

J. P. JENSEN.

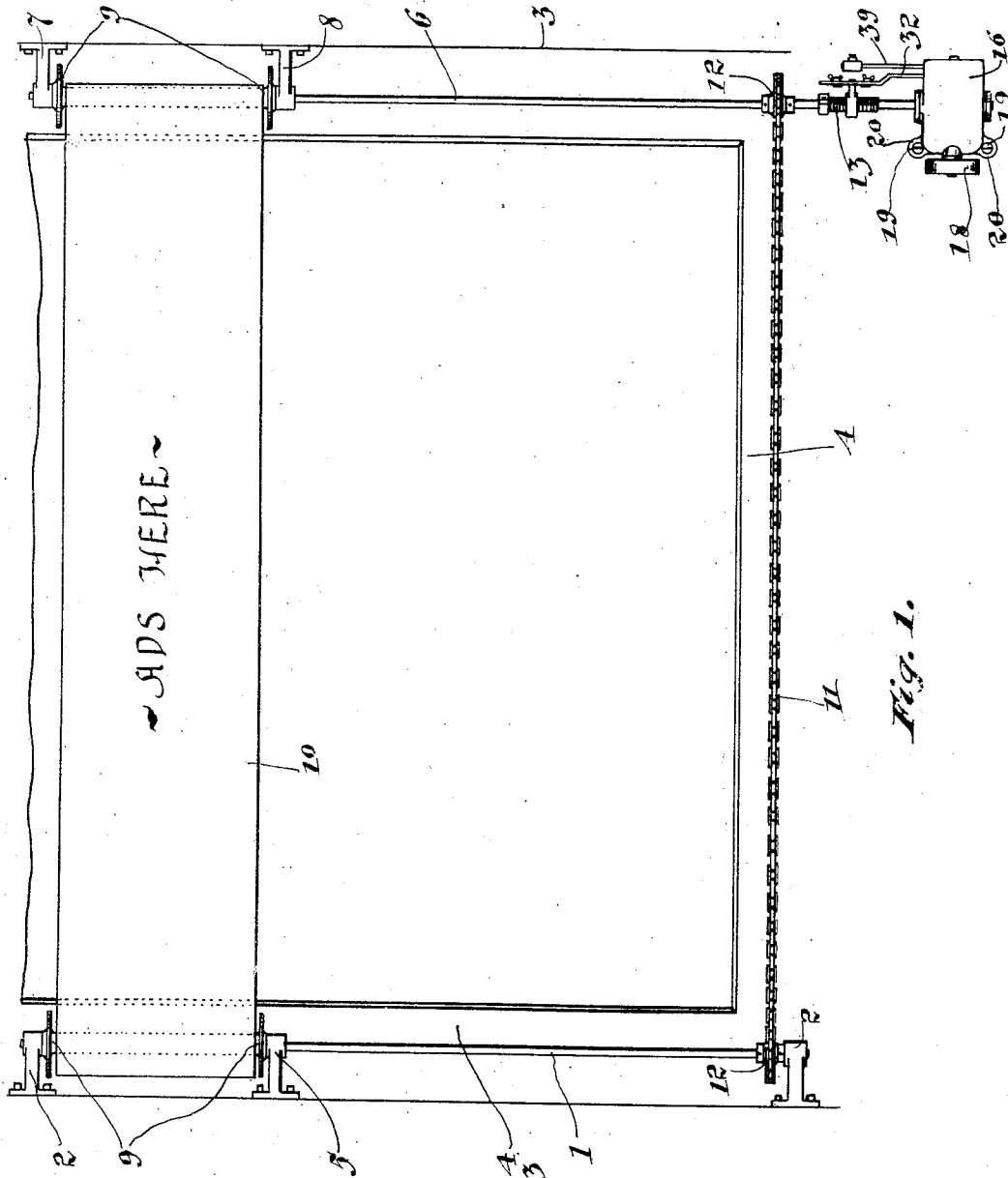
GEARING.

APPLICATION FILED AUG. 26, 1911.

1,037,921.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.



Witnesses:

C. E. Wessels.

W. F. Smith

Indenter:

Jens Peter Jensen,
By Joshua H. Potts
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J. P. JENSEN.

