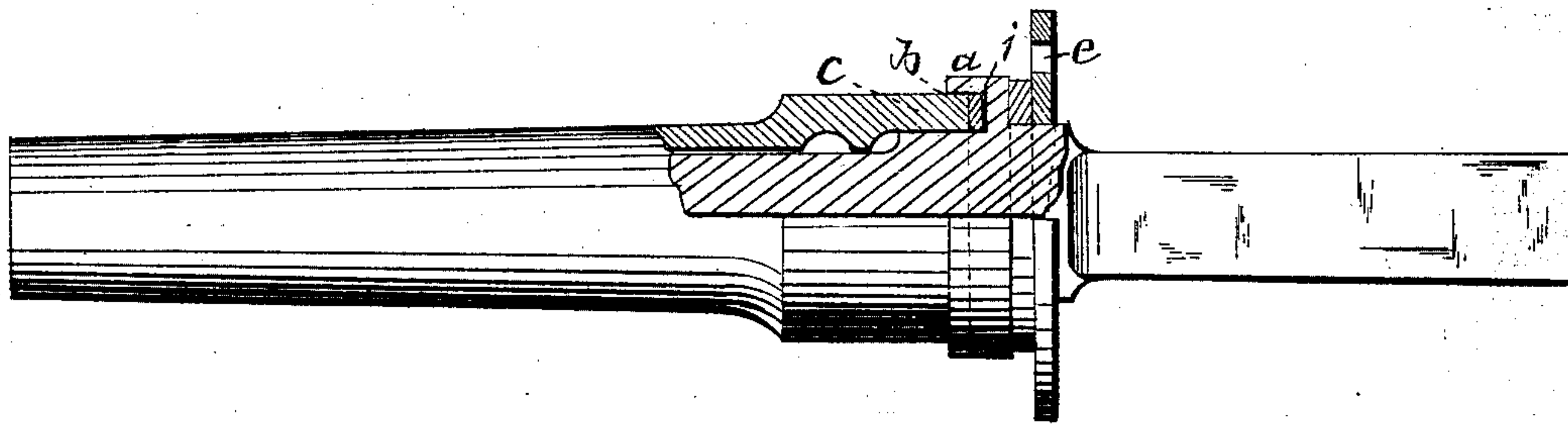


A. E. SMITH.

Sand-Band.

No 16,404.

Patented Jan. 13. 1857



# UNITED STATES PATENT OFFICE.

ALFRED E. SMITH, OF BRONXVILLE, NEW YORK.

## MODE OF CONSTRUCTING MAIL AXLES AND HUBS.

Specification of Letters Patent No. 16,404, dated January 13, 1857.

*To all whom it may concern:*

Be it known that I, ALFRED E. SMITH, of Bronxville, county of Westchester, and State of New York, have invented certain  
5 new and useful Improvements in Mail-Axles for Carriages; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a  
10 part of this specification, which is a side view or elevation partly in section.

My invention consists in so constructing the parts of a mail axle that as the washers wear down by use the said parts may still  
15 be screwed closely up, thus enabling the wheel to run always as steadily as at first.

As usually constructed the mail axle has a fillet or collar as it is called, raised upon it at the shoulder, serving the double pur-  
20 pose of affording a suitable bearing for the back holding plate or flange, and of receiving over it the inner end of the box of the wheel, which box is countersunk to such extent as will take in this collar, thereby  
25 breaking the joint for the purpose of keeping out the dust etc. The wheel is kept on, as is well known, by bolts passing through the flange which is behind the collar, and between the flange and the collar a washer  
30 of leather is interposed to save their surfaces and prevent jarring. This washer receives also against its outer part, the inner end of the box. Now as both the box and the flange revolve together, that washer,  
35 being drawn at its outer portion by the bolts closely between the box and the flange, necessarily revolves with those. The collar however on the axle is stationary, and hence that portion of the washer in contact  
40 with it is ground out, while the outer portion does not wear at all. This permits the axle to have longitudinal play in the box, causing still more wear to that washer, as well as unpleasant jarring to the vehicle.

The washer can not be replaced without 45 cutting the axle, nor can the parts be more closely screwed up, and it is this objection which my invention is particularly designed to obviate, although by it I am also enabled to reduce the size of the hub or to cut away 50 less of the wood if desired.

I construct the collar of the ordinary diameter, but make it somewhat thicker as shown at (a) and in the face of this I turn out an annualr groove (b) as near to the 55 outer edge as the strength of the metal will permit. The end of the box (c) is received into this groove, thus forming the desired joint, and washer of leather (i) is put into the groove, and another (l) between the 60 flange and the collar, as usual.

The operation will be as follows: The bearing of the end of the box (c) will now be against a stationary washer, but this when worn can be readily replaced by 65 merely taking off the wheel, while the wear of both the washers can now be compensated for by setting up the nuts on the bolts which hold the wheel, thus making it run at any time as quietly as when new. The 70 holes (E) in the holding plate may now be brought nearer to the center or the bearing of the collar against it may be enlarged as desired.

I claim—

The herein described method of construct- 75 ing a mail-axle—that is to say—making the end of the box abut against the inner side of the collar instead of against the holding plate, whereby the wear of the washer be- 80 tween the collar and the holding plate may be compensated for by setting up the bolts, substantially in the manner as set forth.

ALFRED E. SMITH.

Witnesses:

J. P. PIRSSON,  
S. M. MAYNARD.