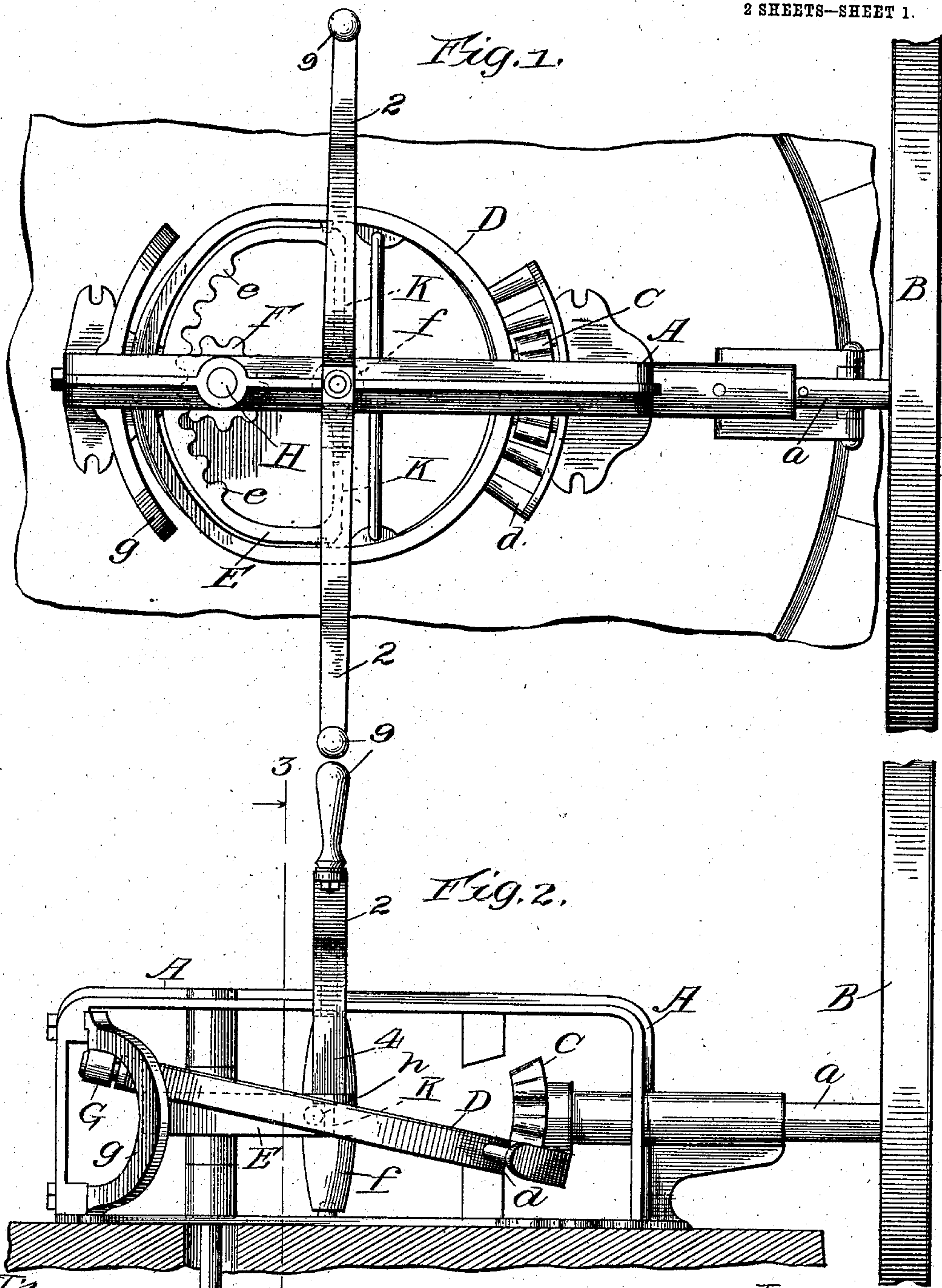


No. 815,309.

PATENTED MAR. 13, 1906.

