

No. 825,858.

PATENTED JULY 10, 1906.

W. F. MURPHY.
MECHANICAL MOVEMENT.
APPLICATION FILED APR. 4, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

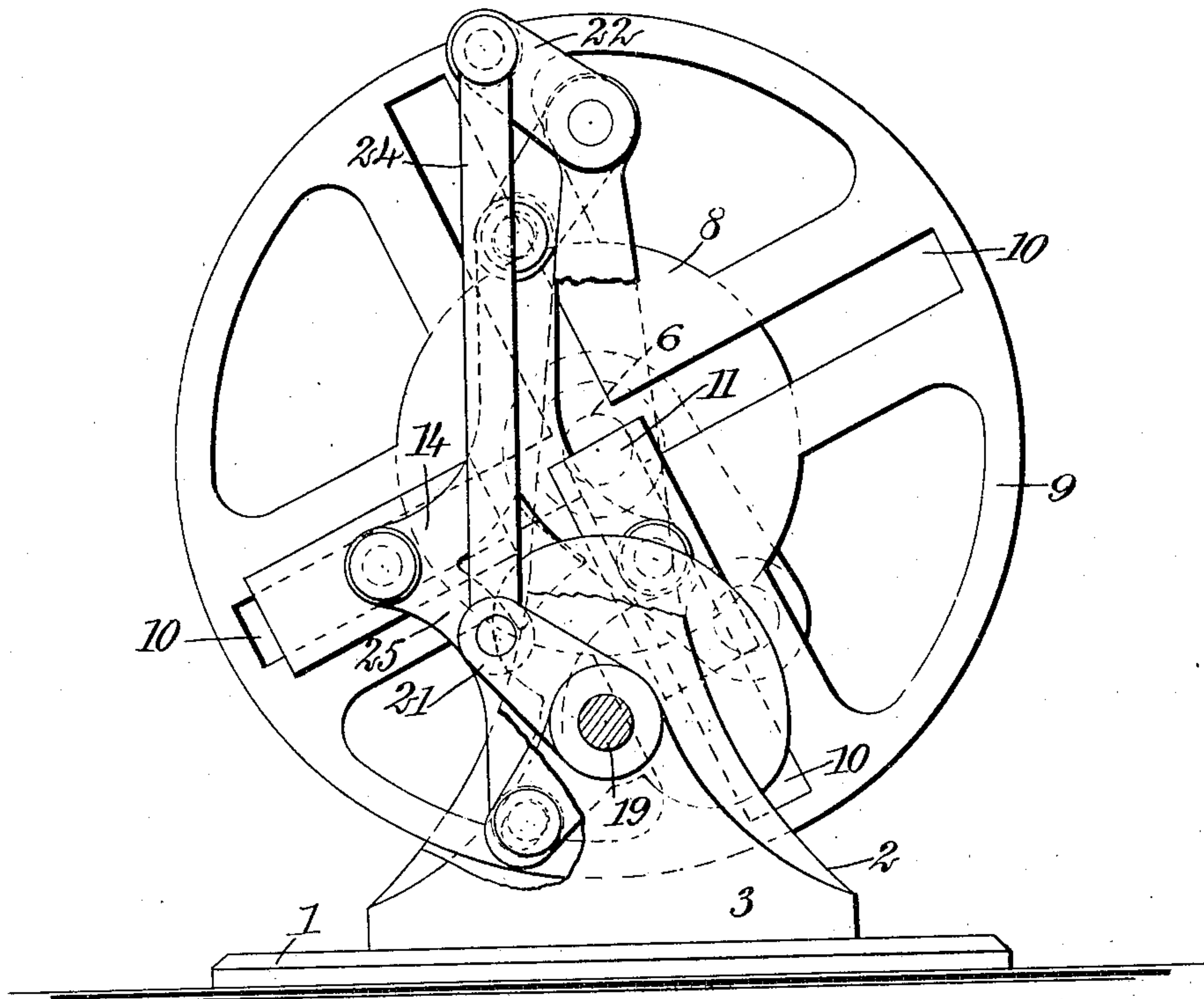
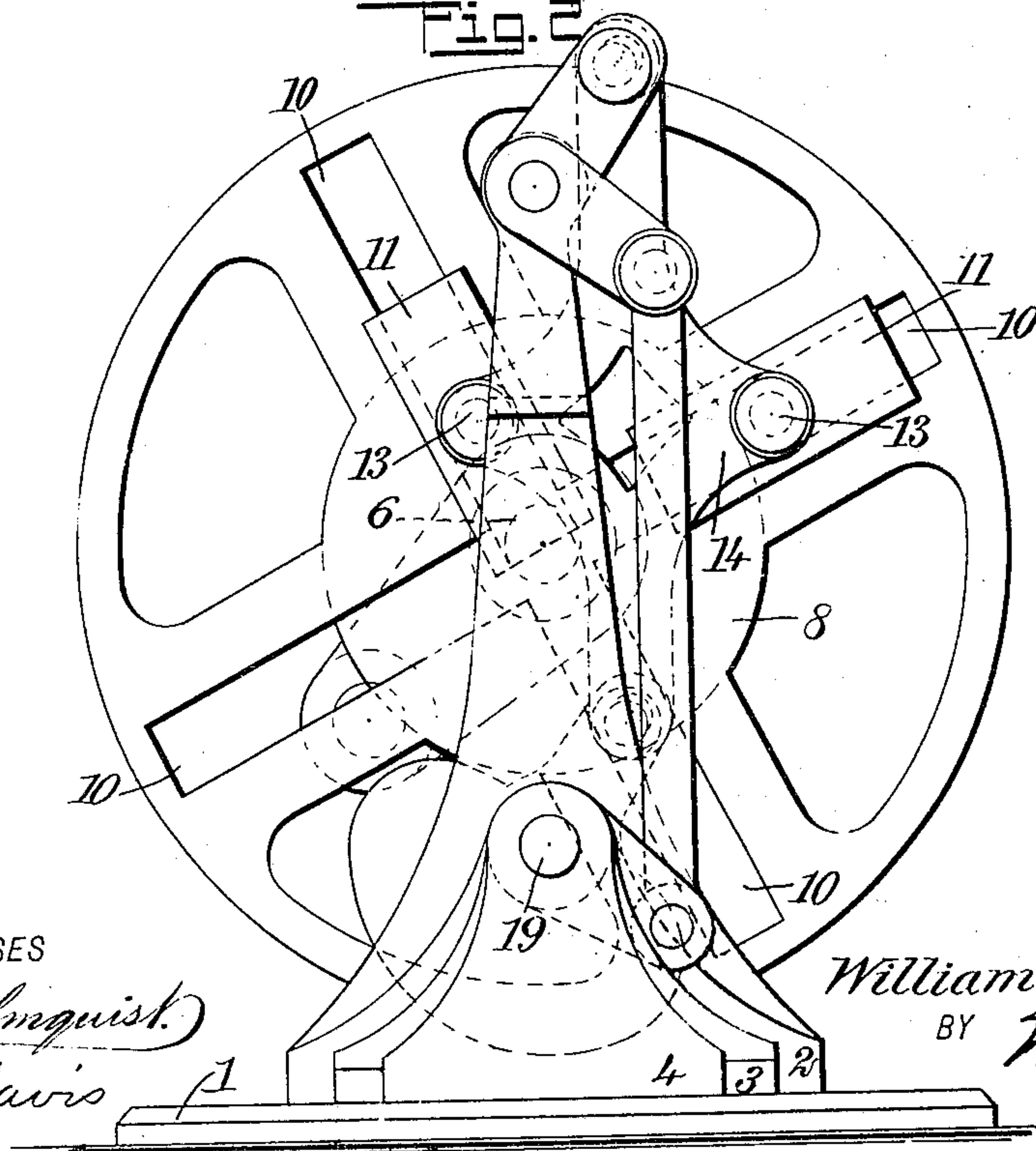


