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D. E. BONNER.
CURTAIN FIXTURE.
APPLICATION FILED NOV. 30, 1907.

Patented Dec. 20, 1910.

2 SHEETS-SHEET 1.

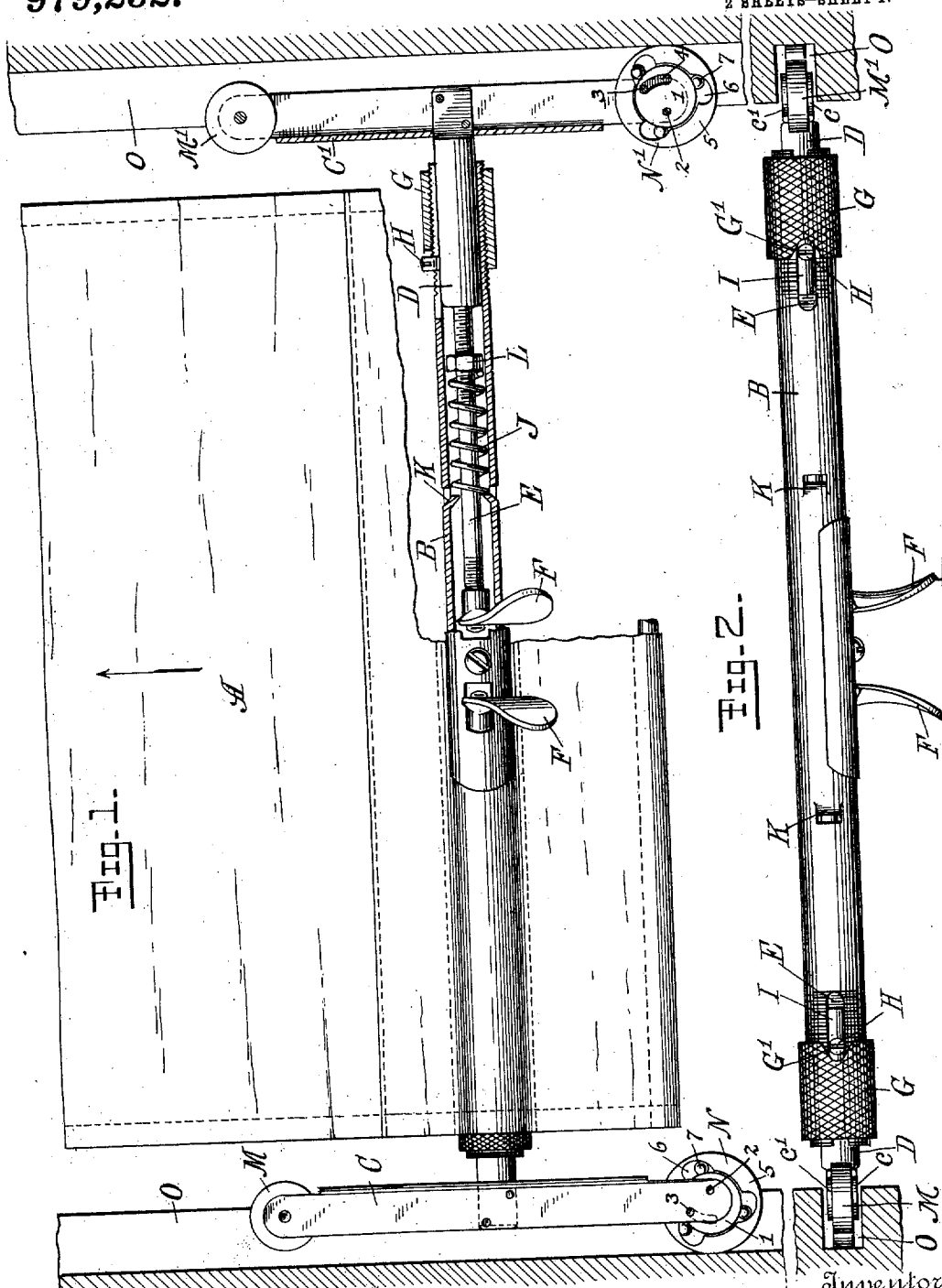


Fig. 1.

