

## Application No. 8: Straightening out brass instruments

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### That's how dented tubas or the like can be whipped into shape again

Roberto from Italy repaired his dented brass instrument on his own with the help of super magnets.

To do so, he used our largest magnetic hook FTN-63 ([www.supermagnete.nl/eng/FTN-63](http://www.supermagnete.nl/eng/FTN-63)) as well as a large disc magnet ([www.supermagnete.nl/eng/S-45-30-N](http://www.supermagnete.nl/eng/S-45-30-N)).

The hook provided him with a reasonable grip which the disc alone cannot offer.

Here you see the dented Euphonium.

Then he let a steel ball, somewhat smaller than the dent, roll into the instrument. The steel ball naturally "attached itself" through the instrument to the magnet. He then moved the magnet back and forth over the brass where the instrument was dented, and with time the steel ball pushed the dent outwards.

To ensure that the instrument would not be scratched, he placed a drumskin between the instrument and the magnet and applied some oil on both the drumskin and the instrument.



This is how the repaired instrument looks. All dents have fully vanished.



In this case a larger instrument will be repaired: a tuba.





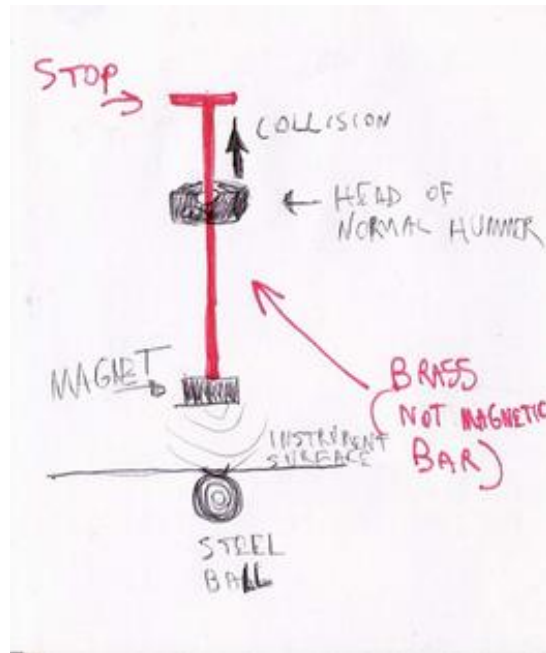
before



after

It's amazing how well it works!

To remove the dents on the hard parts of the instrument, Roberto developed a "reverse hammer". It is made of a non-magnetic rod (e.g. copper) with a movable heavy metal block on it's axis (e.g. the head of a normal hammer), a magnet on one end of the rod and a stopper on the other end (see drawing). When the hammerhead hits the stopper, a part of the resulting energy is transported through the magnet to the steel ball within the instrument, which "hammers" the dent from the inside.



reverse hammer

After Roberto had practised the technique a bit on his older instruments, he went to work on his 10'000-Euro concert tuba (Besson Sovereign 994 in BBb).



With success, as we see!



### Articles used

1 x FTN-63 ([www.supermagnete.nl/eng/FTN-63](http://www.supermagnete.nl/eng/FTN-63))

1 x S-45-30-N ([www.supermagnete.nl/eng/S-45-30-N](http://www.supermagnete.nl/eng/S-45-30-N))

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