Fig. 2.



WITNESSES

L. Almquist.
J. P. Davis

INVENTOR

William F. Murphy

BY *Munn & Co*

ATTORNEYS

No. 825,858.

PATENTED JULY 10, 1906.

W. F. MURPHY.
MECHANICAL MOVEMENT.
APPLICATION FILED APR. 4, 1906.

2 SHEETS—SHEET 2.

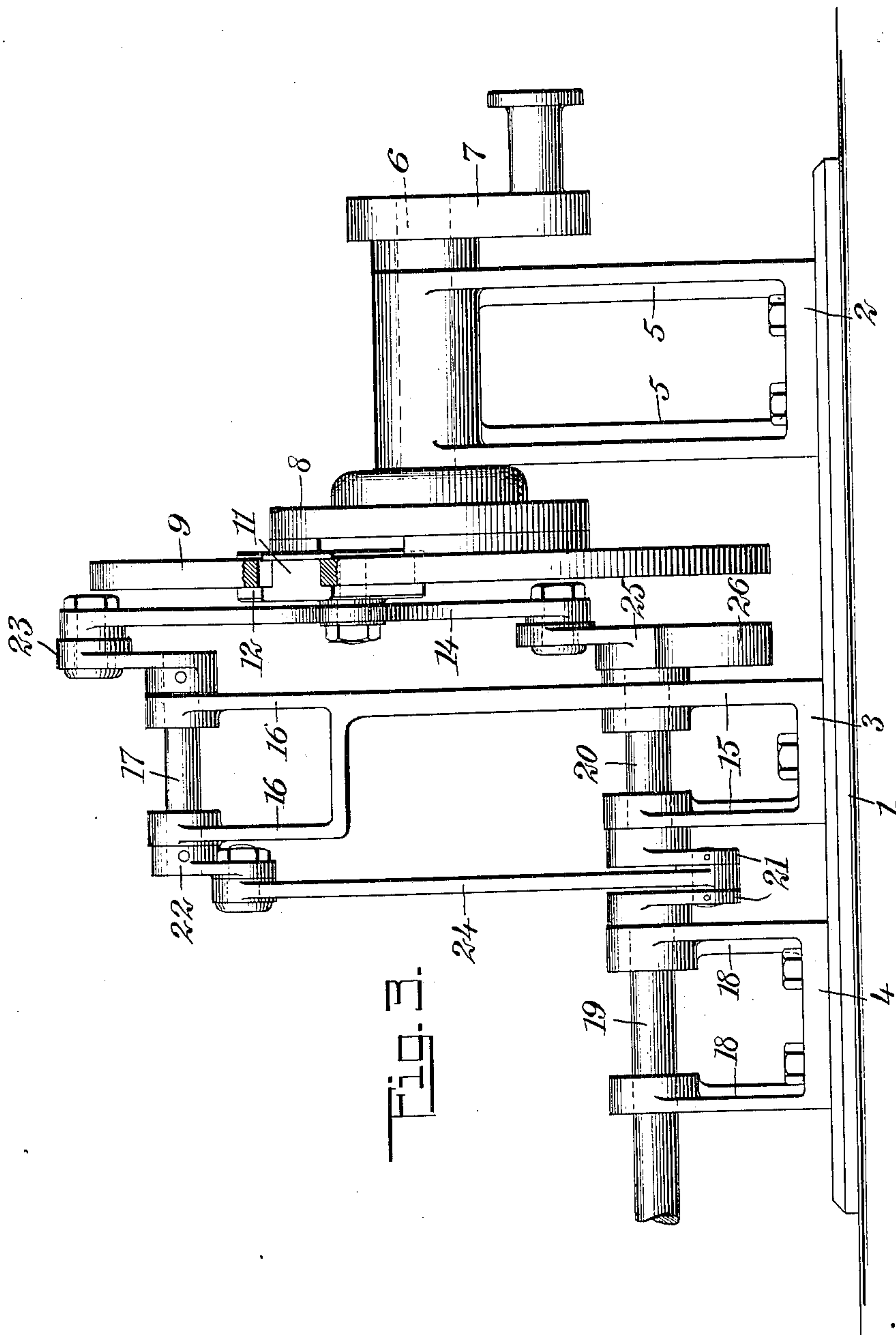


Fig. 3.

WITNESSES

S. Almqvist.
J. P. Davis

INVENTOR

William F. Murphy

BY

Mum Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM F. MURPHY, OF LONG BRANCH, NEW JERSEY.

MECHANICAL MOVEMENT.

No. 825,858.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed April 4, 1906. Serial No. 309,778.

To all whom it may concern:

Be it known that I, WILLIAM F. MURPHY, a citizen of the United States, and a resident of Long Branch, in the county of Monmouth and State of New Jersey, have invented new and useful Improvements in Mechanical Movements, of which the following is a full, clear, and exact description.

This invention is an improvement in mechanical movements, having among other objects to produce a mechanical movement by which rotary motion may be multiplied or reduced with a minimum amount of friction developed in the intervening gearing by which this object is accomplished.

To this end my invention consists in the combination of a driving-shaft connected to a driven shaft through a driving-disk with intersecting guide-grooves in its face traversed by guide-blocks, a cross-head connecting the blocks and a crank-shaft on the driven shaft at one end and to a counter-shaft geared to the driven shaft by suitable cranks and a link at its opposite end.

