

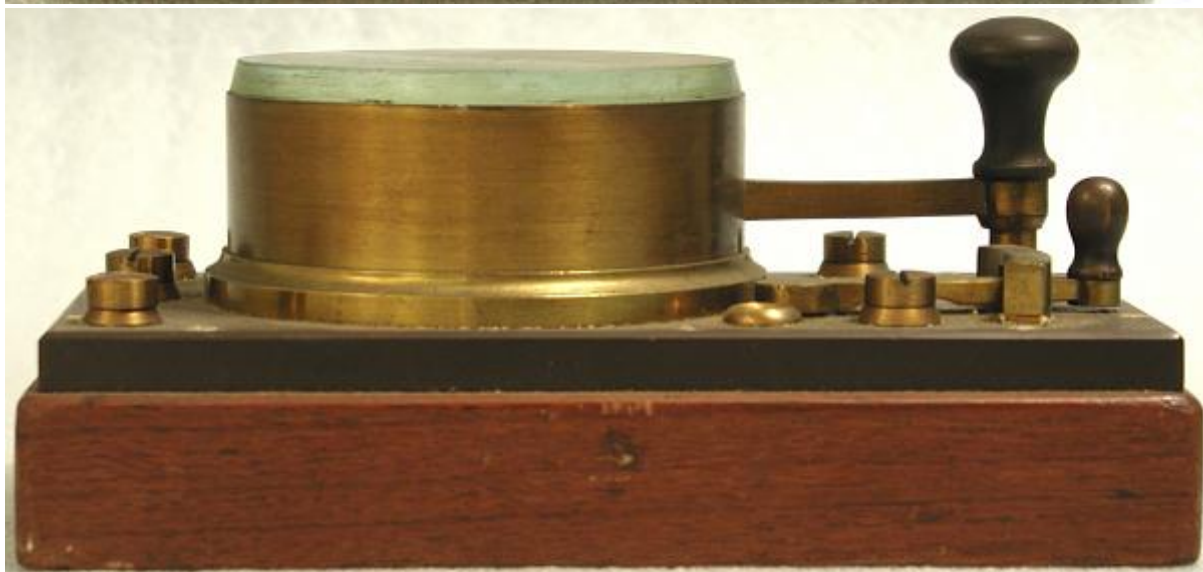
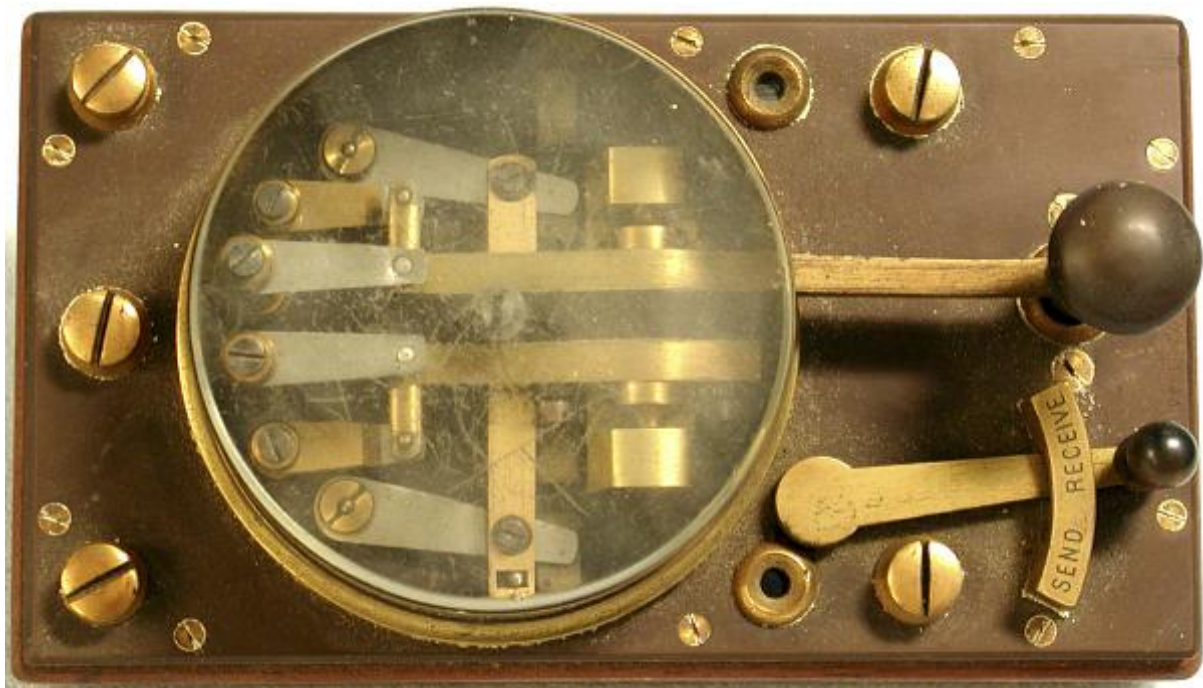
Repair or Restoration? A spark protector for a double-current Morse Key

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A few months ago, I came across an unusual Morse key which had a “Send/ receive” lever and an open set of brass rods.

