F. A. SCHOENLE.

MAGNETIC LATCH.

APPLICATION FILED APR. 18, 1914. RENEWED DEC. 1, 1915.

1,167,318. Patented Jan. 4, 1916.

Fig. 1

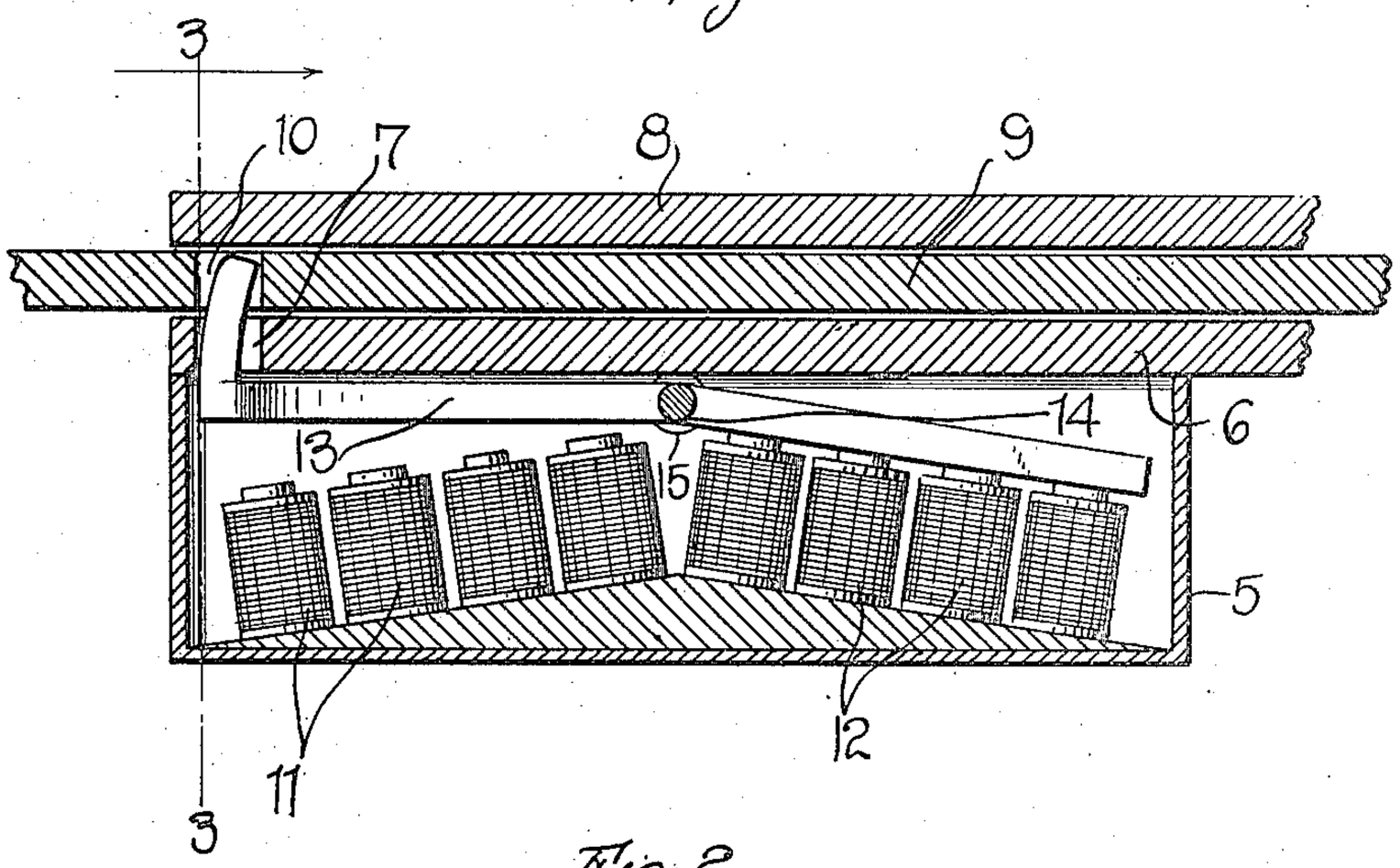


