W. C. OSTERHOLM.

DISK BEVELING MACHINE.

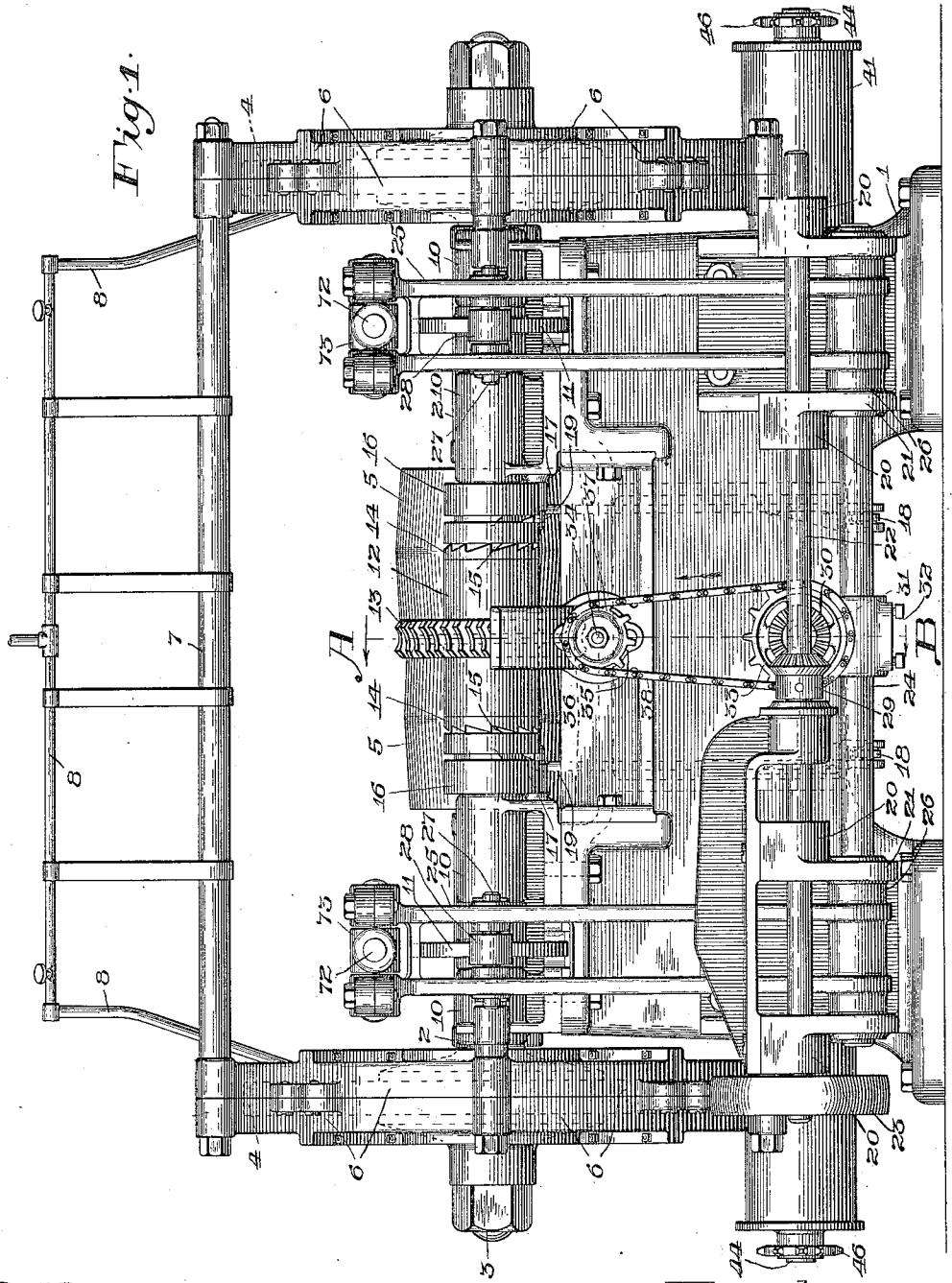
APPLICATION FILED JULY 20, 1912.

1,042,259.

Patented Oct. 22, 1912.

