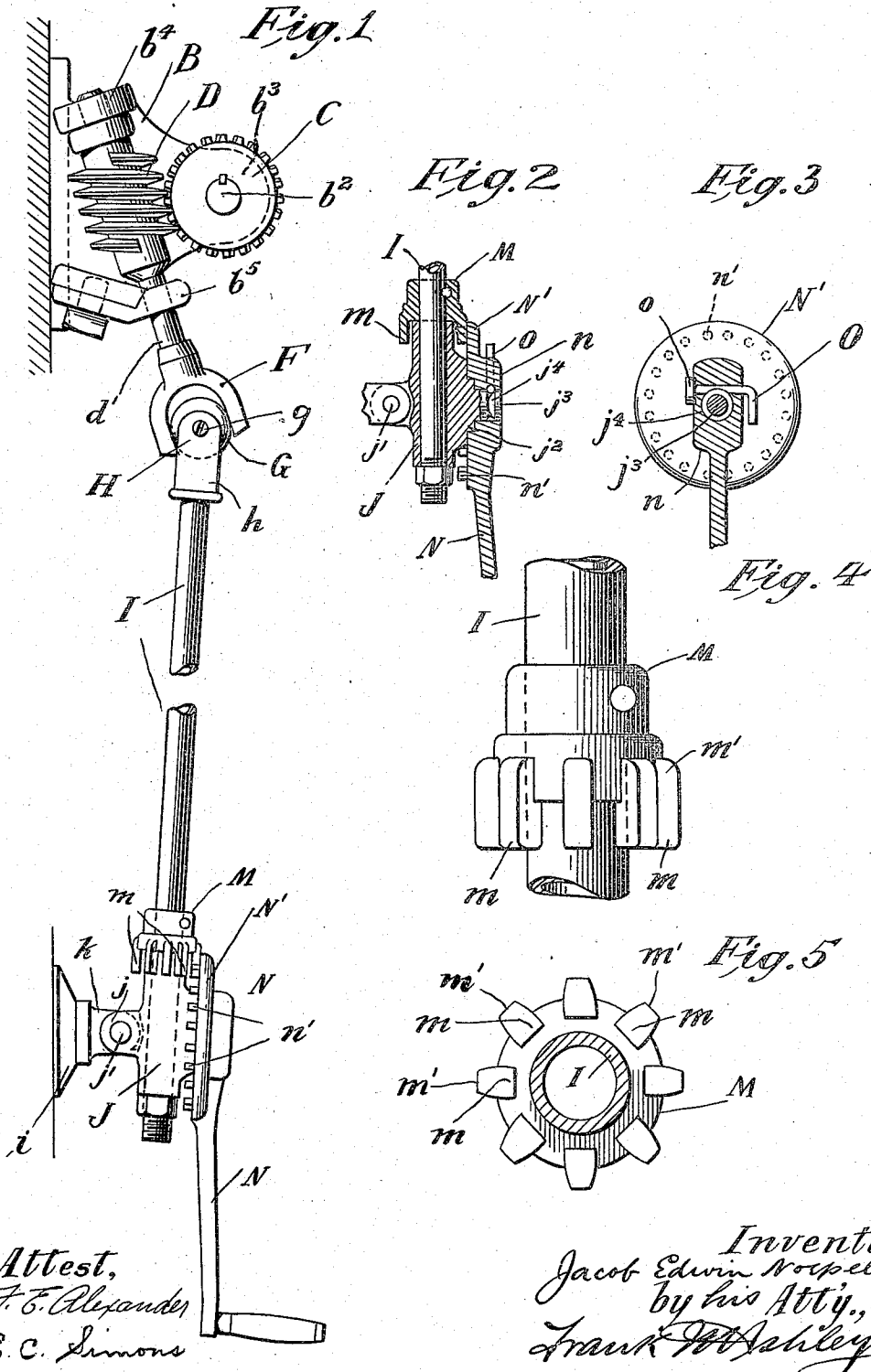


J. E. NOEPEL.
MECHANICAL MOVEMENT.
APPLICATION FILED JUNE 23, 1908.

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Patented Oct. 19, 1909.



Attest,
F. E. Alexander
C. C. Simons

Inventor,
Jacob Edwin Noepel,
by his Att'y.,
Frank W. Ashley

UNITED STATES PATENT OFFICE.