Fig. 2

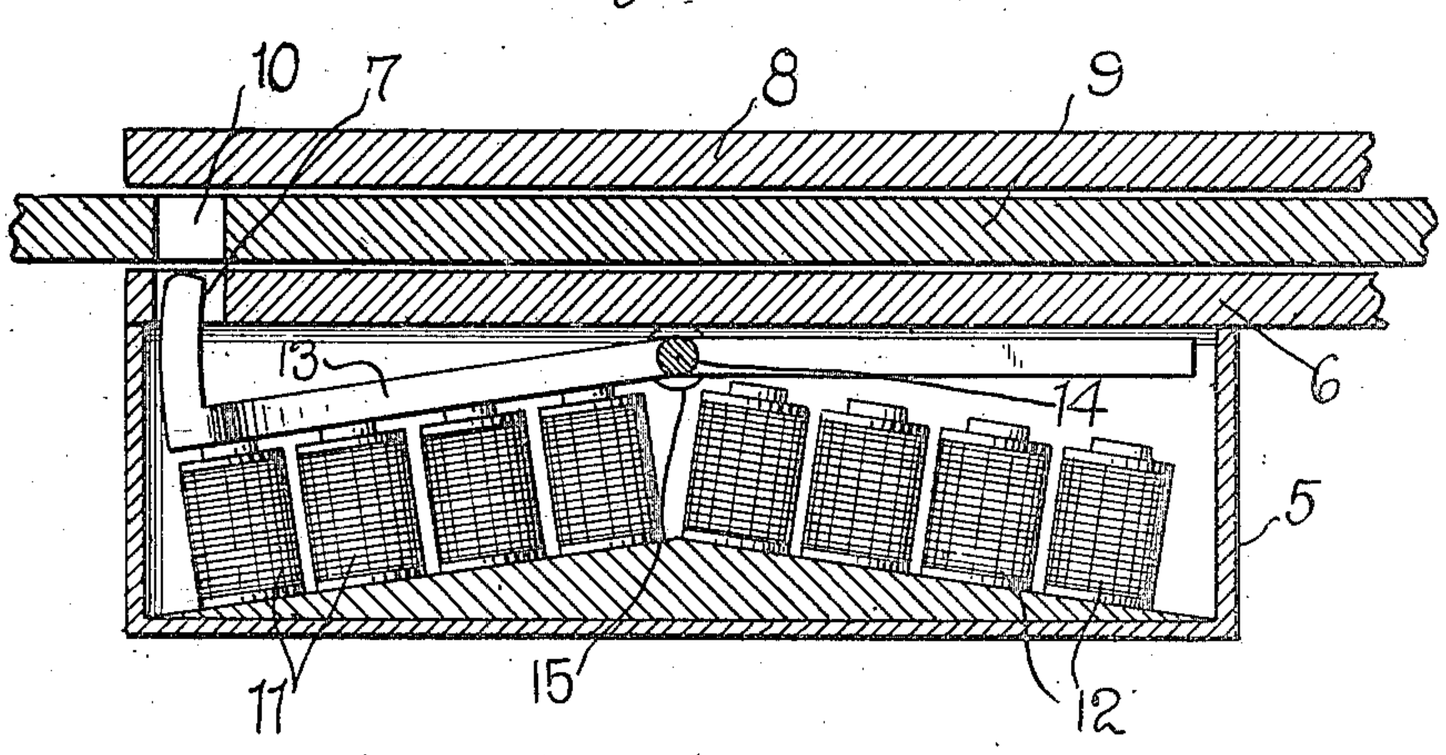
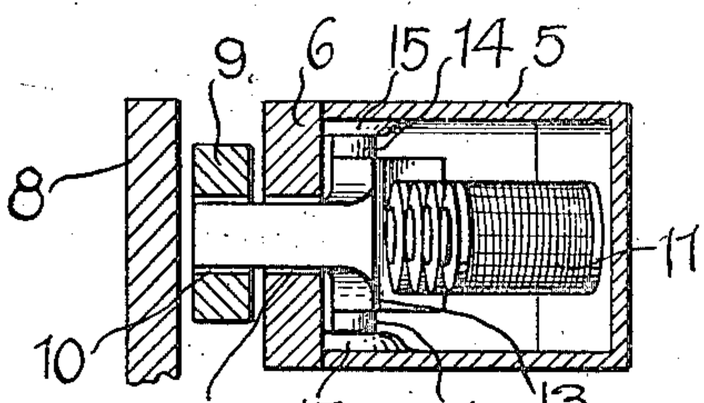


Fig. 3



Witnesses

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MAGNETIC LATCH.

