No. 817,239. PATENTED APR. 10, 1906.

S. GRAVES.

GEARING.

APPLICATION FILED JUNE 27, 1905.

Fig. 1.

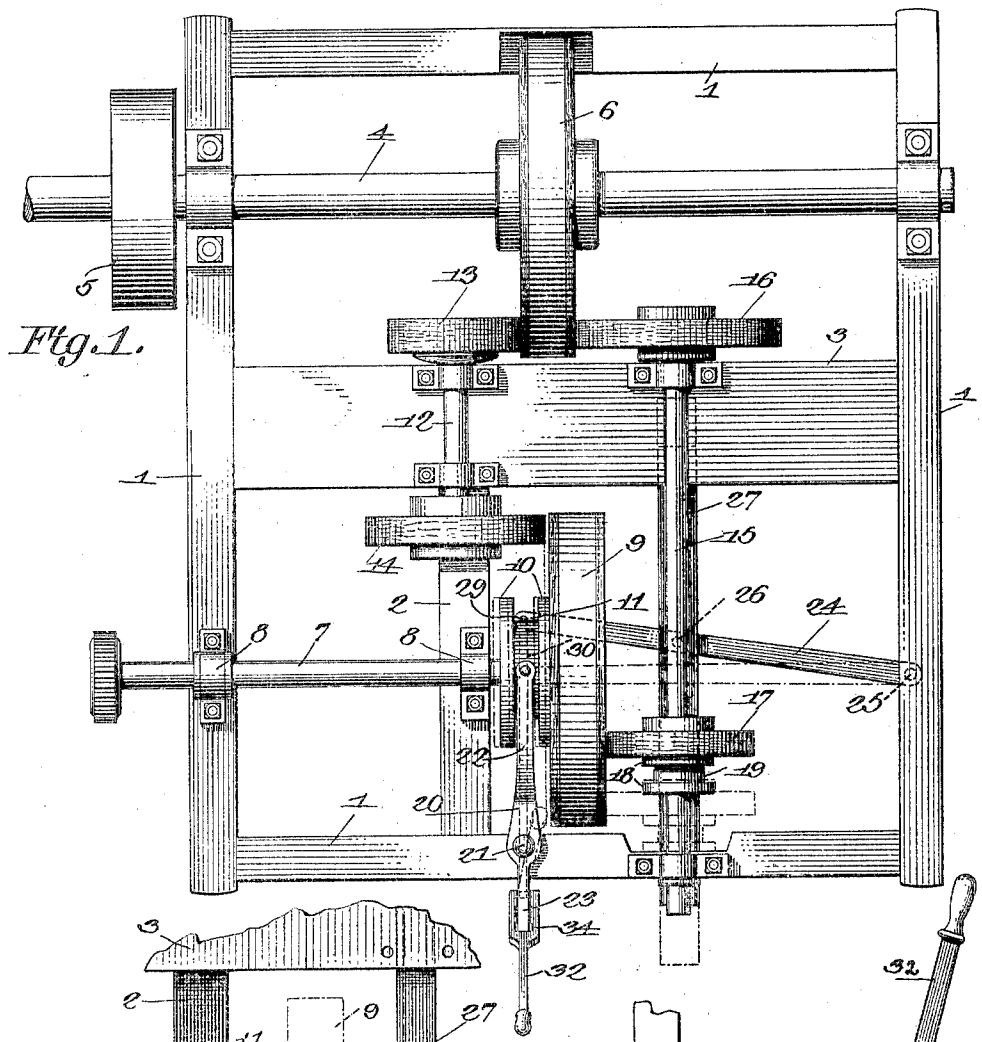


Fig. 2.