It turns out that it is a “Double Current key, used in trans-oceanic telegraph circuits. Mine is dated 1914. It’s designed so that the current from the transmitter or receiver can only go one way. It must have had quite a hefty power!

This is the key from the “National Museum of American History” but of an earlier date.



https://americanhistory.si.edu/collections/object/nmah_702110

The blurb says:

“Description (Brief):

Telegraph keys are electrical switches used to send coded messages that travel as a series of electrical pulses through a wire. Due to special difficulties in sending pulses through long underwater cables, so-called double-current keys were used. Instead of the short dots and long dashes of land-line telegraphs, submarine telegraphs sent positive pulses and negative pulses that made the receiver move right or left. The operator pressed one lever on the key to send a positive pulse and another to send a negative pulse. The code consisted of the sequence of left and right movements recorded on a paper tape.

Description (Brief)

This key has a hard rubber base with four mounting terminals across the one end. The lever assembly is mounted in front of these terminals. Both keys have individual adjustment knobs. There are no visible markings. The double key is part of a submarine telegraph testing system mounted on a black-painted wooden base with two switches.”

The problem I had was that my key did not have the brass cylinder with a glass top that protected the operator from sparks. That’s why it was cheap. The seller was apologetic and said that he’d tried to find it but failed.

It sat on the top shelf for a while, but I decided to at least try to make a replacement. You might call it restoration, but I didn’t use original materials. They would have been over 100 years old. I used modern brass, rubber, copper and Perspex, held together with epoxy resin glue and a bunch of solder. So I think it is more of a repair, although perhaps nearly a restoration, as I have mostly used equivalent materials which would have been available at the time – brass, copper and rubber.

I decided to use a ring of rubber 40mm side and 2mm thick, supported by copper rings 1cm wide, with a decorative brass layer 40mm wide on top. The only dimension that was critical was the diameter of the observation “glass” -100 mm.

Here are the pieces gathered together:



These are the 100 mm diameter glass, two of three copper strips bent into rings, and a strip of rubber. The brass was ordered from China.

Step 1 was to build the ring according to the diameter of the Perspex.



I used epoxy resin on the copper strip and left it to dry overnight while clipped together. Crucially, I left a lip approximately 2mm deep at the top between the rubber and the copper. This is where the Perspex would go,



At the bottom (you can just see this at about 1 o'clock on the circle) there will be a cut-out for the arm of the key.



Here you can see how the cut-out lies between the lower and central rings.



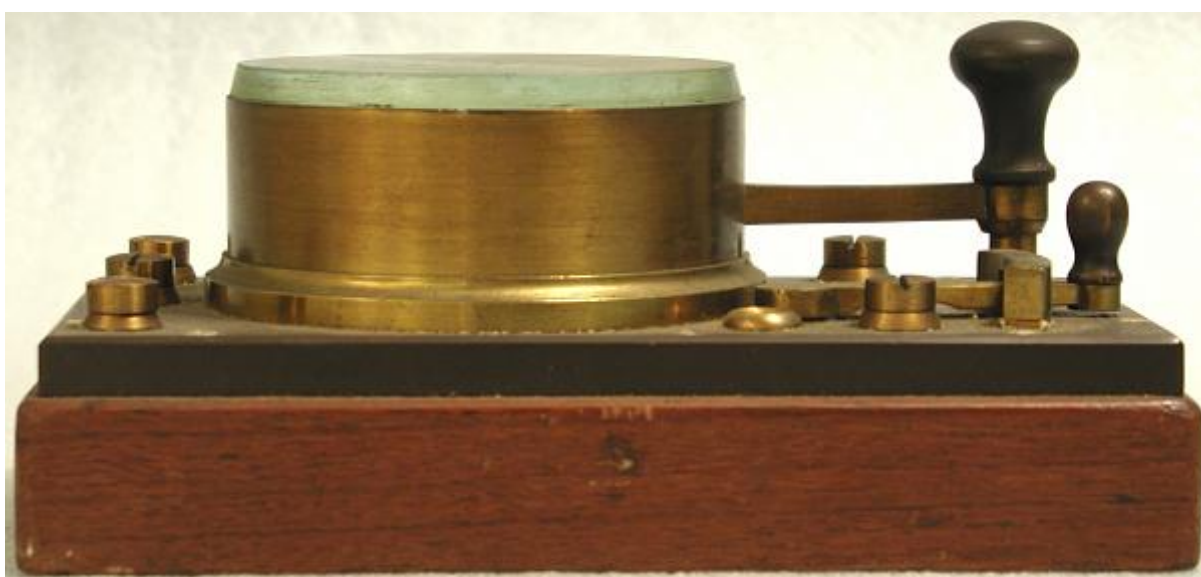
The protector cylinder is now resting on the lower ring. Actually, it doesn't fit very well, the diameter isn't quite right.



The brass has arrived! It is in a very tight coil, so I have opened it out and left it overnight stressed by an elastic band and the pegs again.



So here is the final item in its best orientation (there is a rather ugly solder seam to the rear).
As a reminder, this is the one in the NAMH:



It's not too bad for a project in the cold weather! And it will of course send Morse. But I'm sure **you** can do better...

73 de Andy GOSFJ