I. C. PLANT.

Car-Axle.

No. 225,998 Patented Mar. 30, 1880.

Fig. 1.

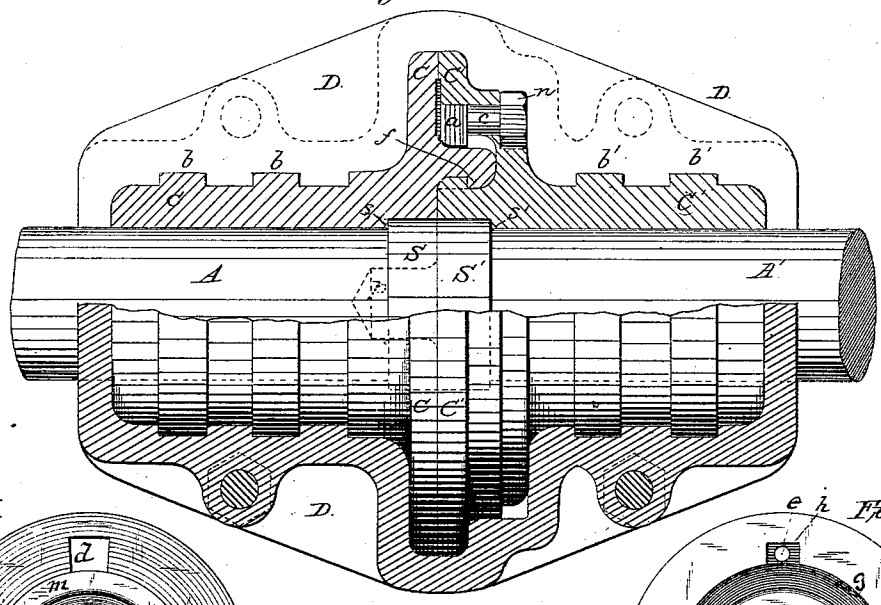


Fig. 5.

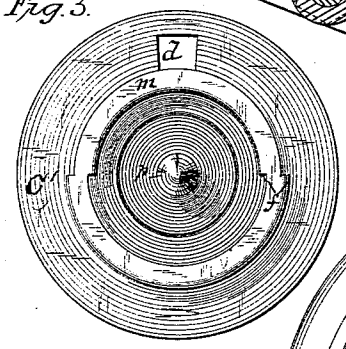


Fig. 6.

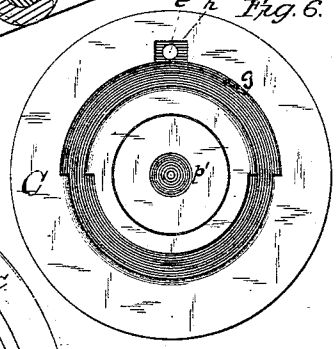
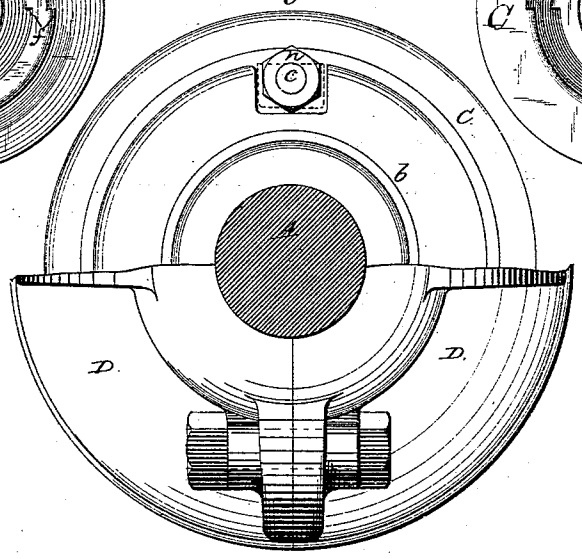


Fig. 2.



Witnesses:

S. H. Stansbury

Edward R. Tyler

Fig. 3.

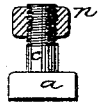
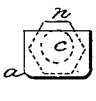


Fig. 4.



Inventor:

I. C. Plant,

By his Attorneys,

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UNITED STATES PATENT OFFICE.

