

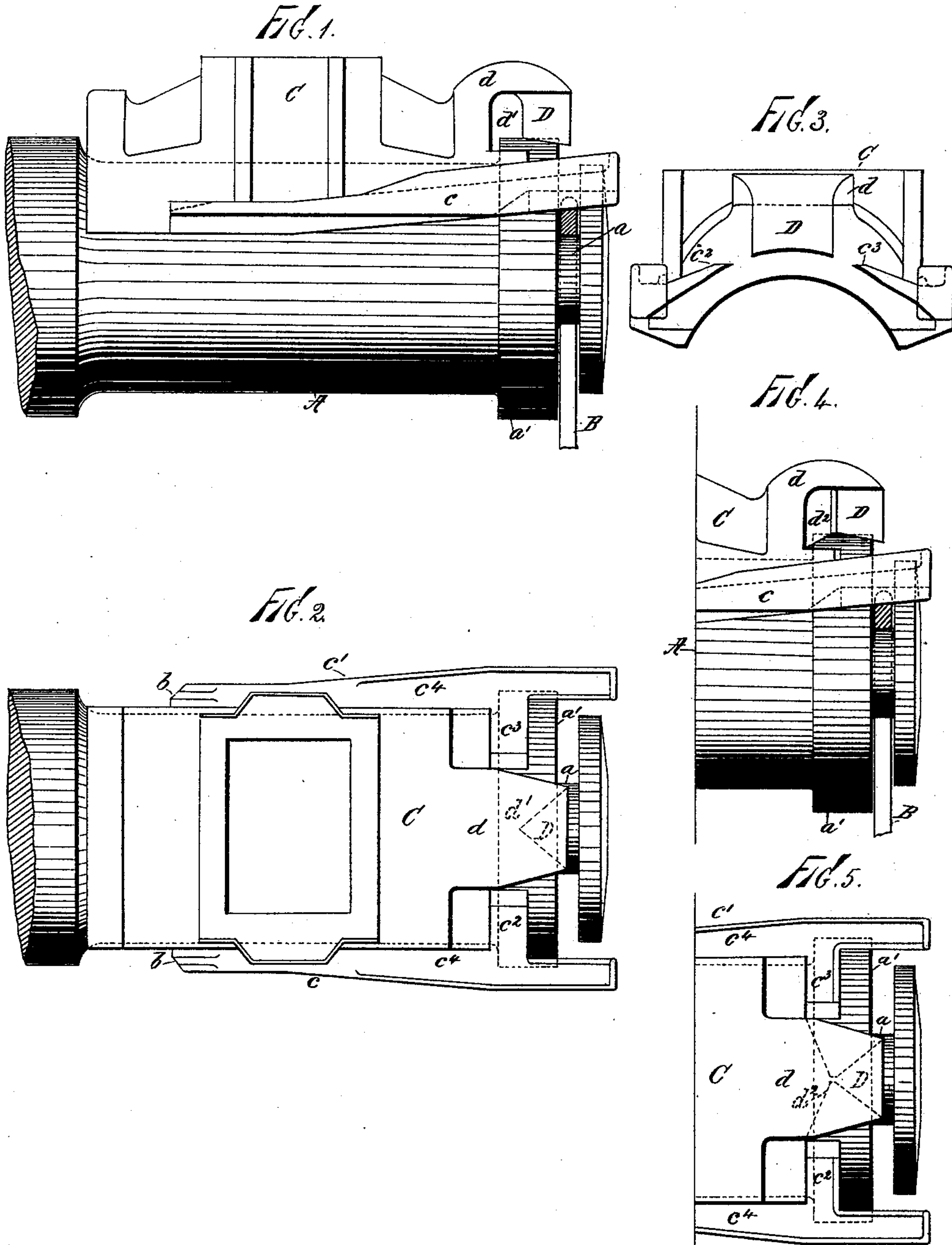
(No Model.)

