Nov. 26, 1929. B. TALBOT 1,737,033

COATED ARTICLE AND PROCESS OF MAKING SAME

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Fig. 1.

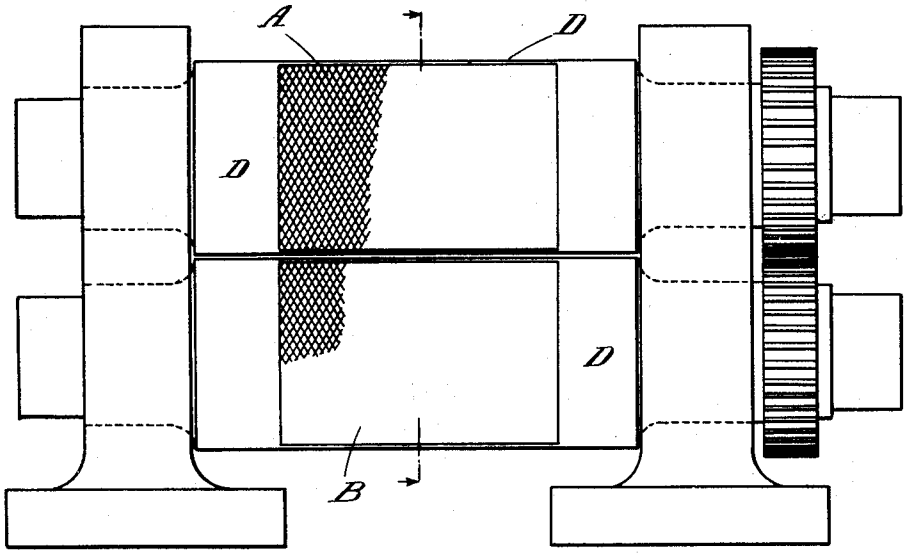


Fig. 3.

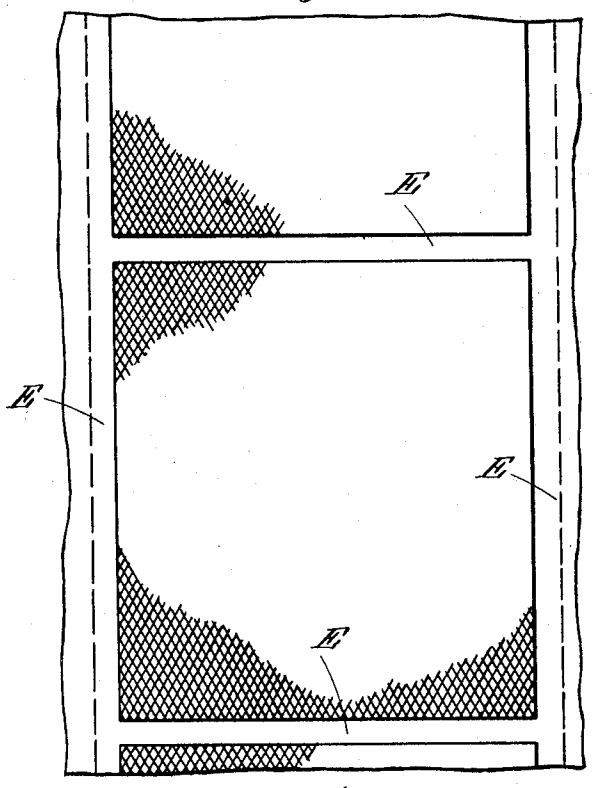
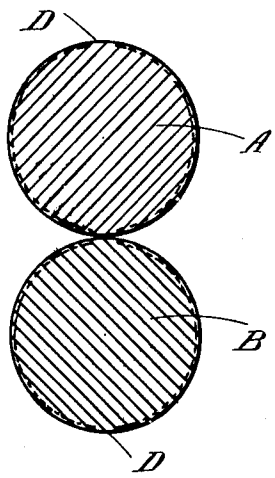


Fig. 2.



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Fig. 4

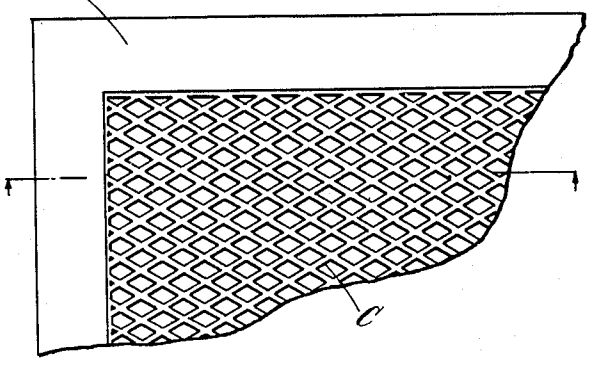


Fig. 5.

