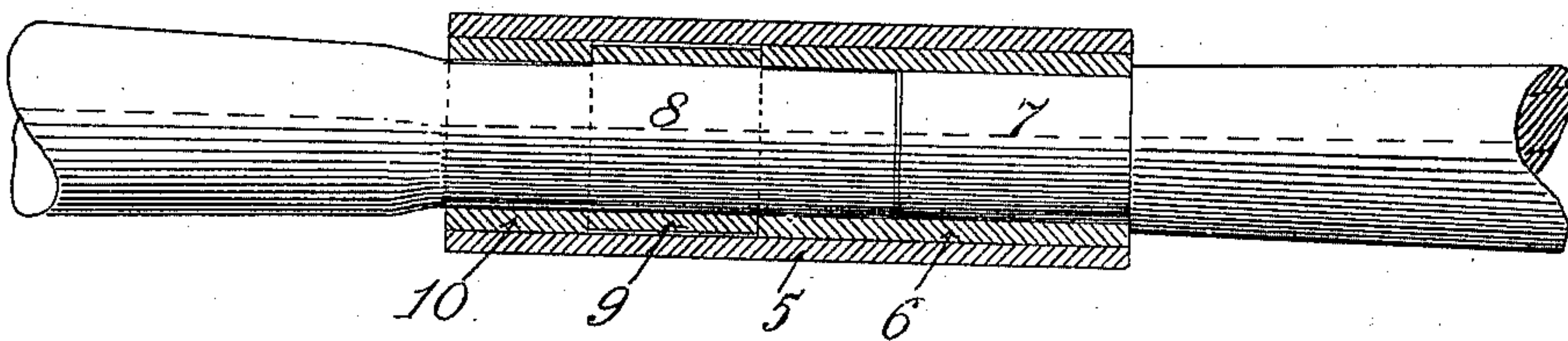


M. MARKARIAN.
DIFFERENTIAL AXLE DEVICE.
APPLICATION FILED JULY 21, 1909.

964,038.

Patented July 12, 1910.



WITNESSES

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MELKON MARKARIAN, OF FRESNO, CALIFORNIA.

DIFFERENTIAL-AXLE DEVICE.

964,038.

Specification of Letters Patent. Patented July 12, 1910.

Application filed July 21, 1909. Serial No. 508,758.

To all whom it may concern:

Be it known that I, MELKON MARKARIAN, a naturalized citizen of the United States, residing at the city of Fresno, county of Fresno, State of California, have invented new and useful Improvements in Differential-Axle Devices, of which the following is a specification.

It is the object of my invention to connect the parts of an axle without the use of bolts, screws or rivets and in such manner that the usual jar upon such axle does not have any effect upon the members of the box which connects the parts of the axle to cause them to accidentally separate or to crystallize and break.

Another object is to provide a device of this character of simple construction, and with the maximum amount of strength at the point where the ends of the axles meet.

I accomplish these objects by the differential axle described herein and illustrated in the accompanying drawings forming a part hereof in which—

Figure 1 is a longitudinal section of the bearing with portions of the axle shown in elevation.

My coupling is composed of an outer sleeve 5 and an inner sleeve divided into three parts, one of these parts 6 is shrunk upon one of the sections 7 of the axle, or the same may be forced thereon by a pressure sufficient to hold the parts together by frictional engagement. This portion of the inner sleeve projects beyond the section 7 a sufficient distance to provide a good bearing for the end of the other section 8 of the axle which has a working fit in the projecting end of this part of the inner sleeve. The outer sleeve is shrunk upon this section of the inner sleeve, or the two parts are forced together with sufficient pressure to hold them in place by their frictional engagement under the strain required. The next section 9 of inner sleeve has a working fit within the outer sleeve and is shrunk upon the section 8 of the axle, or pressed thereon with sufficient pressure to hold the parts together by frictional engagement. The third section 10 is provided with a

working fit around section 8 of the axle and is secured within the other end of the outer sleeve by having said sleeves shrunk thereon, or they may be pressed together with sufficient pressure to hold the parts together by frictional engagement.

In the construction of my device I preferably use a heavy steel pipe for the outer sleeve and a lighter steel pipe for the inner sleeve. The pipe for the inner sleeve is cut to suitable lengths and is of an external diameter to be secured within the outer sleeve as hereinbefore specified. That portion which is to be used as a rotating part would have to be slightly dressed on the outside so as to give it a working fit within the outer sleeve when assembled. In the drawings those portions of the axle within the outer sleeve are shown dressed so that the part 8 shall have a working fit within those portions of the inner sleeve that are rigidly secured to the outer sleeve. If desired, however, the axle need not be reduced, and in such case it would be necessary to ream those portions of the inner sleeve within which the part 8 rotates to a working fit around the axle. By this construction it will be observed that the meeting point between the ends of the divided axle is at a point where the maximum strength is obtained in the coupling. It will also be observed that great simplicity and cheapness of construction are obtained.

Having described my invention what I claim is,

In a differential axle device, mechanism to secure the ends of a divided axle comprising a coupling formed of outer and inner sleeves; the inner sleeve being formed of three sections, one of the outer portions of the inner section being secured by frictional engagement a portion of its length upon one of the ends of the divided axle and being secured by frictional engagement completely within the outer sleeve, the other outer portion of the inner sleeve being secured by frictional engagement within the other end of the outer sleeve, the middle portion of the inner sleeve having a working fit within the outer sleeve and being secured by frictional

engagement upon the other portion of the divided axle near its meeting end with the first section, said second section of the axle having a working fit within those portions
5 of the inner sleeve which are rigidly secured to the outer sleeve and which surround said last section of the axle.

In witness that I claim the foregoing I have hereunto subscribed my name this 14th day of July, 1909.

MELKON MARKARIAN.

Witnesses:

G. E. HARPHAM,
S. B. AUSTIN.