J. LJUNG.

DEVICE FOR CONVERTING MOTION.

APPLICATION FILED MAY 23, 1917.

1,236,325.

Patented Aug. 7, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

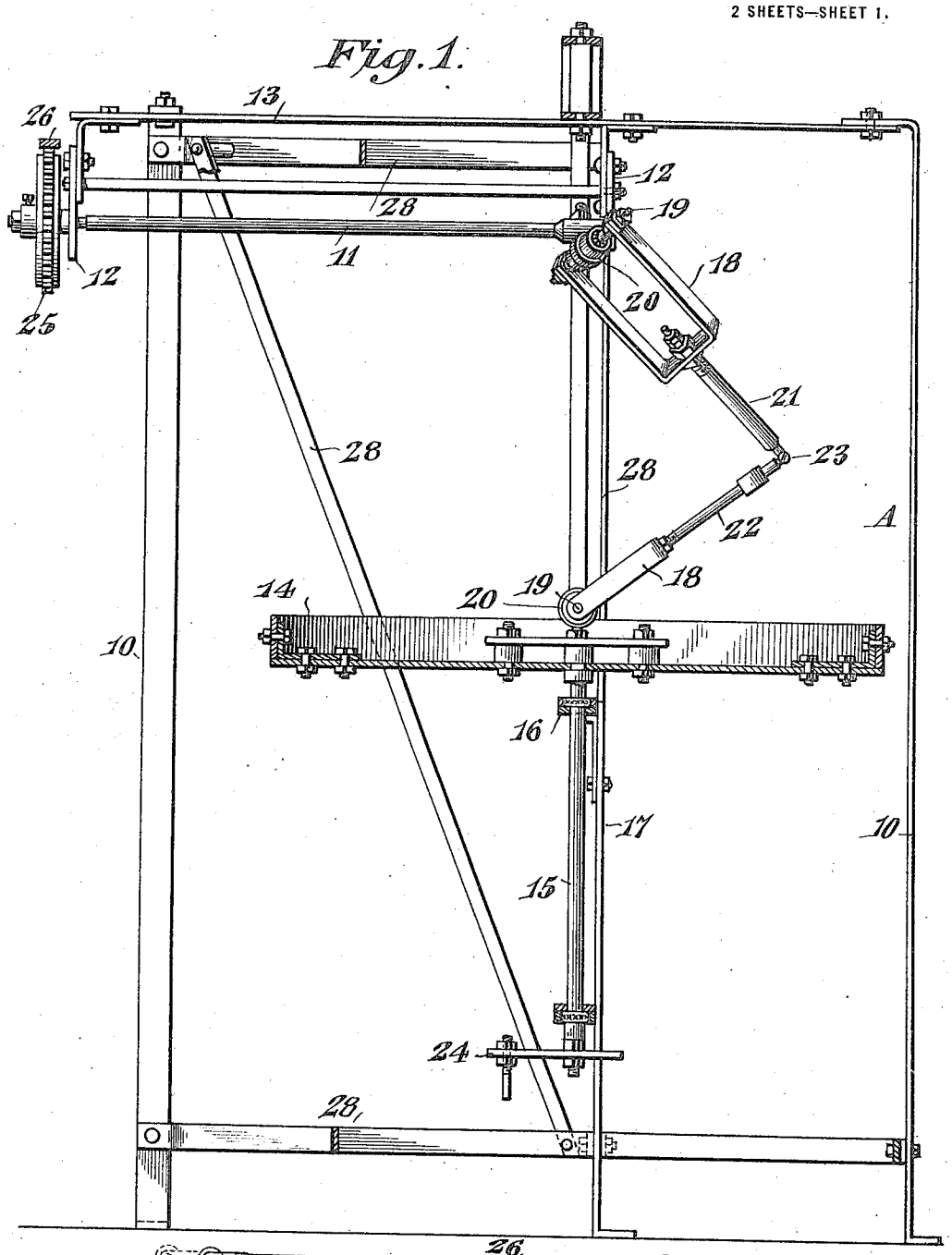


Fig. 4.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

