Dec. 25, 1951 C. O. JAEGER 2,580,099

DOUBLE MAGNETIC HOLDING DEVICE

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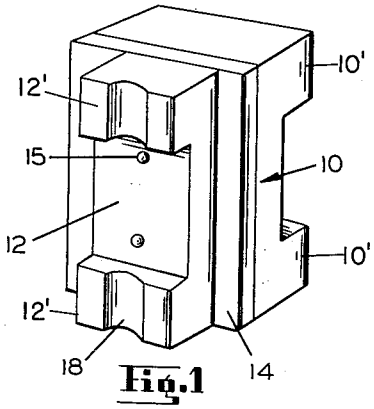

Fig. 1

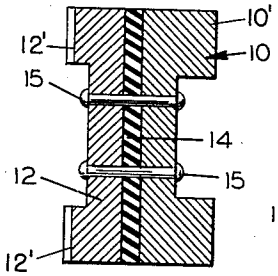

Fig. 2

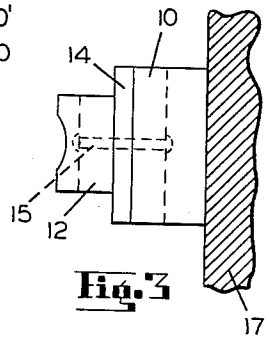

Fig. 3

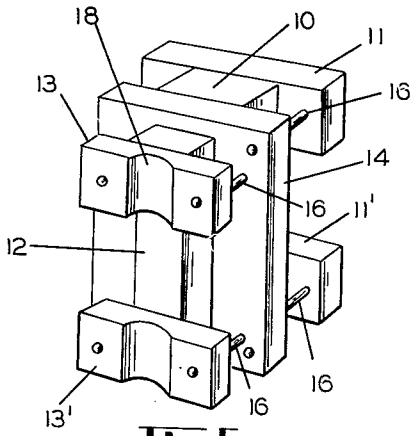

Fig. 5

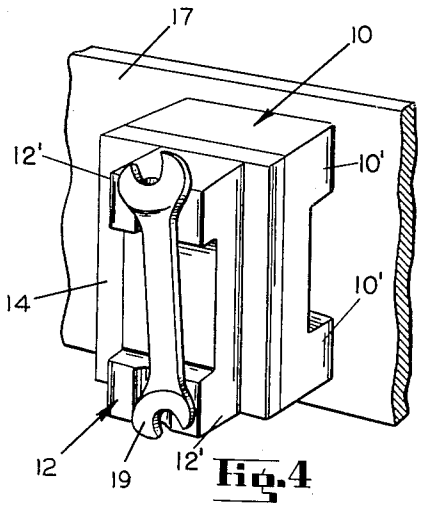

Fig. 4

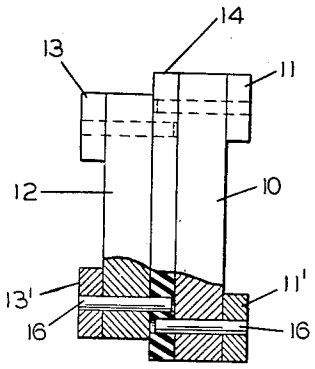

Fig. 6

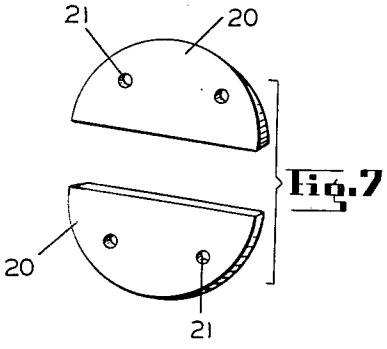

Fig. 7

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DOUBLE MAGNETIC HOLDING DEVICE

Clemens O. Jaeger, Milwaukee, Wis.

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2 Claims. (Cl. 175—367)

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My invention relates to improvements in magnetic supports and more particularly to a magnet for supporting small tools and the like.

It is manifest to anyone familiar with the use of machine tools that there are occasions when small wrenches, keys, or special tools are used in adjusting the chucks or the like on the machine tools and that it is imperative that these accessories and tools be made readily available to the operator thereby eliminating lost motion in the performance of the operation.

The object of my invention is to provide a device that is constructed of two permanent magnets attached to one another thereby permitting one of the magnets to support the assembled device magnetically, to the surface of a metal portion of a machine tool and having the other magnet constructed in a manner to support the tools or accessories in an accessible manner for the convenience of the operator.

Another object of my invention is to provide a device of the character described that may be arranged to act as a support for small parts such as bolts, nuts, cotter pins, small stampings and the like, made of magnet attracting metal, to make them readily accessible for an assembly operation or when disassembling a unit.

Still another object of my invention is to provide a device that may be constructed to any shape or contour to fit the particular purpose for which it is intended.

The device is easy and economical to manufacture and may be employed for many purposes.

Other and further objects of my invention will become more apparent as the description proceeds when taken in conjunction with the drawings in which:

Figure 1 is a perspective view of an assembled unit showing the two magnets spaced apart from one another with a non-magnetic spacer plate and held in an assembled position by a pair of non-magnetic rivets.

