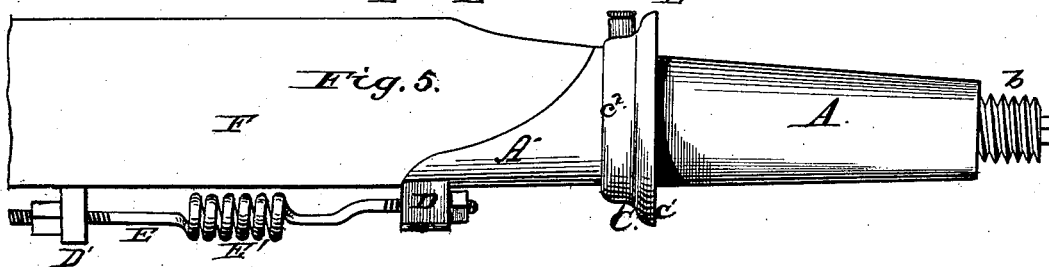
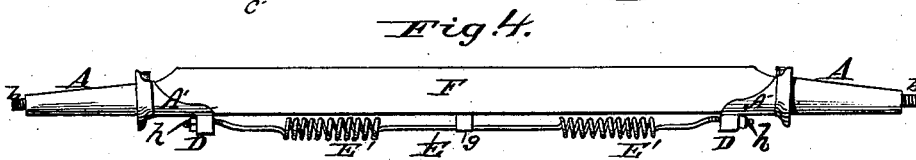
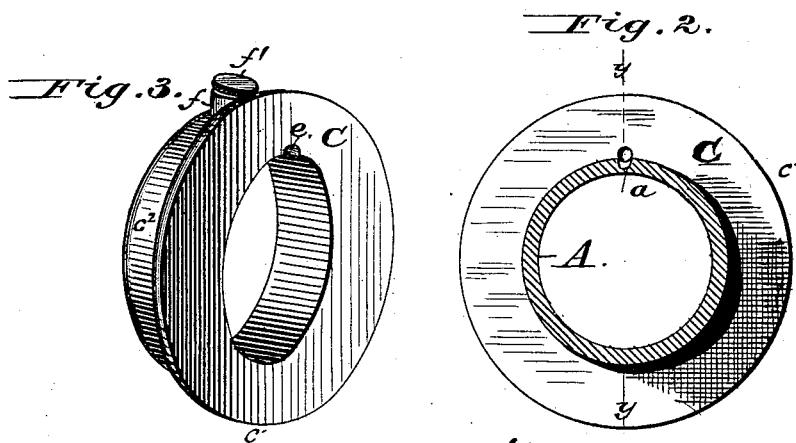
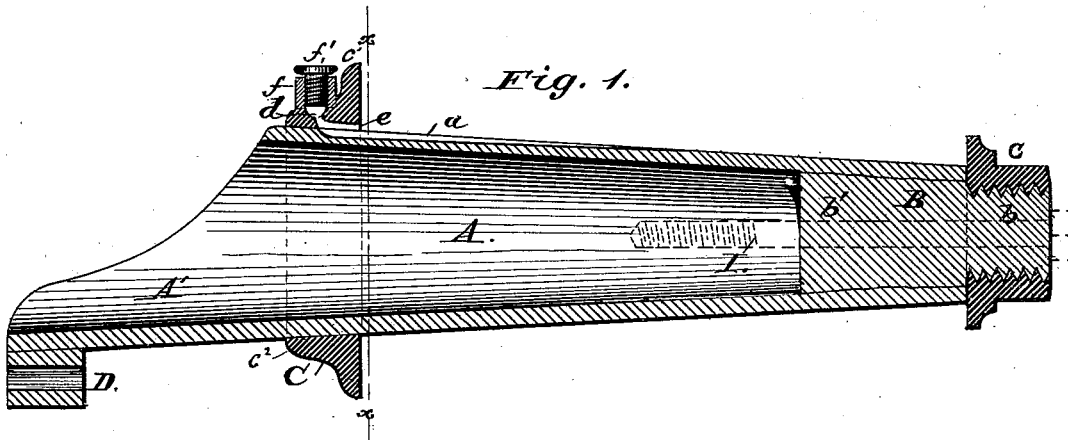


J. W. LOWELL.
Tie-Rod for Vehicle Axle Skeins.

No. 201,258.

Patented March 12, 1878.



Attest:
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UNITED STATES PATENT OFFICE.

JOHN W. LOWELL, OF SALT LAKE CITY, UTAH TERRITORY.

IMPROVEMENT IN TIE-RODS FOR VEHICLE-AXLE SKEINS.

Specification forming part of Letters Patent No. 201,258, dated March 12, 1878; application filed February 7, 1878.

To all whom it may concern:

Be it known that I, JOHN W. LOWELL, of Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented certain new and useful Improvements in Axle-Skeins, of which the following is a specification:

My invention relates to a lubricating axle-skein formed of wrought steel or iron, and having a continuous shell; and its object is to produce a skein capable of being firmly, though not too rigidly, attached to the axle, and combining great strength and durability.