2 Sheets—Sheet 1.

W. O. DUNBAR.
JOURNAL BEARING FOR CAR AXLES.

No. 414,302.

Patented Nov. 5, 1889.



Witnesses:
John Buckle,
Henry Carter.

Inventor:
William O. Dunbar,
By ~~Myself~~ ~~attorney~~.
Attorney.

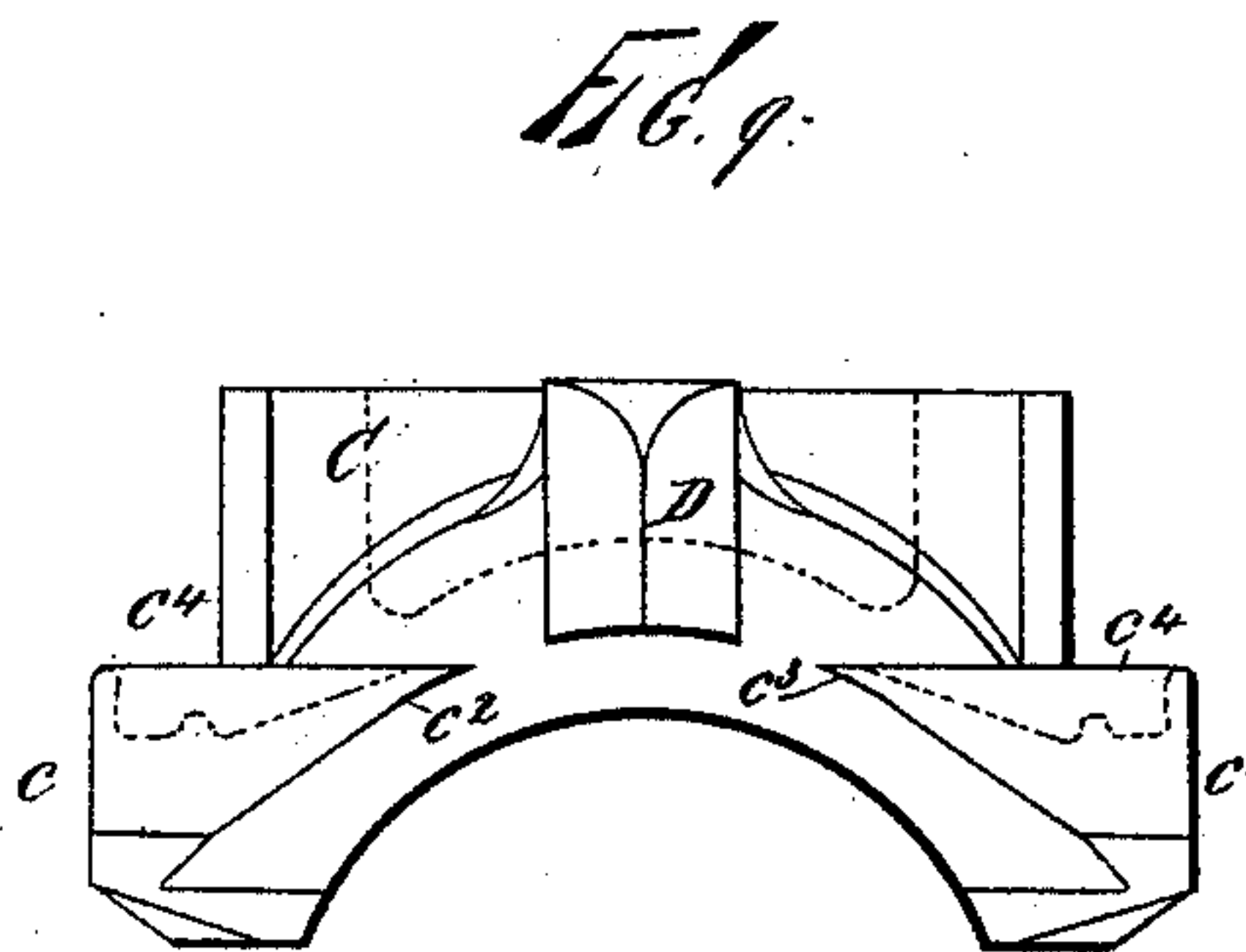
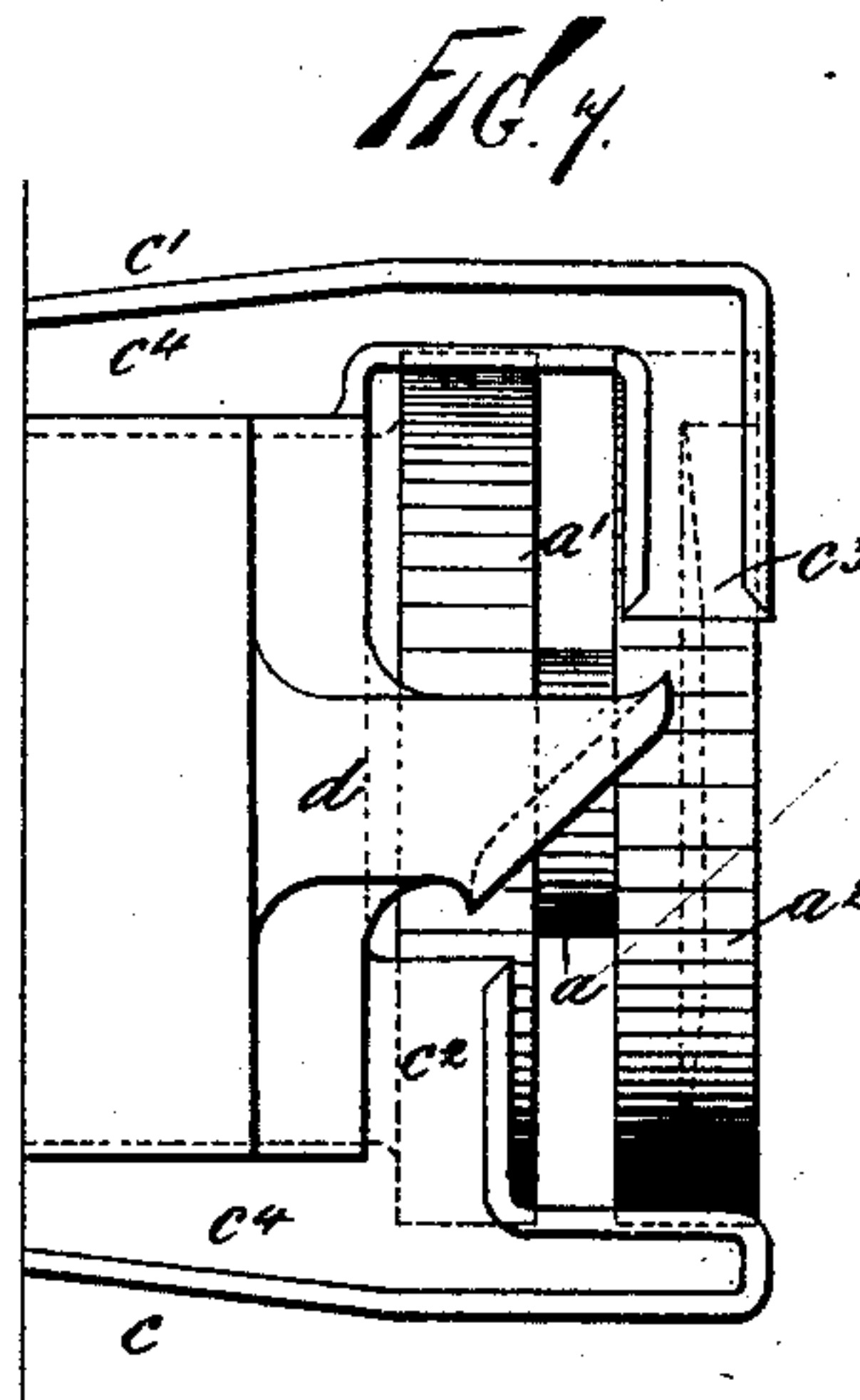
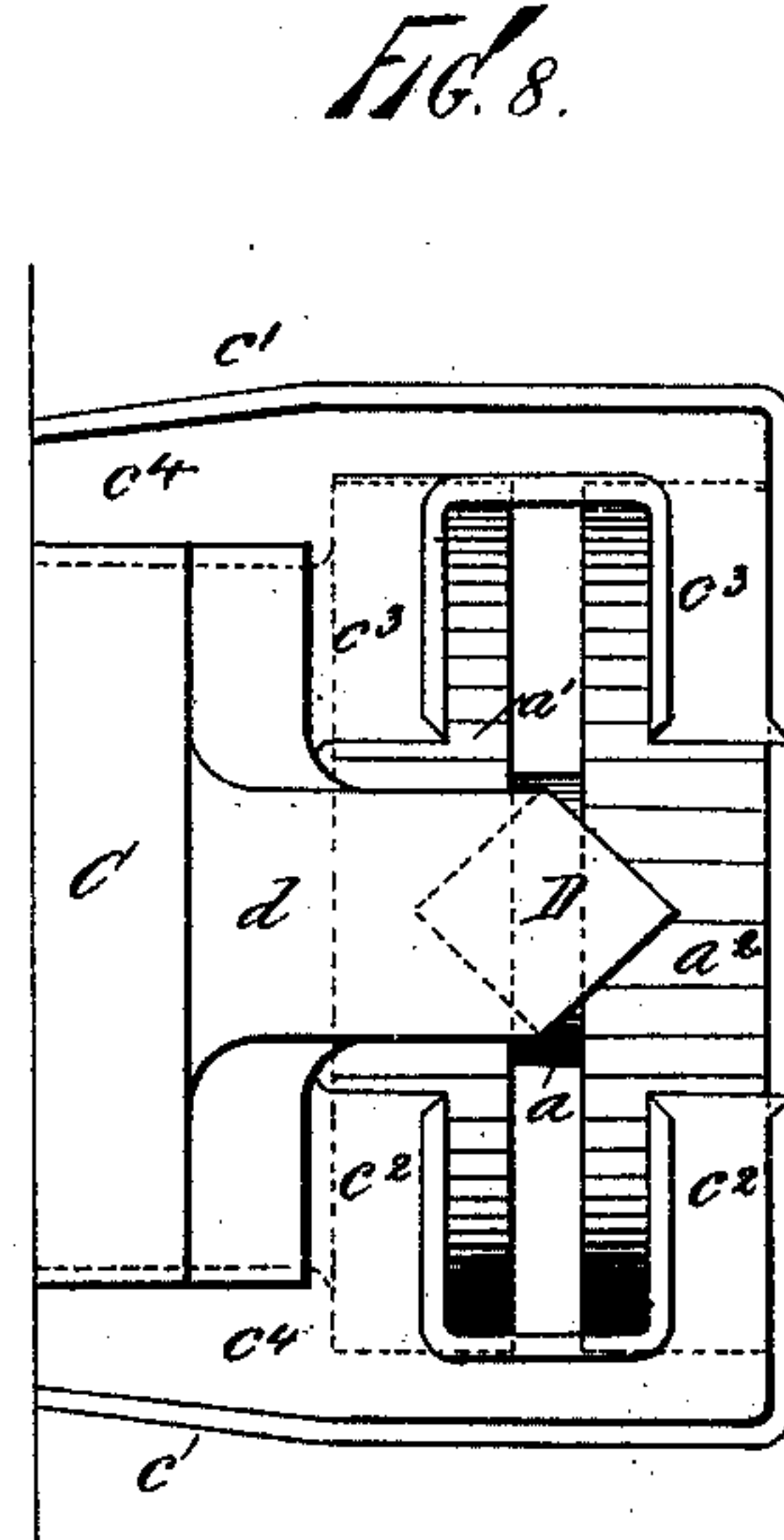
