

B. M. W. HANSON.
MAGNETIC CHUCK.
APPLICATION FILED NOV. 17, 1910.

1,003,900.

Patented Sept. 19, 1911.

Fig. 1.

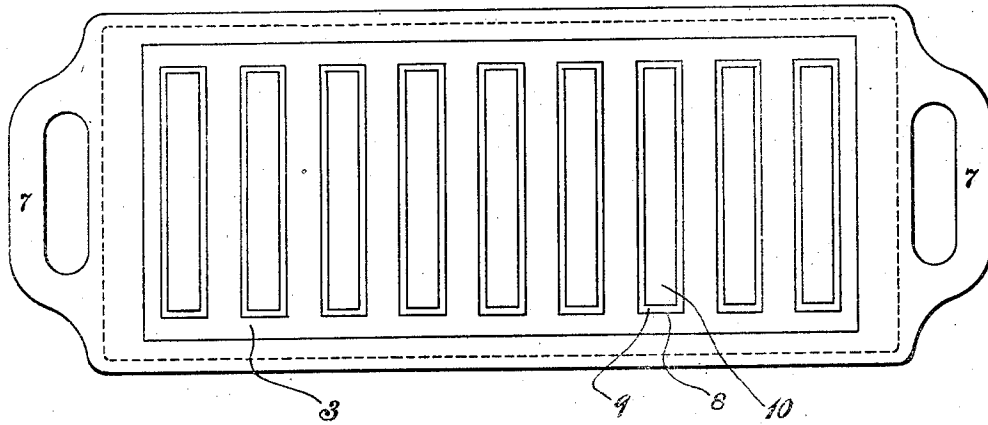


Fig. 2.

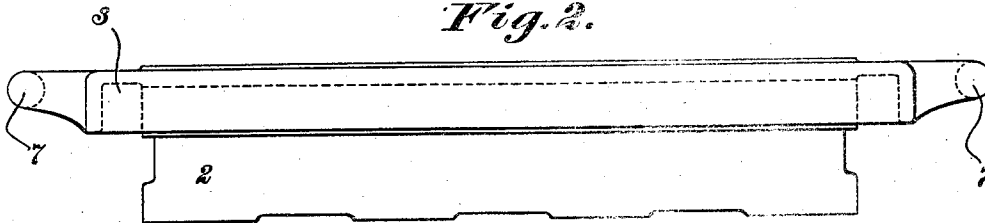


Fig. 3.

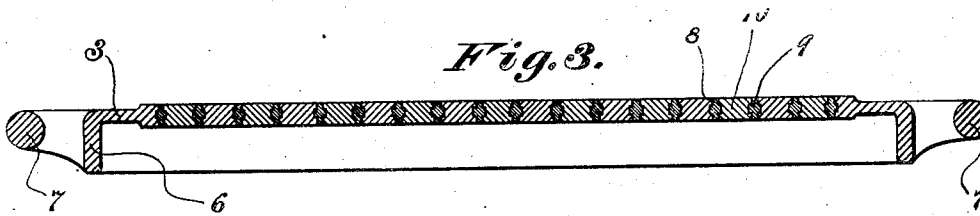
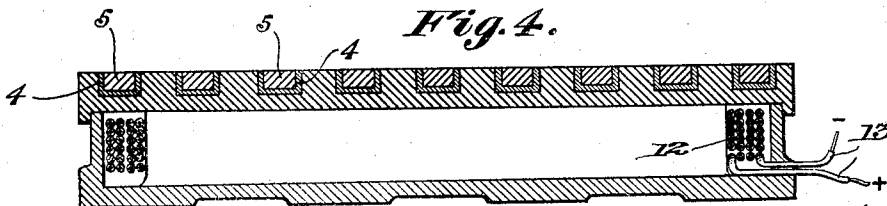


Fig. 4.



Witnesses:

L. L. Markel.
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Inventor:

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UNITED STATES PATENT OFFICE.

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MAGNETIC CHUCK.

1,003,900.

Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed November 17, 1910. Serial No. 592,837.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Magnetic Chucks, of which the following is a specification.

This invention relates to magnetic chucks.

A chuck involving my invention comprises two principal sections, a primary one which is preferably connected with a source of electrical energy and a secondary section. The primary section constitutes in effect the magnet proper of the device, and while, as intimated, it is preferably connected with a source of electrical energy, it is conceivable that the action might be obtained by a permanent magnet. The secondary section acts as an armature for the main section, or as a supplemental magnet, in that the lines of magnetic force traverse this secondary section and attract the work or maintain the same rigidly thereon when the chuck is in action. From this observation it will be evident that the secondary section constitutes the work support of the chuck, and the invention consists broadly in a bodily removable secondary or work supporting section, and an important advantage follows this, in that when one secondary section is in use or in operative relation with the primary section, another secondary section may have the work mounted thereon, and when the work on what is for the time being the operative secondary section has been finished, it may be removed while the other secondary section with the work thereon, can be put in place on the primary section, and in this way a great saving in time can be effected. It will be clear that I employ the terms primary and secondary simply as a matter of convenience, as I do not wish to convey the idea that one is subordinate to the other.