Fig. 2.

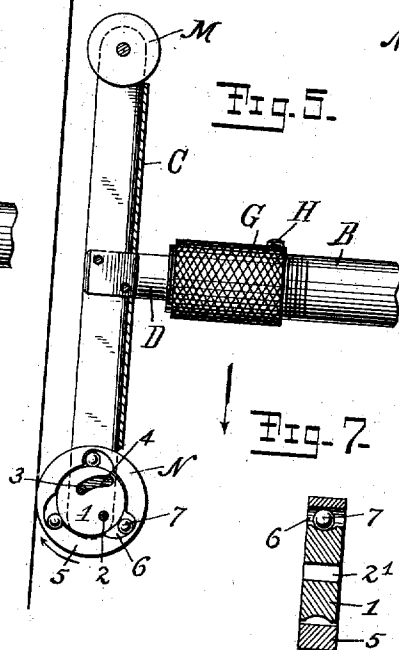
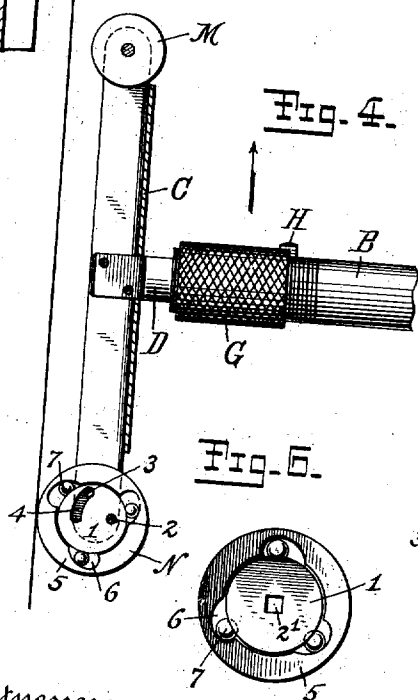
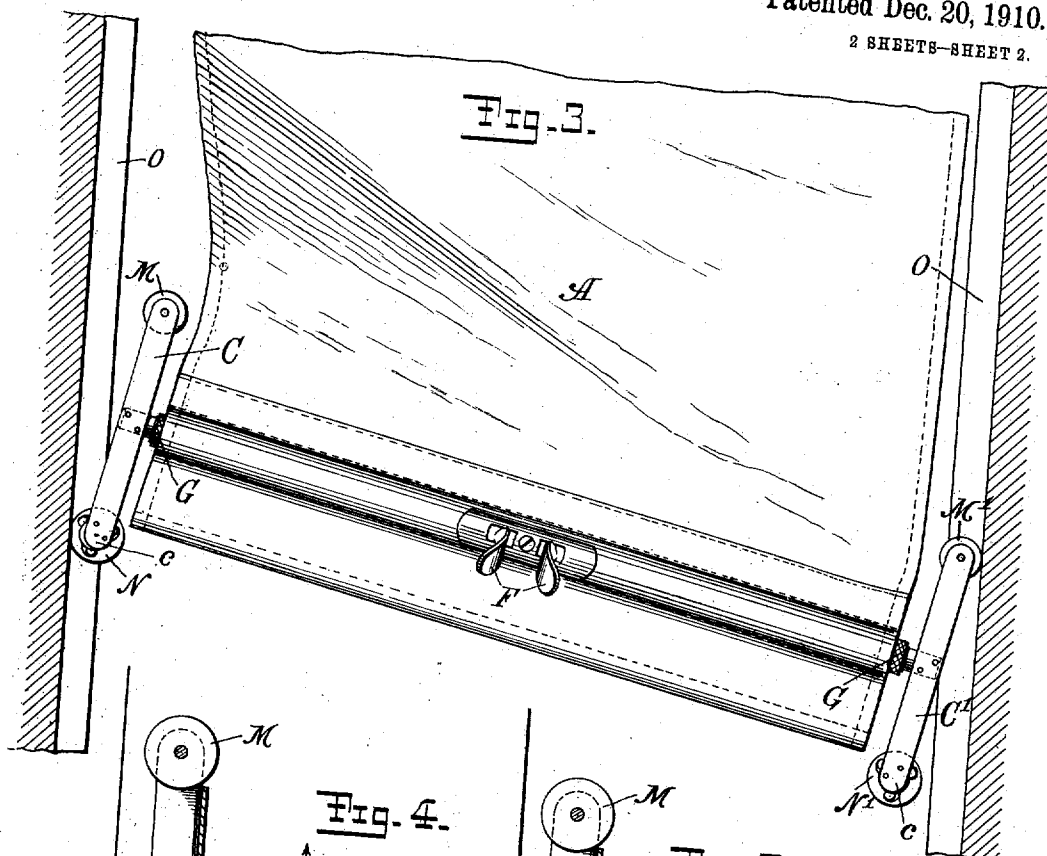
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UNITED STATES PATENT OFFICE.

