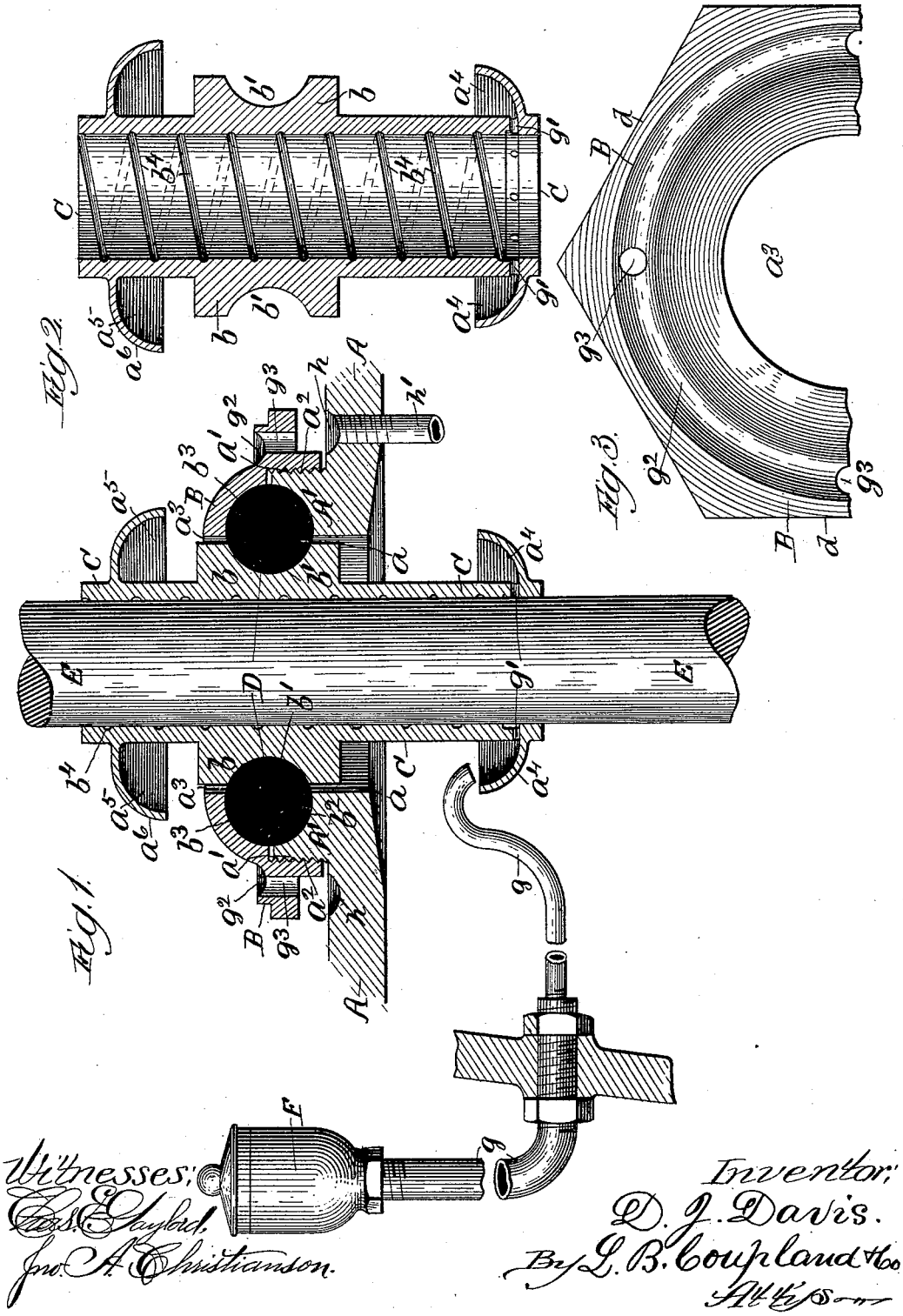
(No Model.)

D. J. DAVIS.

JOURNAL BEARING.

No. 526,026. Patented Sept. 18. 1894.



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JOURNAL-BEARING.

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To all whom it may concern:

Be it known that I, DANIEL J. DAVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Journal-Bearings, of which the following is a full, clear, and exact description, which will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in journal boxes or bearings, and has for its object to provide a flexible bearing that is more especially intended for use in connection with centrifugal separating machines.

