G. M. MARR.

MECHANICAL RELEASING MEANS FOR ELECTRIC BRAKES.

APPLICATION FILED FEB. 26, 1914.

1,154,791.

Patented Sept. 28, 1915.

Fig 1

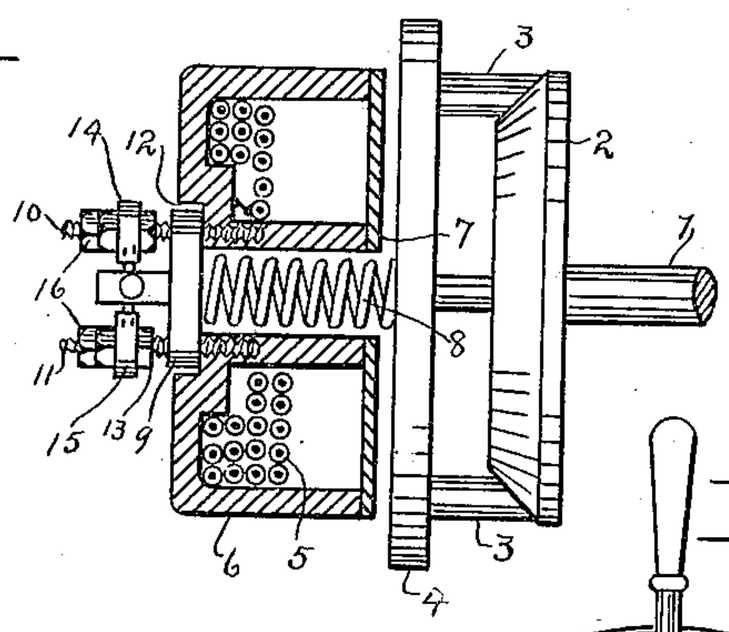


Fig 2

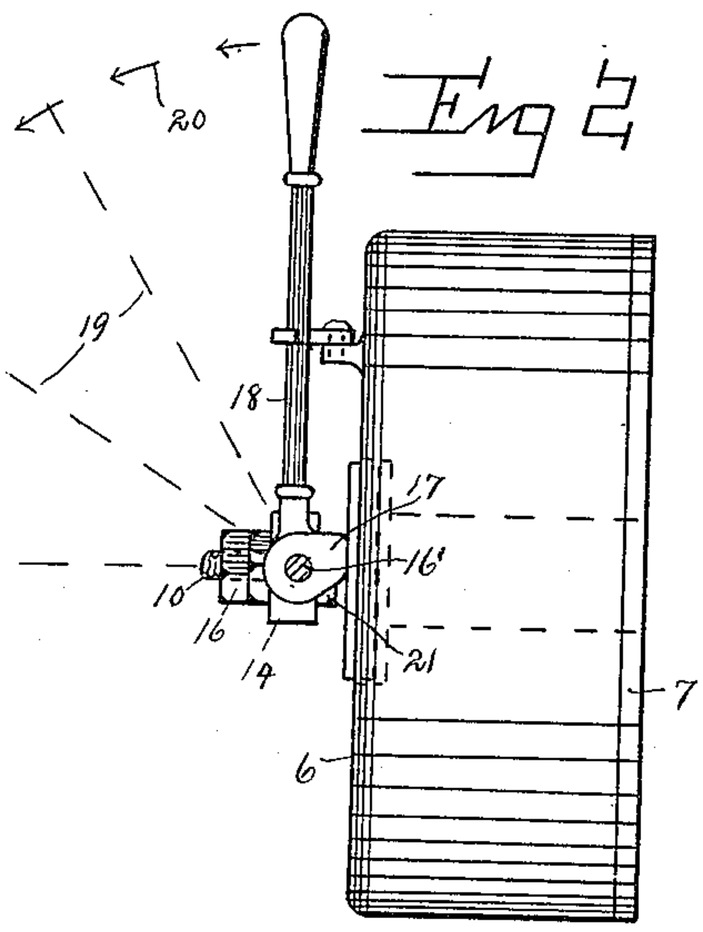


Fig 3

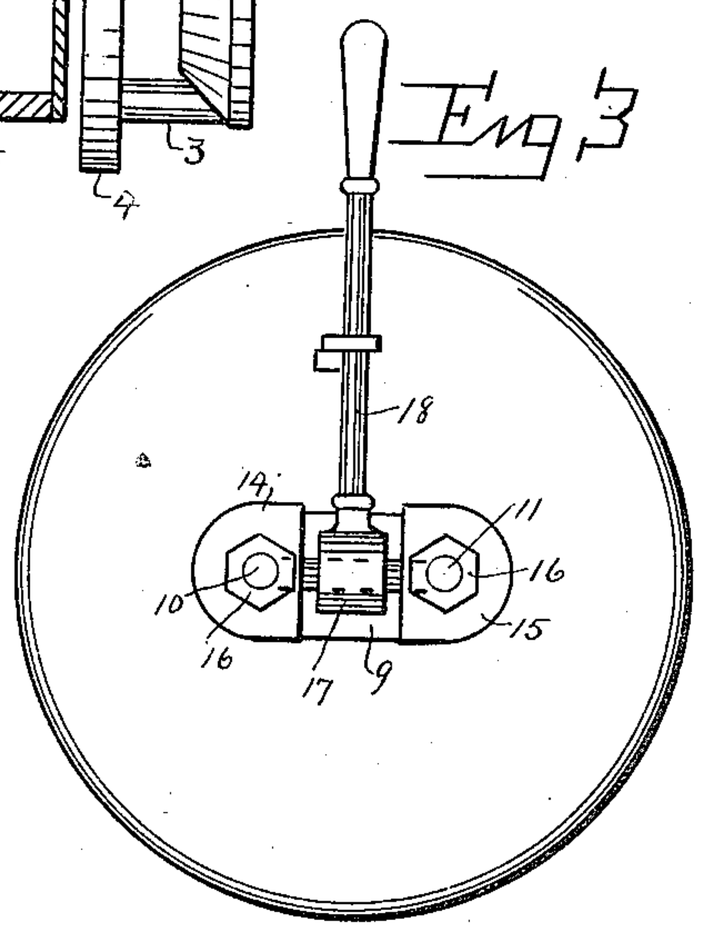


Fig 4

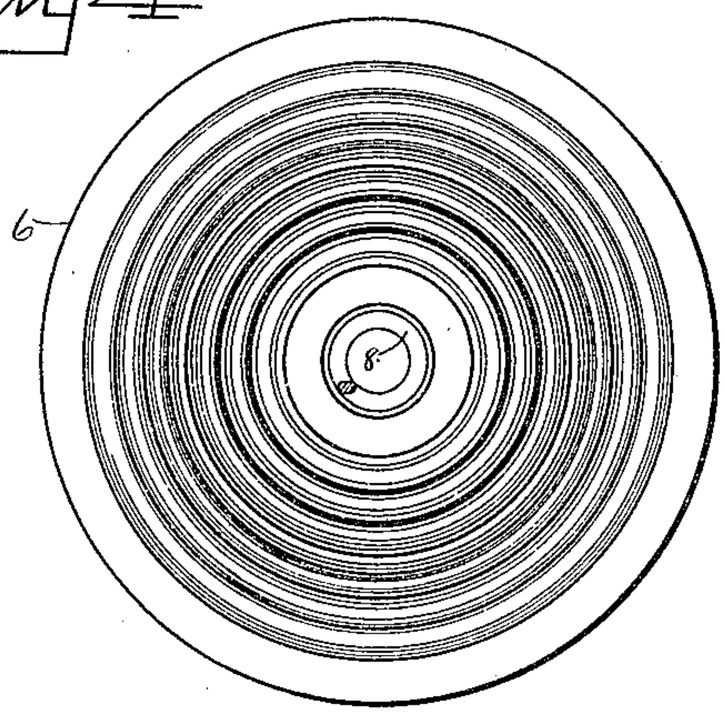


Fig 5

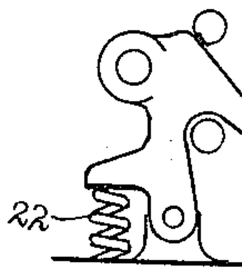
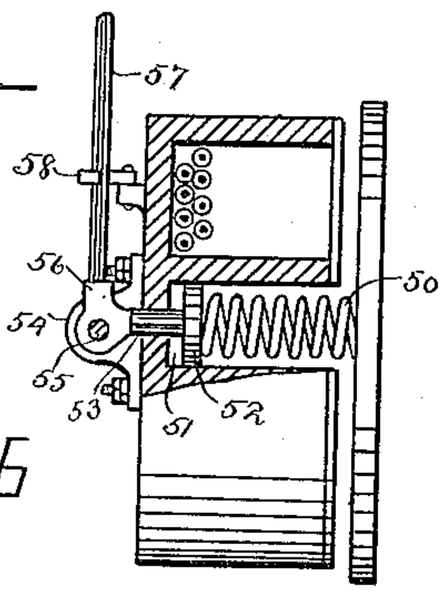


Fig 6



WITNESSES

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MECHANICAL RELEASING MEANS FOR ELECTRIC BRAKES.

1,154,791. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed February 26, 1914. Serial No. 821,348.

To all whom it may concern:

Be it known that I, GEORGE M. MARR, a citizen of the United States, and resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Mechanical Releasing Means for Electric Brakes, of which the following is a specification.

The device, the subject of this invention is intended to provide a quick operating mechanical releasing means for electric brakes to be used when in an emergency it becomes necessary or desirable that the brake pressure shall be released without the aid of the electrical impulse which has in the past been the only means known whereby an electric brake could be released quickly.

