

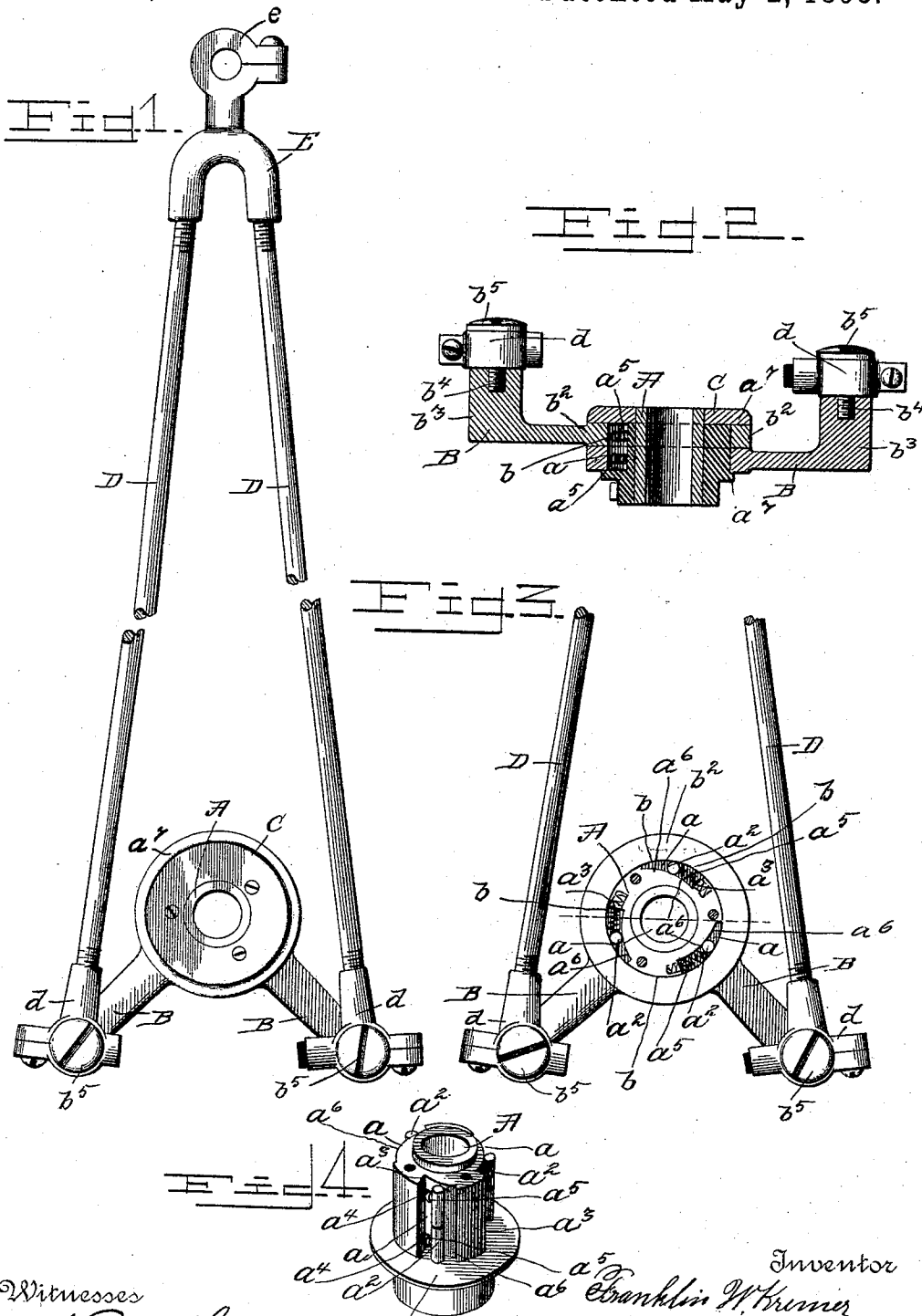
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3 Sheets—Sheet 1.

F. W. KREMER.
MECHANISM FOR CONVERTING MOTION.

No. 496,832.

Patented May 2, 1893.



Witnesses
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N. S. Johns.

