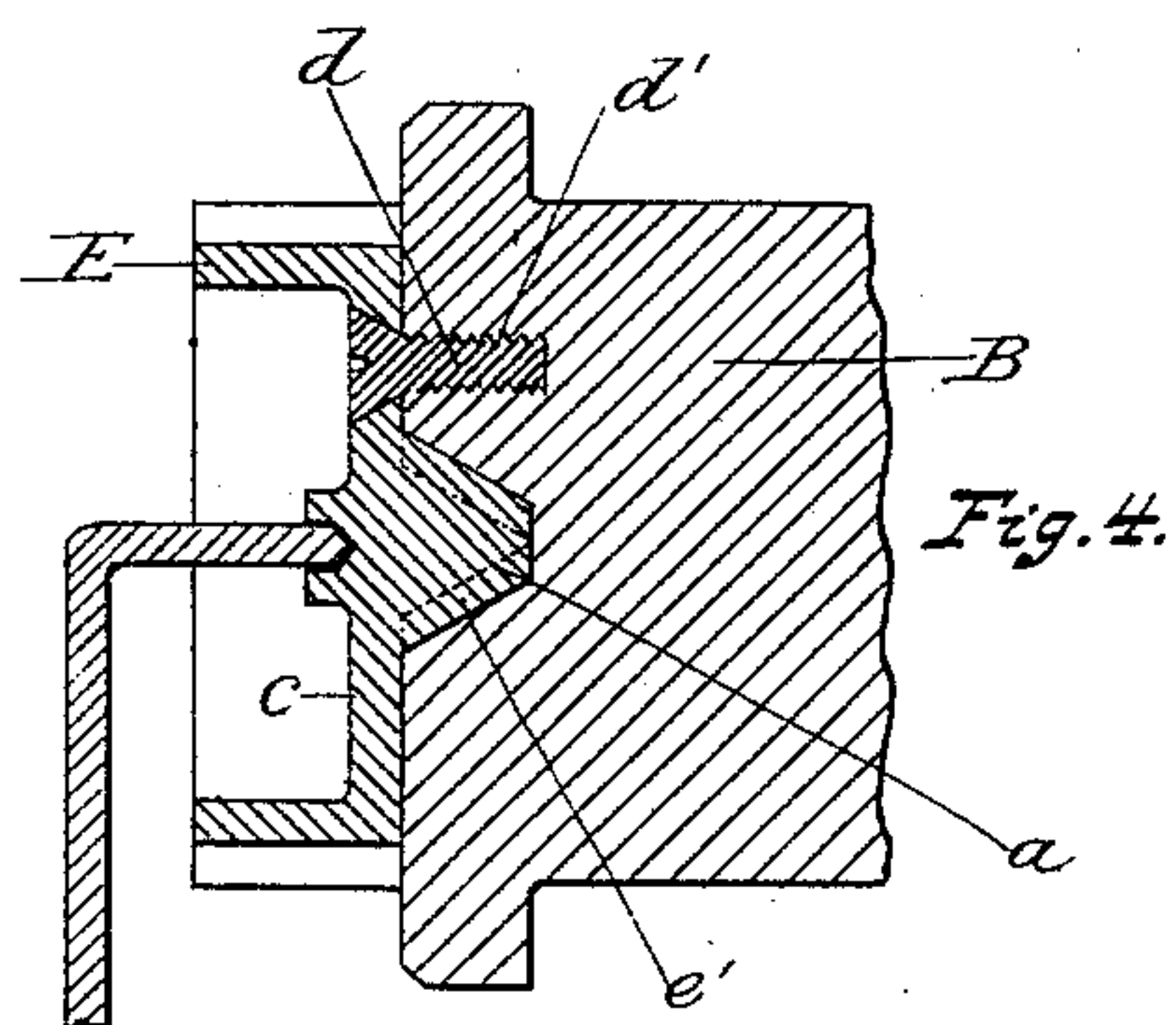