A. FLAGMAN.  
MECHANICAL MOVEMENT.  
APPLICATION FILED NOV. 3, 1905.

2 SHEETS—SHEET 1.



Witnesses:  
O. J. Kunkel  
E. K. Lundy.

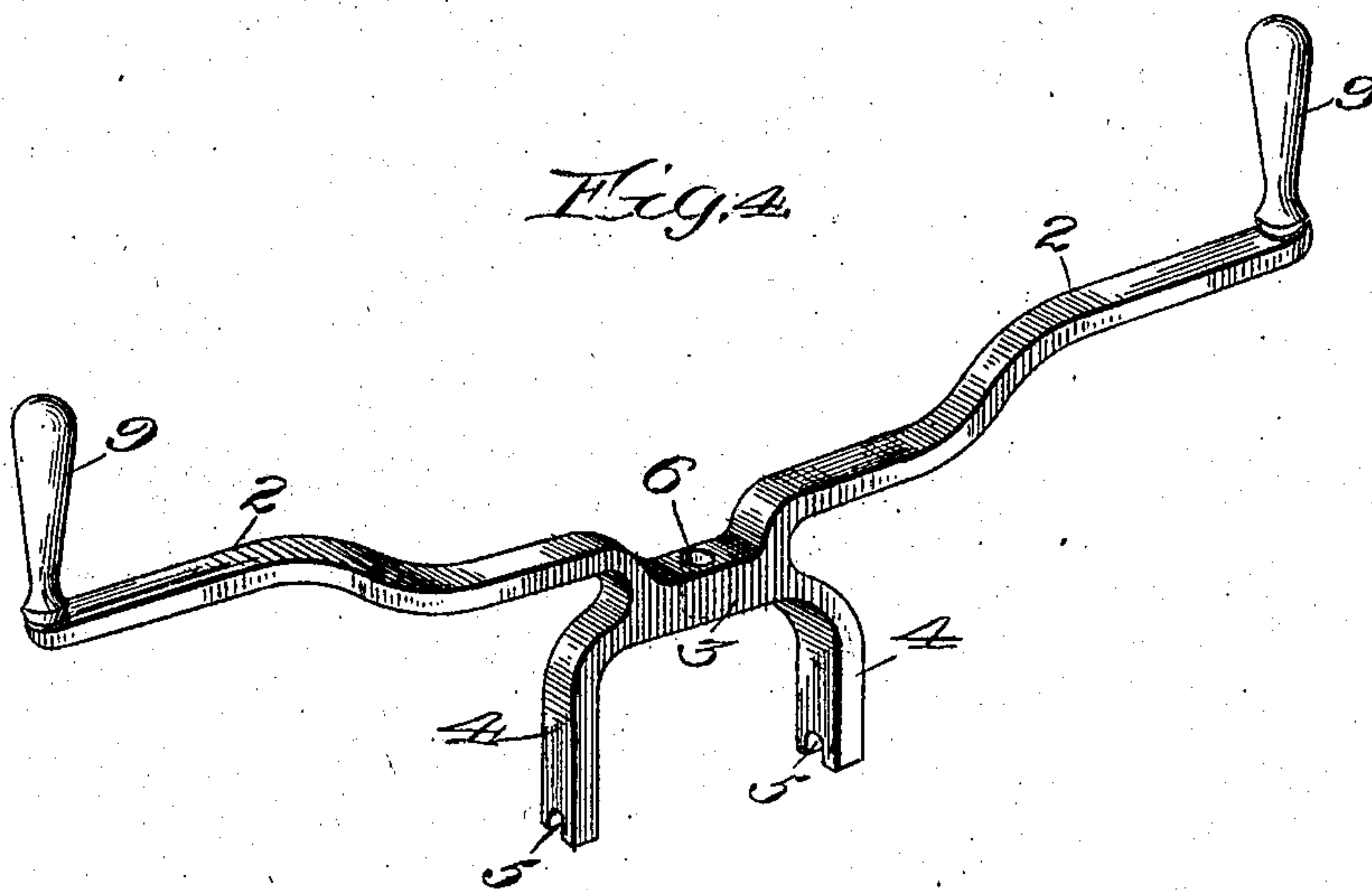
