

C. E. L. HOLMES.

HINGES.

No. 183,459.

Patented Oct. 17, 1876.

Fig. 1

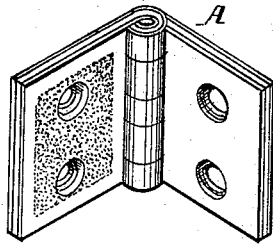
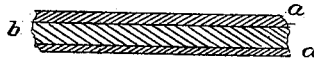


Fig. 2.



Attest:  
J. E. Wolfe  
Notary Public.

C. E. L. Holmes  
By his atty  
Charles E. Foster

# UNITED STATES PATENT OFFICE.

CHARLES E. L. HOLMES, OF NEW YORK, N. Y.

## IMPROVEMENT IN HINGES.

Specification forming part of Letters Patent No. **183,459**, dated October 17, 1876; application filed September 29, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES E. L. HOLMES, of the city, county, and State of New York, have invented Improvements in Hinges, of which the following is the specification:

The object of my invention is a hinge composed of jointed leaves of compound metal, which, while insuring the requisite strength and stiffness, also secures an unchangeable surface capable of a high polish, and of being readily embossed without requiring any finishing operations after the metal has been formed into leaves and put together.

In the manufacture of hinges for inside work, where a surface having a brilliant and durable polish is required, it has heretofore been necessary to employ brass, or to nickel-plate or silver-plate iron or other non-lustrous metal. Brass, while capable of a fine and durable polish, is objectionable on account of color and expense, while zinc cannot be practically plated, and the plating of iron or other metal, which must be effected after the leaves have been formed, renders subsequent finishing operations necessary, with such increased cost as to effectually preclude the use of such hinges for many desirable purposes. In all these cases, also, the color is soon altered by the atmosphere or by the action of gases.

Another great objection to both brass and zinc is their hardness, which renders it difficult to emboss the surfaces without employing presses of great power, and, without greater pressure, prevents the embossing of designs of a delicate character.

By making the hinge A, Figure 1, of a compound metal, consisting of two or more layers of different metals permanently united, I am enabled to produce an article free from the defects specified and possessing important advantages.

While different metals may be employed in the manufacture, I have found that the union of zinc and tin, or a tin compound, is most serviceable, the compound metal being first made in sheets by applying a sheet of block-

tin, *a*, to one or both sides of a sheet or block of zinc, *b*, Fig. 2, and permanently uniting the pieces in one sheet, which is then cut into blanks formed into leaves, embossed, if required, and the leaves joined in the usual manner. The zinc, while much cheaper than brass, and much more easily worked than iron, possesses the necessary rigidity and strength, which the tin does not; but the latter is capable of a fine and durable polish which could not be imparted to the zinc, and is of a color that could not otherwise be attained except by plating or coating, with the necessary expensive finishing operations, while the face is more durable than is possible where it is obtained by plating or coating, and maintains its color unimpaired by the action of the air or gases.

One of the main advantages of this construction is the readiness with which fine and delicate ornamentation may be imparted to the surface of tin or other soft metal or compound which readily receives impressions from delicately-cut dies operating under a light pressure.

It will be understood that the compound plate, having a thick facing of block-tin, is essentially different from a plated or gilded plate in which the facing-metal can never be applied practically of sufficient thickness to serve the purpose required; and I therefore lay no claim to a plated or gilded hinge.

I claim—

As a new article of manufacture, a hinge, made of a sheet of metal previously formed, having a face of block-tin and an inner sheet or backing of zinc or hard metal, united permanently to the facing-sheet, when the soft tin facing constitutes the outer face of the hinge, as and for the purpose specified.

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

C. E. L. HOLMES.

Witnesses:

C. E. FOSTER,  
COURTNEY A. COOPER.