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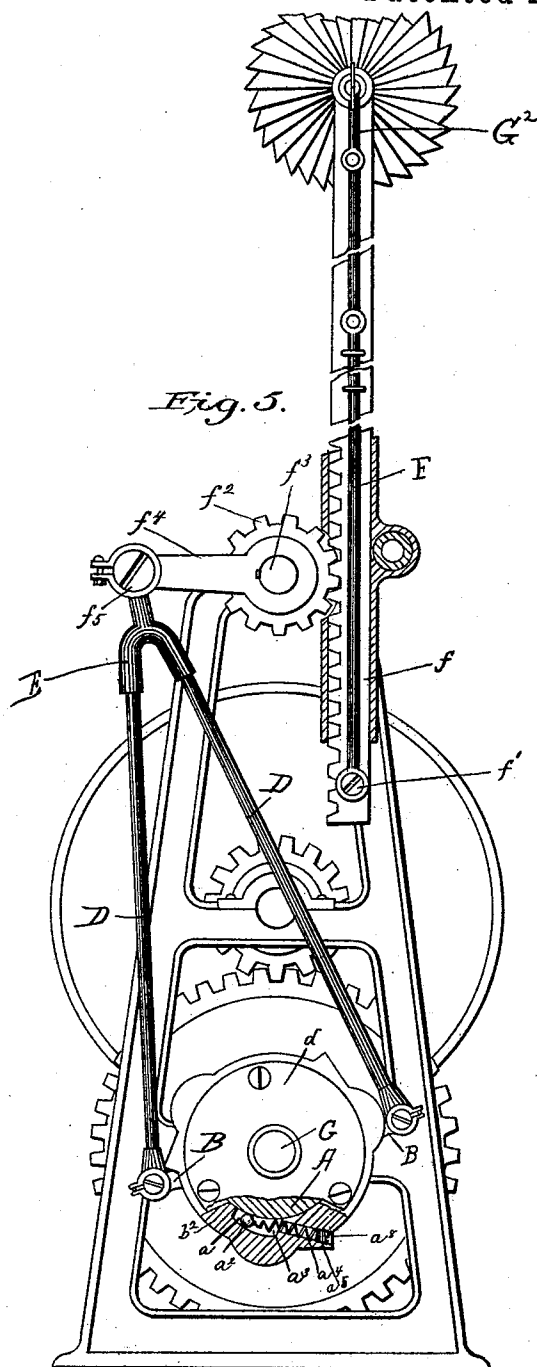
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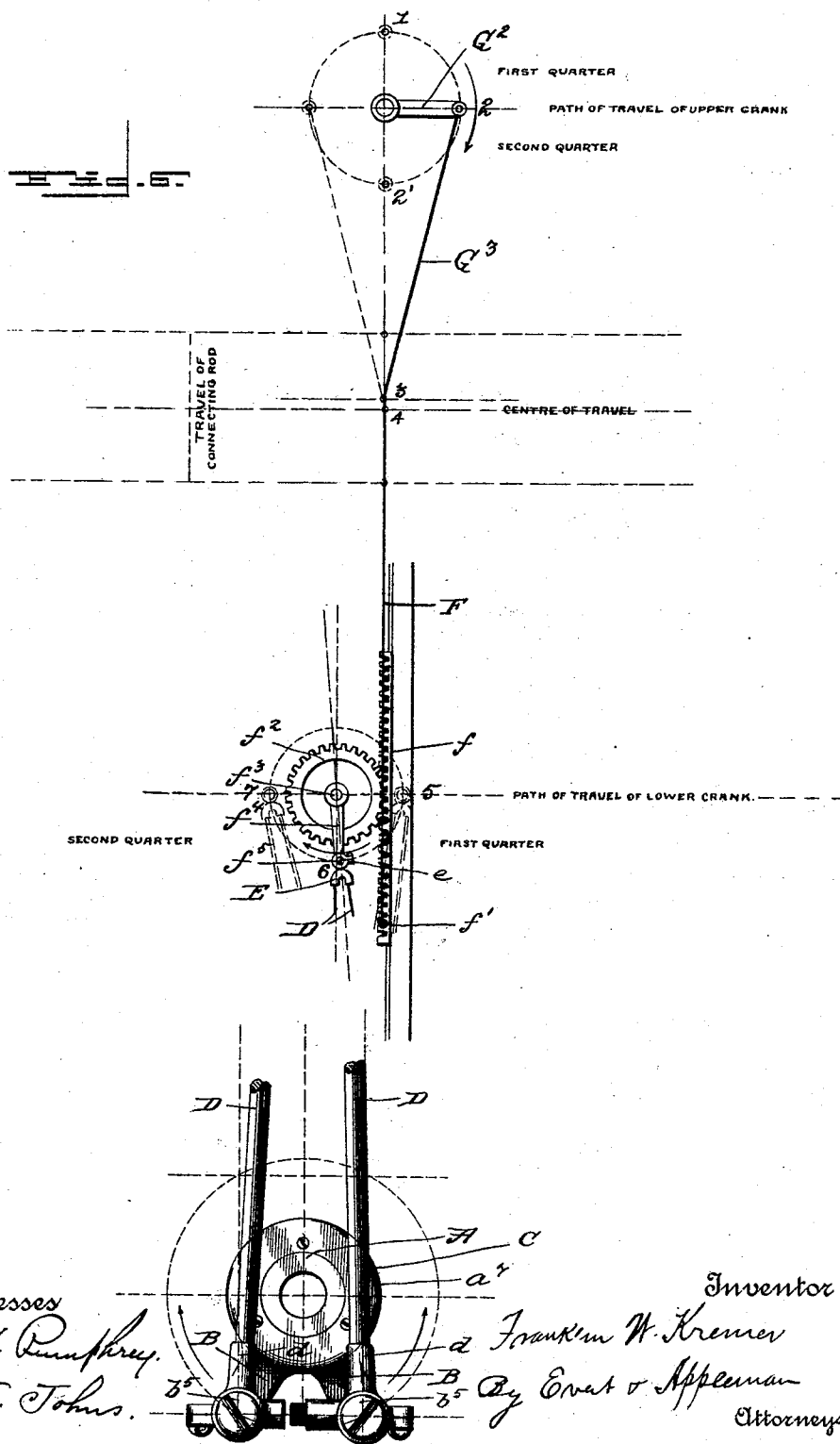
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UNITED STATES PATENT OFFICE.

