

(No Model.)

F. H. SMILEY.
JOURNAL BEARING.

No. 435,592.

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Fig. 1.

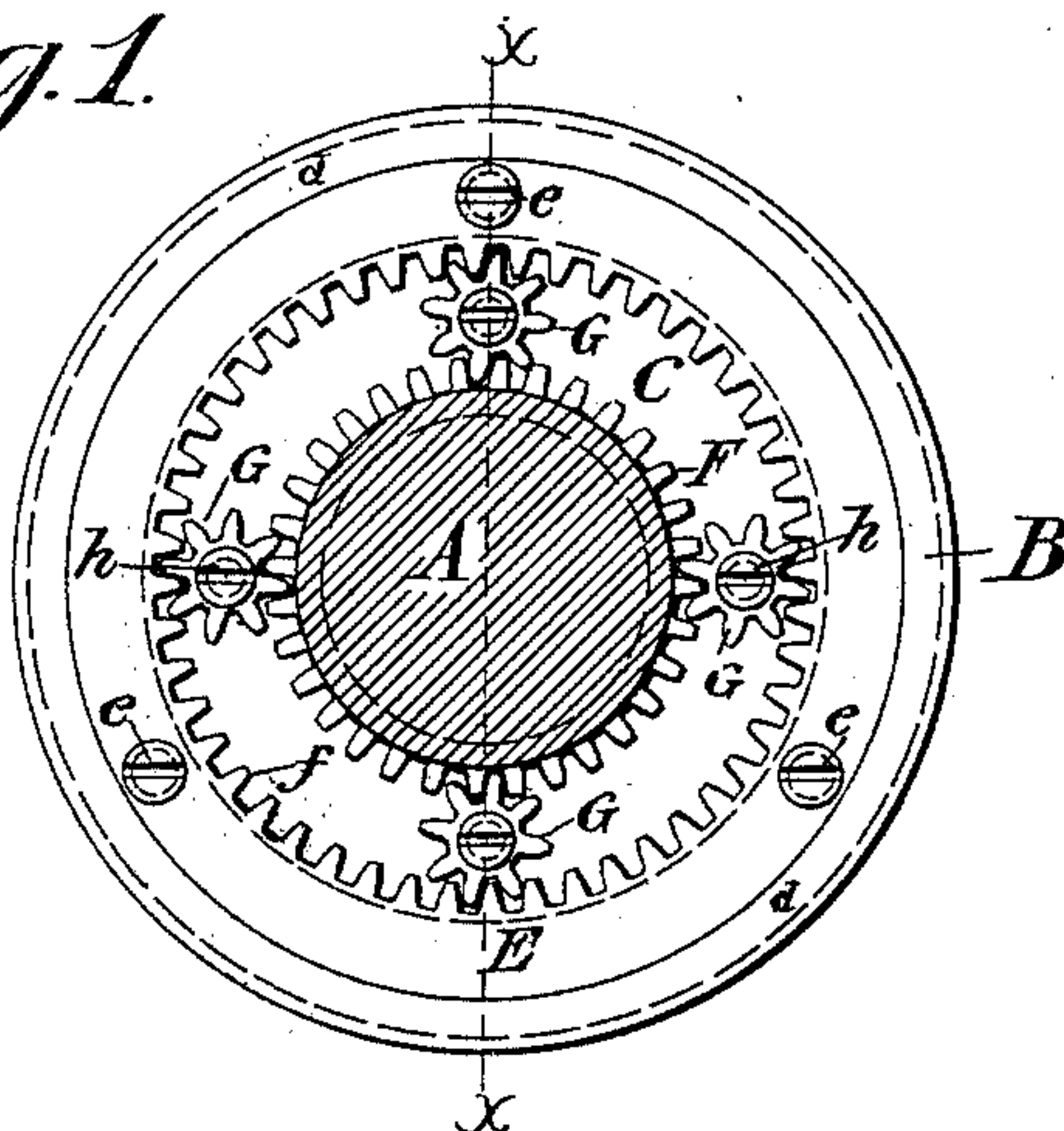


Fig. 2.