This movement will be found desirable in boats, locomotives, and other relations where steadiness, smoothness of operation, and a well-balanced movement is desired.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an end elevation, partly broken away, of my improved movement. Fig. 2 is a view similar to Fig. 1 after the driving-disk has made a quarter-turn, and Fig. 3 is a side elevation of Fig. 2.

The numeral 1 indicates a base to which is bolted or otherwise secured standards 2, 3, and 4. The standard 2 is made up of two arms 5, in the upper ends of which is journaled a driving-shaft 6, having a crank 7 fixed at one end and to its opposite end a disk 8, to which is secured a driving-disk 9, with two diametrical slots or guideways 10 in its face at right angles to each other. In each guideway 10 is slidably mounted a guide-block 11, with flanged bearing edges 12, said guide-blocks being pivotally connected at their center by pins 13 to the horizontal arms of a cross-head 14.

The standard 3 is made up of arms 15 of unequal length, the longest of which is adjacent to the driving-disk 9 and passes upwardly

into two branches, in which is journaled a counter-shaft 17.

The standard 4 is placed a slight distance from the standard 3 and is provided with arms 18, similar to the short arm of this standard, in which is journaled a shaft 19, connected to a short shaft 20 in alinement therewith, journaled in the arms 15 by crank-arms 21 between the standards.

Fixed to the ends of the shaft 17 are respectively cranks 22 and 23, the crank 23 being pivoted to a vertical arm of the cross-head 14 and the crank 22 pivoted to a link 24, journaled at its lower end on a crank-pin connecting the arms 21. The end of the shaft 20 is extended beyond the standard 3 and has fixed thereto a crank 25, pivoted to a lower vertical arm of the cross-head 14. The crank 25 carries a counterbalancing-weight 26 to balance the cross-head and its attached mechanism.

In the operation of the movement as the shaft 6 is rotated the guide-blocks 11 are reciprocated in the guide-slots 10 of the disk 9, alternately crossing each other's path and making a complete upward and return movement with each revolution of the disk. With each reciprocation of the guide-blocks 11 the crank-arms 23 and 25, through the cross-head 14, are turned over a complete revolution, thereby driving the shafts 17, 19, and 20 at twice the speed of the disk 9 and its attached shaft 6.

It is evident that various changes may be made in the details of construction without departing from the spirit of my invention or sacrificing any of the advantages thereof, and I consider that I am entitled to such modifications as fall within the scope of the invention as claimed.

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

1. The combination of a driving-shaft, a radially-slotted driving-disk connected thereto, a driven shaft journaled at one end of the driving-shaft, a counter-shaft journaled over the driven shaft, crank-arms at each end of the counter-shaft, crank-arms on the driven shaft, a link connecting a crank-arm on the counter-shaft with a crank-arm on the driven shaft, and a cross-head pivotally attached to guide-blocks in the slots of the disk and connecting crank-arms on the driving and counter shafts.

2. The combination of a driving-shaft, a radially-slotted disk fixed thereto, guide-blocks in the slots, a counter-shaft, a driven shaft, means connecting the counter and driven shafts, and a cross-head pivoted to the guide-blocks and connected to the counter and driven shafts.

3. The combination of a driving-shaft, a radially-slotted disk fixed thereto, guiding means in the slots, a counter-shaft, a driven shaft, means connecting the counter and driven shafts, and a cross-head pivoted to the guiding means and connected to crank-arms on the counter and driven shafts.

4. The combination of a driving-shaft, a radially-slotted disk fixed thereto, guide-blocks in the slots, a counter-shaft, a driven shaft, means connecting the counter and driven shafts, a cross-head pivoted to the guide-blocks and to crank-arms carried by the counter and driven shafts, and a coun-

terbalancing-weight carried by one of said arms for balancing all of said parts.

5. The combination of a support, a driving-shaft journaled therein, a slotted disk fixed to the standard, guide-slots in the disk, a second standard, a driven shaft and a counter-shaft journaled in said second standard, crank-arms carried by the counter and driven shafts, a link connecting one of said crank-arms on the driven shaft with one of said crank-arms on the counter-shaft, and a cross-head pivoted to guide-blocks in the slots of the driving-disk and to crank-arms on the counter and driven shafts.

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

WILLIAM F. MURPHY.

Witnesses:

CHARLES F. SEXTON,

THOMAS V. ARROWSMITH.