The brake to which I refer operates by means of a powerful spring which sets the brake and a solenoid the pull of which is against the spring tension and which releases the brake. It sometimes happens that a sufficient current supply is not available or that if available the current cannot be applied without disturbing other mechanisms that should be left undisturbed. My device provides a means for releasing the brake whether a current supply may or may not be had.

The construction of the device and its operations will be fully set forth as the specification progresses.

The following is what I consider the best means of carrying out this invention.

The accompanying drawings form a part of this specification, in which—

Figure 1 shows in central section partly in elevation a brake, the operating means and my releasing means. Fig. 2 shows in elevation and on a larger scale my releasing means and the method of operating it, this view is taken at right angles to Fig. 1. Fig. 3 is a top plan view of Fig. 2. Fig. 4 is a bottom plan view of Fig. 2. Fig. 5 shows in elevation and on a large scale, the latch. Fig. 6 shows in elevation partly in section a modified construction somewhat simpler in detail.

Similar reference numerals indicate like parts in all the figures where they appear.

My device is intended to operate in conjunction with any standard brake operating on the spring set and solenoid release principle, and I have therefore shown in Fig. 1 one of the numerous friction brakes which will be recognized as a well known construction. At 1, I have shown a shaft which may be the armature shaft of the motor and at 2, I have shown a friction drum or disk which is secured to the shaft and against which the brake will operate. In contact with the face of the disk 2, are arranged a plurality of projections 3, 3 which engage the disk 2 frictionally and with a force that shall be determined by the adjustment of a spring to be described later. The projections or pins 3 are secured in a disk or plate 4, of sufficient strength to retain the projections in operative condition and adjacent to the plate 4, but spaced therefrom is an electro-magnet comprising the winding 5 and the protective casing 6. The casing 6 serves as a feed for the magnet and the plate 4 serves as an armature for the electro-magnet.

