

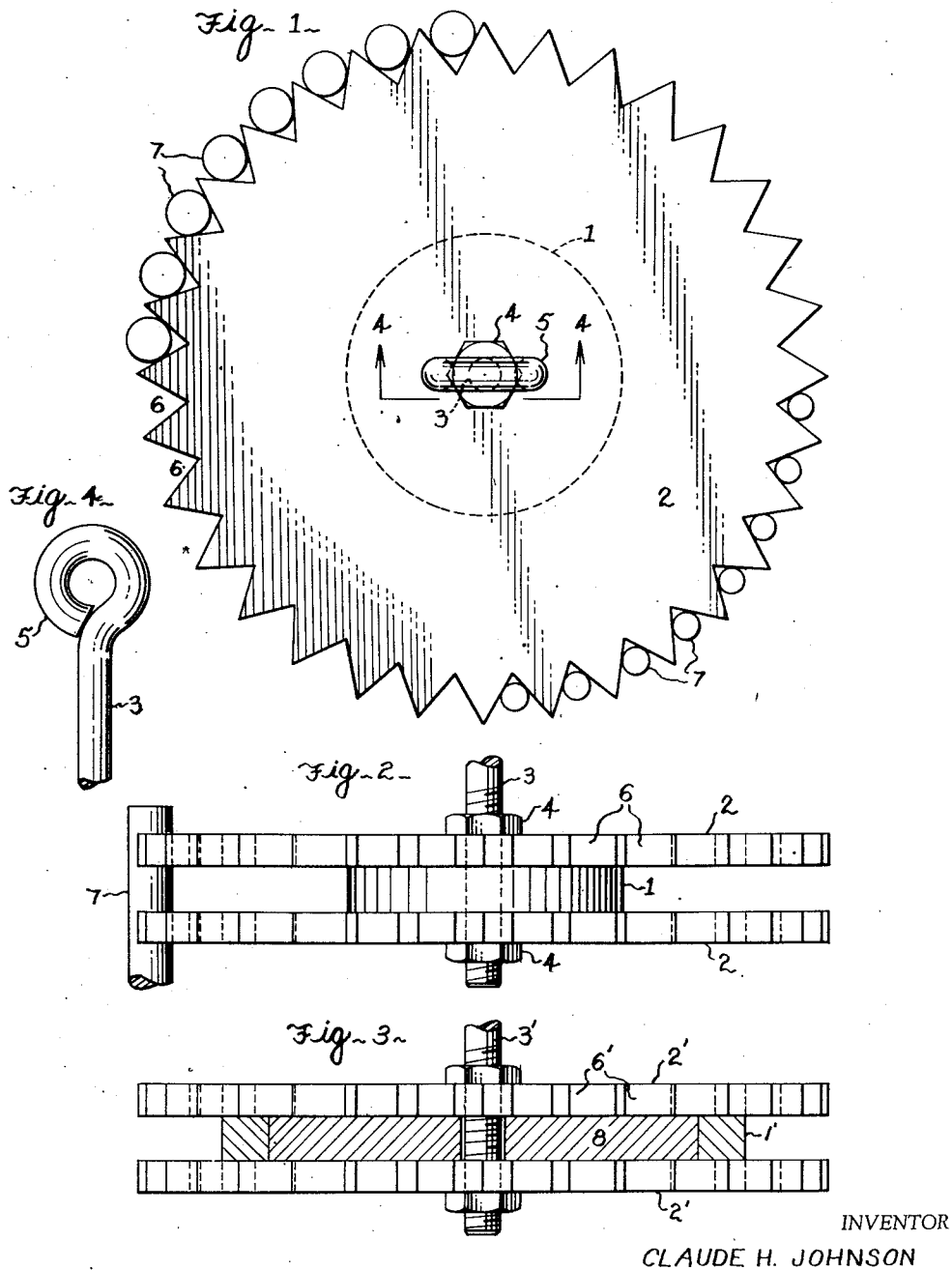
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MAGNETIC WORK HANGER

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1

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MAGNETIC WORK HANGER

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7 Claims. (Cl. 294—65.5)

This invention relates to magnetic work supports and particularly to hangers for magnetically suspending work.

An object of the invention is to clamp a magnet between duplicate upper and lower magnetizable plates serving as pole-pieces, and to marginally form such plates with notches so aligned on the two plates as to receive and vertically dispose elongated iron or steel work pieces, such as will be attracted to said plates.

Another object is to give said marginal notches a V form adapting them to readily receive work pieces considerably varying in diameter.

Another object is to extend centrally through the magnet and plates the lower portion of an elongated hanger rod, and to provide elements on the rod for clamping the magnet firmly between the plates, thus minimizing resistance to magnetic flux.

Another object is to form the magnet as an annulus coaxial with the plates and closely adjoining their notched margins, thus minimizing the length of the magnetic circuit.

Another object is to position within an annulus formed by the magnet a nonmagnetic plate establishing the coaxial relation of the annulus to the plates and maintaining parallelism of the plates under clamping stress.

