Why are cartridges usually made of copper and not steel, lead or aluminum?

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Meanwhile, lead is hard enough to deal massive damage but is easily deformed when exposed to high temperatures, so when firing the bullet will expand 3 times larger. This makes the bullet easily obstructed and deflected aiming.

The choice of materials to make cartridges is related to the way the metal reacts under pressure, the ability to return to its original hardness, to resist natural corrosion .

A standard housing must meet two requirements including strong enough to withstand the pressure of firing and must have enough elasticity to return to its original shape after the firing pressure causes it to be slight deformation.

In order to meet the above standard, the shell material must have the ability to flexibly form into the correct shape during the manufacturing process so that when loaded, the bullet gun fits into the cartridge.

Among the metals, brass (an alloy of copper and zinc) is hard enough but has not yet reached the point where sparks can form on hard surfaces. This is an important factor to ensure safety when loading and pressing bullets into the gun. At the same time, copper is also resistant to natural corrosion, helping cartridges to be preserved for a long time (up to several decades).

The combination of the above characteristics of brass makes manufacturers choose it as the material to make cartridges.

However, compared to other metals that can be made into cartridges, copper has a much higher price.