FRANKLIN W. KREMER, OF CLEVELAND, OHIO.

MECHANISM FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 496,832, dated May 2, 1893.

Application filed April 2, 1892. Serial No. 427,499. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN W. KREMER, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mechanism for Converting Motion, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to a mechanical movement for converting reciprocatory into rotary motion and particularly known as "double intermittent grip gearing."

The object of the invention is to produce a device which may be readily attached to a sewing machine, wind mill, or like machine, where it is desired to convert a reciprocating into a rotary motion; furthermore, in the employment of such peculiar construction whereby continuous rotary motion may be imparted to a shaft through a driving disk; furthermore, in the production of such a device, wherein all the parts shall be strong, durable and efficient in operation.

25 Furthermore my invention has for its object the provision of novel means adapted to operate in overcoming what is known as the "dead center" and convert a reciprocating into a rotary motion in all machinery where such would prove to be advantageous.

30 With these objects in view, the invention consists in certain new and useful improvements in devices of this class comprising novel construction, details, &c., all of which will be hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification wherein like letters and numerals of reference indicate similar parts in the several views, Figure 1, is a view in elevation of the device. Fig. 2, is a transverse sectional view of the same. Fig. 3, is a view in elevation with the top plate removed to more clearly illustrate the cavities and the arrangement of the friction rollers and springs. Fig. 4, is a detail perspective view of the driving disk illustrating the arrangement of the rollers. Fig. 5, is a view in side elevation of a modified form of the device shown applied to the gearing of a wind mill. Fig. 6, is a diagrammatic view of my improved construction illustrating the method of converting an irreg-

ular into a regular motion and imparting the same to a shaft.