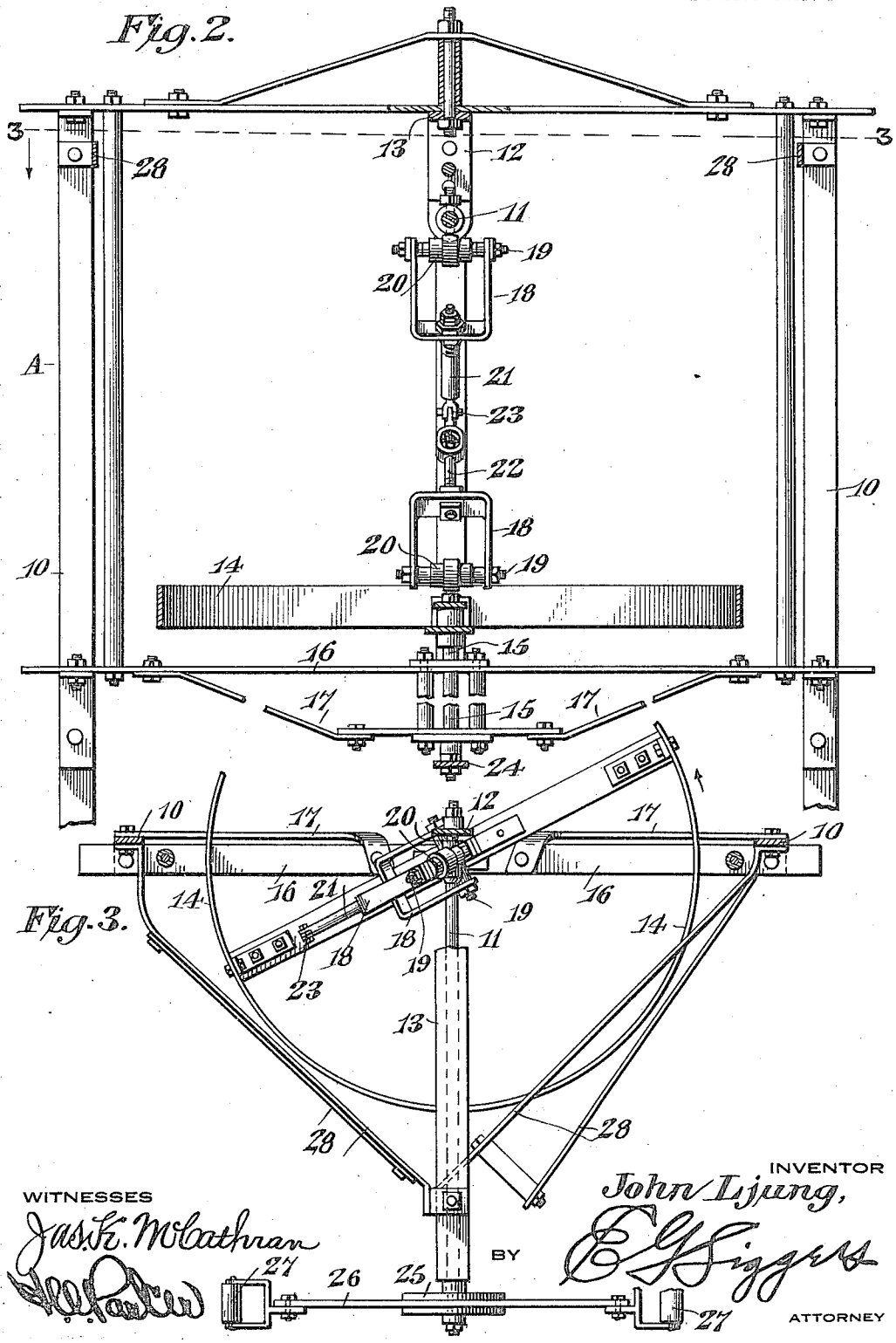


Fig. 3.

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JOHN LJUNG, OF ALEXANDRIA, MINNESOTA.

DEVICE FOR CONVERTING MOTION.

1,236,325. Specification of Letters Patent. Patented Aug. 7, 1917.