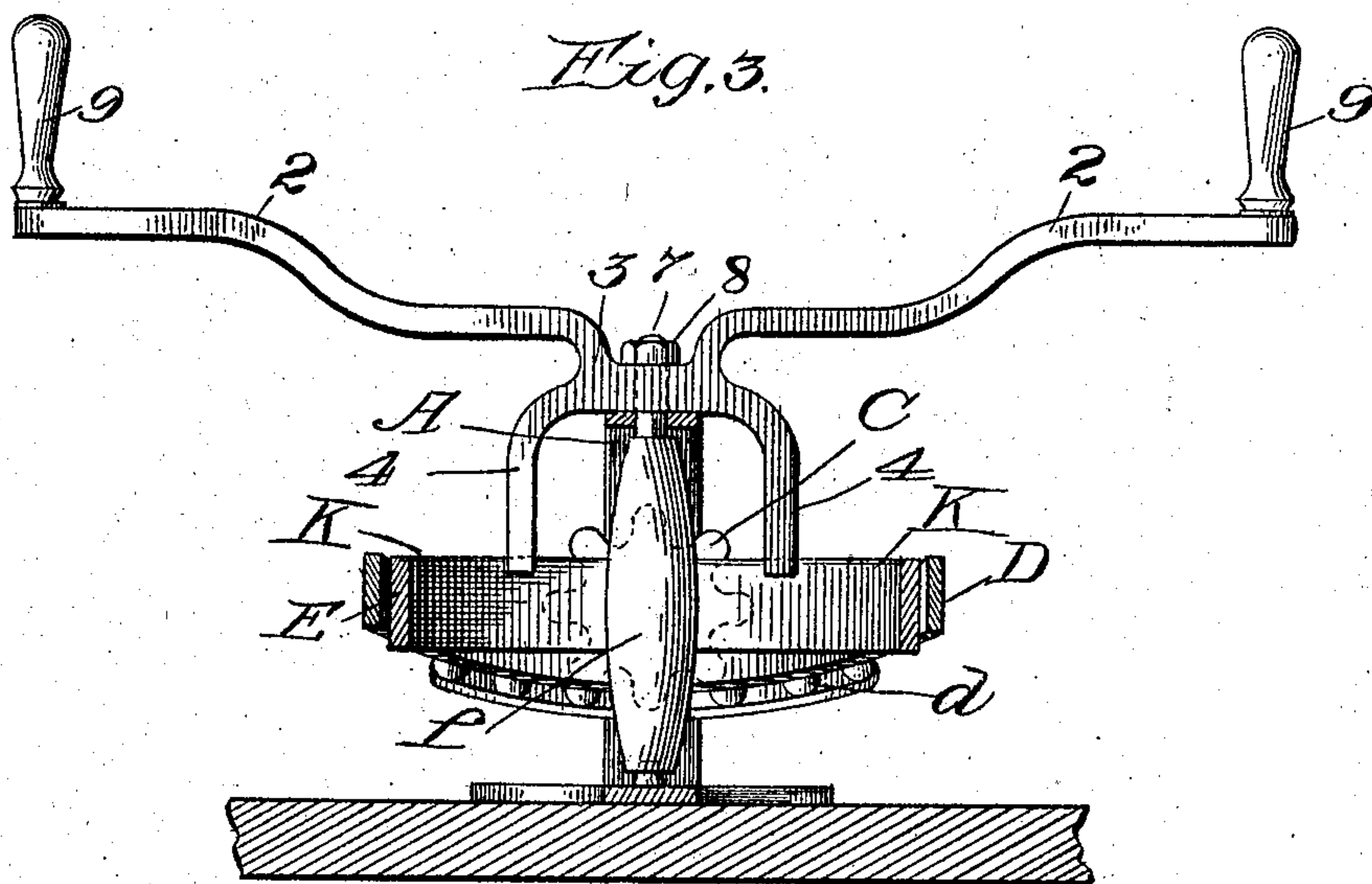
Inventor:  
Adolph Flagman:  
by Frank D. Thomas  
Atty

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2 SHEETS—SHEET 2.



