No. 822,128. PATENTED MAY 29, 1906.

E. W. M. HUGHES.

MANUFACTURE OF AXLE BOXES.

APPLICATION FILED AUG. 1, 1904.

Fig. 1.



Fig. 2.



Fig. 3.

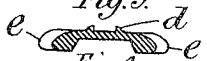


Fig. 4.

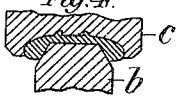


Fig. 5.



Fig. 6.

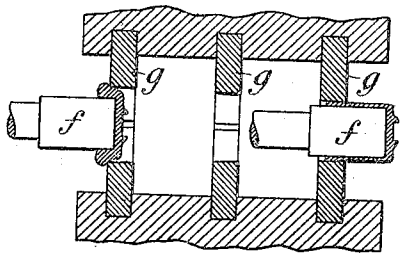


Fig. 7.

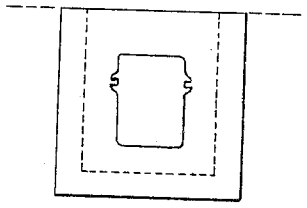


Fig. 8.

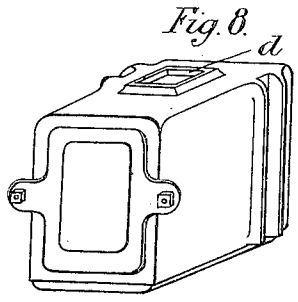
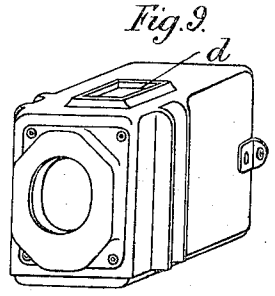


Fig. 9.



Witnesses

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MANUFACTURE OF AXLE-BOXES.

No. 822,128. Specification of Letters Patent. Patented May 29, 1906.

Application filed August 1, 1904. Serial No. 219,112.

To all whom it may concern:

Be it known that I, EDWARD WILLIAM MACKENZIE HUGHES, a subject of the King of Great Britain, residing at 53 Victoria street, in the city of Westminster, England, have invented certain new and useful Improvements in the Manufacture of Axle-Boxes, of which the following is a specification.

According to this invention the body of an axle-box is formed from a metallic block or ingot by first compressing the block to not only mold in one end of it a hollow cavity, but also at the same time to bring the opposite end to the thickness required for forming the top of the box and to mold on its exterior a spring-seating of any form required. By the same operation projecting lumps are also molded on the exterior of two of its opposite sides to provide metal for being subsequently drawn down to form the necessary exterior guide-ribs. The cup-shaped block thus formed is after reheating placed onto the end of a plunger or mandrel and is by it forced through three or more fixed dies in succession, by which the sides are drawn down gradually to the required thickness and a groove formed along each lump as it is being drawn down, so as to produce on each of the two opposite sides two parallel guide-ribs. The drawn-down block is then quickly removed from the mandrel, the superfluous metal is cut off from its open end, and while still hot this open end is passed over the sides of a shallow tray, (previously formed, it may be, in the same way,) so that as the sides of the body of the box cool down and contract they grip and hold the sides of the tray, and thereby securely close the bottom of the box. Afterward holes are cut in the back of the box for the insertion of the axle and in the front of the box for inspection and introducing lubricant, this latter opening being subsequently covered by a door.

If the axle-box is to be formed with grooves along its exterior instead of projections, these grooves may be formed in the same manner. So, also, boxes may be made in the same way with internal as well as external projections or grooves.

In the drawings annexed, Figure 1 is a perspective view of a block of metal from which the body of an axle-box is to be formed. Fig. 2 is a top view, and Fig. 3 a cross-section, of this block after it has been pressed in a mold. Fig. 4 shows a cross-section of the mold and of a block of metal being compressed in it. Fig. 5 shows the shallow tray which is to form the bottom of the box. Fig. 6 shows in section a series of three fixed dies through which the molded block is subsequently carried by a plunger. Fig. 7 is a face view of the last die. Fig. 8 is a perspective view of the front of the completed box, and Fig. 9 a similar view of the back.

a is the block from which the body of the box is to be formed. The block when heated is forced by a plunger *b* into a mold *c*. (See Fig. 4.) A hollow is thus formed in one end and the spring-seating *d* molded on the exterior of the opposite end, while at the same time projecting lumps *e* are formed on two opposite sides. The molded block after reheating is placed onto the end of a mandrel *f*, and the mandrel is then forced forward and carries the block through fixed dies *g*. (See Fig. 6.) The drawn-down block is then quickly removed from the mandrel, all superfluous metal is cut off from its open end, and this end then made to embrace the sides of the shallow tray *h*, which becomes gripped and held as the sides cool.

The completed box (shown in Figs. 8 and 9) is of the ordinary English pattern; but other forms of boxes may be made in the same way.

What I claim is—

The process for the manufacture of axle-boxes which consists in first compressing between one pair of dies a metallic block to mold a hollow cavity in one end of it and bring the opposite end of it to the exact form required for the top of the box while at the same time forming projecting lumps on the exterior of two of its opposite sides, then after reheating the molded block placing it onto the end of a mandrel and causing the mandrel to carry it forward through a series of fixed dies to draw the sides down to the shape and thickness required and mold each of the lumps into two parallel guide-ribs, afterward quickly removing the drawn-down block from the mandrel and without reheating cutting off all superfluous metal from its open end and causing this end while still hot to embrace the sides of a tray which is to form the bottom of the box so that the tray may be gripped and held as the sides of the body of the box cool down.

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Witnesses:

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