DOUGLAS E. BONNER, OF CHICAGO, ILLINOIS.

CURTAIN-FIXTURE.

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Specification of Letters Patent. **Patented Dec. 20, 1910.**

Application filed November 30, 1907. Serial No. 404,503.

To all whom it may concern:

Be it known that I, DOUGLAS E. BONNER, a citizen of the United States, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Curtain-Fixtures, of which the following is a specification.

The invention relates to curtain fixtures and especially to such as are adapted to be used in connection with spring actuated rollers to hold the curtain in any desired position.

In the drawings, Figure 1 shows my improved fixture applied to a curtain; Fig. 2 is a top view of my fixture, with the curtain removed; Fig. 3 is an elevation of my fixture applied to the curtain, the fixture being shown in a tilted position; Figs. 4 and 5 are detail views of one of the heads of my fixture, showing different positions assumed by the brake wheel, the former when the curtain is under upward tension, and the latter when the curtain is under downward tension. Fig. 6 shows a modified form of the brake wheel; and Fig. 7 is a vertical section of Fig. 6.

In the drawings A is a curtain supported by a spring roller of the usual construction (not shown) which exerts a constant upward pull upon the curtain. This curtain carries, near its lower end, in the usual manner, a curtain fixture adapted to hold the curtain in any desired position. This fixture comprises a curtain stick or a tube B, provided with openings for the usual pinch handles, said tube carrying at each end a head C, held upon a shank, D, adapted to slide within said tube, each shank being connected by rod E, with one member of a pair of pinch handles F. The tube B is exteriorly screw threaded at each end, and carries at each end a knurled sleeve G, interiorly screw-threaded; this sleeve is provided with a notch G', adapted to receive a pin H, mounted upon the shank D. The tube B is provided at each end with a slot I, through which the pin H extends. The pin prevents the turning of the shank D within the tube, and also, together with the knurled sleeve G, limits the outward movement of the shank D. A spring J is held between lugs K and a nut L adjustably mounted upon the rod E, such lugs and nut forming seats for the spring. The lugs K may be formed out of a portion of the tube B as shown. The tension of the spring may

be regulated by adjusting the nut L; the spring should be depressed when the fixture is lengthened, and permitted to expand when the fixture is shortened.

To adjust the fixture to different lengths the head C is pushed toward the tube B, so that the pin H mounted upon the shank D passes out of the notch G' thus permitting the knurled sleeve G to be screwed toward or away from the center of the fixture.

It is obvious that the pinch handles may be omitted without substantially affecting the general operation or construction of my device.

Each head C is provided, near its upper end, with a guide wheel M, and near its lower end with a brake wheel N. These wheels are adapted to move in a groove, O, in the window frame, but the guide roller M is so mounted as not to be in contact with the bottom of the groove when the fixture is in normal position.