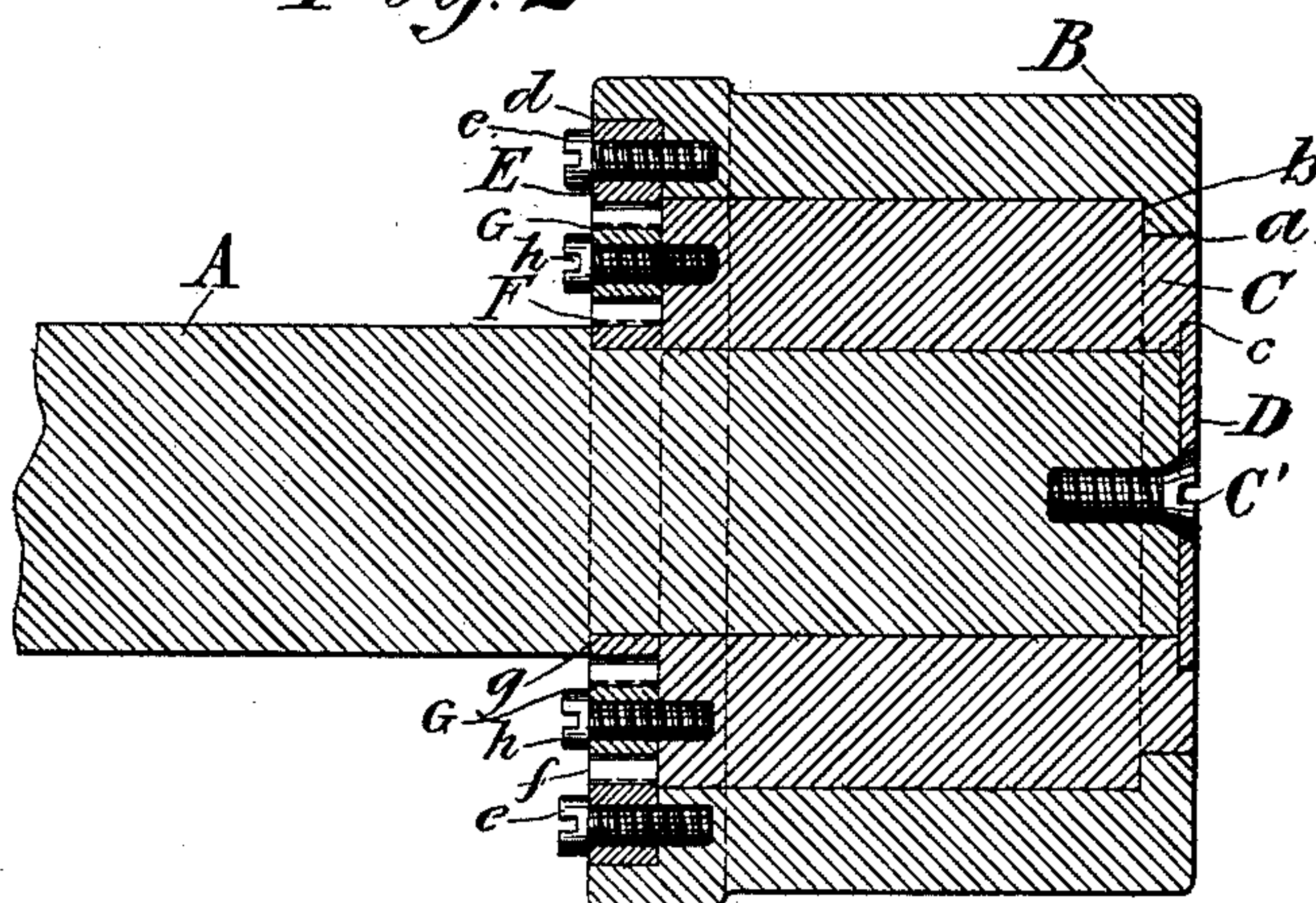