In the drawings accompanying and forming part of the present specification I have represented in detail a magnetic chuck embodying my invention, and the same will be set forth fully in the following description, so that those skilled in the art can practice the invention. It will be understood, however, that I do not restrict myself to such showing, as I may depart therefrom in sev-

eral respects within the scope of my invention as set forth in the appended claims, it being evident that said invention comprehends broadly the provision of a sectional magnetic chuck wherein the work supporting or carrying section is bodily removable or separable from the companion section.

Referring to said drawings: Figure 1 is a top plan view of said chuck. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal section of the secondary section of the chuck, and, Fig. 4 is a similar view of the chuck showing the magnet therein.

Like characters refer to like parts throughout the several figures.

In the construction illustrated the primary section or body of the chuck is denoted by 2 and the secondary section thereof by 3. Said primary section presents the magnet proper of the chuck and in its upper face as illustrated, is countersunk a series of channel-like members 4 of some non-magnetizable material such as Babbitt metal, and in these channeled parts are set the blocks 5 which are flush with the upper surface of the chuck body or primary section 2, the construction described being such as to divide the main magnetic field into a series of sub-fields of practically U-form.

The secondary section 3 is magnetizable and is represented as consisting of a plate shown provided with a downturned marginal flange 6, which incloses or surrounds the upper portion of the chuck body or primary section 2. The said upper section 3 may be provided as shown with handles 7 at the ends, for example, to facilitate its manipulation. In the present case the work is supported on the upper surface of the secondary section, it being held thereon by magnetic action when said section is in the magnet field (or fields) of the companion section 2, it being assumed that at this time the primary section or magnet proper 2 is energized. The secondary or work supporting section 3 of the chuck is shown having extending transversely thereof several elongated slots 8 and in said slots are preferably fitted members 9 of approximately loop-form to receive the blocks 10, said blocks being rigidly connected with the members 9 in some suitable manner for instance by tongue and groove joints, while as a matter of convenience the members 9 are

similarly connected with the opposite side walls of the respective slots 8. In practice the sides of the members 9 rest on the sides of the channeled members 4, the superficial area of the respective parts being in the present case equal, and to facilitate this adjustment the engaging faces of the members 2 and 3 are flat. The upper surface of the member 3 is also flat, the several members 9 and blocks 10 being in the same plane with the upper surface of said member 3, and owing to this construction, the work can be slid along the active upper face of the member 3.

By the construction of the upper member 3 in the manner described and by which the members 9 are in register with the parts 4 and the blocks 10 in coincidence with the blocks 5, the submagnetic fields to which I have referred are in no wise broken by reason of which I am enabled to obtain the best possible holding effects. I might add that the magnetizable portion of the removable section 3 are the bars thereof between the slots 8.

The primary section or body 2 of the chuck incloses an electromagnet 12, the coil of which is connected with a dynamo or equivalent source of electrical energy by virtue of which when said magnet is energized a magnetic field is set up within said body, such field being divided into sub-fields, as it were, of approximately U-shape, by the non-magnetizable portions of the body and removable auxiliary section to which I have already referred. It will be apparent that when this magnet 12 is energized, the auxiliary or secondary section will be held

in place simply and solely by magnetic attraction so as to avoid the necessity of bolts or other fastenings for such purpose.

What I claim is:

1. A magnetic chuck comprising a main section having a magnet, and a secondary section attractable by the main section when the magnet thereof is energized, said secondary section constituting the work support of the chuck, being bodily separable from the primary section and being held in place on the main section solely by the attraction of the energized magnet.

2. A magnetic chuck comprising a main section having a magnet, and a secondary section attractable by the magnet of the main section when said magnet is energized, constituting the work support of the chuck, being also magnetizable to attract the work, being bodily separable from the primary section said secondary section being held in place solely by the attraction of said magnet when the latter is energized.

3. A magnetic chuck comprising a main section or magnet proper, and a secondary section attractable by the primary section on the energization of the latter, the secondary section constituting the work support of the chuck, being bodily separable from said primary section and having a depending flange inclosing said primary section.

In testimony whereof I affix my signature in presence of two witnesses.

BENGT M. W. HANSON.

Witnesses:

W. A. STORRS,

LILLIAN E. JONES.