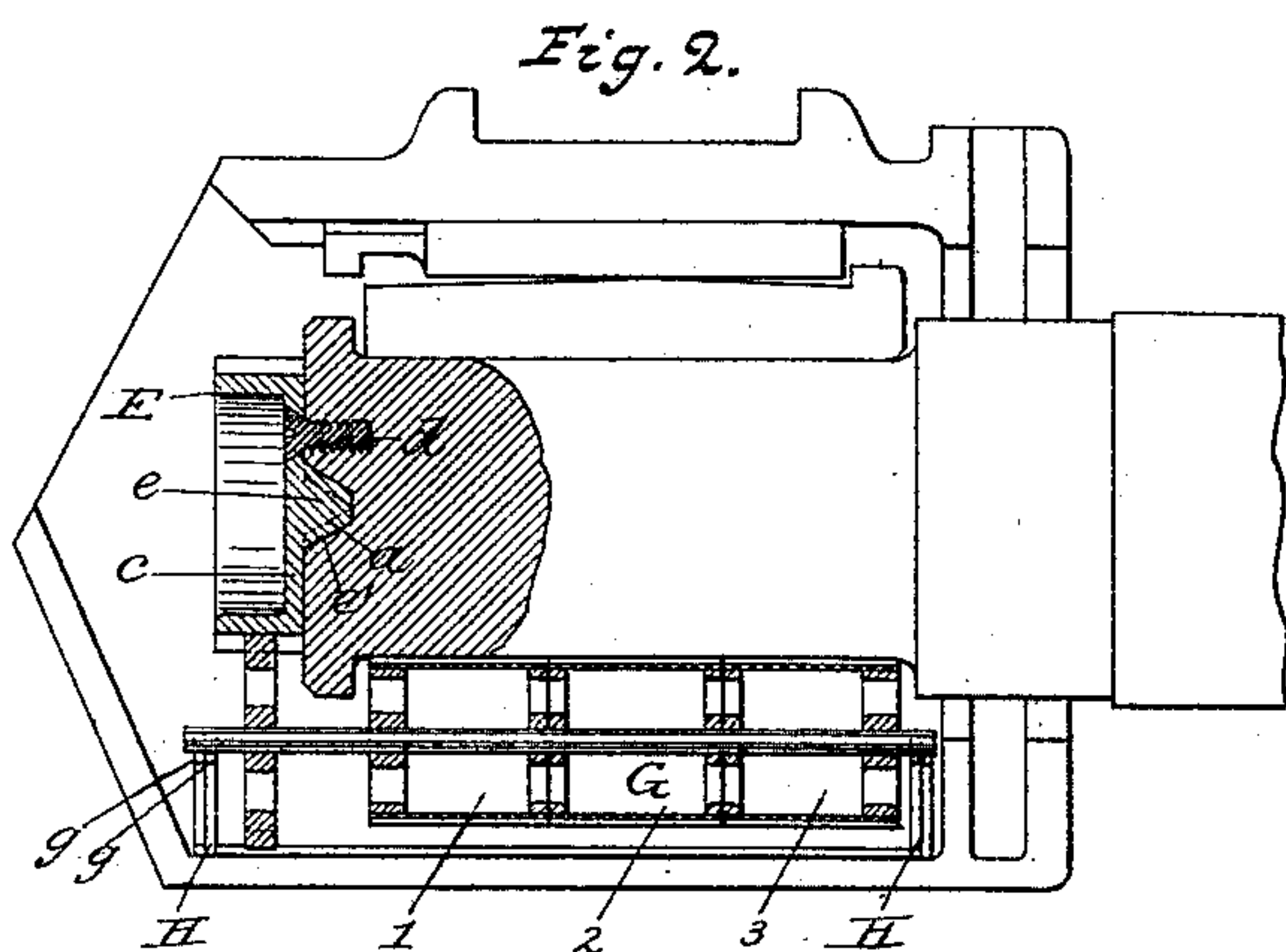