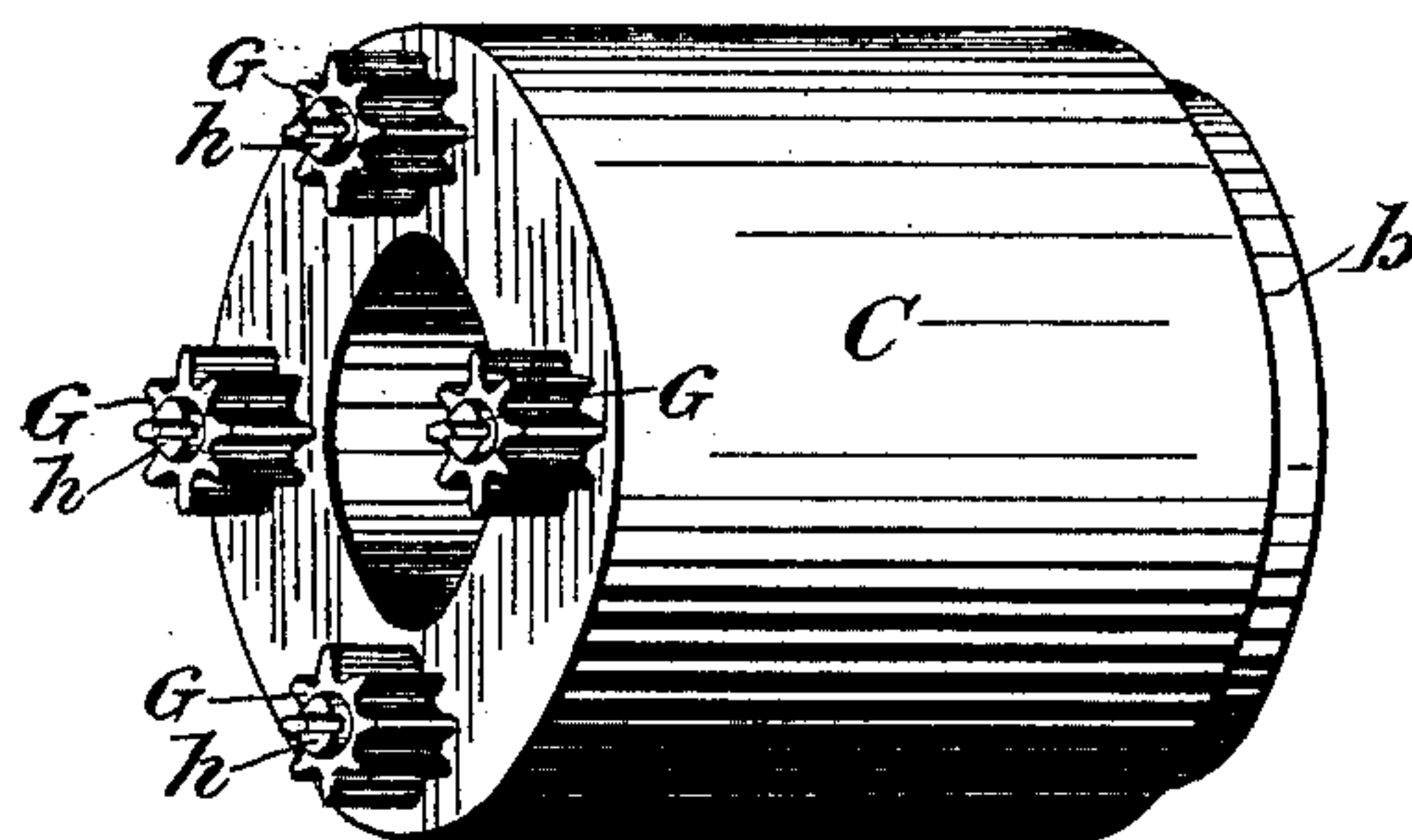


