

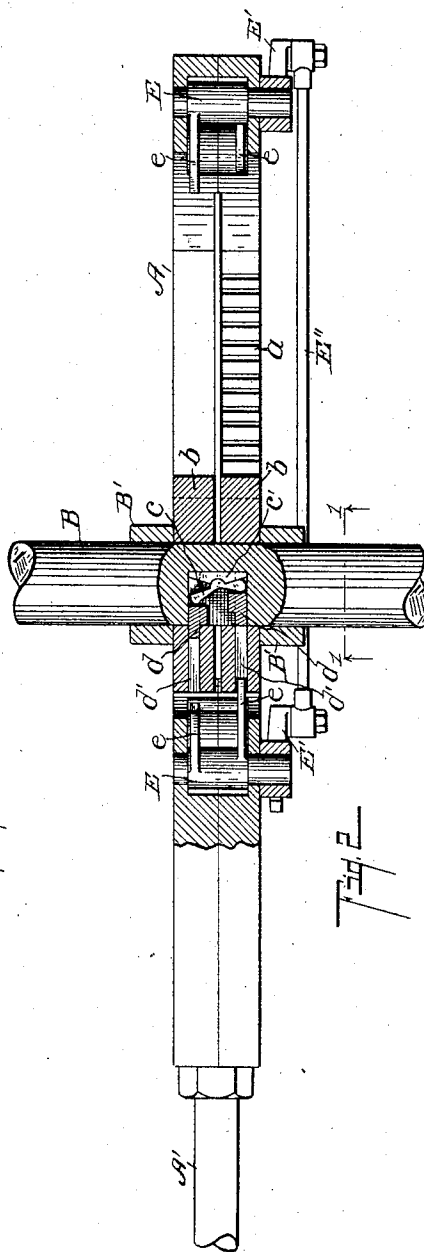
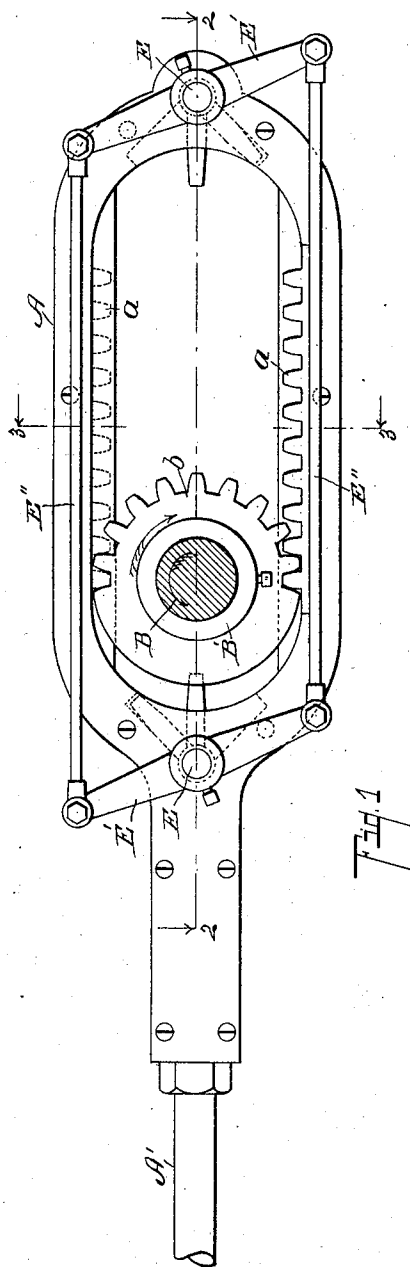
No. 769,327.

PATENTED SEPT. 6, 1904.

J. SHELIN.
MECHANICAL MOVEMENT.
APPLICATION FILED NOV. 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Edw. A. Teller
Otis W. Earl

Inventor:

Joseph Shelin
By *Frederick L. Chappell*
Att'y.