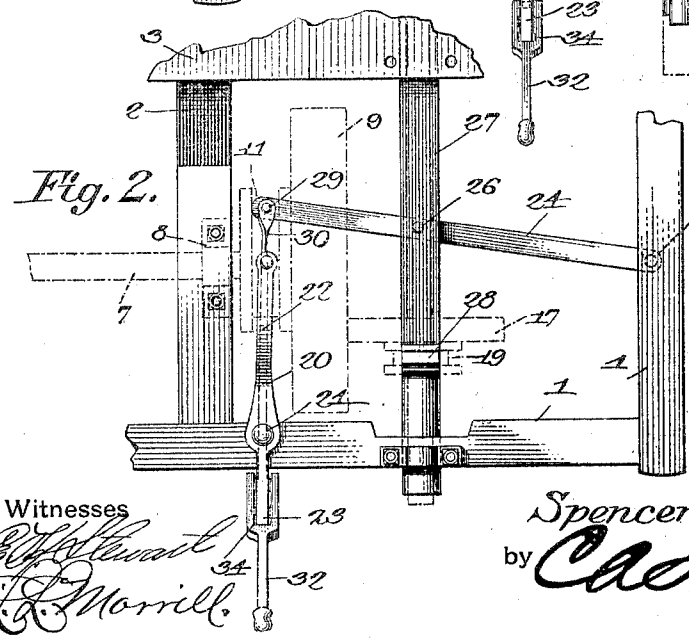
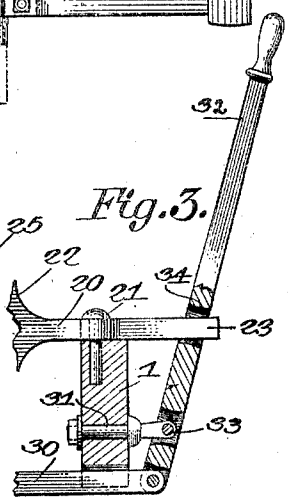


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

SPENCER GRAVES, OF POULAN, GEORGIA.

## GEARING.

No. 817,239. Specification of Letters Patent. Patented April 10, 1906.

Application filed June 27, 1905. Serial No. 267,274.

*To all whom it may concern:*

Be it known that I, SPENCER GRAVES, a citizen of the United States, residing at Poulan, in the county of Worth and State of Georgia, have invented a new and useful Gearing, of which the following is a specification.

My invention relates to feed-works for sawmills and the like, and has for its object to provide a device of that class possessing improved and novel features of utility and convenience.

A further object of my invention is to provide a feed-works wherein the carriage or like device is operated in both directions by friction-disks bearing at all times upon opposite faces of a disk rigidly mounted upon the main driving-shaft and both constantly rotating.

A further object of my invention is to provide a feed-works wherein the carriage or like device is moved in each direction by a shaft upon which is mounted a disk longitudinally movable for contact with disks producing opposite rotation, one of which is movable to vary the speed, and the motion reversed and the driving speed varied by manipulating a single lever.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appenedd claims.

In the drawings, Figure 1 is a top plan view of my improved feed-works. Fig. 2 is a fragmentary plan view of my improved feed-works with the disks removed and showing the means for reversing and varying the speed of a carriage or like device from a single lever. Fig. 3 is a detail sectional view of the lever and manner of mounting for controlling my improved feed-works.

Like characters of reference designate corresponding parts in the several views.

In the preferred embodiment of my invention I provide a frame 1 of any approved form and construction and having cross-bars 2 and 3. Upon the frame is rotatably mounted the main driving-shaft 4, having a driving-pulley 5 and a friction-disk 6, each rigidly mounted thereon. Parallel with the shaft 4 is mounted a final transmitting-shaft 7, journaled, as in bearings 8, secured to frame 1 and cross-bar 2. Upon the shaft 7 is mounted a friction-disk 9, longitudinally movable and carrying a collar 10, provided with a groove 11. Upon the cross-bar 3 is rotatably mounted a reverse-shaft 12, perpendicular to the driving-shaft 4 and transmitting-shaft 7. Upon one end of the reverse-shaft 12 is rigidly mounted a friction-disk 13, in constant contact with one face of the disk 6 and continually rotated therefrom. Upon the opposite end of the shaft 12 is rigidly mounted a friction-disk 14, disposed for contact with and to operate the transmitting-disk 9. Upon frame 1 and cross-bar 3 is rotatably mounted a driving-shaft 15, parallel to the reverse-shaft 12 and carrying a friction-disk 16, constantly contacting with the driving-disk 6 and on the face opposite disk 13 and continually rotated. Upon the end of shaft 15 opposite disk 16 is mounted a disk 17, longitudinally movable and disposed for contact with transmitting-disk 9. The disk 17 is provided with the collar 18, in which is formed the groove 19. Upon the frame 1 is pivotally mounted the shifting-lever 20, as by the bolt 21, and having arms 22 engaging within the groove 11 and an arm 23 extending outwardly from the frame. Beneath the frame is mounted a lever 24, pivoted at 25 to the frame and at 26 to a reciprocating bar 27, slidably mounted in the frame and the cross-bar 3. Upstanding from the bar 27 is a lug 28, engaging within groove 19 of disk 17. To the end of lever 24, as at 29, is pivoted a plunger 30, slidably mounted in and extending without the frame 1. To the frame 1 is secured the swivel 31, to which is pivotally secured the lever 32, as by the pivot-pin 33. The lever 32 is provided with a slot 34, embracing the lever end 23, and its lower end is pivotally connected with plunger-bar 30.