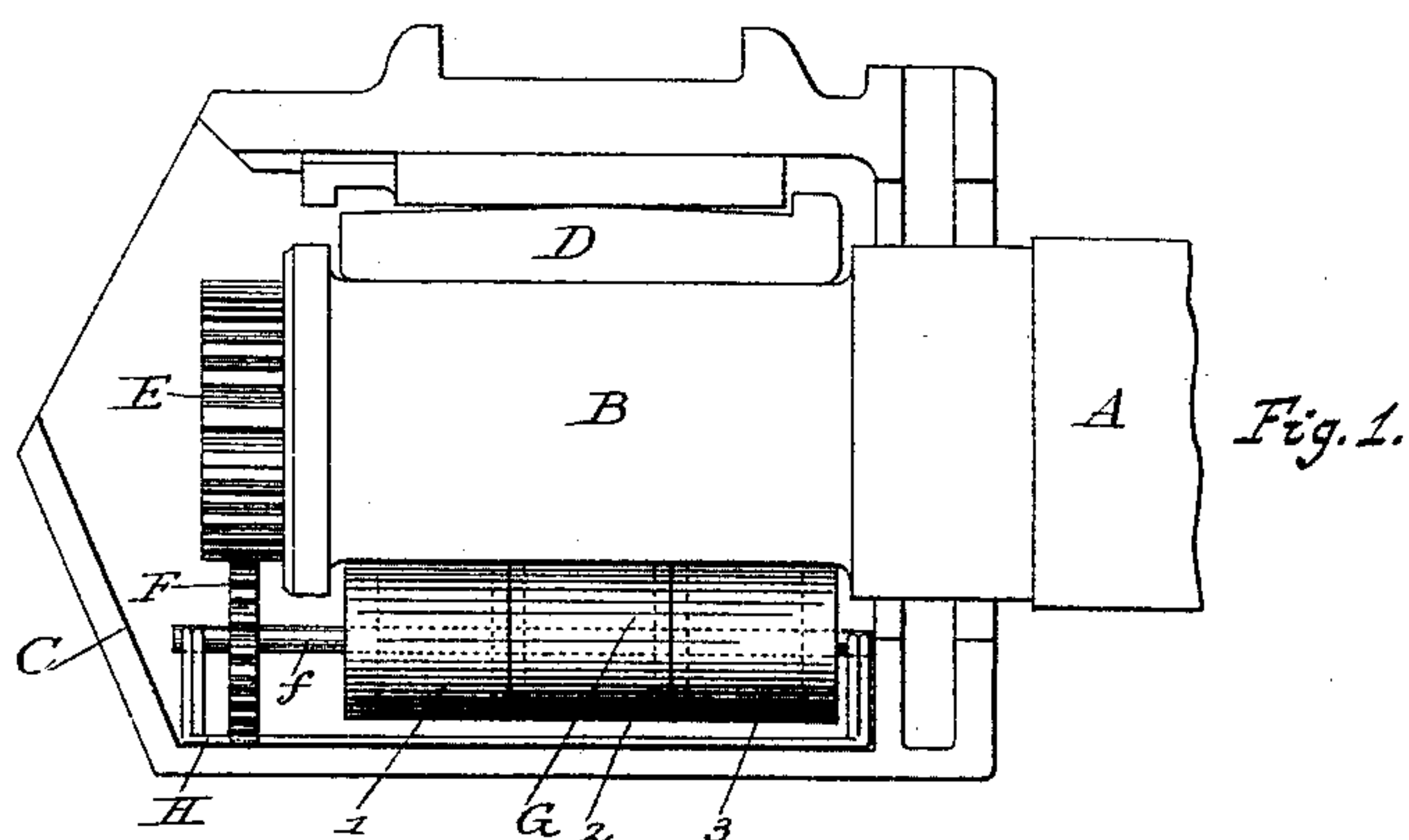