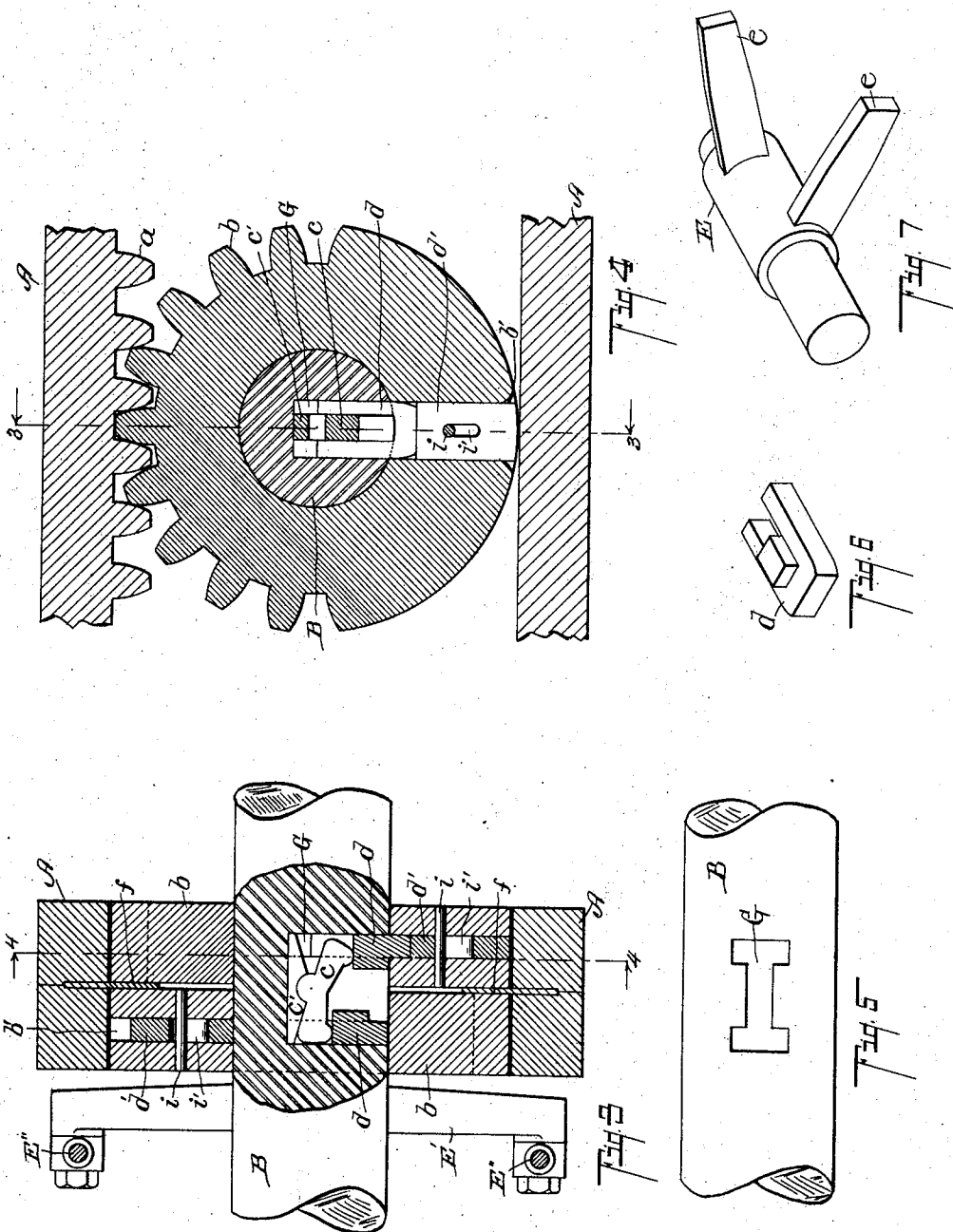
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2 SHEETS—SHEET 2.



Witnesses:

Estel A. Teller
Chas. Earl

Inventor,

Joseph Sheline
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UNITED STATES PATENT OFFICE.

JOSEPH SHELINE, OF VALINIA TOWNSHIP, CASS COUNTY, MICHIGAN.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 769,327, dated September 6, 1904.

Application filed November 27, 1903. Serial No. 182,799. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SHELINE, a citizen of the United States, residing in the township of Valinia, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Mechanical Movement, of which the following is a specification.

This invention relates to improvements in mechanical movements.

The objects of this invention are, first, to provide an improved mechanical movement adapted to convert reciprocatory into rotary motion, or vice versa, which may be quickly adjusted to drive a shaft in either direction; second, to provide an improved mechanical movement adapted to convert reciprocatory into rotary motion, or vice versa, which is simple and compact in structure and strong and durable and not likely to get out of repair.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail sectional view of my improved mechanical movement, taken on a line corresponding to line 1 1 of Fig. 2. Fig. 2 is a detail longitudinal sectional view taken on a line corresponding to line 2 2 of Fig. 1, portions being shown in full lines to show their structure. Fig. 3 is a detail cross-sectional view taken on a line corresponding to line 3 3 of Figs. 1 and 4, showing details of the connecting means for the pinions B' to the shaft B, the rocker c and its bearing being shown in full lines. Fig. 4 is a detail sectional view taken on line 4 4 of Fig. 3, portions of the locking means being shown in full lines. Fig. 5 is an enlarged detail side elevational view of the shaft B, showing the chamber G therein to receive parts of the mechanism for connect-

ing the pinions B' thereto. Fig. 6 is an enlarged perspective view of one of the keys d. Fig. 7 is an enlarged perspective view of one of the rock-shafts E by which the trip-pins e are carried.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, a yoke-like head A is provided. This head is secured to the pitman A'.

B is the shaft, which may either be a driven or a driving-shaft, according to the use desired. Mounted side by side on the shaft B are a pair of mutilated pinions B'. These pinions are adapted to be alternately connected to the shaft B. The means by which this is accomplished will be hereinafter pointed out. The pinions B' are provided with gear-teeth b on one-half their circumference. These teeth are cut within the perimeter of the pinion, so that the pinions afford an even support for the head, which is provided with suitable ways to receive the same and is adapted to reciprocate thereon. The head A is provided with racks a, adapted to mesh with the teeth b of the pinions B'. These racks are oppositely arranged—that is, one is arranged on the upper side of the head and the other on the lower. The pinions B' are alternately connected to the shaft B by the sliding keys d, which are seated in the chamber G, formed in the shaft, as clearly appears in the drawings.