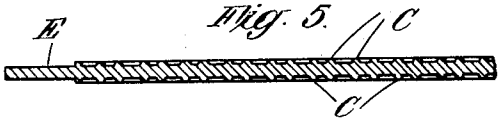


Fig. 6.



Fig. 7.

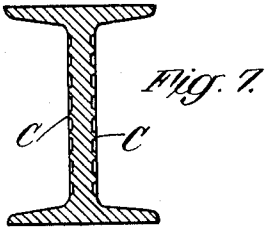


Fig. 8.

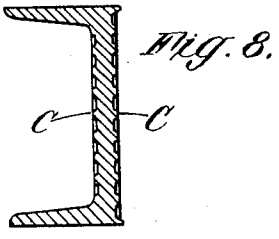
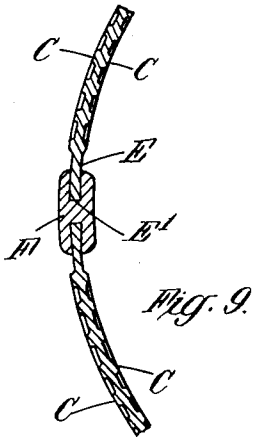


Fig. 9.



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Patented Nov. 26, 1929

1,737,033

UNITED STATES PATENT OFFICE

BENJAMIN TALBOT, OF NORTH ALLERTON, ENGLAND, ASSIGNOR TO TALBOT NON-CORROSIVE LININGS COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE

COATED ARTICLE AND PROCESS OF MAKING SAME

Application filed May 15, 1925. Serial No. 30,607.

My invention is designed to effect the firm adhesion of protective coverings or coatings upon the surface of iron or steel bodies, such as plates, strips, beams, channels and angles, or objects made therefrom without interference with the formation of tight joints or seams between the edges or uncoated surface portions of such a plate, plates or sections.

To effect such desiderata, I roll upon the portion of the metal surface to be coated, while it is in a hot condition, spaced protuberances or recesses, such as a pattern of ridges or grooves, forming keys of any desired cross section interlocking with the coating substance, while the edges or surface portions to be secured together are left plain or unkeyed or are afterwards made plain and are referred to herein as selvage portions.

Tight joints between selvage surfaces of the plates may be formed by overlapping such surfaces, lapping them with a strap or band, forming flanges of the selvage portions and bringing them into juxtaposition, etc., the parts being united by riveting, welding or the like.

The plates are then coated thickly with a protective covering, such as asphalt or other bitumen which may have mixed therewith ground granite or other finely powdered reinforcement, cement or concrete, the coating being firmly locked to the surface by the keys, particularly when applied centrifugally to tubular articles, such as pipes, with resultant deposition of the coarser aggregate between the ridges or in the grooves, the protective coating being of such thickness as to be firmly locked to the surface by the keys and to fill the interstices or recesses between them.

In the accompanying drawings, Fig. 1 is an elevation of a rolling mill suitable for rolling plates with a checkered surface and selvage strips, both longitudinal and transverse, on both sides; Fig. 2 is a cross section of the rolls; Fig. 3 is a plan view of a part of a plate produced by such rolls; Fig. 4 is a plan of a fragment thereof on an enlarged scale; Fig. 5 is a transverse section through a plate which is checkered on both surfaces; Fig. 6 is a similar view of a plate having one surface only checkered; Figs. 7 and 8 are sections of an iron beam and an iron channel, respectively, having surfaces formed according to the invention; and Fig. 9 is a cross section showing one method of jointing two selvages or edges.