These and various other objects are attained by the construction hereinafter described and illustrated in the accompanying drawing, wherein:

Fig. 1 is a top plan view of my magnetic hanger, showing work carried thereby.

Fig. 2 is a side elevational view of the same.

Fig. 3 is a diametrical sectional view of a modified construction.

Fig. 4 is a fragmentary elevational view showing the upper end portion of a hanger rod.

In Figs. 1 and 2, the reference character 1 designates a permanent magnet of cylindrical form having smooth parallel top and bottom faces. Engaging said faces are the central portions of a pair of parallel duplicate upper and lower magnetizable circular plates 2, considerably exceeding the magnet in diameter. Extended centrally through the plates and magnet is the lower end portion of a vertically elongated rod 3, such portion being threaded to receive nuts 4 tightly clamping the plates against the magnet. The upper portion of the rod 3 forms an eyelet 5 or the like to engage any suitable support. It is preferred to form the rod 3 of a non-magnetizable material such as aluminum or copper. The margins of the plates 2 are similarly formed throughout their extent with V-shaped notches 6 for at least partially receiving the upper portions of elongated cylindrical work pieces 7, such portions serving as armatures closing magnetic circuits between the pole pieces and adhering strongly to the latter. The notches of the two plates are in accurate vertical registration and hence maintain the work pieces vertical and uniformly spaced. It is evident that the notches, due to their V-form may receive and properly position work pieces of various different diameters. Thus in Fig. 1 there is shown at one

2

side of the device a number of supported pieces materially smaller than those appearing at the other side.

In the modification shown in Fig. 3, the magnet 1' forms an annulus coaxial with the plates 2', such annulus being spaced only a short distance inward from the notched margins 6' of the plates. Consequently the magnetic circuit is materially shorter than that established in the first-described construction and magnetic energy is conserved. In this modification, a disk 8 of aluminum or other nonmagnetic material is fitted within the magnet to center the latter at the axis of the plates, said disk having substantially the same thickness as the magnet and hence receiving a portion of the clamping stress exerted by the nuts 4'. Thus said disk avoids any yielding of the mid portions of the plates under clamping stress.

The described device in either of its illustrated forms is suited to carry a large number of elongated iron or steel work pieces, so suspending such pieces that they may be concurrently heat treated or submerged in an electro-plating bath, or may be dip-painted. The magnetic nature of the device permits work to be applied thereto or removed therefrom with great rapidity, eliminating expense of latches or other fastening devices. Since a definite number of pieces are carried by the device when all of the notches are used, it is necessary only to multiply such number by the number of successive uses of the device to compute the total of pieces subjected to any certain treatment.

What I claim is:

1. A magnetic work hanger comprising a magnet having parallel end faces, a pair of magnetizable plates seated centrally thereof against said end faces and spaced apart by the magnet, a hanger rod extending centrally through and upwardly extending from said magnet and plates, and means on said rod for clamping the plates firmly against the magnet, said plates having their margins similarly notched toward their centers to receive the upper ends of workpieces.

2. A magnetic work hanger as set forth in claim 1, said magnet being cylindrical and said plates being circular and coaxial with the magnet and similarly exceeding the magnet in diameter.

3. A magnetic work hanger comprising an annular magnet having parallel end faces, a nonmagnetizable disk fitted in said magnet, a pair of parallel magnetizable plates seated against said end faces and spaced apart jointly by the magnet and disk, said plates having margins outwardly extending beyond the magnet and notched to receive work pieces, the notches of each plate being registered with those of the other plate to establish parallelism between said work pieces, a hanger rod extending centrally through and also upwardly from said disk and plates, and means on the rod for clamping the plates firmly against the magnet.

4. A magnetic work hanger comprising an annular magnet having parallel end faces, a pair of substantially circular parallel magnetizable plates seated against said end faces and spaced apart by the magnet, means establishing and maintaining a coaxial relation between the magnet and plates, the plates having margins outwardly extending beyond the magnet and notched to receive work pieces, the notches of each plate being registered with those of the other plate to establish substantial parallelism between the work pieces, a hanger rod extending centrally through and projecting upwardly from the magnet and plates, and means on such rod for clamping the plates firmly against the magnet.

5. A magnetic work hanger comprising a magnet having parallel end faces, a pair of magnetizable plates seated centrally thereof against said end faces and spaced apart by the magnet and having their margins similarly

3

notched toward their centers to receive the upper ends of elongated work pieces, the notches of each plate being registered with those of the other plate to establish parallelism between and spacing of the workpieces, a hanger rod extending centrally through and upwardly from said magnet and plates, and means on said rod for clamping the plates firmly against the magnet.

6. A magnetic work hanger as set forth in claim 5, said notches being substantially V-shaped and forming on each plate a series coextensive with the margin of such plate.

7. A magnetic work hanger comprising a magnet having parallel end faces, a pair of magnetizable plates seated centrally thereof against said end faces and spaced apart by the magnet and having their margins outwardly extending beyond the magnet and notched to receive

4

elongated workpieces, the notches of each plate being similarly registered with those of the other plate to establish parallelism between the workpieces, and suspension means for the magnet and plates including means for maintaining their assembly.

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