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 435,592, dated September 2, 1890.

Application filed May 24, 1890. Serial No. 352,996. (No model.)

To all whom it may concern:

Be it known that I, FRED HAMMOND SMILEY, a citizen of the United States, residing at San José, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Journal-Bearings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to journal-bearings for all kinds of revolving shafts, but is particularly applicable to railway-car axles.

The object in view is to produce a construction which shall greatly reduce the friction between the journal and bearing and at the same time dispense with the use of either rollers or balls, effecting an inexpensive, simple, and compact arrangement of parts.

With these ends in view my invention consists in certain peculiarities of construction and combinations of parts, more fully set forth hereinafter, and pointed out in the claims.

Referring to the accompanying drawings, making part of this specification, Figure 1 is an inside end view of the bearing and journal, the latter being shown in section; Fig. 2, a longitudinal section through line $x x$, and Fig. 3 a detail view of the revolving sleeve.

The reference-letter A indicates the journal, and B the bearing, and between these two parts is interposed a loose sleeve C, which exactly fits the bore of the bearing, and whose own bore is in turn exactly engaged by the journal. The bearing is provided with an annular flange a , and a shoulder b is turned on the sleeve to fit against said flange to hold said sleeve in proper position with its end flush with that of the bearing, and this sleeve is also provided with an annular recess c around its central bore, in which fits a cap D, and a screw C' runs through this cap and into the end of the journal, thus holding the latter in place. At the opposite end, also, the face of the sleeve comes flush with that of the bearing, and an annular flange d projects over the latter. Within this flange and against the face of the bearing is fitted an internally-toothed ring E, which has a thickness equal to the width of the flange and is

secured by screws e to the bearing, its teeth f , projecting slightly beyond the latter over the face of the sleeve, serving to hold the latter in place. A toothed band F is placed rigidly on the journal behind a suitable shoulder g on the latter and against the face of the sleeve, having the same thickness as the ring E. Thus a toothed circular way or track is formed between this band and ring, and in this track travel the pinions G. These pinions are preferably four in number and are mounted in studs h , secured to the sleeve C in a circle described around the middle of the annular face of said sleeve, and they are arranged to mesh equally with the teeth of the ring E and those of the band F. Now, as the shaft revolves, this band F, being rigid thereon, will actuate the pinion G, thus causing them to revolve; but they also mesh with the ring E, which is stationary with the bearing, and hence they will travel around in the circular track and carry with them the loose sleeve to which they are secured. The sleeve is thus revolved with the shaft in proportion to the speed of the latter and in the same direction with it, but independent of it and at a slower rate. Hence the friction created by the revolution of the journal is divided between it and the sleeve and the latter and the bearing, and thus the wear on the single parts is greatly reduced by this double bearing arrangement.

It is evident that my arrangement could be varied in many slight ways which might suggest themselves to a skilled mechanic. Hence I do not limit myself to the precise construction herein shown, but consider myself entitled to all such slight variations as come within the spirit and scope of my invention.

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

1. The combination, with a journal and bearing, of a loose sleeve fitting between them on the shaft and arranged to be revolved at a slower rate of speed than the journal, as and for the purpose described.

2. The combination, with a journal and bearing, of a loose sleeve fitting between them on the shaft and suitable connections between said journal and sleeve for revolving the latter, as described.

3. The combination of a journal, a bearing,
a sleeve interposed between them, a toothed
band rigid on said journal, gear rigid with
said bearing, and pinions secured to the sleeve
5 and meshing with said toothed band and said
gear, substantially as and for the purpose de-
scribed.

In testimony whereof I affix my signature in
presence of two witnesses.

FRED HAMMOND SMILEY.

Witnesses:

S. W. WILSON,
GEO. I. KYTE.