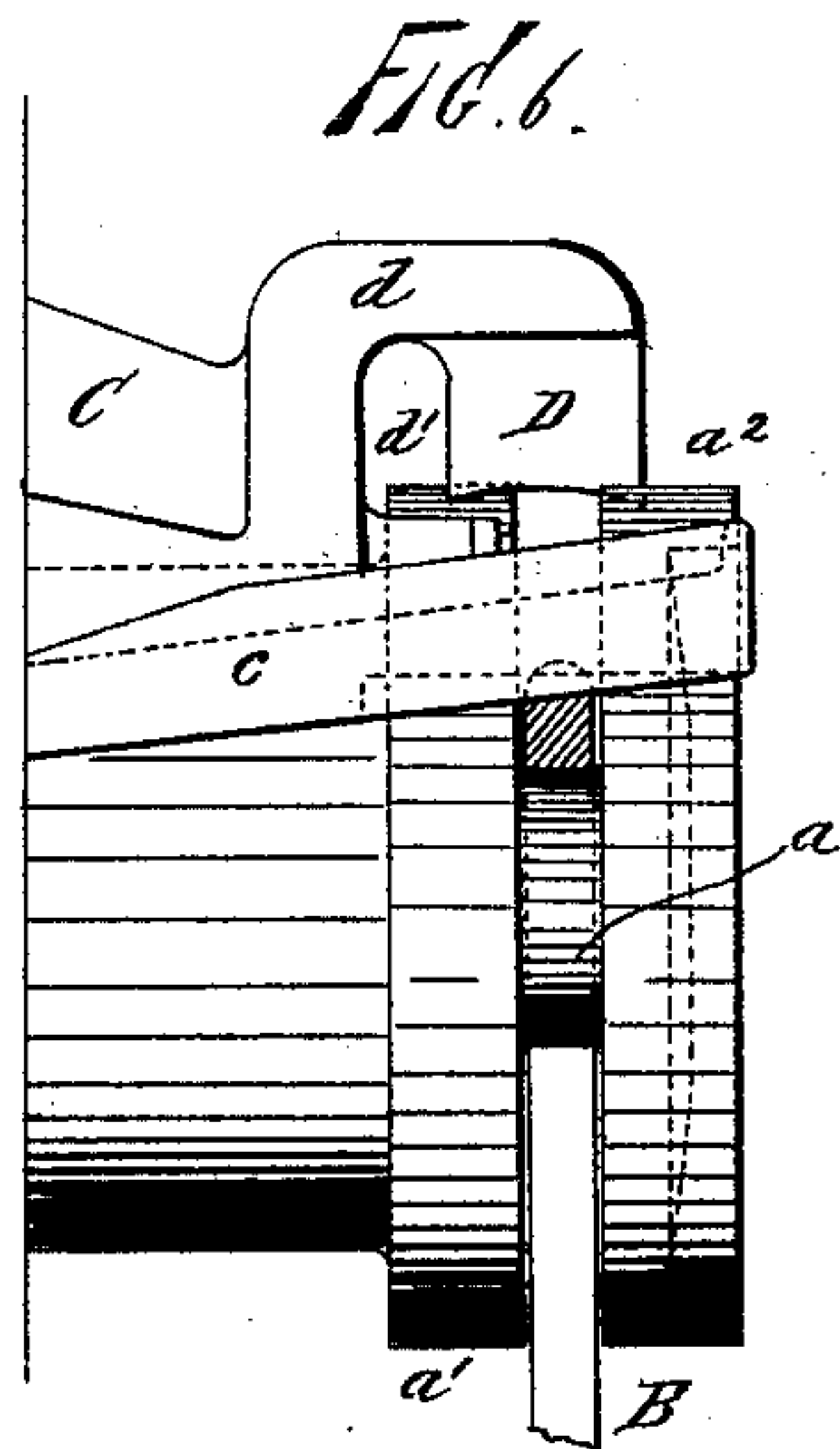
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2 Sheets—Sheet 2.

