

UNITED STATES PATENT OFFICE.

CHARLES D. LEET AND HENRY A. CHAPIN, OF SPRINGFIELD, MASS.

IMPROVEMENT IN SHEET METAL.

Specification forming part of Letters Patent No. **188,155**, dated March 6, 1877; application filed February 9, 1877.

To all whom it may concern:

Be it known that we, CHARLES D. LEET and HENRY A. CHAPIN, both of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Double Sheet Metal, from which can be manufactured cartridge-shells, percussion-caps, primers, and other articles usually made from brass or copper, which double-sheet metal is fully described in the following specification.

The object of our invention is to produce for manufacturing purposes a double sheet metal, one side of which shall be brass and the other side copper, said metals being permanently united together before rolling.

For many purposes neither brass nor copper alone answers satisfactorily the requirements for certain objects of manufacture; for instance, cartridge-shells made of either of the before-mentioned metals possess grave faults, which appear to be entirely obviated by making them from sheets of metal composed of the two metals united into one sheet, as hereinbefore described.

The lack of any considerable elasticity in copper has occasioned its rejection by manu-

facturers of certain goods, although its durable qualities made it the most desirable metal for use. Consequently recourse has been had to brass to obtain elasticity and stiffness, but at the expense of durability if exposed to any corrosive action. We have, therefore, produced the double metal, as described, by permanently uniting together ingots, bars, or thick sheets of copper and brass, and afterward rolling them to any desired thickness, so as to combine in a sheet of it the desirable qualities of both metals, and to avoid the objections arising from the use of either metal separately in certain articles of manufacture.

What we claim as our invention is—

As a new article of manufacture, a sheet metal made from pieces of copper and brass permanently united together in ingots, bars, or thick sheets, and rolled to any desired thickness, substantially as and for the purpose set forth.

CHARLES D. LEET.
HENRY A. CHAPIN.

Witnesses:

W. H. CHAPIN,
E. M. SHEPARD.