Witnesses:  
O. W. Vennick  
E. K. Lundy

Inventor:  
Adolph Plagman  
by Frank D. Thompson  
Atty



# UNITED STATES PATENT OFFICE.

ADOLPH FLAGMAN, OF DAVENPORT, IOWA, ASSIGNOR TO WHITE LILY WASHER COMPANY, OF DAVENPORT, IOWA, A CORPORATION OF IOWA.

## MECHANICAL MOVEMENT.

No. 815,309.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed November 3, 1905. Serial No. 285,772.

*To all whom it may concern:*

Be it known that I, ADOLPH FLAGMAN, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a clear, full, and exact description.

My invention relates to mechanical movements, and particularly to mechanism for converting a continuously-revolving movement into a rotary reciprocal movement, such as is now extensively used for what are known as "rotary" washing-machines, churns, &c.

The object of my invention is to transfer the manual or other actuating power from the drive-wheel of a machine of this kind to a point nearer to or directly connected with the rotary reciprocal parts of the same, and thus, among other things, enable the operator to derive the advantage which results from the use of the momentum or inertia of the continuously-revolving drive-wheel in running the machine. This I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of the mechanism for which Letters Patent of the United States were issued to me August 23, 1904, No. 768,342, having my improvements applied thereto. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical transverse section taken on dotted line 3 3, Fig. 2. Fig. 4 is a perspective view of my invention removed from the machine.

The mechanism shown in the drawings, to which my improvements are applied, is illustrated and described in said Letters Patent granted to me August 23, 1904, No. 768,342, and comprises a continuously-revolving drive-shaft *a*, suitably journaled in a suitable frame *A* of suitable design. The outer end of this shaft *a* has a fly-wheel *B* mounted thereon, and its opposite end has a pinion *C* secured thereto that meshes with a segmental rack *d*, carried by and projecting from a rocking yoke *D*. Yoke *D* is pivotally connected to the ends of the curved portion of a segmental rack *E* by means of inwardly-projecting trunnions *h h*, and this rack is supported in the same plane as the shaft *a* by arms *K K*, projecting in diamet-

rically opposite directions from a hub *f*, whose ends are respectively journaled in the upper and lower horizontal reaches of frame *A*. At a point diametrically opposite the rack *d* yoke *D* has an antifriction-roller *G*, that is journaled on a stud projecting therefrom and engages the elliptical inner edge of a guide-frame *g*. Guide-frame *g* is secured at about its center of length to the vertical end portion of frame *A* opposite the end thereof in which the bearings for the shaft *a* are made and is given a curvature which is struck from the center of the hub *f* of the segmental rack *E*. When the shaft *a* is revolved, pinion *C* through its engagement of the rack *d* imparts to yoke *D* a rotary reciprocal movement, and by virtue of the engagement of the antifriction-roller *G* with the guide-frame *g* causes the yoke *D* to rock up and down, so as to enable the pinion to engage first the upper and then the lower side of the rack *d* to produce said rotary reciprocal movement. The rack *E* is provided with internal teeth *e*, which mesh with a pinion *F*, secured to the vertical rotary reciprocal shaft *H* intermediate its bearings in the horizontal reaches of the frame *A*.

The description of the mechanism thus far described has been confined to the gearing forming the subject-matter of my aforesaid Letters Patent. My invention relates to means which are applied directly to the segmental rack *E*. This means consist of a pair of handles *2 2*, that preferably correspond in shape and dimensions and project in diametrically opposite directions from a suitable boss *3*, which latter has inverted-L-shaped arms *4 4* projecting from its ends, preferably in the same direction as and in a plane below the handles *2 2*. Between its ends boss *3* is provided with a vertically-disposed opening *6*, which when said handles are used fits over the upper extended end of the upper journal *7* of the hub *f* of the segmental rack, and the lower extremities of the arms *4 4* rest upon the supporting-arms *k k* of the segmental rack and are provided with recesses or notches *5 5* or are bifurcated to enable said extremities to straddle and embrace the upper edges of arms *K K*, as shown. In the drawings of my aforesaid Patent No. 768,342 the hub *f* is shown to be journaled on the "studs." In order to prevent end play of the handles *2*



2, I have provided the upper end of the said hub *f* with said integral journal 7, which latter extends through its bearings in the upper horizontal reach of frame A and is of sufficient length to extend through the opening 6 of the boss 3 of the handles and, if desired, sufficient to have its upper end screw-threaded and provided with a nut 8 thereon to prevent the accidental displacement of said handles 2 2.