W. O. DUNBAR.
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No. 414,302.

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Witnesses:
John Buckler,
Henry Carter.

Inventor:
William O. Dunbar.
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UNITED STATES PATENT OFFICE.

WILLIAM OTIS DUNBAR, OF ALTOONA, PENNSYLVANIA.

JOURNAL-BEARING FOR CAR-AXLES.

SPECIFICATION forming part of Letters Patent No. 414,302, dated November 5, 1889.

Application filed August 3, 1889. Serial No. 319,656. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM OTIS DUNBAR, a citizen of the United States, and a resident of Altoona, county of Blair, and State of Pennsylvania, have invented certain new and useful Improvements in Journal-Bearings for Car-Axles, of which the following is a specification.

In an application for Letters Patent filed by me in the United States Patent Office of even date herewith, and numbered 319,655, I have shown and described a journal-bearing of this class in which shelves, extending along a portion of the lower outer edges thereof, project from its front or outer end and are provided on the inner sides of their projecting portions with scrapers extending inward toward each other above and tangent to a lubricant-supporting surface or surfaces on the journal, whereby the lubricant carried by such surface or surfaces is removed and conducted back along the shelves and finally distributed along the journal, a channel or guideway being formed in the upper side of each of the scrapers, from its outer end backward to the shelf supporting the same, along which latter it is also continued.

My present invention, while relating to journal-bearings generally, has reference more particularly to the class above specified, upon which it is designed as an improvement, its object being to render such journal-bearings more efficient in operation by increasing the amount of lubricant supplied by them to the journals with which they co-operate.

To this end my invention consists in the employment, with suitable scrapers and channels whereby the lubricant is removed from its supporting surface or surfaces and conducted back along the journal, of a deflector for co-operating with such surface or surfaces to cause the lubricant carried by the latter to accumulate in such a position or in such positions thereon as to insure either its passage directly to the scraper on that side of the bearing toward which the journal rotates, or else its falling back upon the scraper or scrapers located on the other side thereof, all as will hereinafter more fully appear.

Referring to the accompanying drawings, which form a part of this specification, Fig-

ure 1 is a side elevation of a journal, a ring for raising the lubricant thereupon, and a bearing with my invention applied thereto, the ring being shown in section; Fig. 2, a plan view thereof with the ring omitted; Fig. 3, an end elevation of the bearing detached; Fig. 4, a side elevation of the outer portion of a journal, a ring mounted on the same, and the outer portion of a bearing embodying my invention, but of a slightly modified construction, the ring being shown in section; Fig. 5, a plan of the same with the ring omitted; and Figs. 6, 7, 8, and 9, elevations and plans, respectively, of still further modifications of my invention, to be hereinafter referred to.

In all the figures like letters of reference are employed to designate corresponding parts.

The journal A, having the pulley *a* and the surface or surfaces *a'* *a''* thereon, the ring B, for raising the lubricant from a containing-receptacle below and depositing it upon said surface or surfaces, and the bearing C, provided with the shelves *c c'*, the scrapers *c'' c'''*, the channels or guideways *c''''*, and the grooves *b* are or may be constructed, arranged, and operated in the same manner as the corresponding parts shown and described in the application above mentioned, and require no further description herein.

D indicates the deflector by means of which the lubricant is accumulated and either brought into position upon the lubricant-supporting surface or surfaces to insure its being taken therefrom by the scraper on the side of the bearing toward which the journal, for the time being, is rotated, and distributed along the journal or else allowed to fall back upon the scraper on the opposite side thereof, and thence conducted to the point where required. This deflector is preferably arranged above, with its under surface resting upon, the journal, and may be supported in that position directly from the bearing by a suitable arm *d*, extending outward therefrom, or from any other convenient part, as preferred.