(No Model.)

E. VAN DECAR.
CAR AXLE LUBRICATOR.

No. 414,129.

Patented Oct. 29, 1889.



Witnesses.

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EMERY VAN DECAR, OF EAST ALBANY, ASSIGNOR OF ONE-HALF TO AARON FRYER, OF BATH, NEW YORK.

CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 414,129, dated October 29, 1889.

Application filed March 5, 1889. Serial No. 301,867. (No model.)

To all whom it may concern:

Be it known that I, EMERY VAN DECAR, a citizen of the United States, residing at East Albany, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Lubricators for the Journals of Railway-Axles, of which the following is a specification.

My invention relates to improvements on a lubricator for journals of car-axles invented by myself and forming the subject-matter of another patent; and it consists in combining with the cushioned lubricating-cylinder and the journal of the axle gearing mechanism through which the revolving of the axle will impart motion to the lubricating-cylinder before referred to.

The objects of my invention are, primarily, to so combine with the cushioned lubricating-cylinder and the journal to be lubricated gears through which motion will be positively transmitted to the lubricating-cylinder to revolve the same, whether the oil in the box surrounding the journal be cold and thick, as in weather when the temperature is below zero, as well as in warm weather; second, to provide a specific construction and combination of parts by which this improved device can be readily applied and be communicated from the revolving axle to the lubricating-cylinder, and the mechanism intervening between the two being held in place and not liable to get out of order. I attain these objects by the means illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of the journal-lubricating cylinder and gear mechanism employed. Fig. 2 is a sectional elevation of the same. Fig. 3 is an end elevation. Fig. 4 is a view showing a modification of manner of holding the driving gear-wheel in connection with the axle.

The same letters of reference refer to like parts throughout the several views.

In the drawings, A is the axle. B is the journal thereof. C is the box incasing the journal, and D is the brass bearing of the

same, all of which are of any suitable construction.

When the axles of railway-wheels are to be turned and finished with journals in the usual manner practiced by the trade, centering holes or perforations *a* (indicated by dotted lines in Figs. 2 and 4) are drilled endwise in the journal ends of the bar from which the axle is made, and from which the bar or axle will be centered in the lathe for turning and finishing. This centering hole or perforation *a* is made generally of diameter of one-half an inch (more or less) and with a depth of half an inch or more from the end surfaces, so as to receive the centers of the lathe on which the axle is to be revolved. In this invention I avail myself of the use of these central perforations thus produced in the ends of the axles for centering and contributing to the holding of the driving-gear with the axle.

E is a drive-gear made of suitable diameter and having its teeth or cogs with long pitch. This gear has made with it from its rear side the central stem *e*, of diameter and form to correspond, substantially, with the walls or inside surfaces of the walls of the central perforations *a* in the ends of the journals of the axles, so as to nicely fit in the same without liability of shifting laterally. In some cases I form with this central projection or stem *e* of gear E a feather *e'*, and when this feather is used I cut from the metal surrounding the central perforation *a* a small slot of size and form corresponding, substantially, with that of the said feather. By means of this feather this gear will be keyed from twisting or turning loosely around in relation to the axle with which it is connected. This gear E is preferably pierced at one or more places through its back web *c* for receiving an attaching screw or screws *d*, and a screw-threaded hole *d'*, corresponding with the screw *d*, is made in the axle from its end and receives said screw, and by it this gear E is secured tightly against the end of the axle.

F is a second gear having its cogs or teeth made with a length of pitch corresponding with that of gear E, and is secured to the

axle or spindle *f* of the cushioned lubricating-cylinder G, and is fixed to said spindle, so that when it is revolved the spindle and the cushioned lubricating-cylinder will be revolved with it. The ends of the shaft or spindle *f*, to which this gear F is secured, is supported in elastic bearings *g*, secured to brackets or elastic arms of the lubricating-cylinder support H, and can be substantially made as in my former invention or in any other suitable manner. These bearings are made to have connection with the body of the lubricating-holder H, so that the lubricating-cylinder will be elastically supported with its surfaces against the lower side surfaces of the journal of the axle, with the gear F in gearing with the gear E, secured to the axle.