Figure 2 is a cross-sectional view of the device shown in Figure 1.

Figure 3 is a top view of the assembled device as shown in Figure 1, magnetically held in position on the face of a portion of a machine tool shown in cross-section.

Figure 4 is a perspective view of the device as shown in Figure 1, held in a fixed position on a plate forming a part of the machine tool, and illustrating the manner in which a double end wrench is supported by the device.

Figure 5 is a modified form of the device showing the magnets constructed of a plurality of

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sections, and supported by non-magnetic pins.

Figure 6 is a side view of the device as shown in Figure 5 with a portion shown in cross-section and

Figure 7 is a composite perspective view of a pair of semi-circular service plates for attaching to the auxiliary magnet forming a part of the device.

Similar characters of reference indicate corresponding parts throughout the several views and referring now to the same, the character 10 shows a master magnet of U-shaped formation providing respective legs 10' extending outwardly at right angles to the body of the magnet, the magnet being constructed of a single piece of any suitable material, preferably an aluminum nickel alloy, commercially referred to as "Alnico," which maintains a strong magnetic field and retains its magnetism for a long period of time. Obviously the master magnet may be of one piece or may be constructed of laminations, or may consist of a plurality of separate parts such as are shown by the characters 11 and 11' in Figures 5 and 6.

There is also an auxiliary magnet shown as 12 which may be of similar construction having respective legs 12', either one piece as shown in Figure 1, or it may be laminated, or may be provided with separate contact pieces as shown by the characters 13 and 13' in Figures 5 and 6.

The master magnet 10 and the auxiliary magnet 12 are insulated and separated from one another by a non-magnetic plate 14, and both magnets may be held together as a unit by means of non-magnetic metal rivets as shown at 15 in Figures 1, 2 and 3, or by separate non-magnetic rivets as shown by the character 16 in Figures 5 and 6, or they are attached to the non-magnetic spacer plate 14.

It is imperative that the master magnet 10 be greater magnetically than the auxiliary magnet 12. The reason for this is quite obvious as inasmuch as the master magnet 10 functions as a retaining means for supporting and holding the entire assembled unit to a surface forming a part of a machine tool or the like, as indicated by the character 17 on the drawing, it is also manifest that the attaching surface of the master magnet 10 may be of any shape or contour, flat, oval or corrugated to suit the particular purpose.

The auxiliary magnet may be provided with grooves 18 as shown in Figure 1, or may be flat to support any metal article such as a wrench shown as 19 in Figure 4, or it may be arranged for supporting contact plates as shown by the

characters 20 in Figure 7, by applying screws through the apertures 21, or in any other convenient and efficient manner for fastening the plates to the auxiliary magnet.

The magnetic resistance of the auxiliary magnet 12, being less than the master magnet 10, permits the removal of parts or tools from the face thereof without danger of displacing or disengaging the entire unit from the attachment to the machine tool, and it is therefore advantageous to have the magnetic power of the master magnet at least three or four times greater than the auxiliary magnet.

By placing the two magnets in a manner whereby the north poles of each of the magnets are adjacent and in alignment with one another, they will not be attracted to one another and will permit them to spend their entire energy for the purpose of which they are intended, mainly the master magnet will use all its energy for supporting the assembled device to the magnet attracting surface of a machine tool or the like, while the auxiliary magnet would spend all its energy in supporting tools or small parts thereon.

If the unlike poles of the two magnets are placed in alignment with one another, the attraction of the master magnet for the auxiliary magnet would be so great that the auxiliary magnet would have little or no energy left for supporting tools or the like.

It is further manifest to anyone familiar with the art, that the device cannot be applied to a non-magnetic surface nor can it be employed to support parts and tools constructed of a non-magnetic metal.

In the chosen embodiments of my invention, there are features not heretofore revealed in the prior art and although I have shown and described the particular arrangement of the component parts constituting the device, I am fully cognizant of the fact that there may be changes made in their form and configuration without affecting their operativeness, and I reserve the right to make such changes as do not depart from the spirit of my invention or the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent in the United States is:

1. A magnetic support of the character described comprising a master magnet and an auxiliary magnet arranged in parallel spaced relation, a non-magnetic plate interposed between said magnets, said non-magnetic plate being in contact with said magnets, non-magnetic means for securing said magnets and said non-magnetic plate together, said auxiliary magnet being of substantially less magnetic power than said master magnet, and the poles of said magnets being arranged in repelling juxtaposition with one another.

2. A magnetic support of the character described comprising a master magnet of U-shape construction and an auxiliary magnet of U-shaped construction, said magnets being arranged in spaced parallel relation, a non-magnetic plate interposed between said magnets, said non-magnetic plate being in contact with said magnets, said magnets having respective legs extending outwardly at right angles to the body of said magnets and said non-magnetic plate, non-magnetic means for securing said magnets and said non-magnetic plate together, said auxiliary magnet being of substantially less magnetic power than said master magnet, and the poles of said magnets being arranged in repelling juxtaposition with one another.

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