JACOB EDWIN NOEPEL, OF HARRISON, NEW JERSEY.

MECHANICAL MOVEMENT.

937,169.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed June 23, 1908. Serial No. 439,959.

To all whom it may concern:

Be it known that I, JACOB EDWIN NOEPEL, a citizen of the United States, and resident of Harrison, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

The present invention has reference to mechanical movements and has in view, a comparatively simple, durable, ingenious and useful means whereby rotary motion imparted through the medium of a hand crank accessibly located will be efficiently transmitted to a roller or shaft normally inaccessible, the character of the novel means before referred to, being such that it is capable of ready adaptation for transmitting motion to the roller or shaft irrespective of variations in the vertical planes occupied by the hand crank and said roller or shaft.

The special application of the mechanism herein described to awnings is set forth and claimed in an application filed by me December 21, 1907, bearing Serial Number 407,518.

Referring to the drawings, Figure 1, is an elevational view illustrating one end of an awning roller and associated gearing, together with features constituting the major portion of the novel mechanical movement, which in this instance is the roller operating means. Fig. 2, is a detail sectional view illustrating the devices at the lower end of the motion transmitting shaft. Fig. 3, is a face view of the crank disk and a portion of the crank shank, parts in section indicating the provision whereby the crank can be readily adjusted in and removed from position. Fig. 4 is an enlarged detail view of a crown wheel forming an important feature of my invention, a portion of the motion transmitting shaft to which said wheel is secured being also shown. Fig. 5, is an inverted plan view of the crown wheel, the co-operating shaft being indicated in section.

Similar reference characters are employed to designate corresponding parts in the several figures wherein they occur.

The gudgeon b^2 at the end of the awning roller bears in a boss b^3 of a bracket B, said gudgeon projecting for a short distance beyond said boss, for the securement thereon of a worm wheel C. The bracket B has lat-

erally projecting upper and lower ears b^4 , b^5 , relatively disposed and perforated to revolvably support the journals of a worm D maintained in an inclined position as indicated in Fig. 1. The threads of the worm are in mesh with the teeth of the worm wheel. The lower journal d' of the worm extends through and below the bearing in the lower bracket ear, and on its extremity has a bifurcated member or fork F secured thereto. The bifurcations of this member are perforated for diametrically located journals of a sphere G, equi-distantly and intermediately located journals g of which bear in the bifurcations of a second fork H, the neck of which forms a socket h for the reception of the upper end of an extended shaft or rod I. Manifestly, the relatively reversed forks F and H and intermediately connected sphere G, present a universal joint for the worm and shaft.

The lower end of the shaft I is revolvably supported in a vertical tubular bearing J forming part of a malleable casting presenting at its rear parallel ears j for carrying a pin j' , on which is pivotally mounted the head of a short bolt k , the threaded shank of which is adapted for any of the standard fittings in use in awning roller operating means, and at this point I have shown said bolt as being engaged within a threaded socket of a bolt not shown which has a bearing in the masonry wall. At its front, the malleable casting is integrally provided with a shouldered portion j'' and a forwardly projecting pivot j^3 , the latter containing an annular groove j^4 near its outer end. Secured to the shaft I by a notch and wedge-shaped pin engagement, is an inverted crown wheel M, having its annular series of teeth m marginally depending at its under side where it also bears upon the upper end of the tubular bearing J, and thus sustains the shaft I at its lower end. It will be noted that the teeth m are integral with the malleable casting constituting the crown wheel M, and that said teeth are approximately rectangular in cross section. Shallow extensions m' are external to the lower portion of the hub of the crown wheel. The malleable casting thus conditioned and forming the crown wheel is comparatively cheap to manufacture and is exceedingly durable, since the configuration of the teeth

m together with their upper extensions *m'* serve to greatly strengthen said teeth against strain or breakage.