INCREASE C. PLANT, OF MACON, GEORGIA.

CAR-AXLE.

SPECIFICATION forming part of Letters Patent No. 225,998, dated March 30, 1880.

Application filed September 19, 1879.

To all whom it may concern:

Be it known that I, INCREASE C. PLANT, of Macon, in the county of Bibb and State of Georgia, have invented certain new and useful Improvements in Divided Car-Axles; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side view, partly in section, of the divided axle, clutch, and cap. Fig. 2 is an end view, partly in section, of the same, the upper half of the cap being removed to show one end of the clutch with the key-bolt in place. Fig. 3 is a side view of the key-bolt with the nut in section. Fig. 4 is an end view of the same. Fig. 5 is a face view of one jaw of the clutch. Fig. 6 is a face view of the opposite jaw of the clutch.

The same part is indicated by the same letter of reference wherever it occurs in the several figures.

The invention consists of improvements on the divided car-axle for which Letters Patent No. 173,056 were granted to me February 1, A. D. 1876.

The object of the improvements is to add to the devices described in the patent referred to other provisions for the more secure union of the inner ends of the divided axle, while the independent rotation of the wheels is not interfered with. These additional features are the locking-key, which prevents the jaws of the clutch from being separated until the nut of the key is removed, and the head and shoulder on the inner end of each half-axle, which prevents the clutch-jaw on each from being withdrawn from that end of the axle, all as hereinafter more particularly set forth.

In the drawings, A A′ are the half-axles, attached, respectively, to wheels. (Not shown.) To the inner ends of these axles are fixed the jaws C C′ of a large disk-faced clutch, one jaw being fixed to each axle. They may be cast with the axle, if preferred.

A central pin, *p*, in the face of jaw C′ is received into a hole, *p′*, in the center of jaw C, to preserve the alignment of the axles, and a circular groove, *g*, in the face of jaw C′ receives an annular projection, *m*, on the face of jaw C, corresponding in shape with the groove which it enters.

The groove *g* is undercut for half its circumference on its inner side and for the other half on its outer side; and the projection *m* has corresponding lips *f* on its inner and outer edges, which are received by and pass under the undercut portions of groove *g*, so as by their engagement to lock the two faces of the jaws securely together and yet permit them free rotation.

The outer portions or hubs of the clutch-jaws are provided with the beads *b b b′ b′*, constructed as shown. The whole clutch is received and covered by a double cap, D, whose interior configuration corresponds with the exterior form of the clutch.

The beads *b b′* enter grooves of coincident shape and size, and the clutch-jaws, locked together, pass into a circular groove or recess in the cap adapted to receive them, and which aids in holding them together. Thus the clutch-jaws are securely united both at center and circumference without interfering with the free and independent rotation of the wheels.

The halves of cap D are secured together when in position by bolts and nuts, as shown.

As an additional safeguard, I use a locking-key, consisting of the bolt *c*, provided with the head *a*, shaped as shown, and nut *n*. This bolt I insert through opening *d* and hole *e*, the nut being received in recess *h*. The head *a*, adapted to lie in the groove *g*, passes behind the lip on the outer side of projection *m* and locks the jaws together at that point in their rotation upon each other where they would otherwise be free to separate.

The divided half-axles are provided, respectively, with enlarged heads S S′ at their inner ends, which give ample bearings to the clutch-jaws, and prevent them, by shoulders *s s′*, from being forced off of the inner ends of the axles to which they are respectively attached.

My invention may be applied to the old axles now in use by dividing them in the middle and attaching the clutches to the inner ends of the half-axles by bolts or other suitable means, the alignment of the axle being preserved by a pin projecting from the center of

one half-axle entering a hole in the center of the other, in the manner shown in the drawings.

I claim as my improvements—

1. The combination, with a divided axle for cars, of a clutch having the jaws C C′, provided with the lipped projection *m*, undercut groove *g*, and locking-key *a c n*, all constructed and operating in the manner and for the purpose set forth.

2. In combination with clutch-jaws constructed as described, divided axles provided with enlarged heads S S′ at their inner ends, in the manner and for the purpose described.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

I. C. PLANT.

Witnesses:

EDWARD R. TYLER,

CHAS. F. STANSBURY.