It consists in the combination, with an axle and a skein or skeins, of a yielding tie or brace rod or rods, serving to hold said skein in position, and to brace the axle in such manner that breakage is prevented in case said axle warps, or is bent or sprung by being subjected to extraordinary strain, as is the case in heavily-laden wagons, or in traveling over rough roads.

In the accompanying drawing, Figure 1 represents a longitudinal central section of an axle-skein constructed according to my invention. Fig. 2 is a cross-section on line *x x*, Fig. 1. Fig. 3 is a perspective view of the collar detached; Fig. 4, a full-length view of an axle having both of its skeins connected and the axle braced by a single yielding tie and brace-rod. Fig. 5 is a view of a single skein attached to its axle, and braced by a short tie-rod attached to said axle independently of the opposite skein.

The letter A indicates the continuous shell of the skein. This shell is formed from a suitably-shaped plate of wrought-iron or steel having uniform thickness, and which, when bent as required, has its opposite longitudinal edges welded together throughout their entire length. In the top of this shell is sunk a groove, *a*, extending from a point near the inner end of said shell outwardly to about the middle thereof, or it may be extended farther, if desired, or not so far, its object being to convey oil within the hub for lubrication.

B is a plug arranged in the smaller end of the shell A, and having its outer projecting portion *b* cylindrical and screw-threaded, while its other portion flares toward its inner end, conforming to the conical interior of the skein, and is welded thereto. The screw-threaded

portion of this plug is adapted to receive a nut, *c*, which holds the wheel-hub in place upon the skein. The outward strain of the hub against this nut, as applied to old forms of skeins, has frequently broken off the screw-threaded portion of the shell, which at this point has been greatly weakened by having screw-threads cut therein to engage with said nut, and the wall of said skein not braced within; but by my construction it will be seen that I make this outer end the strongest portion of the skein, while, owing to the flaring wedge-like or conical shape of the plug and corresponding form of the interior of the firm continuous shell A, it is impossible for said plug to be displaced outwardly by any strain incident to a wagon-wheel.

Through the center of the plug B is an aperture, through which passes a screw, I, which takes into the wood of the axle and holds the skein firmly to its place, so that it will not be loosened or caused to slip by jolting of the wagon, or by endwise strain upon the hub.

C designates the collar, against which the inner end of the hub plays. This collar has its opening formed to fit snugly with the tapering surface of the shell A, and may be replaced by a collar of similar construction, but smaller size, which will not pass so far toward the inner end of the said shell or skein, the working length of which may, by the interchange of collars, be altered to suit hubs of different lengths. This collar C consists of a flange, *c*¹, and neck *c*², and through said neck is cut a passage, *d*, opening into an interior groove, *e*, cut across the interior surface of the collar. The neck *c*² is provided with a nozzle or screw-cup, *f*, surrounding the opening of the passage *d*, and said cup or nozzle is closed by a suitable screw-plug, *f*¹. When this collar is properly in place, to which it may be driven or shrunk, its groove *e* should coincide with the groove *a* in the shell A, so that when oil is poured into the cup *f* it will find its way to the interior of the hub, and be distributed over the surface of the skein. Should one of these collars be broken, or bent or roughened, so as to be unfit for use, it may, of course, be readily removed and replaced by another, this adaptability of the collar for replacement being one of the conveniences incidental to the separate

construction of the collar and shell. The under portion of the shell is formed with an extension or lip, A', having a lug, D, projecting therefrom, and provided with an opening to receive the screw-threaded end of a metal (preferably steel) rod, E, the other screw-threaded end of which passes through a similar lug, D, projecting from the skein on the opposite end of the axle F. The middle portion of the rod E rests in a notch or open slot formed in a stud, g, projecting downward from the axle F, and near each of its ends said rod is formed into coils E', so that when the rod and skeins are in position, as shown in Fig. 4, and said rod tightened by the nut h, the elasticity of these coils will exert a continuous pressure to hold the skeins in place, while at the same time the rod forms a brace for the axle, the coils allowing the said rod to yield to avoid breakage of any of the parts in case the axle should warp or be subjected to extraordinary downward strain, as in the case of very heavy loading of a wagon, or in traveling over rough roads.

While I consider the arrangement of the coils in the rod E, as shown in Fig. 4, preferable, I do not limit myself to this arrangement, as a single coil only may be formed in this rod at its middle, or a separate coil-spring may be

placed on each or either end of a straight tie and brace rod, and confined between the nut or nuts h and the lug or lugs D, without departing from the scope of my invention. Instead, also, of using a single rod having a coil of coils formed therein, and having its ends secured to the opposite skeins of an axle, two short rods may be used, each having a coil formed therein, and one end of each of said rods being secured by a nut to a lug, D', projecting from the axle, as shown in Fig. 5, and the other ends extending through the lugs D of the skeins, as before explained.

Having now described my invention, I claim—

1. The combination, with an axle and a skein or skeins, of a yielding tie or brace rod or rods, serving to hold said skein or skeins in position, and to brace the axle, substantially as set forth.

2. The combination of axle F, skeins A, and rod E, having coils E' E' formed therein, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JOHN W. LOWELL.

Witnesses:

A. H. NORRIS,
JAMES A. RUTHERFORD.