In the drawings:—Figure 1 is a broken-away vertical section; Fig. 2, a longitudinal section of a bearing-sleeve, and Fig. 3 a broken-away plan of a journal-cap.

A represents a sectional broken-away top part of a pedestal or frame, supporting the working mechanism of a centrifugal separator. This top part of the frame is provided centrally with an opening a surrounded by an annular bearing-neck A′, screw threaded exteriorly as at a', and forming a part of the journal bearing or box.

The journal-cap B (Figs. 1 and 3) is screw-threaded interiorly, as at a^2, and engages with the correspondingly threaded neck A′. This journal-cap is provided centrally with an opening a^3, through which the bearing-sleeve C is inserted, the respective ends terminating above and below the journal-bearing, as shown in Fig. 1. The lower end of this sleeve is provided with an oil-cup a^4, and the upper end with the inverted cup or deflecting surface a^5, having the spherical surface a^6. The sleeve C is provided with the bearing-collar or shoulder b having the annular groove b'. The adjacent surface of the neck A′ is also provided with a recess or groove b^2. The elastic, flexible bearing-ring D fits into these grooves; the concave surface b^3 of the journal-cap also bearing against a part of the surface thereof. The ring D may be composed of rubber or other suitable material. Ordinarily the journal-cap B was secured in place by a number of tap-bolts arranged at intervals and inserted through the flange-part d thereof. This was objectionable for the reason that it was impossible, in setting up the bearing, to adjust the screws alike, and the result was that the driving-spindle would be inclined a little from a true vertical position. The speed at which the spindle is driven—usually from six to eight thousand revolutions—makes it necessary that the bearing be so constructed as to permit of a nice adjustment, and the spindle maintained in a true vertical position. By the arrangement shown, the journal-cap has a continuous and uniform pressure on all sides alike and is always set evenly so that the bearing is adjusted to a nicety.

The annular space between the bearing-sleeve and the adjacent surrounding surface, provides for a little play of these parts so that the driving-spindle will always assume a central, vertical position.

The sleeve C is provided interiorly with a continuous spiral groove b^4, running from end to end, and incloses the vertical spindle or shaft E broken away at both ends. The separator-bowl (not shown) is loosely mounted on the upper end, and the lower end seated in the usual step-box, forming the lower journal-bearing. The journal-box shown forms the upper bearing for the separator spindle. An oil-reservoir F is located just outside of the vertical part of the frame and has an oil-pipe g leading therefrom and discharging into the oil-cup a^4 formed on the lower end of the bearing-sleeve. The lubricant reaches the interior of the sleeve C through one or more apertures g' and following the spiral groove insures a continuous lubrication of the driving-spindle.

The waste oil, working out at the upper end of the bearing-sleeve, passes to the spherical surface of the inverted cup and drops into the annular channel g^2, formed in the upper side of the journal-cap, and escapes through apertures g^3 therein to the annular channel h in the upper side of the frame and is finally carried off through drip-pipe h'.

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

1. In a journal-bearing, a sleeve provided on its exterior with an annularly grooved collar and at its lower end with an oil-cup, and in its interior with a continuous spiral groove

and openings leading from the oil-cup into the sleeve, in combination with a frame surrounding the lower portion of the collar and having an exteriorly threaded bearing-neck, a journal-cap screwed onto the said neck, and a yielding bearing-ring interposed between the said collar frame, and journal cap, substantially as described.

2. In a journal-bearing, a sleeve provided on its exterior and intermediate its ends with an annularly grooved collar, and at its upper end with a deflecting surface and at its lower end with an oil cup, and in its interior with a continuous spiral groove and openings leading from the oil cup into the sleeve, in combination with a frame surrounding the lower portion of the collar and having an exteriorly threaded bearing-neck and an annular channel provided with an escape-pipe, a journal-cap screwed onto the said neck and having an annular channel provided with openings in alignment with the channel in the bearing-neck, a yielding bearing-ring interposed between the said collar, frame, and journal cap, the bearing-neck and journal-cap being grooved correspondingly with the groove in the collar to retain the yielding bearing ring substantially as described.

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