The drawings show the drive-gear E to be made with a width of or greater than the width of the face of the driven gear F. This increase of width of face of gear E is provided so as to allow an endwise play of the axle; as is commonly had while cars are running, and so that while the journal of the axle can have a relatively longitudinal play in relation to the box inclosing the same the cylindrical lubricator contained in the box C will not be moved nor the gear E be carried out of engagement with the gear F, secured to the shaft of the lubricating-cylinder G. I prefer to make the gear E with this greater width of face to such an extent that when the brasses have become worn at their ends, or the shoulders of the journals become worn, or both, an increased endwise play of the journal will be permitted without affecting the gearing mechanism. The teeth or cogs of the gears E and F are made with a long pitch similar to that employed with gears of wringing-machines and of rolls, so that when the brasses D become worn and the axle or journal has been permitted to rise correspondingly and relatively from the floor of the box C the teeth or the cogs of the respective gears will not become disengaged by the raising of the cogs of the gear E in relation to those of gear F. In some cases, where the distance between the end of the axle and the box is so short that it would be inconvenient to readily introduce a lubricating-cylinder G of full length in place between the lower side of the journal and floor of the box, I make the lubricating-cylinder in sections of two or more, as sections 1, 2, 3, &c., (shown in Figs. 1 and 2,) which sections can be readily slipped on the spindle or shaft *f* of said lubricating-cylinder; and by any suitable known means these two or more sections will be held locked with said shaft, so as to turn with the same. As a ready and efficient means for holding these sections locked with the shaft, a square form of shaft, with square holes in the hubs, can be employed, or a shaft with a continuous feather made with it, and central perforations having keying slots in the hubs of these sections can be employed, or any other

means can be used by which these sections will be securely held with the body of the shaft. In these cases the ends of the shaft *f* will be made of cylindrical form for revolving in the bearings of the device supporting the cylinder.

By my above-described improvements the lubricating-cylinder G will be geared with the end of the axle in a secure manner and central in relation to the same, and can be readily applied to all axles with but little expenditure of labor, and when applied will be in condition in which the mechanism will not be liable to get out of order while in ordinary use, and the axle be allowed to have its usual endwise motion in reference to the box containing the same, without being affected; and the brasses be employed for the same length of time they are usually employed without being renewed and without affecting the gearing. With these improvements the lubricating-cylinder will be positively revolved when the axle is revolved.

It is well known that mineral oils usually employed for lubricating the journals of axles on railway-cars become stiff and thickened in cold weather, and in some instances, in extreme cold weather, while this stiffening of the oil might operate to hold the lubricating-cylinder from being revolved by the contractive force or friction between the lubricating-cylinder and the journal, thus gearing the said cylinder with the journal, will obviate all liability of the former being held from turning.

By this above-described mechanism the cylinder G will be revolved at the first movement of the axle, and will be continued to revolve during all the time the axle is revolved, and the moving force applied to the lubricating-cylinder through the gears E and F from the revolving axle will be sufficient to overcome the resistance offered by the stiffened and thickened oil, and the said cylinder will be forced to carry up the oil adhering to its surface to the surfaces of the axle. When, after a few revolutions, the axle becomes warm, the oil within the box will also become raised in temperature, and the lubricating device will be made to work effectively to supply oil to the journal.

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

1. The combination, with the journal end of the railway-axle provided with the central end perforation *a*, of the gear E, constructed as described, and provided with a central projection or stem *e*, corresponding in diameter and form with the central perforation and provision for holding the gear from turning in relation to the end of the journal, substantially as and for the purposes set forth.

2. The combination, with the journal end of the railroad-axle, of a lubricating-cylind-

der composed of two or more independent
and separate sections which can at will be
applied to a common shaft and revolved in
contact with the lower side of the journal
5 of the axle, gear E, secured to the end of
the axle so as to revolve with the same, and
gear F, secured to the shaft on which the

several sections of the lubricating-cylinder
are mounted, substantially as and for the
purposes set forth.

EMERY VAN DECAR.

Witnesses:

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J. C. MCFARLAND.