

G. KRÖHNE.
MAGNETIC LIFTING APPLIANCE.
APPLICATION FILED JAN. 22, 1912.

1,047,954.

Patented Dec. 24, 1912.

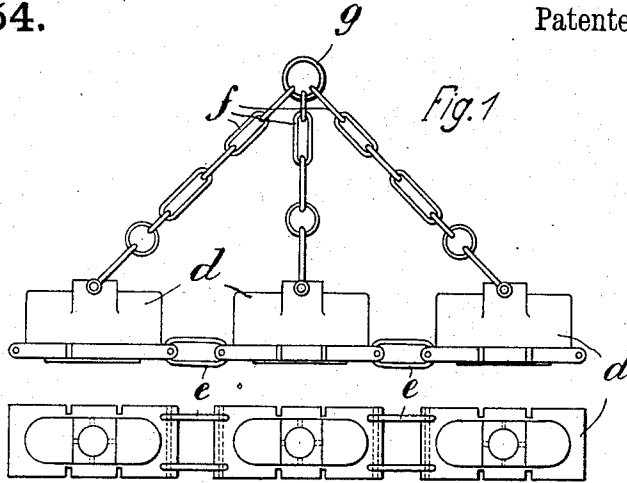


Fig. 2.

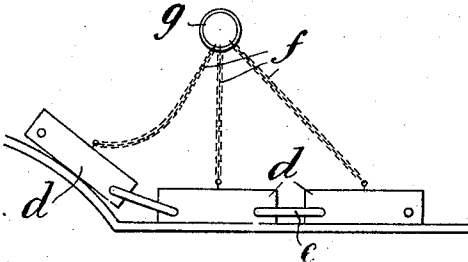


Fig. 3.

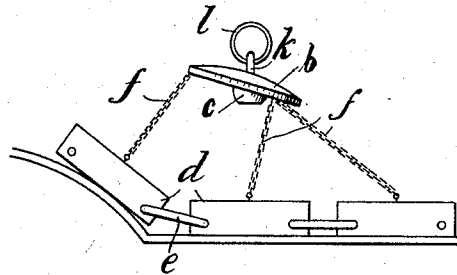


Fig. 4.

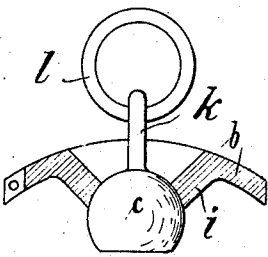


Fig. 5.

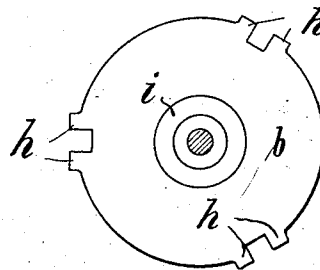


Fig. 6.

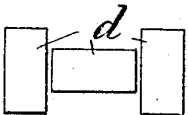


Fig. 7.

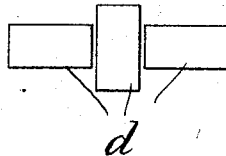
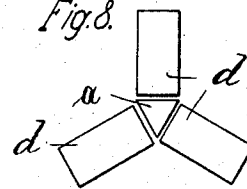


Fig. 8.



Witnesses

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MAGNETIC LIFTING APPLIANCE.

1,047,954.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GUSTAV KRÖHNE, a subject of the Emperor of Germany, residing at Duisburg, Germany, have invented certain Improvements in Magnetic Lifting Appliances, of which the following is a specification.

The present invention relates to a magnetic lifting apparatus and consists in the provision of a plurality of magnets which are linked together and carried by chains so as to allow of being adjusted to the outlines of the bodies to be operated upon.

In the accompanying drawings the invention is illustrated by way of example, Figure 1 representing a side view and a plan of three rectangular magnets which are connected in alinement, Fig. 2, a side view of the same on a reduced scale and in operative position, Fig. 3, a side view showing a device for equalizing the tension of the chains, Fig. 4, a sectional view, on an enlarged scale, of said equalizing device, Fig. 5, a plan of the same, and Figs. 6 to 8, diagrammatic views showing the magnets in different combinations.

The electromagnets *d* are interconnected by links *e* and are also electrically connected either in parallel or in series. In accordance with the nature of the articles operated upon, the arrangement may either be that shown in Figs. 1 to 3, or any other suitable one, for instance any of those shown in Figs. 6 to 8. If a star or like formation should be desired, a suitably shaped magnet or connecting piece *a* is placed in the center as shown in Fig. 8.

The separate magnets are carried by chains *f* the free ends of which are connected to a common hoisting chain or cable. This connection may be effected by means of a ring *g*, as shown in Figs. 1 to 3, in which case the chains *f* must be adjusted in length so as to equalize the tension and prevent sagging, such as indicated in Fig. 2, if the magnet system is applied to an uneven surface. The tension of the chains may also be equalized automatically by the device shown in Figs. 3 to 5 which device consists of a domed

disk *b* having at its circumference ears *h* between which the free ends of the chains *f* are secured at equal distances apart. In the center of the disk *b* a funnel-shaped depression *i* is provided which is slotted in its deepest portion so as to form a seat for a spherical body *c* on which the disk is supported. The body *c* is connected by an eyed shank *k* and a ring *l* to the hoisting cable. This arrangement, which is shown diagrammatically in Fig. 3, enables the magnet system to be applied indiscriminately to objects of varying, irregular shapes, since the disk *b* adjusts itself automatically on the body *c*, as shown in Fig. 3, in accordance with the position of the magnets. In this manner a firm grip on the articles is always obtained irrespective of their shape.

The disk *b* may be star-shaped instead of circular as shown. The number of magnets employed in the system and also the shape of the magnets may be varied according to requirements.

I claim:

1. In a magnetic lifting apparatus, a plurality of magnets, links connecting the same, and chains connecting each magnet separately with a common hoisting cable, substantially as and for the purpose set forth.

2. In a magnetic lifting apparatus, a plurality of magnets, links interconnecting the same, chains connecting the separate magnets to a common hoisting cable, and means for automatically equalizing the tension of said chains, substantially as and for the purpose set forth.

3. In a magnetic lifting apparatus, a plurality of magnets, links interconnecting the same, a spherical body connected to the hoisting cable, a disk supported on said spherical body so as to allow of taking up different angular positions thereon, and chains connecting the separate magnets with the rim of said disk, substantially as and for the purpose set forth.

GUSTAV KRÖHNE.

Witnesses:

FRANZ HILGERT,
FRIEDRICH FIX.