In Figs. 1 to 5 I have shown this deflector applied in connection with a journal having but a single lubricant-supporting surface *a'*, with the scrapers *c'' c'''* arranged directly op-

posite each other. When so applied, I preferably make it of triangular form in horizontal section, and so dispose it that its base shall extend outward a slight distance beyond the outer edge of the lubricant-supporting surface, leaving its apex to project inward between the scrapers to a point slightly in rear of their outer edges. As thus constructed and arranged, an inclined surface is presented to the line of movement of the lubricant on its supporting-surface in whichever of the two directions the journal may be rotated, causing the lubricant to be swept or deflected inward from the outer edge of such surface to the inner edge or apex of the deflector, where it may then be either allowed to pass directly to the scraper on that side of the bearing toward which the journal, for the time being, is rotated, or accumulated at that point and allowed to fall back upon the upper side of the scraper on the opposite edge of the bearing.

In Figs. 1 to 3 the construction of parts is such as to permit of the former operation being effected, a passage-way d' being allowed between the inner edge or apex of the deflector and the outer end of the bearing, through which the lubricant swept in from the outer end of the surface upon which deposited may pass, while in Figs. 4 and 5 this passage-way is closed by a web d^2 , extending outward from the end of the bearing and connecting with the apex of the deflector. In this case the latter operation will be occasioned, and the lubricant swept inward by the deflector will accumulate in the re-entering angle formed by the side of the deflector and the web extending outward from the bearing, and flow back by the action of gravity along the surface supporting it to the scraper located on that side of the bearing, where it will be caused to pass to the journal along the channel or guideway c^4 , and the one scraper and shelf will alone act to lubricate the journal, the other scraper and shelf in the meantime remaining inactive. The rotation of the journal in the opposite direction, however, will bring this latter scraper and shelf into operation, carrying the other out therefrom, and thus as the rotation of the journal is reversed first one and then the other of these scrapers and shelves are brought into operation and the other scraper and shelf carried out of the same, depending upon the direction in which the journal may be rotated.

In Figs. 6 and 7 I have shown and described my invention applied in connection with a journal-bearing having two lubricant-supporting surfaces a' a^2 , and with two scrapers c^2 c^3 , which are so disposed that one of them acts in conjunction with one of the surfaces on one side of the bearing and the other of such scrapers with the other surface on the opposite side thereof, while in Figs. 8 and 9 I have illustrated it as employed in connection with a journal having a plurality of lu-

bricant-supporting surfaces, and with four scrapers, two of which are arranged opposite the two surfaces on one side of the bearing, and the two others opposite such surfaces on the other side thereof.

The deflector D, as shown in Figs. 6 and 7, is preferably formed as a thin plate depending from its supporting-arm d , with its lower edge resting upon the lubricant-supporting surfaces, and is disposed across a vertical plane passing axially through the journal at an angle of about forty-five degrees thereto, whereby its sides are inclined in the proper directions respecting the line of movement of the lubricant to deflect such lubricant toward and in front of the scraper which is to remove it from its carrying-surface. With a deflector of this construction and arrangement, the scrapers c^2 c^3 are preferably made of a width somewhat less than the width of the surfaces in connection with which they operate, and are so disposed that the one c^2 acts only upon the inner portion of the surface a' and the other c^3 on the outer portion of the surface a^2 , leaving a space or zone upon the surfaces between the scrapers on each side of the ring, upon which space or zone the deflector acts to deflect the lubricant, passing the scraper on the side of the bearing opposite that toward which the journal, for the time being, is rotated to and in front of the scraper located on the opposite side, the object and purpose of thus separating the scrapers being to prevent the interference of the one with the lubricant upon the lubricant-supporting surface in front of the other, as the journal works back and forth longitudinally in its bearings.