In the bottom of the chamber G, mounted upon a suitable bearing-block c', is the rocker c, against which the inner ends of the keys d rest. Thus supported when one of the keys d is in its inner position the other key must of necessity be in its outer position. The keys d are notched to straddle the rocker c, so that the rocker is held in position on its bearing. Radial slots b are formed through the pinions. The keys d are adapted to project into these slots when in their outer position, and thereby secure the pinions to the shaft. As before remarked, the keys d are alternately held in their outer or engaging

position, so that the pinions are alternately secured to the shaft.

Slidably secured within the slots *b* by the pins *i*, which engages slots *i'* therein, are blocks *d'*. The inner ends of these blocks rest against the keys *d*.

At each end of the head A is a rock-shaft E, having a pair of inwardly-projecting arms *e* thereon. (See Figs. 1, 2, and 3.) Cross-arms E' are secured to projecting ends of the rock-shafts E. These cross-arms are connected by links E'', so that the rock-shafts are actuated in unison. One of the arms *e* on each of the rock-shafts E projects into the path of the pinions B' and striking the sliding blocks *d'* force the same inward, thereby forcing the key *d* inward, releasing one pinion from the shaft and through the rocker *c* securing the other thereto. On the opposite ends of the stroke the trip acts in the same manner, releasing the one pinion and securing the other. The shaft is thus driven continuously in one direction. The trips or arms *e* are arranged on the shafts E so that when one of them is thrown up into position in one of the ways the other is thrown down. When it is desired to change the direction in which the shaft is driven, the trips are shifted, which reverses the connection of the pinions—that is, the pinions will be connected to the shaft at opposite ends of the stroke than when the trips were in the first position. The direction is by this means very quickly changed as desired. The ways are formed in the head A by securing a pin *f* therein, so that the pinions are separated thereby and travel along each side of the same, as clearly appears in Fig. 3.

My improved mechanical movement is very compact and simple in structure and is not likely to get out of repair. The same may be quickly reversed. The structure is very light and compact.

I have illustrated and described my improved mechanical movement in the form preferred by me on account of its simplicity and compactness. I am, however, aware that it is capable of considerable variation in structural details without departing from my invention.

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

1. In a structure of the class described, the combination of a head, adapted to reciprocate, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions having radial slots therein arranged in said ways; a shaft having a chamber therein; a rocker in said chamber; keys resting against said rocker, adapted to engage the slots in said pinions when in their outer position; sliding blocks in said slots adapted to engage said keys; rock-shafts supported at the ends of said ways; arms or trips on said

rock-shafts, adapted to alternately project into said ways as said rock-shafts are adjusted to engage said blocks whereby said keys are shifted, for the purpose specified.

2. In a structure of the class described, the combination of a head, adapted to reciprocate, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions having radial slots therein arranged in said ways; a shaft having a chamber therein; a rocker in said chamber; keys resting against said rocker adapted to engage the slots in said pinions when in their outer position; rock-shafts supported at the ends of said ways; arms or trips on said rock-shafts, adapted to alternately project into said ways, as said rock-shafts are adjusted; and means for shifting said keys controlled by said trips, for the purpose specified.

3. In a structure of the class described, the combination of a pitman-head, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions having radial slots therein arranged in said ways; a shaft having a chamber therein; a rocker supported on a suitable bearing in said chamber; keys resting against said rocker adapted to engage the slots in said pinions when in their outer position; sliding blocks in said slots adapted to engage said keys; trips at the ends of said ways adapted to engage said blocks, whereby said keys are shifted; and means for shifting said trips to throw them into and out of operative position, for the purpose specified.

4. In a structure of the class described, the combination of a pitman-head, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions having radial slots therein arranged in said ways; a shaft having a chamber therein; a rocker in said chamber; keys resting against said rocker adapted to engage the slots in said pinions when in their outer position; trips arranged at the ends of said ways; means for shifting said trips to throw them into and out of operative position; and means for shifting said keys controlled by said trips.

5. In a structure of the class described, the combination of a pitman-head, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions having radial slots therein arranged in said ways; a shaft having a chamber therein; a rocker in said chamber; keys resting against said rocker adapted to engage the slots in said pinions when in their outer position; and means for shifting said keys.

6. In a structure of the class described, the combination of a head adapted to reciprocate, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions arranged in said ways; a shaft having a chamber therein; a rocker in said chamber; keys adapted to engage said pinions when in

their outer position, resting against said rocker; and means for shifting said keys, for the purpose specified.

5 7. In a structure of the class described, the combination of a head adapted to reciprocate, having parallel ways therein; racks oppositely arranged in said ways; a pair of mutilated pinions arranged in said ways; a shaft; keys adapted to alternately connect said pinions to

said shaft; and means for shifting said keys, for the purpose specified.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEPH SHELINE.

Witnesses:

JAMES H. KINNANE,
J. R. EDWARDS.