(No Model.)

T. F. N. FINCH.

CARRIAGE AXLE BOX.

No. 434,824. Patented Aug. 19, 1890.

Fig. 1.

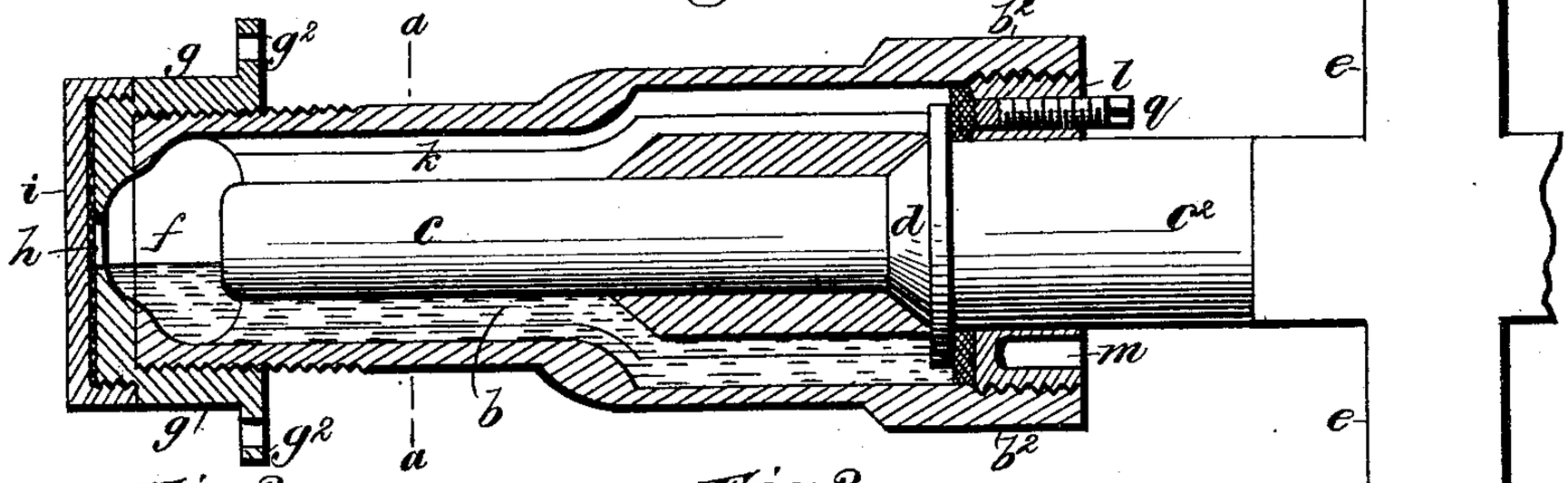


Fig. 2.

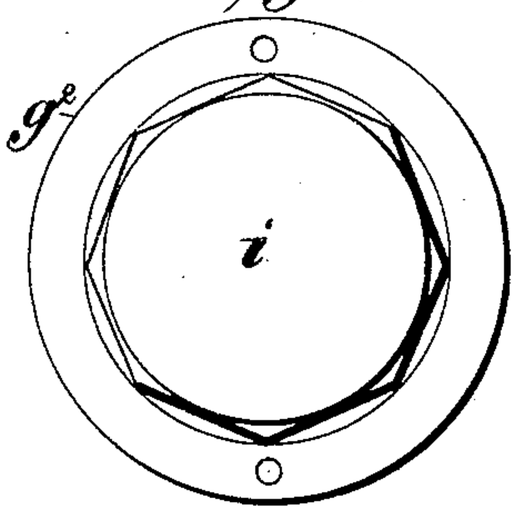


Fig. 3.

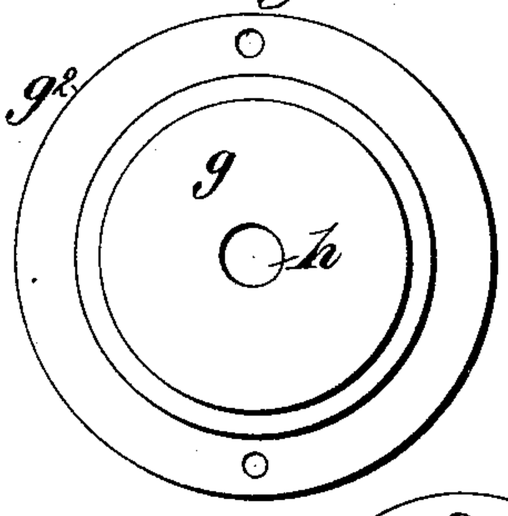


Fig. 4.