The hand crank *N*, integrally embodies a disk *N'*, provided with a central hub *n* adapted to be revolvably mounted on the pivot *j'*, said disk being configured at its inner side to conform to and have a bearing on the shouldered portion *j''* of the malleable casting of which the bearing *J* forms a part. The disk *N'* has at its inner side a series of horizontally projecting teeth *n'*, equi-distantly spaced with respect to each other and designed when moved to an upper position to inter-engage with the teeth *m* of the crown wheel to revolve the latter and the shaft *I*. The disk *N'* is detachably maintained in engagement with the pivot *j'* through the medium of a small eccentric key *O*, a horizontal portion of which bears in a transverse opening in the disk hub and which opening intersects the pivot opening at its top, said horizontal portion of the key having intermediately a semi-circular surface notch so that when said portion is turned to place said notch in communication with the pivot recess, the latter will be unobstructed for the adjustment of the disk on the pivot *j'*, after which the key can be turned to a limited extent to revolve its horizontal portion sufficiently to bring a solid part thereof to a position to engage within the annular groove of the pivot *j'* and thereby retain the disk in position on the pivot but permit the free rotation of the former with respect to the latter. A head *o* at one end and a bent part at the other end of the key *O*, maintain it in position in the disk hub, the bent part also serving as an operating handle for the key.

From what has been explained it will be comprehended that the lower malleable casting and parts immediately associated therewith can be readily located on a wall front and the shaft actuated to revolve the worm and roller without regard to the difference in the vertical planes occupied by the roller axis and the malleable casting. This is important, as it avoids in many instances the necessity for building out from the wall front in order to bring the operating devices at the lower end of the shaft more nearly in vertical alinement with the parts at the roller end. The crank can be revolved to roll up or unroll the awning to any desired extent and can then be readily removed and placed to one side to prevent unwarranted operation.

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

1. In means of the character described the combination of a casting adapted to be attached to the wall of the structure; a second

casting hinged to the first casting, and having an elongated perforation to constitute a bearing, and provided with a pivot extended at an angle to the said perforation; a shaft mounted in said perforation and provided with a gear wheel to rest on said casting; a hand crank provided with a toothed disk for engagement with said wheel, and having a central perforation to fit said pivot; and a key pin to secure the hand crank to the said casting.

2. In means of the character described the combination of a casting provided with means for attaching it to the building structure, said casting provided with an elongated perforation, and a pivot extended at an angle to the said perforation; a transmission shaft pivotally mounted in said perforation; an elongated toothed gear wheel mounted on said shaft, the said teeth inclosing the said casting; a disk mounted on said pivot and provided with pins set out from the face to engage the teeth of said gear wheel; a crank lever attached to said disk, and extended peripherally therefrom; and suitable means for locking the said crank lever and disk on said casting.

3. In means of the character described the combination of a casting provided with means for attaching it to the building structure, said casting provided with an elongated perforation and a pivot extended at an angle to the said perforation; a transmission shaft pivotally mounted in said perforation; an elongated toothed gear wheel mounted on said shaft, the said teeth inclosing the said casting; a disk mounted on said pivot and provided with pins set out from the face to engage the teeth of said gear wheel; a crank lever attached to said disk and extended peripherally therefrom; suitable means for locking the said crank lever and disk on said casting; a winding mechanism for the awning roller comprising a worm wheel mounted on the awning roller, a worm mounted on a short shaft and engaging said worm wheel; a transmission shaft connecting the said casting with said short shaft carrying the said worm; and a flexible union between said short shaft and said transmission shaft.

4. In means of the character described the combination of a casting provided with means for attaching it to the building structure, said casting provided with an elongated perforation and a pivot extended at an angle to the said perforation; a transmission shaft pivotally mounted in said perforation; an elongated toothed gear wheel mounted on said shaft, the said teeth inclosing the said casting; a disk mounted on said pivot and provided with pins set out from the face to engage the teeth of said gear wheel; a crank lever at-

tached to said disk and extended peripher-
ally therefrom; suitable means for locking
the said crank lever and disk on said cast-
ing; a bracket having bearings to support
5 the awning roller provided with a worm
wheel and a short shaft, the latter being held
at an angle inclined from the building; a
worm mounted on said short shaft and en-
gaging said worm wheel; and a flexible con-

nection between said worm shaft and said 10
transmission shaft.

Signed at New York in the county of New
York and State of New York this 22nd day
of May A. D. 1908.

JACOB EDWIN NOEPEL.

Witnesses:

FRANK M. ASHLEY,
N. C. MILLER.