The brake wheel N is preferably constructed as follows: A round disk, 1, grooved around its periphery, is eccentrically mounted on a pin 2, so as to swing between the two side pieces *c c'* of the head C, the extent of the movement of such disk being limited by a pin 3, extending through a curved slot 4 in the disk. Pins 2 and 3 are preferably secured in suitable openings in the side pieces *c c'*. A ring 5 surrounds the disk 1, and is provided with interior tapering notches, 6, each notch being of such shape and size as to permit a ball 7 to be placed into one end thereof, between the ring and the disk, and tapering toward the inner periphery of the ring to a shape and size not sufficient to hold said ball. It is obvious that when the ring 5 is turned in a direction away from the enlarged portion of the notch, the ring will pull the ball with it around the disk, while, when the ring is turned in the opposite direction, the ball will wedge between the ring and the disk, thus effectually preventing further rotation. It will be noted that the notches of brake wheel N', which is mounted on the other end of the fixture, taper in a direction opposite to that of the taper of the notches in brake wheel N. The purpose of this arrangement will be explained hereafter.

The operation of this device is as follows: When the curtain is under the normal tension of the spring roller, the parts are in

the position shown in Figs. 1 and 4. The friction upon the grooves in the window frame created by the pressure of the springs J J is sufficient to overcome the tension of the spring roller. It will be noted that the ring 5 of brake wheel N is prevented by the wedging action of the balls 7 from turning in a direction which would permit the rising of the curtain. The same is true of the ring in brake wheel N', although the notches 5 taper in a direction opposite to that of the taper of the notches in brake wheel N. The tendency of ring 5 of brake wheel N' is to turn from left to right, as the fixture is raised; while that on ring 5 of brake wheel N is to turn from right to left; it is therefore necessary to provide braking means on the two heads C C' acting in opposite directions. When the curtain fixture is pulled downward, the rings 5 of the brake wheels will be turned in a direction opposite to the taper of the notches 6, thus releasing the balls which will then be rolled along the grooved channel in the periphery of disk 1. Thus the ring 5 will be free to turn in one direction, and to act as an anti-friction roller. When the curtain fixture is under downward tension, the brake wheel N will be in the position shown in Fig. 5, that is to say, the lower end of the slot 4 will be in contact with the pin 3. As the curtain is released from downward tension, and comes under the upward tension of the spring roller, the brake wheel N will assume the position shown in Figs. 1 and 4, that is to say, the upper end of the slot 4 will be in contact with the pin 3. In assuming the latter position, the brake wheel swings outwardly on its pivot 2, thus increasing the friction between the fixture and the groove by compressing the springs J J.

The construction just described, having the additional braking action due to the compression of the springs by the outward swing of the brake wheels, is of particular value in connection with curtains such as are used in open cars, which extend down as far as the flooring. Such long curtains in open cars generally necessitate the use of a very powerful spring roller, and the tension of this spring roller together with the tension produced by the air pressure upon the curtain necessitates the use of a fixture producing a large amount of friction in order to hold the curtain in place. For the ordinary length of curtain, such as used in closed railways cars, I prefer to omit this additional braking action, as a less amount of friction is sufficient to hold the curtain and an excessive amount of friction is disadvantageous for the reason that when the curtain fixture is pushed up against such friction, it is liable to come out of the groove.

I have shown in Figs. 6 and 7 a brake

wheel, similar to that shown in the other figures, in which the disk is adapted to be fixedly mounted upon the head by a pin inserted through opening 2'. When this form of wheel is used, there is no spreading or jamming action, and such form is therefore preferably used for ordinary railway car window curtains.

It will, of course, be understood that when it is desired to raise the curtain, the friction between the brake wheels and the window frame is either removed by pressing together the pinch handles, or overcome by an upward push. When, however, as is often the case, the attempt is made to raise one end of the curtain by raising or lowering the fixture by hand, the fixture will assume a position somewhat like that shown in Fig. 3. In the position shown in this figure, the brake wheel N cannot turn in the direction from right to left, but can easily turn from left to right. The roller M', which, by the tilting of the fixture, has been brought into contact with the window frame, is free to rotate in either direction. Thus, when the fixture is released, further tilting becomes impossible, but the fixture, acting under the upward pull of the right hand portion of the curtain, or under the outward tension of the springs J J, or under the weight of the fixture itself, or under any combination of these influences, rights itself by a quick upward movement of its right hand portion, or quick downward movement of the left hand portion, or by a combination of both movements, or by a simultaneous upward movement of the right hand portion and downward movement of the left hand portion. Moreover, as the fixture is grasped between the left hand and the center, and pushed upwardly, the retarding action of the brake wheel N causes the right head of the fixture to swing upwardly around the pivot 2, as a fulcrum.