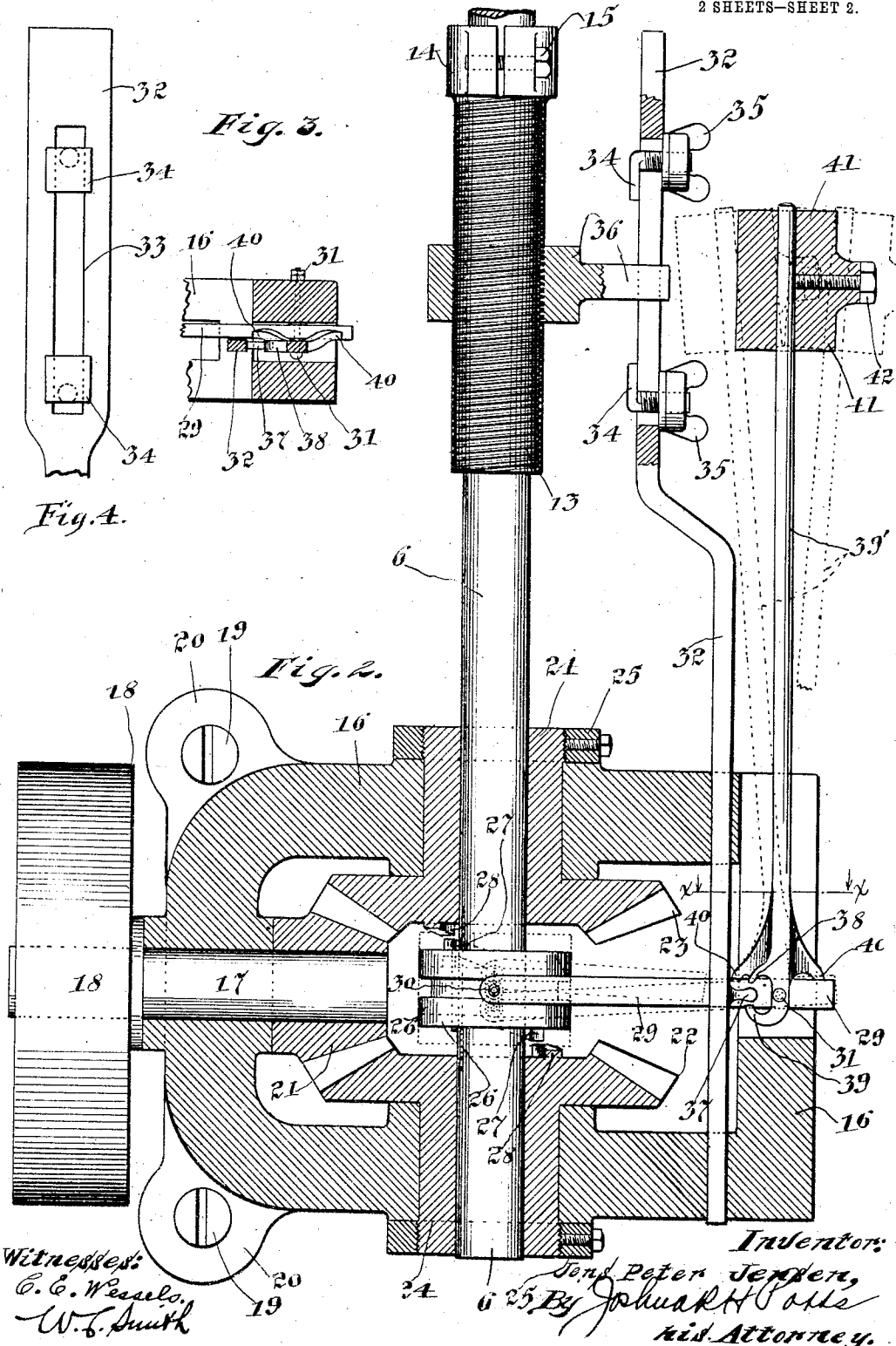
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Witnesses:

C. C. Wessels,
W. L. Smith

Inventor:

J. P. Jensen,
By John H. Potts
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UNITED STATES PATENT OFFICE.

JENS PETER JENSEN, OF CHICAGO, ILLINOIS.

GEARING.

1,037,921.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed August 26, 1911. Serial No. 646,265.

To all whom it may concern:

Be it known that I, JENS PETER JENSEN, a subject of the King of Denmark, residing at the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

My invention relates to improvements in reversing mechanism for advertising devices and the like, the object being to provide a reversing mechanism which shall be simple of construction and efficient in operation.

My invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings and in which,

Figure 1 is a side elevation of an advertising device and reversing mechanism embodying my invention, Fig. 2 is a sectional elevation showing the main operative parts of the reversing device, Fig. 3 is a detail sectional view taken on line *x-x* of Fig. 2, Fig. 4 is a detail side elevation showing a portion of a vertically movable member employed in the device.

In Fig. 1 I have illustrated my improved reversing mechanism as used with an advertising device, for which use it is admirably adapted, although not limited thereto.

