

(No Model.)

J. MAKIN.

COMBINED LEAD AND IRON PLATE.

No. 312,485.

Patented Feb. 17, 1885.

FIG:1.

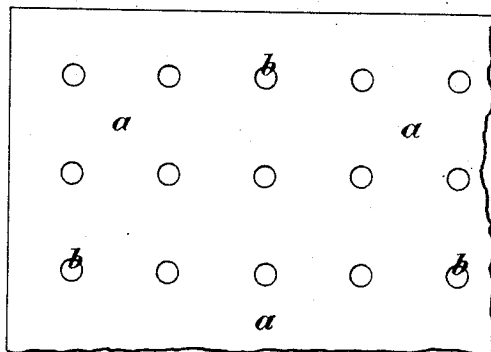


FIG:2.

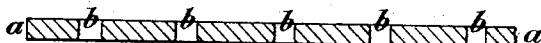


FIG:3.



FIG:4.



Witnesses.

John M. Clayton
Harry Drury

Inventor.

John Makin
by his Attorneys
Hudson & Sons

UNITED STATES PATENT OFFICE.

JOHN MAKIN, OF GLOSSOP, COUNTY OF DERBY, ENGLAND.

COMBINED LEAD AND IRON PLATE.

SPECIFICATION forming part of Letters Patent No. 312,485, dated February 17, 1885.

Application filed November 20, 1884. (No model.) Patented in Canada November 29, 1884, No. 20,667.

To all whom it may concern:

Be it known that I, JOHN MAKIN, a subject of the Queen of Great Britain, and residing at Glossop, in the county of Derby, England, have invented an Improvement in Coating Iron, Steel, or other Metal with Lead, of which the following is a specification.

This invention relates to the coating of iron, steel, or other metals with lead, and is applicable to a variety of useful purposes—such, for instance, as the coating with lead of the vessels used for boiling wood fiber with acid solutions in the manufacture of paper, coating the interior of cast-iron pipes with lead, so as to resist the action of acids, and numerous other uses where it is desirable to apply a thick coating of lead (by casting in a molten state) to one or both surfaces of iron, steel, or other metal.

The object of the invention is to cause the lead to adhere closely to the iron or other metal, and to prevent it from becoming loosened, as frequently happens when such lined vessels are exposed to heat, in consequence of the unequal expansion and contraction of the iron or steel and the lead.

Such being the nature and object of my said invention, I will now proceed to describe in detail the manner in which the same is to be or may be performed or carried into practical effect; and in order that the same may be clearly understood I have annexed hereunto a sheet of drawings illustrative thereof, and have marked the same with figures and letters of reference corresponding with those in the following explanation thereof.

Figure 1 is a plan view of the perforated plate. Fig. 2 is a section of the same. Fig. 3 is a section of the plate coated on both sides. Fig. 4 shows a like section of the plate coated on one side only.

The invention consists, principally, in perforating the iron or other metal all over with a number of holes, say from one-quarter of an inch to three inches asunder, more or less, (see plan view, Fig. 1, and section, Fig. 2,) *a a* being the plate and *b b* the holes, and then to place the same in a mold and apply the coating of lead in a molten state, by which means

the coating of lead *cc* is formed on both sides of the iron or other metal, as shown at Fig. 3, and the two coatings are united together through the perforations at intervals all over the surface. The consequence of this is that the lead adheres closely to the iron or other metal, and if any unequal expansion takes place the effect is minimized and localized, and the lead coating cannot leave the surface of the iron or other metal, being bound through from side to side by leaden studs or pins at each perforation. If the surface of the iron or other metal is galvanized before the lead is cast on, the latter adheres still more closely.

In cases where it is only desired to coat one side of the iron or other metal with lead I taper or countersink the holes on the reverse side, so that when the molten lead is run on it flows through the perforations, forming, as it were, leaden rivets to hold the lead-coating in its place, as shown in section at Fig. 4.

I claim as my invention—

1. Coating iron, steel, or other metal with lead by first drilling, punching, or otherwise forming holes or perforations through the metal to be coated, then placing such perforated plates in a suitable mold and running in the molten lead, so as to coat one or both sides, as may be required, and at the same time fill in the perforations, so that the lead is firmly united to the iron, steel, or other metal by the plugs of lead which fill the perforations, and thus the necessity for bolts, rivets, or other extraneous means of fastening is dispensed with.

2. As a new manufacture, sheets or plates of perforated iron, steel, or other metal coated on one or both sides with molten lead, filling the said perforations, substantially in the manner and for the purposes hereinbefore described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MAKIN.

Witnesses:

CHARLES DAVIES,
JNO. HUGHES.