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2,842,198

TORSION REGULATOR FOR IRON AND STEEL ROLLING CURTAINS

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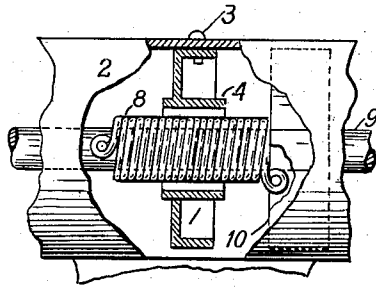


Fig. I.

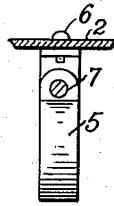


Fig. IV.

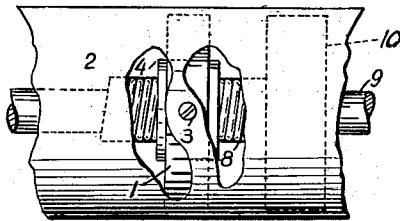


Fig. II.



Fig. V.

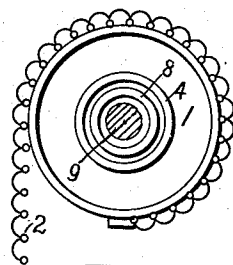


Fig. III.

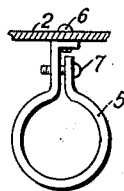


Fig. VI.

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TORSION REGULATOR FOR IRON AND STEEL ROLLING CURTAINS

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Claims priority, application Mexico January 18, 1952

1 Claim. (Cl. 160—313)

This invention relates to improvements in a torsion regulator for iron and steel rolling curtains. The combination of factors entering into this invention permits the iron curtain to balance itself at any position, either when lifting or lowering it, by simply using this device. Other iron curtains lacking this device balance themselves at only two positions: at either end, or at the center and at one end, or at any other two positions.

In theory, an unimproved iron curtain should remain perfectly balanced at any point in its run, because as it goes up, it loses weight and also the tension of the springs becomes progressively less. In practice, however, this does not hold true, due to the fact that the diameter of the rolled curtain is not constant. Therefore, it can be balanced at only two positions, as mentioned above.

It is possible to demonstrate, practically and also mathematically, that if an iron curtain balances itself at its two extreme positions, that is fully closed or fully opened, then it has a tendency to fall when at intermediary positions.

All iron and steel curtains manufactured up to the present, have this inconvenience, which is more or less pronounced in accordance with the dimensions of the curtain.

The purpose of this improvement to my previous Patent No. 2,674,306 of April 6, 1954, is to eliminate these disadvantages by means of the regulator I invented, as described herein, and which is of simple operation, compact and durable.

This device, when incorporated to the curtain, can correct its imbalance when its acts upon the springs and modifies automatically the working length of the springs for any desired position. This device may be of various shapes, sizes and materials, and is susceptible of alteration, but it always acts towards the same purpose.

As an example, and within the wide spirit of this invention, I submit drawings of this device, and duly describe it.

The characteristic details of this automatic regulator are clearly set forth in the following description, and in the drawings herewith. The same reference symbols indicate the same parts in the description and in the drawings.

Figure I is a posterior elevation of a curtain with cut-away views that show the inside, with my invention incorporated therein.

Figure II is a plan of the foregoing Figure I.

Figure III is a lateral elevation of Figure I.

Figure IV is a posterior elevation of a modification of the fixed pulley in Figure I.

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Figure V is a plan of the foregoing Figure IV.

Figure VI shows a lateral elevation of the part that is substituted for the fixed pulley shown in the first three figures.

5 With reference to said figures, the regulator is formed by the combination of a part similar to pulley 1, attached to curtain 2, by means of screws 3; having on its central part a regulator ring 4, calibrated by a bushing (not shown), or else, by a clamp 5, which is substituted as
10 an alternative, for pulley 1, which is also attached to curtain 2, by means of screw 6, adjusting its interior diameter by means of screw 7, almost touching spring 8, when this spring is fully wound, that is, when it achieves its minimum diameter; on the fixed shaft 9, is found a
15 free pulley 10, which is attached to the uppermost end of the curtain 2; the springs 8, are attached at one end to the free pulley 10 and at the other end, to the fixed shaft 9.

20 The operation of my torsion regulator attached to the curtain is as follows:

The curtain proper is screwed on, when it is fully extended, but the springs must be wound before-hand, so that when they seek to return to their unwound position, they will propel the curtain upwards, thus rolling it up.

25 As the springs unwind, their diameter increases progressively until they are partly held by the regulator ring of a sort of pulley, or else by the clamp 5 in the alternative procedure described above, and also shown in the drawings, which devices prevent the springs from continuing to expand. Thus, the length of spring between the regulator and the free pulley, becomes inactive, and the active part of the spring is thus reduced. In this manner, we achieve a balance of the curtain in any desired position.

30 I wish it to be understood that the foregoing description is not intended to limit my rights of invention strictly to the letter of said description, much less to the illustrations herewith, since it is possible to make modifications that do not change the essence of my invention, which I sum up in the following claim.

40 I claim:

In combination, a metal roller curtain, a shaft, a pulley freely mounted on said shaft and attached to the upper end of said curtain to support the inner convolution of said curtain when the curtain is rolled, a spring coiled
45 around said shaft and extending longitudinally thereof with its ends respectively attached to said shaft and said pulley, whereby said spring is tightened around said shaft when the curtain is unrolled, and a regulator comprising a split ring having a screw for adjusting the size thereof and a bracket on one of the split ends of the ring secured to the inner convolution of said curtain in surrounding relation to said coiled spring and intermediate the ends of said spring, said regulator ring having a predetermined inner diameter to be engaged by the spring upon the
50 expansion of the coils thereof to thereby limit the effective length of said spring during the final rolling up of said curtain.

References Cited in the file of this patent

UNITED STATES PATENTS

260,045	Osgood	June 27, 1882
2,674,306	Prieto	Apr. 6, 1954

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