The casing of the electro-magnet is centrally cored as shown at 7 and through the passage thus produced I insert a spring 8. The inner end of which bears upon the plate 4 and the outer end of which is engaged by an adjusting block 9. I provide a plurality of studs 10 and 11 for the accommodation of the block 9 and I may recess the casing 6 as shown at 12 so that the adjusting block may seat therein. Under ordinary conditions a plurality of nuts 13 are screwed downward upon the adjusting block 9 and serve with the block to obtain the proper tension upon the spring 8, but in my development I prefer that the block 9 should not be restrained by the nuts 13 and therefore I have set these nuts a predetermined distance away from the block and I have arranged a plurality of lugs 14 and 15 upon the studs 10 and 11 and I have secured them in position by nuts 16 which force the lugs upon the nuts 13.

Secured into the lugs 14 and 15 I provide a pin 16′ which serves as a shaft for a cam 17 which is rotatable thereon, and I provide a bar or handle 18 secured in the cam for operating the cam through a portion of one complete rotation. When this bar is depressed as shown in the figures the extended end of the cam will force the adjusting plate 9 inward compressing the spring and the device may be operated in the ordinary manner, the spring setting the brake by causing the pins 3—3 to firmly impinge upon the disk 2 and the energized electric magnet releasing the brake at the

will of the operator and at such times as the magnet is energized by withdrawing the armature plate 4 against the pressure of the spring 8.

If it so happens that when the brake is set and the current does not or cannot conveniently flow or be caused to flow through the electro-magnet, the spring pressure and therefore the brake pressure may be released by moving the bar or handle 18 through a portion of a revolution as shown by the dotted lines 19 and in the direction of the arrows 20. This movement of the bar or handle will cause the short or flattened face 21 of the cam 17 to be opposite or adjacent to the adjusting block 9 and the block may move outward releasing the tension upon the spring.

It is my desire that this device should be considered an emergency device and I have therefore arranged a hook as shown in Fig. 5 for securing the handle bar 18 against accidental or unintentional operation, and I prefer that this hook shall be automatic in its action and that it shall engage the handle bar whenever the bar is depressed. I have therefore provided a spring 22, which will retain the hook in locking position and return it to that position whenever it has been temporarily displaced.

In Fig. 6 I have shown my invention used upon or as a part of a brake of simpler construction. In arranging my releasing device I have utilized a disk 52 in the recess between the spring and the bottom 51 and I have produced a perforation through the recess to the outer surface of the casing placing therein a plug 53 which bears upon the pin. I have arranged parallel lugs 54 having a shaft 55 between them and upon this shaft I place my cam 56 which is provided with an operating handle 57 and which is secured in the depressed position by means of the hook 58. This hook may be of a construction similar to that shown in Fig. 5.

Although in these two developments of my device I have used brakes of well known construction, it is obvious that I may use my improvement with any brake that operates in a similar manner and it is further obvious that modifications may be made within the scope of the appended claims without departing from the principle or sacrificing the advantages of this invention.

Having carefully described my invention what I claim and desire to secure by Letters Patent is:—

1. An electric brake having a magnet, a movable armature, a spring for securing an operative pressure of said armature and a mechanical means arranged closely adjacent to the exterior of said brake and adapted to rapidly release the operative pressure of said armature and of said spring by the same movement as and for the purpose set forth.

2. An electric brake, having a magnet, a movable armature, a spring for securing an operative pressure upon said armature, an adjustable block for obtaining a pressure upon said spring and a mechanical means for rapidly releasing said block and the pressure upon said spring, as and for the purpose set forth.

3. An electric brake, having a magnet, a movable armature, a spring for urging said armature away from said magnet, an adjustable block for supporting said spring and obtaining an operative pressure therein and an adjustable cam adapted to free said block and the pressure of said spring as and for the purpose set forth.

4. An electric brake, having a magnet, a movable armature for said magnet, a resilient means urging said armature into an operative condition, a block for adjusting the pressure of said resilient means, a cam for operating said block and a lever connected to said cam and adapted to partially rotate said cam, and a means adapted to retain said lever in a predetermined position, as and for the purpose set forth.

Signed at borough of Bklyn., in the county of Kings, city and State of New York this 21 day of February, 1914.

GEORGE MATTHEW MARR.

Witnesses:
G. E. STERRETTE,
ANTON PHELPS MARR.