If desired, the journal 7 of the hub *f* may be dispensed with and suitable provision for centering the handles be otherwise provided, although I desire it to be understood that such centering devices are not absolutely essential and can be dispensed with altogether. It is also possible for one of the arms 4 and one of the handles 2 to be dispensed with, although I much prefer the use of two of each.

I prefer to start the machine going by revolving fly-wheel B and shaft *a*, although this need not be done, and then taking hold of the hand-grasps 9 9 and work them back and forth so as to impart to the segmental rack E a rotary reciprocal movement, whereby the rack and pinion F actuates the rotary reciprocal shaft H. The rotary reciprocation of the rack E causes shaft *a* and drive-wheel B to revolve continuously in one direction, and the momentum or inertia of the fly-wheel acts as a balance for and materially assists in the operation of the machine.

What I claim as new is—

1. In a mechanical movement the combination with a continuously-revolving shaft, segmental gear disposed in substantially the same plane as and operatively connected to said shaft, a rotary reciprocal shaft engaged thereby, and devices removably connected to said segmental gear for actuating said movement.

2. In a mechanical movement the combination with a continuously-revolving shaft, segmental gear disposed in substantially the same plane as and operatively connected to said shaft, a rotary reciprocal shaft engaged thereby, and devices connected to said segmental gear for actuating said movement.

3. In a mechanical movement the combination with a continuously-revolving shaft, a rotary reciprocal shaft, a segmental gear engaging said rotary reciprocal shaft, and a rocking yoke having a segmental rack engaged by said continuously-revolving shaft, of devices removably connected to said gear for actuating said movement.

4. In a mechanical movement the combination of a continuously-revolving shaft, a rotary reciprocal shaft, rotary reciprocal means for operatively connecting said shafts,

and a handle pivoted at one end concentric to the axis of said means and provided with an arm which is removably connected to said means for actuating said movement.

5. In a mechanical movement the combination of a continuously-revolving shaft, a rotary reciprocal shaft, means for operatively connecting said shafts, and a pair of handles extending in opposite direction from a common boss that has projecting arms and is removably connected to said means for actuating said movement.

6. In a mechanical movement the combination with a continuously-revolving shaft, a segmental gear operatively connected thereto and a rotary reciprocal shaft arranged at right angles to and engaged by said segmental gear, of a handle one end of which is pivoted in alinement with said segmental gear, and which handle has an arm projecting from its pivoted end adapted to engage said segmental gear to actuate said movement.

7. In a mechanical movement the combination with a continuously-revolving shaft, a segmental gear operatively connected thereto, a rotary reciprocal shaft engaged thereby, and a pair of handles extending in opposite directions from a common boss which is pivoted in alinement with the axis of said segmental gear, and is provided with projecting arms that engage and are removably connected to said segmental gear for actuating said movement.

8. In a mechanical movement the combination with a continuously-revolving shaft, a rotary reciprocal shaft, a segmental gear engaging said shaft, and a rocking yoke having a segmental rack engaged by said continuously-revolving shaft, of a handle pivoted at one end in alinement with the axis of said segmental gear having an arm and removably connected to said gear for actuating said movement.

9. In a mechanical movement the combination with a continuously-revolving shaft, a rotary reciprocal shaft, a segmental gear engaging said shaft, and a rocking yoke having a segmental rack engaged by said continuously-revolving shaft, of a pair of handles extending in opposite direction from a common boss which is pivoted in alinement with the axis of said segmental gear and is provided with projecting arms that engage and are removably connected to said gear for actuating said movement.

In testimony whereof I have hereunto set my hand this 24th day of October, 1905.

ADOLPH PLAGMAN.

Witnesses:

OLGA R. MECKELNBURG,  
B. L. SCHMIDT.