The operation of my improved feed-works is as follows: The disks 13 and 16, bearing upon opposite faces of the driving-disk 6, are constantly rotated and in opposite directions, and from which the disks 14 and 19 are likewise oppositely rotated. It will be observed that the transmitting-disk 9 is movable longitudinally upon the transmitting-shaft 7 and between and to contact alternately with the disks 14 and 17. When the disk is in contact with disk 17, the transmitting-shaft 7 and its associated carriage or other device are driven forward and the speed is varied by moving the disk 17 diametrically across the face of disk 9 toward and away from the center. When the disk 9 is in contact with disk

14, the motion of the transmitting-shaft and its associated mechanism is reversed. The movement of the disks 9 and 17 is accomplished from a single lever 32. When the lever 32 is pushed toward the frame, the plunger-rod 30 oscillates the lever 24 to the dotted position (shown in Fig. 1) and through the medium of reciprocating bar 27 and lug 28, engaging grooves 19, moves the disk to the dotted position. It is obvious that any intermediate position may be assumed by the disk, thus varying the speed of the disk 9 as found expedient. When the lever 32 is oscillated upon the swivel 31 to dotted position, the lever 20 is given an angular movement about the bolt 21, and by means of the arms 22, engaging the grooves 11, the disk 9 is moved longitudinally of the shaft 7 and into contact with either disk 14 or 17.

Having thus described the invention, what is claimed is—

1. In a feed-works for sawmills and the like, a driving-shaft, a final transmitting-shaft parallel with the driving-shaft, a friction-disk rigidly mounted upon the driving-shaft, a disk mounted upon the transmitting-shaft and longitudinally movable thereon, means for driving the transmitting-shaft comprising an auxiliary driving-shaft mounted transverse to the driving-shaft, a disk rigidly mounted thereon and in contact with one face of the driving-disk and a second disk longitudinally movable thereon and arranged for contact with one face of the transmitting-disk means for reversing the movement of the transmitting-shaft comprising a shaft parallel to the auxiliary driving-shaft, a disk thereon in contact with the driving-disk on its face opposite the auxiliary driving-disk and a disk arranged to contact with the transmitting-disk diametrically opposite and upon the opposite face from the auxiliary driving-disk and a means for moving the transmitting-disk and the movable reversing-disk.

2. A feed-works for sawmills and the like, comprising a frame, a main driving-shaft, a final transmitting-shaft parallel with the main driving-shaft, a friction-disk rigidly mounted upon the main driving-shaft, a disk mounted upon the transmitting-shaft and longitudinally movable thereon, means for driving the transmitting-shaft comprising an auxiliary driving-shaft mounted transverse to the main driving-shaft, a disk rigidly mounted thereon and in contact with one face of the driving-disk, a second disk longitudinally movable thereon and arranged for contact with one face of the transmitting-disk, means for reversing the final transmitting-shaft comprising a reverse-shaft parallel with the auxiliary driving-shaft, a disk thereon in contact with the face of the main driving-disk opposite the auxiliary driving-disk and a disk arranged to contact with the transmitting-disk diametrically opposite and upon the face opposite the movable auxiliary driving-disk, a lever mounted upon the frame, means connected with the lever for shifting the transmitting-disk into contact with the auxiliary driving-disk and the reverse-disk and means connected with the lever for moving the auxiliary driving-disk diametrically to the transmitting-disk.

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

SPENCER GRAVES.

Witnesses:
J. W. WARREN,
THYAE HOLTON