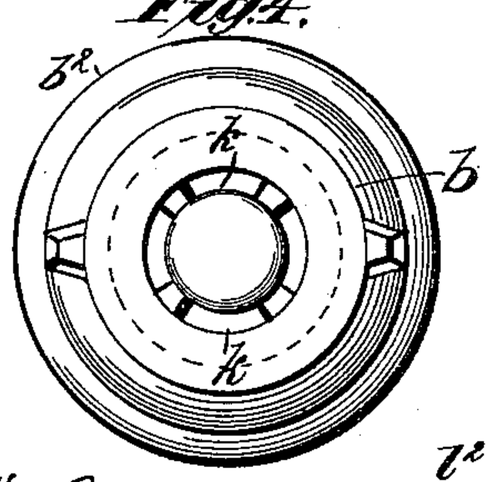


Fig. 5.

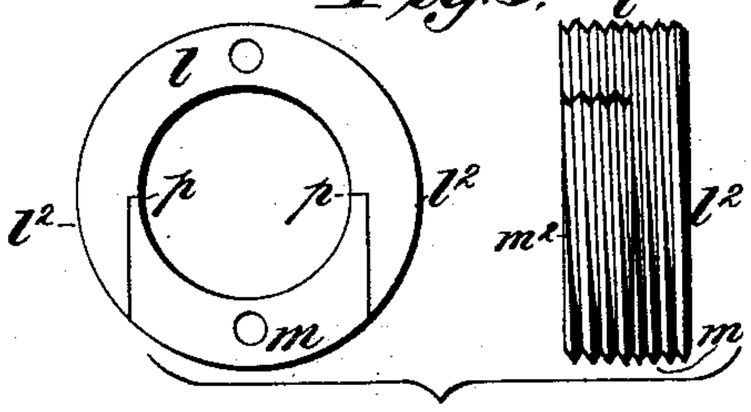


Fig. 6.

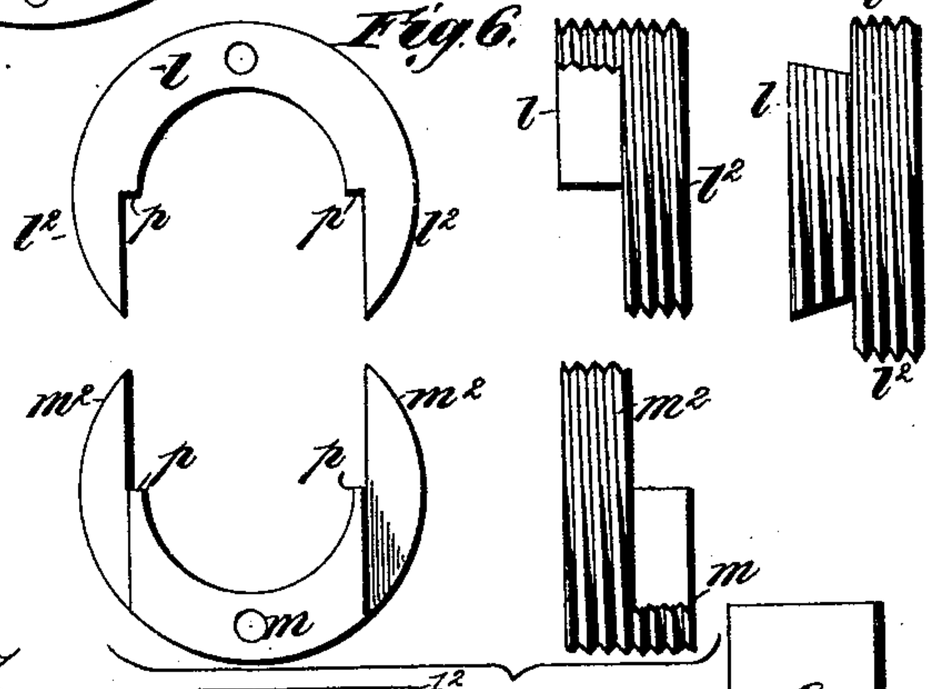


Fig. 7.

