(No Model.)

P. LINCOLN.

AXLE BOX.

No. 282,539. Patented Aug. 7, 1883.

Fig. 1.

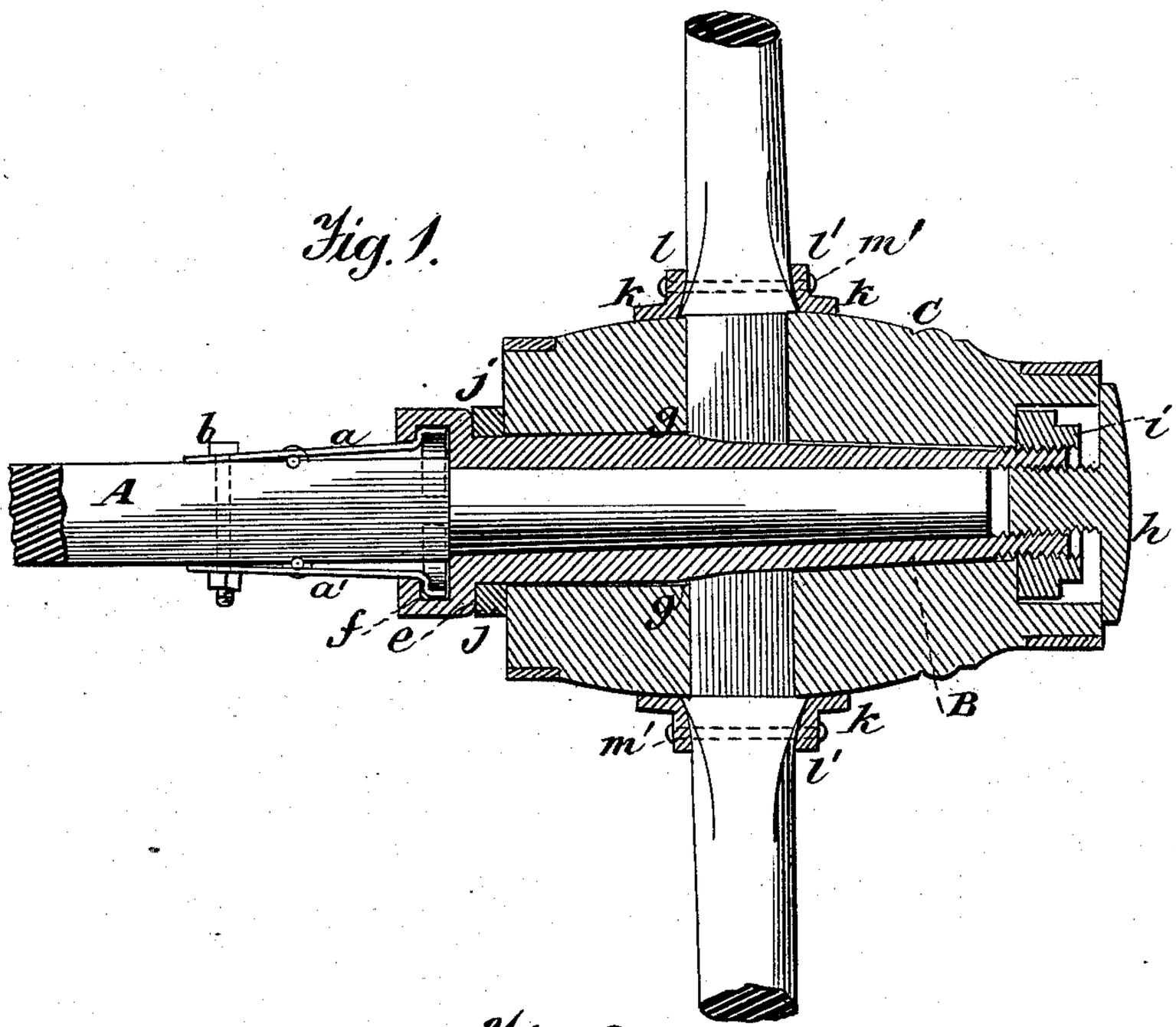


Fig. 2.