Application filed May 23, 1917. Serial No. 170,459.

To all whom it may concern:

Be it known that I, JOHN LJUNG, a citizen of the United States, residing at Alexandria, in the county of Douglas and State of Minnesota, have invented a new and useful Device for Converting Motion, of which the following is a specification.

The invention relates to a power transmission mechanism and more particularly to the class of devices for converting motion.

The primary object of the invention is the provision of a device of this character wherein on the initial starting thereof the same will sustain its momentum which is continuous for a predetermined period with the least possible resistance, and without the necessity of driving force being continuously imparted thereto while in operation.

Another object of the invention is the provision of a device of this character wherein the construction thereof is novel in form so as to convert reciprocatory or oscillatory movement into a continuous rotary motion and the momentum thereof can be utilized for driving machinery or the like.

Other objects will be in part obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings:

Figure 1 is an elevation partly in section of a device constructed in accordance with the invention.

Fig. 2 is a fragmentary vertical sectional elevation.

Fig. 3 is a sectional view, taken approximately on the line 3—3 of Fig. 2, looking in the direction of the arrow.

Fig. 4 is a side elevation of the operating rack or driving member for the device.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail A designates generally a support in the form of a frame 10 which may be of any desirable construction for accommodating the converting mechanism hereinafter fully described.

The converting mechanism comprises a horizontally disposed shaft 11 mounted in hangers 12 fixed to and depending from the upper cross bar 13 of the frame 10 and these hangers 12 are provided with suitable anti-friction bearings which surround the shaft 11 to minimize friction on the turning of said shaft when the mechanism is in operation. Arranged within the frame 10 below the shaft 11 is a rotor in the form of a fly wheel 14 which is horizontally disposed and has its supporting shaft 15 journaled in a lower cross bar 16 and a bracket 17 depending from the latter, the bar and bracket being fitted with suitable anti-friction bearings for said shaft 15.

Connected with the horizontal shaft 11 and the vertical shaft 15 is a knuckle joint elbow arm which comprises the fork or yoke terminals 18 carrying cross axles 19 which are fastened therein in any suitable manner, and these axles are journaled in hubs 20 fixed in any suitable manner to the shafts 11 and 15, respectively, the hubs being centrally fixed and are disposed transversely relative to the axis of movements of said shafts. The forks or yoke terminals 18 have engaged therewith the stems or sections 21 and 22 of said elbow arm and these stems or sections are connected with each other through the medium of a swivel or knuckle joint 23 so that one section will be free for the movement imparted thereto from its shaft and likewise the other section will be free for movement imparted to the other shaft through the elbow arm, as on the rocking of the shaft 11 the fly wheel 14 will be continuously rotated and likewise the shaft 15 will be turned in the direction of rotation of said wheel. On the lower end of the vertical shaft 15 is a crank 24 for connection with machinery or the like, so that motion from the converting mechanism may be utilized for the driving of such machinery or the like.

The shaft 11 in the frame 10 is disposed at right angles to the vertical shaft 15 and on the outer end of this shaft 10 is fixed a rack gear 25 upon which is adapted to be disposed a toothed rack bar 26, the same being of the desired length and carries at opposite ends cross handles 27 so that manual power can be applied for actuating the rack bar to effect the initial starting of the converting mechanism in a manner hereinafter fully described.

It is, of course, to be understood that suitable anti-friction bearings will be employed at all points in the mechanism when neces-

sary to minimize or reduce friction in the operation thereof.

The support A, which is in the form of the frame 10 may be materially reinforced or strengthened by the employment of suitable braces 28 which are fastened to the frame in any suitable manner.

In the operation of the mechanism the rack bar 26 is brought into position for the meshing of its teeth with the gear 25, which, in this instance, may be termed the starting gear, and on either pushing or pulling upon the rack bar 26 for its movement in one direction, the shaft 11 is caused to partially rotate, thereby causing the reciprocation of the rack bar 26, and when force is applied thereto the shaft 11 will be reversely rotated and through the elbow connection between the latter and the vertical shaft 15 the fly wheel 14 will be caused to rotate in one direction and on the same arriving at a predetermined momentum, the mechanism will continuously operate without constant manual energy being applied in the working of the rack bar 26 and such mechanism will be active for a predetermined period of time with the least possible resistance after initially starting the same.

