

J. FEIDT.  
SYSTEM OF MECHANICAL TRANSMISSION.  
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1,025,796.

Patented May 7, 1912.

Fig. 1.

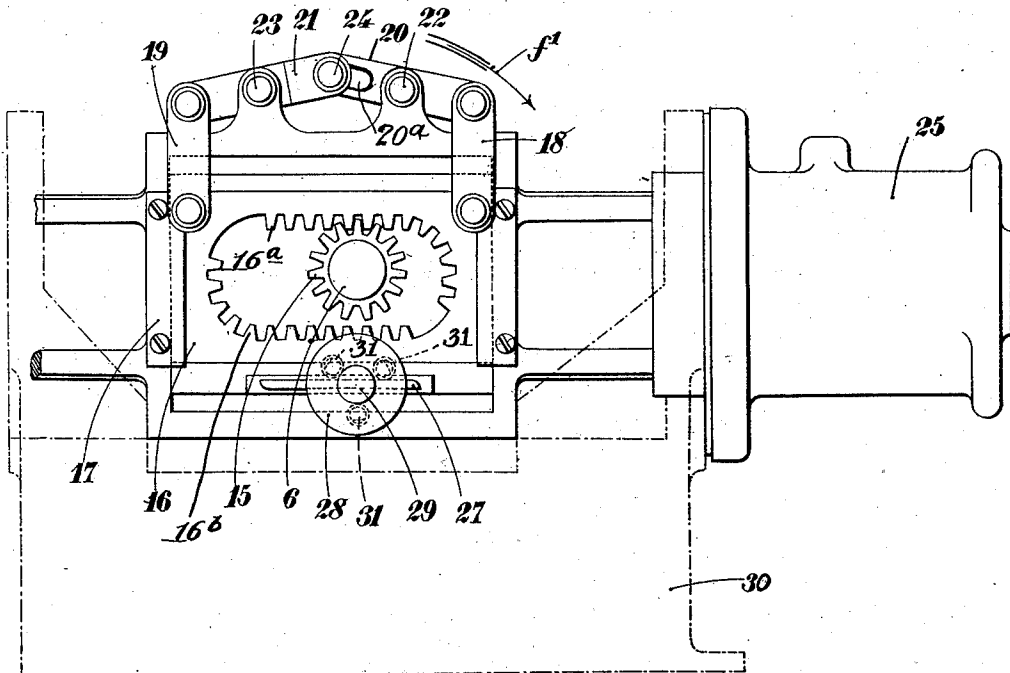
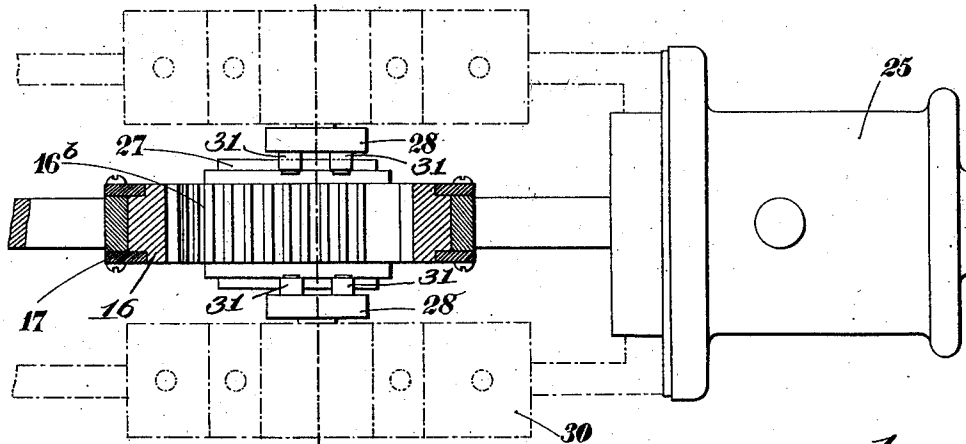


Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOSEPH FEIDT, OF LUNÉVILLE, FRANCE.

## SYSTEM OF MECHANICAL TRANSMISSION.

1,025,796.

Specification of Letters Patent.

Patented May 7, 1912.

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*To all whom it may concern:*

Be it known that I, JOSEPH FEIDT, a citizen of the French Republic, residing at Lunéville, Department of the Meurthe-et-Moselle, in France, have invented certain new and useful Improvements in Systems of Mechanical Transmission, of which the following is a specification.

The present invention has for its object to provide a device adapted to convert a continuous rotary movement into an alternating rectilinear movement. In this device a gear mounted upon the driving shaft engages with an interrupted rack upon the inside edge of a frame having an alternating movement at a constant speed which it transmits to the device or mechanism to be operated.