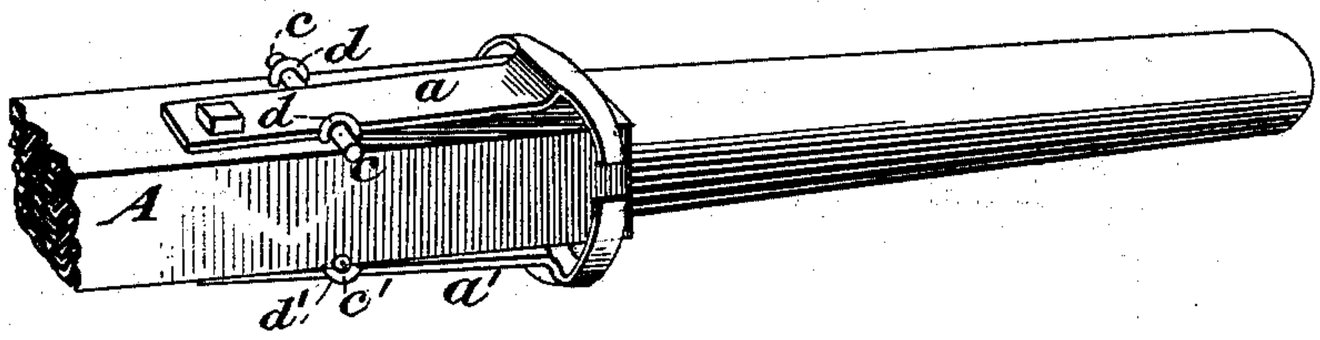
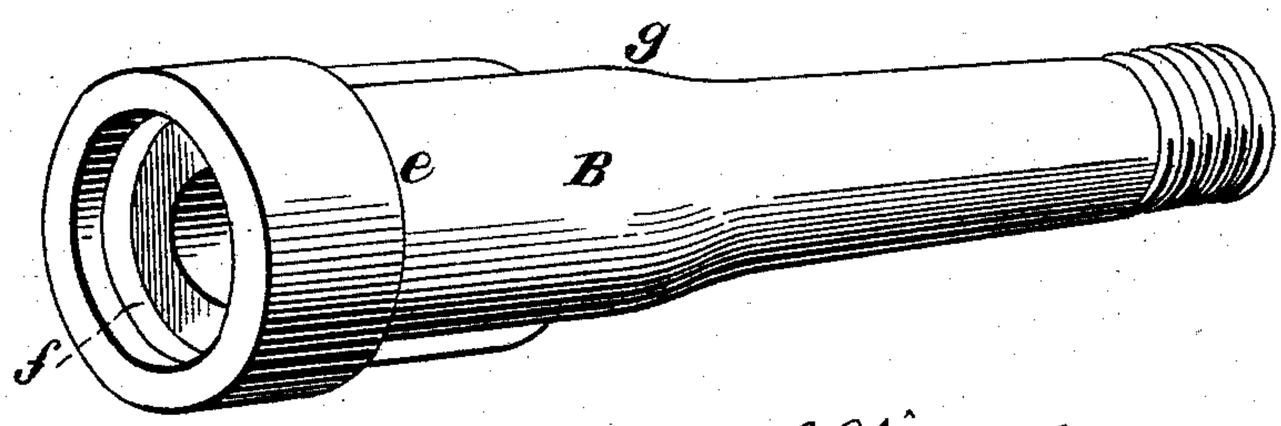


Fig. 3.



Witnesses.
A. Ruppert.
H. J. England.

R. Lincoln
Inventor.
Holloway & Blanchard
Attys.

UNITED STATES PATENT OFFICE.

PERIES LINCOLN, OF COLDWATER, MICHIGAN.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 282,539, dated August 7, 1883.

Application filed January 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, PERIES LINCOLN, a citizen of the United States, residing at Coldwater, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in Axles, Axle-Boxes, and Bands, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to the peculiar construction of pipe-boxes, axle-trees, and wheels for vehicles.

One object of my invention is to construct an axle of such a form that the hub will be held to its place without a nut on its outer end. Another object is to construct a thimble skein or box that can be retained in place on the axle without the use of a nut on the outer end of the axle. Another object is to so arrange the spokes and axle-box that the spokes may be tightened by changing the position of the hub on the axle-box. I attain these objects by the peculiar formation and arrangement of the various parts of my invention, as will be more fully pointed out in the specification and claims.

Similar letters refer to similar parts throughout the drawings.

In the drawings, Figure 1 represents a longitudinal sectional view of my invention, showing the axle, axle-box, hub, spokes, and section of tightening-band. Fig. 2 is a perspective view of the axle, showing the springs for retaining the axle-box in place. Fig. 3 is a plan view of the thimble-skein or axle-box.

A represents an axle-arm, formed in the usual manner, with a square shoulder on its inner end, against which a washer or the hub works, as will be more fully described hereinafter.