It will be noted that the reciprocatory movement of the rack bar 26 through the motion of the shaft 11 will be converted into rotary motion and the momentum of this motion will afford power for the driving of machinery or the like.

The sections 21 and 22 of the elbow arm are preferably adjustably connected to the forks or yoke terminals 18 so that a variable throw of the elbow arm can be had. Also this adjustment will permit the positioning of the shaft 11 or the shaft 15 farther apart from each other or closer together, as the occasion may require.

It is, of course, to be understood that the invention is not restricted to the precise construction hereinbefore described and illustrated in the accompanying drawings, therefore, changes, variations and modifications may be resorted to such as come properly within the scope of the appended claims, without departing from the spirit of the invention or sacrificing any of its advantages.

From the foregoing, it is thought that the construction and manner of operation of the invention will be clearly understood, and therefore, a more extended explanation has been omitted.

What is claimed is:—

1. In a device for converting motion, a rocking shaft, means for actuating the shaft, a rotary member, and a knuckle jointed elbow connection between said shaft and rotary member for transferring a reciprocatory motion through the shaft to the rotary member for driving the latter.

2. In a device for converting motion, a rocking shaft, a rotary member, a knuckle jointed elbow connection between said shaft and rotary member for transferring a reciprocatory motion through the shaft to the rotary member for driving the latter, and manually operated reciprocatory means for initially driving said shaft.

3. In mechanism of the character described, rocking and rotary elements, means for rocking the shaft, a knuckle jointed elbow connection between said elements for transferring reciprocatory motion through the rocking element to the rotary element, and means for assuring uniform momentum carried by the rotary element.

4. In mechanism of the character described, rocking and rotary elements, means for rocking the shaft, a knuckle jointed elbow connection between said elements for transferring reciprocatory motion through the rocking element to the rotary element, means for assuring uniform momentum carried by the rotary element, and a support for the rocking and rotating elements.

5. In mechanism of the character described, rocking and rotary elements, a knuckle jointed elbow connection between said elements for transferring reciprocatory motion through the rocking element to the rotary element, a part carried by the rotary element for effecting uniform momentum, and a reciprocatory member for connection with the rocking element to effect the initial movement thereof.

6. In a device for converting motion, a support, a horizontally disposed rocking shaft mounted in said support, a vertically disposed rotatable shaft in said support, a fly wheel fixed to the rotary shaft, a jointed elbow connection between said shafts, a rack gear fixed to the rocking shaft, and a reciprocatory rack bar for meshing engagement with said gear to effect the initial movement to the rocking shaft.

7. In a device for converting motion, a support, a horizontally disposed rocking shaft mounted in said support, a vertically disposed rotatable shaft in said support, a fly wheel fixed to the rotary shaft, a jointed elbow connection between said shafts, a rack gear fixed to the rocking shaft, a reciprocatory rack bar for meshing engagement with said gear to effect the initial movement to the rocking shaft, and handles on the ends of the rack bar.

8. In a device for converting motion, a rocking shaft, a rotatable shaft, a knuckle jointed elbow connection between said shafts, a rack gear on the rocking shaft, and a manually operated rack bar for meshing engagement with the gear to impart motion thereto.

9. In a device for converting motion, a rocking shaft, a rotatable shaft, a knuckle

jointed elbow connection between said shafts, a rack gear on the rocking shaft, a manually operated rack bar for meshing engagement with the gear to impart motion thereto, and a fly wheel supported by the rotatable shaft.

10. In a device for converting motion, a rocking shaft, a rotatable shaft, a knuckle jointed elbow connection between said shafts, a rack gear on the rocking shaft, a manually operated rack bar for meshing engagement with the gear to impart motion thereto, and means for permitting adjustment of the knuckle joint elbow.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN LJUNG.

Witnesses:
ALLIN LJUNG,
EMERY LJUNG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."