Briefly the advertising device comprises a vertically disposed shaft 1 journaled in bearings 2 which are secured to the interior of a window frame 3, the latter being indicated in Fig. 1. 4 designates the window sash and 5 a bearing similar to the bearings 2 but disposed intermediate the same. A shaft 6 similar to the shaft 1 is journaled in the bearings 7 and 8 secured to the other side of the window frame 3. The shafts 1 and 6 are provided with reels 9 movably mounted on the shafts and having helical compensating springs (not shown in the drawings) on which is adapted to wind an advertising ribbon 10, said reels being adapted to rotate in either direction by means of the operating and reversing mechanism to be presently described.

The shafts 1 and 6 are arranged in positive relation by means of a chain 11 and sprockets 12, the latter being secured to said shafts adjacent the lower ends thereof. In this manner the shafts 1 and 6 are rotated

in the same direction and at the same speed, the sprockets on said shafts being of the same diameter. In the preferred construction of my reversing mechanism the shaft 6 extends downwardly a greater distance than the shaft 1 and carries a threaded sleeve 13 which is clamped thereto by means of a split ring clamp 14 formed integral with said sleeve as illustrated in Fig. 2. By tightening the screw 15 provided in the clamp 14 the sleeve 13 is securely held by frictional engagement with the shaft 6. The lower end of the shaft 6 is journaled in a housing 16 as illustrated in Fig. 1. Also journaled in the housing 16 and disposed at right angles to the shaft 6 is a horizontally disposed shaft 17 carrying a pulley 18 which may be belted to a motor or other driving means capable of operating the device. The housing 16 is secured to the wall below the frame 3 by means of screws 19, there being lugs 20 projecting from the housing 16 through which said screws are passed. The inner extremity of the driving shaft 17 carries a driving bevel pinion 21 which is arranged in constant mesh with a pair of driven bevel gears 22 and 23 which are disposed in axial alinement with the shaft 6. The bevel gears 22 and 23 are provided with hubs 24 which extend through the sides of the housing 16, the exterior ends of said hubs being threaded to receive locking collars 25. From this construction it is apparent that the bevel gears 22 and 23 rotate constantly in opposite directions during the rotation of the driving shaft 17. Splined to the shaft 6 and arranged intermediate the bevel gears 22 and 23 is a grooved collar 26, the groove of which is circumferential and disposed normally in the plane of the axis of the driving shaft 17. Projecting from the lateral faces of the collar 26 are teeth 27 which are clearly illustrated in Fig. 2. Teeth 28 formed on the sides of bevel gears 22 and 23 are adapted to engage the teeth 27 when moved into the same plane thereof. By reference to Fig. 2 it will be seen that when the collar 26 is in one dotted line position that one pair of teeth 27 and 28 will be in engagement and when said collar assumes the other dotted line position the other pair of teeth 27 and 28 will be in engagement, none of said teeth being in engagement, however, when said collar is in normal or inoperative position.

From the construction of the device thus

far described it will be seen that when the bevel gear 22 is clutched to the shaft 6 by means of the collar 26 said shaft and the reel 9 carried thereby will rotate in one direction, and that when said collar is engaged with the bevel gear 23 for clutching the same to the shaft 6 the latter and the reel 9 carried thereby will rotate in the opposite direction. In order that the shaft 6 may be automatically reversed in its rotation after the advertising ribbon 10 has become fully wound up on one reel and unwound from the other, the following reversing mechanism is provided. This mechanism comprises an oscillatory arm 29 which is connected with the collar 26 by means of a stud 30, said arm being pivoted on a stationary bolt 31 secured in the housing 16. Arranged adjacent the arm 29 and disposed vertically is a bar 32 which is provided at its upper end with a slot 33 having adjustable members 34 secured thereon by means of thumb nuts 35 which are arranged as illustrated in Fig. 2 of the drawing. The object of these adjustable members is to vary the operative length of the slot 33. Projecting into the slot 33 and internally threaded for the reception of the sleeve 13 is a vertically movable block 36, the portion of said block which projects into the slot 33 preventing the same from rotation by the sleeve 13. The block 36 moves upwardly or downwardly in accordance with the direction of rotative movement of the sleeve 13, as will be readily understood by those skilled in the art. Projecting laterally from the bar 32 and disposed adjacent the arm 29 is a tooth 37 which is adapted to play between curved hooks 38 and 39 formed at the lower extremity of an oscillatory inverted pendulum 39', the latter being pivoted to the bolt 31 as illustrated in detail in Fig. 3. Projecting from the sides of the pendulum 39 are stops 40 which engage the upper edge of the arm 29 as illustrated in Fig. 2. The pendulum 39' carries a bob or weight 41 at its upper extremity which may be suitably adjusted by means of a set screw 42.