In the drawings, A, indicates the driving disk having formed at equidistant points in its circumference a number of cavities a , for the reception of friction rollers a^2 , which are arranged horizontally in pairs or end to end; as is clearly shown in Fig. 4. In the wall a^3 , at the larger end of each cavity sockets a^4 , are formed to receive small spiral springs a^5 . These springs are adapted to force the rollers toward the vertices of the angles formed by the eccentric walls a^6 , of the cavities and the concentric walls b , of the apertured disks b^2 , of the pawl levers B, said collars being loosely mounted on the driving disk and confined between the projecting flanges a^7 , of the driving disk A, and the face plate C. These pawl levers B, are provided at their outer extremities with horizontal studs b^3 , having threaded sockets b^4 , into which are screwed the threaded shanks of the pivotal bolts or pins b^5 . On the pins b^5 , are loosely mounted sockets d , by a strap and bolt connection, (as shown) and secured therein are suitably arranged spring pitman rods or links D, connected at their upper ends by the U-shaped casting E. This U-shaped casting is provided with threaded sockets to receive the ends of the pitman rods D, and a strap and bolt connection e , whereby it may be readily attached to a machine.

In Fig. 5, F, represents the pitman of a wind mill, pivotally connected to a rack bar f at f' , which latter engages the teeth of the pinion f^2 . On the pinion shaft f^3 , is keyed a crank arm f^4 , provided with a pivotal pin, f^5 . To this pin f^5 , the U-shaped casting is secured by means of the strap and bolt connection, as shown.

On the main shaft G, the driving disk A, is rigidly secured, and provided with pawl levers B, as in Fig. 1. These levers B are provided with apertured disks b^2 which are cast integral therewith, having cavities a , formed at equidistant points on their interior circumference and radially opposite each cavity a strengthening lug is formed. From the larger end of each cavity a , a socket a^4 , is cut, which extends to the exterior circumference of the disk. Within these sockets a^4 spiral springs a^5 are arranged which are adapted to exert a pressure on the rollers a^2 , con-

tained in the cavities and force them toward the vertices of the angles, as before described, the tension of the springs being adjustable by means of the plug screws a^8 .

5 It is well known that the variations in the velocity of a connecting or pitman rod, receiving motion through a crank, greatly alter the transmission of power by causing a cycle of recurring changes to accompany every revolution. Referring to Fig. 6, it will be at once
10 apparent, that by the arrangement there illustrated, wherein the cranks G^2, f^4 , are oppositely secured, that is to say, when the upper crank is making its first quarter revolution,
15 from 1 to 2, thereby driving the pitman G^3 , to a point 3, midway of its travel, minus the distance 3 to 4, (this loss being due to the varying inclination of the connecting rod,) the lower crank is also making its first quarter
20 from 5 to 6; again, on the second quarter revolution of the upper crank from 2 to 2', which is the gaining quarter, an accelerated motion will be imparted to the pitman rod, thereby carrying the lower crank over the correspond-
25 ing but losing quarter from 6 to 7, at an increased velocity; and on the return stroke, the reverse of this holds good. Thus it will be observed, that the irregularities of velocity, incident to the revoluble motion of the crank
30 and pitman rod, are reduced to the above described arrangement, to a minimum, and as a result, a practically uniform speed is imparted.

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

35 1. In a double intermittent grip gearing,

the combination with a driving disk, of the independently reciprocating pawl levers, the latter having apertured disks formed integral therewith, the spring pressed friction
40 rollers fitting in eccentrically formed cavities between the periphery of said driving disk and the inner walls of said apertured disks, said rollers being arranged horizontally therein and in pairs, the roller-spring adjust-
45 ing screws and the spring pitman rods connecting with said pawl levers and being secured at their opposite ends in a U-shaped socket piece, substantially as and for the purpose described. 50

2. In a double intermittent grip gearing, the combination with the cranks G^2, f^4 , of a suitable connection between said cranks, the pinion f^2 , a crank shaft carrying said pinion and being suitably mounted in a frame, the
55 U-shaped socket-piece E, being pivotally connected with one of said cranks, the spring pitman rods D, D, the pawl levers B, B, and the driving disk A, the spring pressed rollers in eccentrically formed cavities of the said driv-
60 ing disk A, said rollers being arranged in pairs and the sockets at the larger end of said eccentrically formed cavities adapted for the reception of spiral springs, substantially as described. 65

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN W. KREMER.

Witnesses:

H. C. EVERT,

F. S. APPLEMAN.