By having the guide rollers, M, M', so constructed as to be normally out of contact with the window frame, the pressure of springs J, J, is exerted entirely upon the brake wheels N, N'; thus much less spring pressure is needed than would be the case if some of the pressure were exerted upon the freely rotating guide rollers.

It is obvious that many changes may be made in the proportions and constructions of this device without departing from the spirit of my invention, and that parts of my device may be used without using the other parts, and that parts of this invention may be used in other devices in this and other arts. I do not desire, therefore, to be limited to the disclosure which I have made in this case, but claim as my invention:

1. In a curtain fixture, the combination of a curtain stick having a hollow end provided

with a slot, a shank mounted within said end and carrying a head, a pin mounted upon said shank and extending through said slot, a sleeve mounted upon said hollow end and adapted to limit the outward movement of said pin, and a spring adapted to press said shank outwardly, substantially as and for the purpose described.

2. In a curtain fixture, the combination of a curtain stick having a hollow end provided with a slot, a shank mounted within said end and carrying a head, a pin mounted upon said shank and extending through said slot, a sleeve adjustably mounted upon said hollow end, to limit variably the outward movement of said pin and an adjustable spring adapted to press said shank outwardly, substantially as and for the purpose described.

3. In a curtain fixture, the combination of a curtain stick having a hollow end provided with a slot, a shank mounted within said end and carrying a head, a pin mounted upon said shank and extending through said slot, a sleeve mounted upon said hollow end and provided with a notch adapted to receive said pin, and an adjustable spring adapted to press said shank outwardly, substantially as and for the purpose described.

4. In a curtain fixture, the combination of a curtain stick, a head slidably mounted within one end of said stick and having an outwardly thrusting spring, a guide wheel mounted at the top of the head and so arranged as normally to be out of contact with the window frame, a brake wheel mounted at the lower end of the head and adapted to turn continuously in one direction and means for preventing the rotation of said wheel in the other direction, substantially as and for the purpose described.

5. In combination with a curtain stick, a member pivotally mounted upon said stick, means for limiting the movement of said member about its pivot, a brake wheel

mounted on said member and adapted to turn in one direction, means for preventing its rotation in the other direction, said wheel and said member being so mounted that their respective axes of rotation do not lie in the same line, substantially as and for the purpose described.

6. In a curtain fixture, the combination of a curtain stick, a head slidably mounted within one end of said stick, and having an outwardly thrusting spring, a member pivoted on the stick, means for limiting the movement of said member about its pivot, a brake wheel mounted on said member and adapted to turn in one direction, means for preventing its rotation in the other direction, said wheel and said member being so mounted that their respective axes of rotation do not lie in the same line, substantially as and for the purpose described.

7. In a curtain fixture, the combination of a curtain stick, a head slidably mounted within one end of said stick and having an outwardly thrusting spring, and a brake wheel eccentrically pivoted upon said head, said brake wheel comprising a disk, an encircling ring, and means for permitting movement of the ring in one direction only, and means for positively limiting the movement of the wheel upon its pivot, substantially as and for the purpose described.

8. As an article of manufacture, a brake comprising a disk eccentrically mounted on a pivot, a ring surrounding said disk, means for preventing the rotation of the ring around said disk in one direction, and means for positively limiting the movement of the disk upon its pivot.

In witness whereof I have hereunto set my hand this 26th day of November, 1907.

DOUGLAS E. BONNER.

Witnesses:

KATHARINE DALY,
GEORGE N. BOYD.