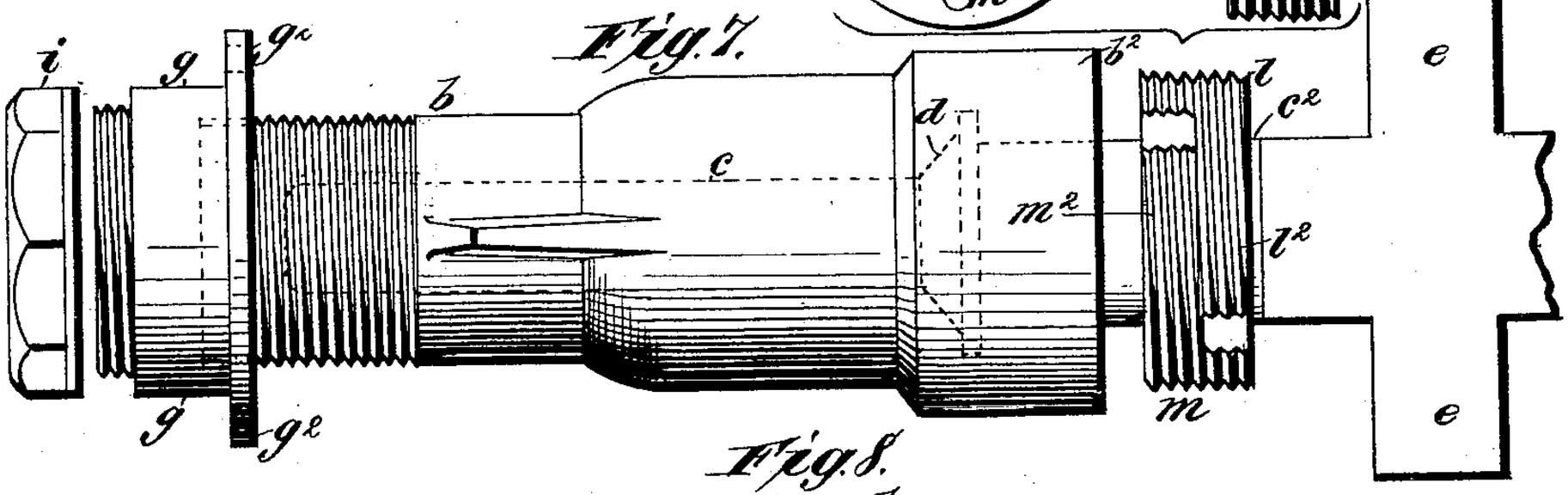
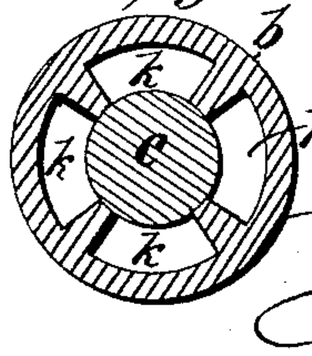


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS FREEMAN NOTT FINCH, OF WORCESTER, ASSIGNOR TO GEORGE HENRY WILLIAMSON, OF GRANTA LODGE, MALVERN, ENGLAND.

CARRIAGE-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 434,824, dated August 19, 1890.

Application filed May 9, 1890. Serial No. 351,181. (No model.)

To all whom it may concern:

Be it known that I, THOMAS FREEMAN NOTT FINCH, of the city of Worcester, England, a subject of the Queen of Great Britain, have invented certain new and useful Improvements in Axle-Boxes and in Attaching Axle-Boxes to the Axles of Common Road-Carriages; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference in part to improvements on the invention for which Letters Patent of the United States were granted to me dated November 20, 1888, No. 393,328; and my said invention consists of the improvements, hereinafter described, in constructing the front end of the axle-box and parts connected with it whereby the lubricating of the rubbing parts of the axle-box and axle is very efficiently performed and the oil-chamber expeditiously and economically filled with the lubricating-oil.

My said invention further consists of the improvements, hereinafter described, and illustrated in the accompanying drawings, in attaching axle-boxes to carriage-axles provided with fixed or permanent spring-flaps. This part of my invention is specially applicable to carriage-axles in which the spring-flaps are made in one piece with the axle by forging or are shrunk on the axle, so as to form a permanent part thereof, but is also applicable to axles in which the spring-flaps are made in halves or parts and are attached to the axles by flanges and screw-bolts and nuts.

Figure 1 represents in longitudinal section an axle-box constructed and attached to the carriage-axle according to my invention. Fig. 2 represents an end elevation taken at the cap end of the axle-box. Fig. 3 represents an end elevation after the outer or closing screw-cap has been removed, and Fig. 4 represents an end elevation after the inner screw-cap forming a portion of the oil-chamber has been removed. Fig. 5 represents in front elevation and side elevation detached the screw-collar by which the axle-box is attached to the axle. Fig. 6 represents in front and side elevation the two parts of which the said screw-collar is composed and also one of the parts in plan. Fig. 7 represents in side elevation the axle and axle-box before the two caps at the front of the axle-box and the fixing screw-collar at the rear of the axle-box have been fully screwed in their places; and Fig. 8 represents a cross-section of the axle and axle-box, taken on the line *a a*, Fig. 1.