Figure 1 is a side elevation of the mechanism embodying the features of the invention. Fig. 2 is a horizontal section of the same.

The numeral 6 designates a driving crank shaft or any other suitable shaft that may be provided with a connecting rod to cooperate with other mechanism. The driving shaft 6 has a pinion 15 thereon arranged inside of a frame 16. This frame 16 has on its inner edge two racks 16<sup>a</sup> and 16<sup>b</sup> each comprising a rectilinear and a segmental part. The frame 16 is adapted to move vertically in a slide 17, the latter in turn having a rectilinear movement upon a bed plate 30, the said slide being shown as directly connected to the piston of a cylinder 25 of a compressor or other mechanism, the opposite end of said slide being adapted to be connected to and operate with a similar cylinder. According to the position occupied by the frame 16 one or the other of the racks is always in engagement with the pinion 15 in order to cause the said frame 16 to continuously operate as desired. In order to cause the frame 16 to rise vertically with relation to the slide 17 it has its upper portion connected by two links 18 and 19 to two levers 20 and 21 mounted to oscillate about the fulcrum points 22 and 23 in suitable brackets carried by the slide 17, the said levers 20 and 21 having their inner extremities movably connected by a pin 24. The lever 20 is formed with a slot 20<sup>a</sup> to permit the pin 24 to slide backwardly and forwardly during the vertical reciprocation of the frame 16. The lower portion of the frame 16 is provided with a horizontal rib 27 and adjacent

thereto a shaft 29 is loosely mounted upon the bed plate 30 and has thereon a disk 28 which cooperates with said rib. On the disk 28 adjacent to the rib, three rollers 31 are mounted and arranged to contact with the edges of the rib 27 to effect and guide the frame 16 in its longitudinal displacement.

The operation of the apparatus is as follows: From the position shown with the pinion 15 on the shaft 6 engaging with the upper rack of the frame 16, the said frame and the slide 17 are first displaced toward the right, thus producing an active stroke of the piston of the cylinder 25; the pinion 15 then comes into engagement with the left hand extremity of the lower rack which raises the frame 16. Owing to the association of the links 18 and 19 and levers 20 and 21 with the two sides of the frame as shown, said frame sides are raised equally or uniformly and jamming is avoided. When the pinion 15 comes into engagement with the rectilinear portion of the lower rack, the slide 17 is carried toward the left. In its movement the frame 16 is guided by the rollers 31. Each time that the slide comes to the end of its stroke, one of the rollers 31 slips off the rib 27 and the ascending or descending movement of the frame 16 causes a frictional rotation of the disk 28 and by such operation the rollers 31 are brought into the position which they should occupy during the following stroke.

The partially racked frame which forms the subject-matter of the invention is capable of many applications. The said frame may be advantageously employed in all applications in which it is desired to transform a rotary movement into a reciprocating movement. This mechanism has the advantage of providing during practically the whole of the stroke a constant speed and driving force, and consequently operates with perfect regularity. Furthermore, the length of the stroke may be readily varied by simply changing the toothed frame.

What is claimed as new is:

1. In a transmission mechanism of the class specified, a driving shaft, a pinion thereon, a supporting means, a slide rectilinearly movable thereover, a frame mounted for vertical movement in the slide and having superimposed racks on its inner portion for alternate engagement by the said pinion, and a frictionally driven rotatable disk carrying a plurality of rollers arranged

in triangular form to engage a portion of the frame and guide the latter in its movement, the disk being rotated each time that the supporting means comes to the end of its stroke.

2. In a transmission mechanism of the class specified, a driving shaft, a pinion carried thereby, a rectilinearly movable slide, a frame vertically movable in the said slide and having two superimposed racks on its inner portion alternately engaged by the pinion, the vertically movable frame having a longitudinally extending rib at the lower portion thereof, and a frictionally driven rotating disk cooperating with the slide and having a plurality of rollers arranged in triangular form to engage the rib, the rollers riding over the ends of the rib and changing position relatively to the latter each time that the slide comes to the end of its stroke.

3. In a transmission mechanism of the class specified, a driving shaft, a pinion thereon, a supporting means, a slide rectilinearly movable thereover, a frame mounted for vertical movement in the slide and having superimposed racks on its inner portion for alternate engagement by the pinion, rotatable means for effecting and guiding the frame in its vertical movement, and a series of levers connected to the upper portion of opposite sides of the frame and to each other for equally moving the two sides of the frame.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH FEIDT.

Witnesses:

H. C. COXE,  
EMILE KLOTZ.

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