The operation of the device is as follows: After the shaft 6 has rotated a sufficient time to effect the winding of the ribbon 10 upon one of the reels 9, then, since it becomes necessary to reverse the rotation of the shaft 6, the block 36 will have contacted with one of the members 34 and moved the bar 32 vertically. Assuming that the bar 32 is moved upwardly by the block 36 contacting with the uppermost member 34, then the tooth 37 will contact with the uppermost hook 38 and effect a movement of the pendulum 39' to the right. When the pendulum 39' assumes the right hand dotted line position shown in Fig. 2, then the arm 29 will be moved to the upper dotted line position and effect the disengage-

ment of one pair of teeth 27 and 28 and the engagement of the other pair, whereupon the shaft 6 will be reversed in its rotation. The collar 26 thus moved upwardly by the action of the arm 29 will be held in this position as long as the pendulum 39' remains in the right hand dotted line position. This position of the pendulum 39' will not be changed until the block 36 has traversed the sleeve 13 and engaged with the lowermost member 34. The bar 32 will now be moved downwardly, thus effecting the movement of the pendulum 39' to the left. Because of the weight of the bob 41 the pendulum 39' will remain in either dotted line position until actuated by the tooth 37.

Such an automatic reversing device, is particularly adapted for advertising ribbons employed in show windows. The device as is apparent from the foregoing description requires no attention during the operation thereof other than to start and stop the driving motor.

While I have illustrated and described the preferred construction for carrying my invention into effect, this is capable of variation or modification without departing from the spirit of the invention. I therefore do not wish to be limited to the exact details of construction set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims. And I particularly reserve the advertising-web carrying device herein referred to as the subject matter of a further application by me for Letters Patent.

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

1. In a reversing mechanism, a vertically disposed driving shaft, a threaded sleeve secured to said driving shaft and arranged in axial alignment therewith, an internally threaded block adapted to be moved vertically on said sleeve, a housing into which the lower end of said driving shaft is journaled, a power shaft disposed at right angles to said driving shaft, a driving pinion secured to said power shaft, a pair of driven gears arranged in constant mesh with said driving pinion and loosely mounted on said driving shaft, a grooved clutch collar arranged intermediate said driven gears and splined to said driving shaft, said collar being vertically movable and adapted to clutch either one of said driven gears for reversing the movement of said driving shaft, an oscillatory arm the free end of which is connected with the groove of said grooved collar, a bolt secured in said housing on which said arm is pivoted, the latter being disposed approximately horizontally, a vertically disposed bar extending from said arm to said block and provided with a slot adjacent its upper end in which said block

moves, adjustable means provided at each end of said slot for regulating the vertical movement of said bar, the latter being provided with a toothed projection arranged adjacent said arm, an inverted pendulum pivoted to said bolt and having laterally extending hooks for engaging the sides of said toothed projection, and stops provided on said pendulum at either side thereof for engaging the upper edge of said arm, whereby the oscillation of the latter is synchronized with that of said pendulum, substantially as described.

2. In an operating and reversing mechanism, a driving shaft, a threaded sleeve secured thereto and adapted to rotate therewith, a vertically movable internally threaded block mounted on said sleeve, a housing into which the lower end of said driving shaft is journaled, a power shaft projecting into said housing, a bevel driving pinion at the inner extremity of said power shaft, a pair of driven bevel gears journaled in said housing around said driving shaft and arranged in constant mesh with said power shaft, said driven gears being loosely mounted on said driving shaft, a grooved clutch collar interposed between said driven gears and splined to said driving shaft, the construction being such that said clutch collar is normally out of engagement with said driven gears, a substantially horizontally disposed arm having connection with said grooved collar, a stationary bolt provided in said housing forming a pivot on which said arm is adapted to have a limited oscillation, a substantially vertically disposed bar provided with a slot at its upper end for the

reception of said block, adjustable members provided at the ends of said slot for varying the operative length thereof, a laterally extending tooth provided on said bar and disposed in the same horizontal plane as said bolt, and an inverted pendulum pivoted to said bolt and provided with laterally extending curved hooks for engaging the top and bottom of said laterally extending tooth, there being laterally extending stops or projections provided on said pendulum which engage the upper edge of said arm to effect the oscillation thereof, the normal position of said pendulum being vertical, and said bar being guided in its vertical movement by said housing, substantially as described.

3. In a reversing mechanism, a driving shaft a beveled gear rigidly mounted thereon, a driven shaft, two beveled gears loosely mounted thereon and meshing with said first mentioned gear; a collar splined on said driven shaft between said two beveled gears; means for moving said collar into contact with each of said two gears alternately whereby said collar and its shaft are operated in alternating directions by said driving shaft, and an inverted pendulum associated with said means adapted to hold said collar in contact with each said two gears alternately, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JENS PETER JENSEN.

Witnesses:

HELEN F. LILLIS,
ARTHUR A. OLSON.