PERMANENT MAGNETIC CHUCK WITH NON-MAGNETIC BARRIER CHANNEL FOR HOLDING MAGNETIC PACK

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INVENTOR.

ALBERT T. CHURCHILL

ATTORNEYS
This application relates to work holders known as magnetic work holders, one example of which is shown in the patent to Bower No. 2,053,177.

An object of the invention is to provide a magnetic work holder containing in addition to the conventional parts, a barrier member of non-magnetic material which insures maximum shut-off of magnetic flow between magnetic blocks and pole pieces of a magnetic pack and the magnetic strips of a grid or cover.

Further objects and advantages of the magnetic work holder disclosed in the appended drawing may be obtained by reference to the following description which refers to such drawing.

In such drawing:

FIG. 1 is a longitudinal section view of a magnetic holder of the invention, as if on line 1—1 of FIG. 2.

FIG. 2 is a transverse view as if on line 2—2 of FIG. 1.

FIG. 3 is a top plan view.

The attached drawing shows a magnetic work holder having a non-magnetic, such as aluminum, casing 10 which receives the parts of the work holder and whose open top is covered by a fixed grid or cover 11. The latter has alternate magnetic and non-magnetic transverse strips 13 and 14. Inside the casing and under the grid 11 is a longitudinally shiftable assembly which is generally called a magnetic pack 15 which includes alternate block magnets 16 and magnetic pole pieces 17. The polarity of magnets 16 is indicated by letters N-S on FIG. 1.

The magnetic pole pieces 17 of the box fit with close clearance against the underside of the grid or cover, but the magnets 16 between the pole pieces 17 have their upper ends spaced considerably from the underside of the grid.

Within the casing are provided means of conventional form not here disclosed for longitudinally shifting the pack.

Under the pack 15 is a non-magnetic barrier 18.

Under the barrier 18 and fixed upon the bottom of the casing is a magnetic bottom plate 20. The open top casing 10 which receives all of the foregoing parts is covered by the grid or cover 11.

With the exception of the non-magnetic barrier 18 under the movable pack, all of the foregoing parts and the combination thereof are acknowledged to be old.

The novel element in the combination is the non-magnetic barrier 18. This is formed of non-magnetic steel and is in the form of an open top channel, in which the pack 15 is securely and fixedly mounted as by a friction fit so that the barrier 18 and the pack 15 are shiftable as a unit for aligning or misaligning the pole pieces 17 with the magnetic strips 13 of the grid or cover. When the magnetic pack 15 is moved longitudinally to misalign the pole pieces 17 with the magnetic strips 13 of the grid and to align the pole pieces 17 with the non-magnetic strips 14 of the grid, the work holder is intended to release the work lying on the grid. The barrier 18 of non-magnetic material between the magnetic bottom plate 20 and the magnetic pack 15 operates to insure maximum shut-off of magnetic flow between the pole pieces 17 and the magnetic strips 13 of the grid.

Now having described the magnetic work holder here disclosed, reference should be had to the claims which follow.

1. A magnetic workholder comprising an open top casing; a fixed grid on said casing having alternate magnetic and non-magnetic transverse strips; a fixed magnetic bottom plate on the bottom of the casing; and a longitudinally shiftable magnetic pack in said casing on said magnetic bottom plate comprising alternate block magnets and magnetic pole pieces; the improvement comprising a non-magnetic barrier under said pack and located between the pack and the magnetic bottom plate; said barrier being in the form of an open top channel in which the pack is securely and fixedly mounted so that the barrier and pack form a unit and shift together.

References Cited in the file of this patent

UNITED STATES PATENTS

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2,947,921 Watelet ---------------- Aug. 2, 1960