Two springs or metal strips, *a* and *a'*, are formed with their outer ends curved outward and extended on either side to form T-shaped projections, the ends of said projections being curved inward in the form of a half-circle, the inner ends of said metal plates being perforated to receive a bolt, *b*, that passes through a perforation in axle-arm A, and by means of which said springs are held in place. Between the outer and inner ends of said metal plates pins *c* and *c'* cross the axle, and underneath the springs said pins are secured in place by means of staples *d d'*. The purpose of said springs is to press the outer ends of plates *a a'* from the axle.

B represents a pipe-box or thimble-skein, formed of metal, (preferably cast.) The outer end of said pipe-box is formed with a screw-thread upon its outer surface. The inner end of said pipe-box is enlarged to form a shoulder, *e*, and on the inside of the enlargement an annular recess, *f*, is formed, for the purpose of receiving the curved ends of the metal plates *a* and *a'*. From the shoulder *e* outward the pipe-box is enlarged to a point, *g*, about one-third its length, and from point *g* to near the screw-threads it is formed tapering. The said pipe-box is splined in the usual form, for the purpose of holding the same in place in the hub. Screw-threads are formed on the inside of the outer end of said pipe-box, for the purpose of receiving the screw-threaded cap *h*, said cap being in the form of a disk with a central screw-threaded projection, and its purpose is to prevent grease from exuding from the end of the hub, and it also prevents garments from being soiled should they be brought in contact with the end of the hub.

An ordinary nut or burr, *i*, is formed with angular sides for the reception of a wrench, by which it is turned, and screw-threaded on its inner surface and adapted to fit and screw onto the outer end of the pipe-box B, the purpose of which is to force the hub onto the pipe-box B.

A washer, *j*, is formed of sufficient diameter to pass loosely over the pipe-box B up to and against the shoulder *e*.

A hub, C, is formed in the usual manner and of the proper form and size on its inner surface to receive the axle-box B. The ends of the said hub are banded with metal bands to prevent splitting or checking. Hub B is mortised through from the outer to the inner surface for the reception of spokes.

Two metal bands, *k* and *k'*, are formed to pass around the hub B on either side of the spokes and embrace the same. Both bands are formed with an upwardly-projecting flange or lip, *l* and *l'*. The inner face of lips *l* and *l'* are formed with inwardly-inclined surfaces extending from the outer edge of said flanges down to the lower face of the bands *k* and *k'*. Said lips or flanges are perforated to receive

bolts *m* and *m'*, said perforations being opposite each other and at points that permit the bolts to pass between two spokes alternately around the hub.

The spokes are formed in the usual manner, except that their inner ends extend to and rest against the outer surface of pipe-box B. At the point of contact with the pipe-box said spokes are cut slightly inclined to conform to the inclination of the pipe-box B, the purpose of which is to force the spokes outward when the pipe-box is forced into the hub far enough to bring the enlarged part of said pipe-box against the inner ends of the spokes.

The spokes used in my improved wheel are beveled or inclined outward at or near their shoulders on the outer surface of the hub, for the purpose of fitting tightly against the inside of the lips or flanges *l* and *l'* of the bands *k* and *k'*. When the spokes become loose by shrinkage, the washer *j* is removed and the pipe-box B is forced into the hub against the ends of the spokes, thus forcing them out against the inclines of the bands *k* and *k'* and tightening the wheel.

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

1. In combination, a vehicle-axle having springs *a* and *a'* secured at their inner ends by a bolt to the upper and lower face of said axle, said springs being pressed outward by fulcrum-rods *c* and *c'*, each spring formed with an upwardly-curved shoulder and inwardly-curved lips, as shown, on its outer end, said shoulder and lips adapted to engage with the outer shoulder of the annular recess *f*, formed in the inner end of pipe-box B, substantially as shown and specified.

2. The combination of a wooden hub of a vehicle-wheel, its middle portion surrounded with bands *k* and *k'*, having outwardly-projecting flanges with inwardly-inclined faces, as shown, said hub being formed with straight-faced mortises extending through the shell of the same, in which spokes are inserted, the pipe-box B having inclined outer surface, its outer end inwardly and outwardly screw-threaded, as shown, with the screw-threaded nut *i*, adapted to screw on the outer end of said pipe-box, substantially as shown and specified.

3. In combination, the axle A, pipe-box B, hub C, bands *k* and *k'*, recess *f*, and nuts *i* and *h*, all arranged and operated as shown, substantially as and for the purpose set forth.

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

PERIES LINCOLN.

Witnesses:

H. B. ZEVELY,

H. J. ENGLAND.