1,167,318. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed April 18, 1914, Serial No. 832,826. Renewed December 1, 1915. Serial No. 64,539.

To all whom it may concern:

Be it known that I, FRANK A. SCHOENLE, citizen of the United States residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Magnetic Latches, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved magnetic latch for use upon elevator doors or analogous purposes and has for its primary object to provide an arrangement of electrical magnets so located with respect to the latch bar as to move the latch bar to its locking or release positions upon the energization of the magnets.

The invention has for another and more particular object to provide a latch bar fulcrumed intermediate of its ends, the portions of the bar on opposite sides of the fulcrum extending at an angle with relation to each other, said bar having a latch tongue formed on one end, and two series of electromagnets also arranged at an angle with respect to each other, one series of magnets acting when energized to hold the latch bar in its locking position and the other series to hold said bar in its release or ineffective position.

The invention has for a further object to provide a magnetic latch device which is extremely simple in its construction, very efficient and reliable in practical use and may be manufactured at comparatively small cost.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a longitudinal section through the latch casing showing the arrangement of the magnets therein, the latch bar being in its locking position. Fig. 2 is a similar view showing the latch bar in its retracted or release position; Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Referring in detail to the drawing, 5 designates the latch casing which is countersunk in the door jam and is provided with a face plate 6 upon its outer side having an opening 7 therein through which the tongue of the movable latch member is adapted to project. This face plate and the plate 8 which is arranged in spaced relation thereto constitute guide walls for the lever 9 which is carried by the sliding gate or door. This lever is also provided with an opening indicated at 10 which is adapted to register with the opening 7 in the face plate 6 when the door is in its closed position.

Within the casing 5, two series of electromagnets indicated at 11 and 12 respectively are arranged. These series of magnets it will be observed are disposed at an obtuse angle with relation to each other. The latch bar shown at 13 constitutes the movable armature, said bar being provided upon its opposite edges with trunnions 14 which are journaled in suitable bearings indicated at 15 provided upon the side walls of the casing 5. This latch bar, also has angularly extending portions disposed upon relatively opposite sides of its pivot, said angular portions of the latch bar however, being disposed at an appreciably less angle with relation to the longitudinal axis of the bar than are the series of magnets 11 and 12 with respect to each other. One end of the latch bar 13 is formed with a laterally projecting curved locking tongue 15.

It will be understood that the two series of magnets 11 and 12 are included in a suitable electric current supply circuit, in which a switch of any approved form is arranged so that, when the magnets in one series are energized, those in the other series are deenergized. As there are many types of switches which could be applied to this purpose, the arrangement of the same in the magnet circuit, will at once suggest itself to those skilled in the art.

In the practical operation of the invention, when the magnets 12 are energized, the magnets 11 being simultaneously deënergized, the latch bar 13 is moved from the position shown in Fig. 2 of the drawings to the locking position shown in Fig. 1, the tongue 15 projecting through the coinciding openings 7 and 10 in the casing plate 6 and the lever 9 respectively. Thus the door will be securely locked in its closed positior When it is desired to open the door, the switch is operated so that the magnets 12 will be deënergized and the magnets 11 energized to attract the end of the latch bar

on which the tongue 15 is formed, and move said tongue out of the coinciding openings 7 and 10. In this manner, it will be seen that I have produced a very simple, reliable and efficient magnetic latch or locking device for doors whereby the door will be securely held in its closed position.

It will be apparent that by adopting slight modifications, the invention may also be applied to safe doors, windows and in various other instances where it is desired to easily and quickly lock or release a movable part.

As the invention consists of only one movable part, namely, the latch bar, it will be apparent that the same is extremely efficient as well as durable in its construction and may also be produced at small manufacturing cost.

While I have shown and described the preferred construction and arrangement of the several parts, it will be understood that the invention is nevertheless susceptible of considerable modification therein and I therefore reserve the privilege of resorting to all such legitimate modifications as may be fairly embodied within the spirit and scope of the appended claim.

Having thus described the invention, what is claimed is:

In a magnetic latch, a latch bar fulcrumed intermediate of its ends and having angularly disposed portions extending upon relatively opposite sides of its fulcrum, and two series of electromagnets also arranged at an angle with respect to each other and opposed to the respective angularly extending portions of the latch bar, to move said bar to its locking or release positions upon the energization of the magnets.

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

FRANK A. SCHOENLE.

Witnesses:

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