In Figs. 8 and 9 the scrapers c^2 c^3 are also made of a width somewhat less than the surfaces in connection with which they operate, and are so disposed as to leave an unobstructed space or zone on each side of the lubricant-raising ring B, with which the deflector D engages, for the same reason as the above, the deflector in this embodiment of my invention being preferably made of rectangular form in horizontal section, and so arranged as to bring its diagonal into a vertical plane passing axially through the journal.

It will thus be seen that by the employment of a deflector with a journal having a surface or surfaces upon which the lubricant is initially delivered and with a bearing provided with scrapers and channels or guideways for co-operating therewith a more copious supply of lubricant to the journal is insured than is possible with the devices heretofore in use, and this, too, whether a single or a plurality of such lubricant-supporting surfaces are made use of, as the lubricant which passes the scraper or scrapers on the side of the bearing opposite that toward which the journal is rotated is gathered in and either deflected toward the scraper or scrapers on the opposite side of the bearing or else caused to flow back, under the influence of gravity,

upon the upper side of the first-mentioned scraper or scrapers, in either of which events the entire quantity of lubricant deposited upon the lubricant-supporting surface or surfaces is removed and carried back along the bearing on the under side of the shelves and through the channels or guideways and distributed upon the journal.

In the foregoing I have described the best means contemplated by me for carrying my invention into practice; but I wish it distinctly understood that I do not limit myself thereto, as it is obvious that I may modify the same in various ways without departing from the spirit thereof.

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

1. A journal-bearing provided with a channel or guideway for conducting the lubricant along the same, a scraper with which such channel or guideway is connected, and a deflector arranged for co-operation with the scraper, substantially as described.

2. A journal-bearing provided with a channel or guideway extending along each of its sides for conducting the lubricant longitudinally of the same, a scraper for each of such channels or guideways, and a deflector for co-operating with the scrapers, substantially as described.

3. The combination, with a journal provided with a lubricant-supporting surface and means for supplying lubricant to such surface, of a bearing provided with a channel or guideway for conducting the lubricant along the same, and a scraper for each of said channels or guideways, operating upon the lubricant-supporting surface, and a deflector for co-operating with said scraper, substantially as described.

4. The combination, with a journal provided with a lubricant-supporting surface and means for supplying lubricant thereto, of a bearing provided with a channel or guideway along each of its sides, through which the lubricant may be conducted, and a scraper for each of such channels or guideways, directly connected thereto and operating upon the lu-

bricant-supporting surface, and a deflector for deflecting the lubricant upon its carrying-surface to bring it before the appropriate scraper, substantially as described.

5. The combination, with a journal provided with a lubricant-supporting surface and means for supplying lubricant thereto, of a bearing provided with a shelf along each of its lower outer edges, a channel or guideway formed in each of such shelves, and a scraper for each of the channels or guideways, adapted to operate upon the lubricant-supporting surface, and a deflector arranged in relation to said scrapers, whereby the lubricant is properly directed upon its supporting-surface and brought in front of the appropriate scraper, substantially as described.

6. The combination, with a journal provided with a plurality of lubricant-supporting surfaces and means for supplying lubricant to such surfaces, of a bearing provided with a channel or guideway along each of its sides, and a scraper for each of said channels or guideways, and a deflector for co-operating with the lubricant-supporting surfaces and the scrapers, substantially as described.

7. The combination, with a journal provided with a plurality of lubricant-supporting surfaces and means for supplying lubricant to such surfaces, of a bearing provided with a channel or guideway along each of its sides, and a scraper for each of said channels or guideways, directly connected thereto, and a deflector for co-operating with such lubricant-supporting surfaces and the scrapers, substantially as described.

8. The combination, with a journal A, provided with a pulley *a* and a lubricant-supporting surface *a'*, and a ring B, mounted on said pulley, of a bearing C, provided with shelves *c c'*, scrapers *c² c³*, channels or guideways *c⁴*, and the deflector D, as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM OTIS DUNBAR.

Witnesses:

GEO. H. ASHMAN,
S. NOWELL.