The same letters of reference indicate the same parts in the several figures of the drawings.

b is the axle-box, and *c* is the arm of the axle, the conical shoulder *d* on the said arm bearing against the inner conical end of the axle-box.

e is the spring-flap, made in one piece with or shrunk upon or bolted to the enlarged part c^2 of the axle.

The lubricating of the rubbing parts of the axle-box and axle is effected by oil supplied from the oil-chamber *f*, made at the outer or front end of the axle-box. This oil-chamber *f* is made partly in the axle-box and partly in the inner screw-cap *g*, the said inner screw-cap *g* being screwed on the exterior of the axle-box *b*, and also fixed by the flange g^2 to the hub of the carriage-wheel. In the axis of the inner cap *g* is a hole *h*, through which the oil-chamber *f* is filled to the level indicated. The filling-hole *h* of the oil-chamber is closed by the supplementary or outer screw-cap *i*, covering the end of the inner cap *g* and screwed on the exterior of the said inner cap, as represented in Figs. 1 and 7. The oil in the chamber *f* passes by the longitudinal passages *k k* in the axle-box (see Figs. 1 and 8) to the rubbing-surfaces of the axle-box and axle. These longitudinal oil-passages constitute no part of my present invention. By the use of the oil-chamber *f* at the front of the axle-box a constant supply of lubricant is conveyed to the rubbing-surfaces, and the filling of the oil-chamber by the combination of the parts represented is readily effected without waste of the lubricant.

In fixing the axle-box to the enlarged part c^2 of the axle carrying the spring-flap *e*, I provide the interior of the head b^2 of the axle-box with a screw-thread, and I use a fixing

screw-collar $l\ l^2\ m\ m^2$ of the kind represented in Figs. 1, 5, 6, and 7. The said screw-collar is made in two symmetrical halves, so constructed that they can be passed onto the axle from opposite sides and engaged together so as to form a complete ring or collar having a screwed periphery. Each half of the collar has a forked form, as best seen in Fig. 6, for passing it onto the axle from opposite sides, and a portion of one face of each half-collar is cut away, so as to leave a block or thick part $l\ m$ on opposite faces of the half-collars. The faces of the thick parts $l\ m$ of the half-collars are of a dovetail figure, (see the right-hand plan view of Fig. 6,) and the faces of the branches $l^2\ m^2$ have a corresponding figure to take upon the dovetail parts $l\ m$.

When the separated half-collars $l\ l^2\ m\ m^2$ are engaged together, the branches $l^2\ m^2$, respectively, of each half-collar bear against and seat themselves by a sliding motion on the faces of the thick dovetail parts $l\ m$, stops $p\ p$ limiting the distance to which the half-collars can slide upon one another. By the engagement of the forked and dovetailed halves of the collar a complete collar or ring screwed on its periphery is made to encircle the axle, which screw-collar is screwed into the internal screw of the head b^2 of the axle-box, so as to secure the axle-box to the axle. By means of a set-screw q, (see Fig. 1,) made to bear against a leather washer at the back of the conical shoulder d on the axle, the screw-collar $l\ l^2\ m\ m^2$ is so forced backward as to make its threads bind tightly in those of the internal screw in the head b^2 of the screw-box, and thus lock the two parts securely together. By releasing the pressure of the set-screw q the screw-collar is unfastened and may be turned in the internal screw of the axle-box head for removing it from the axle-box.

Having now particularly described and ascertained the nature of my invention and the manner of performing the same, I declare that I claim as my invention—

1. The combination, with the axle-box and axle, of a main screw-cap screwed upon the outer end of the axle-box and having the outer vertical wall provided with an axially-arranged filling-orifice, a supplemental screw-cap screwed upon the main screw-cap to close the axial filling-orifice in the vertical wall thereof, and an oil-chamber formed partly in the main screw-cap and partly in the outer end of the axle-box and extending longitudinally therealong between said axle-box and the axle, substantially as described.

2. The combination, with a shouldered axle and an axle-box having a screw-socket at its inner end, of the axle-retaining nut consisting of two similar half-collars, each having thick dovetailed portions l or m and two branches l^2 or m^2, extending parallel to each other on their adjacent faces and dovetailed in correspondence, so that the two sections when slid one upon the other in parallel lines are interlocked together against lateral movement, substantially as described.

3. The combination, with a shouldered axle and an axle-box having a screw-socket at its inner end, of the axle-retaining nut composed of two half-collars, each formed with the thick threaded portion l or m, located centrally between two branches l^2 or m^2, which have their inner faces extending parallel to each other, and each provided with the lateral stop-shoulder p, substantially as described.

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