In the preferred practice of my invention the plates are formed of steel or iron and are passed while hot between patterned rolls such as AB (Fig. 1) which impress ribs or ridges C (Fig. 4) upon the greater portion of the area of one or both surfaces of the plate, or section, but without distortion or corrugation of the bulk of the body thereof between the surface layers, as shown in Figs. 5, 6, 7 and 8. The ridges may form a diagonal checkered design or may lie in parallel or wavy lines running longitudinally, transversely, diagonally or otherwise. The roll pattern contains blank spaces D and the plate sections passing thereunder are undisturbed plane surfaces forming bands or strips E along the edges of the plates or/and intersecting the ridges. When rolling beam (Fig. 7) or channel (Fig. 8) sections for use in connection with my invention, the plane portions are preferably left upon the outside surface of the flange or flanges the edges of which, in the case of the channel iron, are preferably beaded as shown. The surfaces of the plane strips E may be coplanar with the general surface of the main or body portions of the plate, above which stand the ridges or pattern configuration C which subserves the double purpose of keying the coating to the plate and reinforcing and stiffening the plate, or the plane portions may be thicker than the body of the metal when additional strength is required along the lines of such portions, or when, for example, it is desired to make a lock bar joint between two edges of the same plate or of different plates, as shown in Fig. 9, in which the thickness of the selvage portions E increase toward their edges E′ which are embraced by their lock bar F.

The plates, strips or sections thus formed may be joined along their plane surfaces to form pipes, tanks, ship plates, railroad ties, troughs, walls, shapes, channels or the like; the plane surfaces when riveted or welded

together forming tight joints. Or the unkeyed portions of the surface may form seats for the attachment of rails or other detachable members. The keyed surface is covered with a thick protective covering of bitumen or concrete; internal linings for pipes, tubes or other cylindrical articles preferably being applied centrifugally. When the keyed surface is covered with the protective coating before the jointing operation, the remaining surface is preferably coated with a protective material after completion of the jointing operation. In addition to the protection from corrosion which the covering gives ship plates, it also obviates or reduces marine growths thereon and thereby reduces friction, with consequent saving of fuel.

Having described my invention, I claim:

1. A manufacture of iron or steel having a keyed surface portion backed by an undistorted portion and plane surface portions forming a joint, and a covering keyed to said first named surface portion and filling the spaces between the keys.

2. A manufacture of iron or steel having keys formed upon a surface portion thereof without distortion of the body of the metal and plane surface portions forming a joint, and a hardened plastic coating locked to said surface portion first named by the keys thereon and filling the spaces between the keys.

3. A manufacture of iron or steel having a keyed portion formed upon an undeformed portion and a selvage portion and a protective coating keyed only to said portion first named.

4. A manufacture of iron or steel having a surface portion provided with ridges formed upon an undeformed portion and lapping selvage portions fixed together, and a protective covering keyed to said first named portion by said ridges and filling the space between them.

5. The process which comprises rolling surface keys on a portion of the surface of hot iron or steel, uniting unkeyed portions of said surface, and centrifugally coating the keyed portion to said surface with a protective covering.

6. A manufacture of iron or steel having key members formed upon a plurality of surfaces thereof and unkeyed portions said keyed portions being spaced by an undeformed portion, said surfaces having a protective coating keyed thereto by said members.

7. A manufacture of coated or protected iron or steel having keys rolled during production upon one or more surface portions thereof, without corrugation or deformation of the interior body portion of the metal, the remaining surface portion being left plain and adapted for jointing, and a protective covering extending over the keyed surface and filling the recesses therein, said coating being firmly secured in place by the keys aforesaid.

8. A manufacture of coated or protected iron or steel as specified in claim 7 having a surface portion left plain to form one or more selvaged portions, and the protective coating being applied only to the keyed portion.

9. A manufacture of coated or protected iron or steel as specified in claim 7 having a surface portion provided with ridges and overlapping plain selvaged portions fixed together, the protective covering being keyed to said first named portion by said ridges.

10. A manufacture of coated or protected iron or steel as specified in claim 7 having longitudinal plain selvage portions secured to each other by means of a lock bar joint, and the protective covering extending over the whole surface, including the joint.

11. A manufacture of coated or protected iron or steel as specified in claim 7 comprising a channel or beam having web surfaces formed with keys or checkers, and a protective covering keyed thereto by the keys or checkers.

12. The process of making iron or steel pipe which comprises rolling surface keys on a portion of the surface or surfaces of a plate of iron or steel without deformation of the interior body portion of the metal while the plate is being formed by the roll, uniting unkeyed portions of said surface or surfaces to form a tubular body and centrifugally coating the internal surface with a protective covering.

13. The process which comprises rolling surface keys on a portion of the surface of hot iron or steel, uniting unkeyed portions of said surface and coating the keyed portion of said surface with a protective covering.

In testimony whereof I have hereunto set my hand this 14 day of May, 1925.

BENJAMIN TALBOT.