7 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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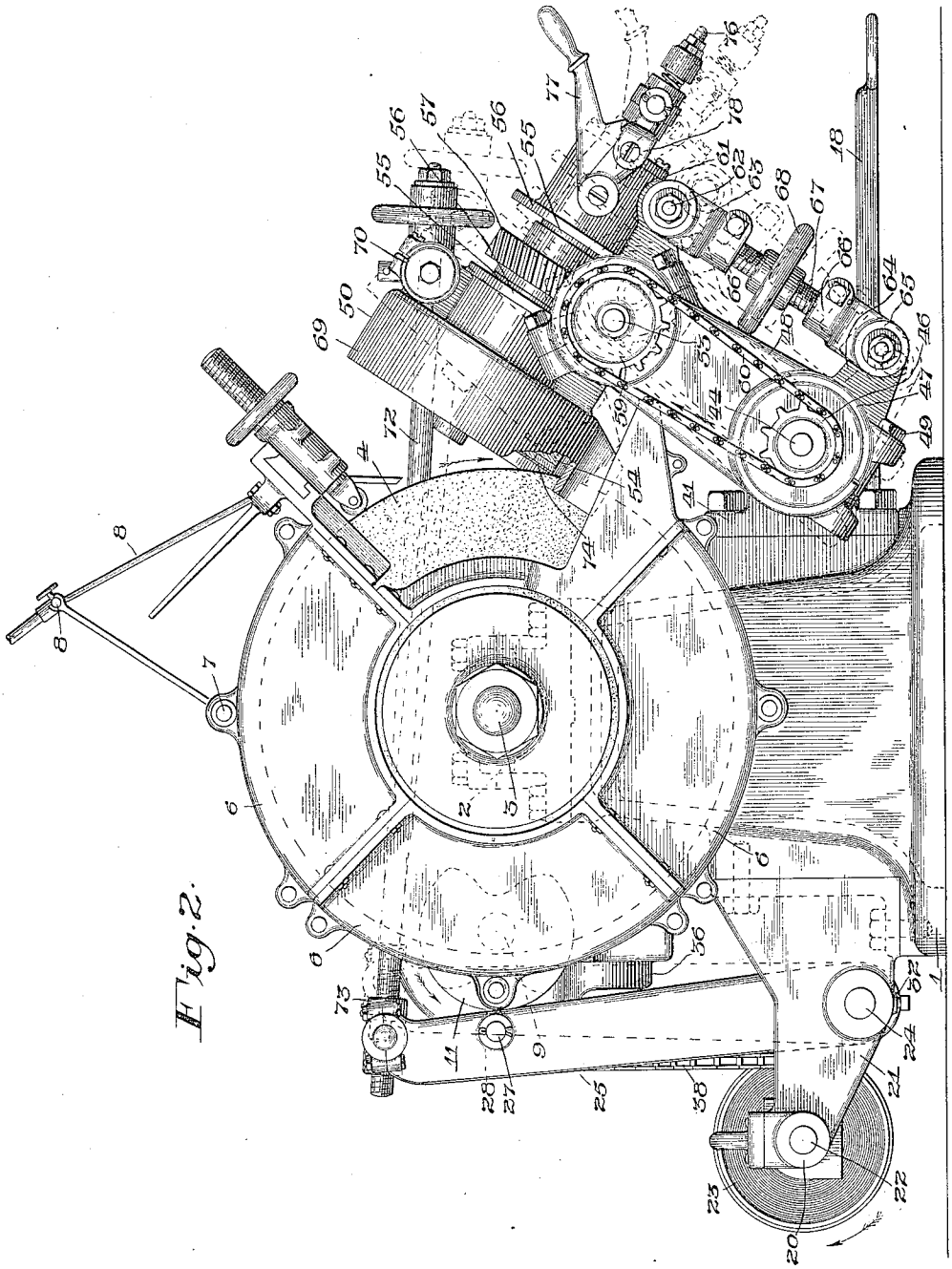

Fig. 2.

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Fig. 3.

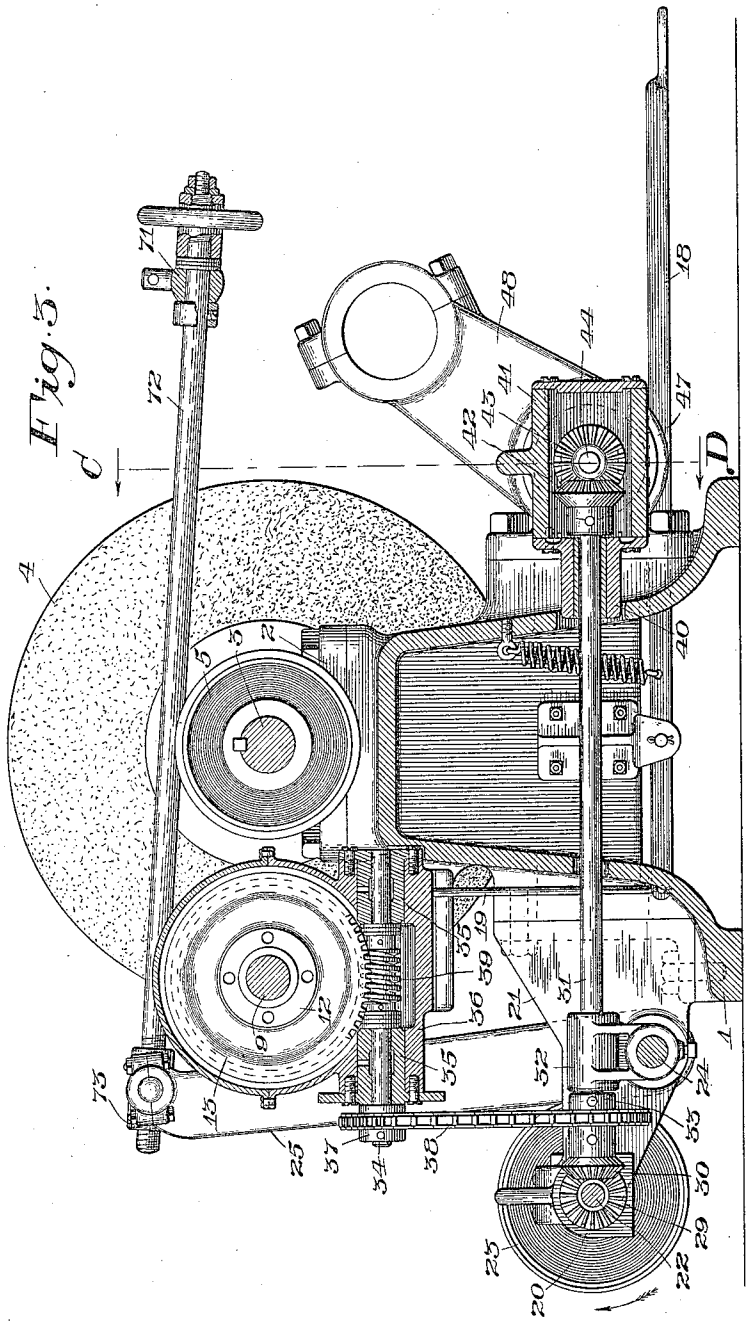

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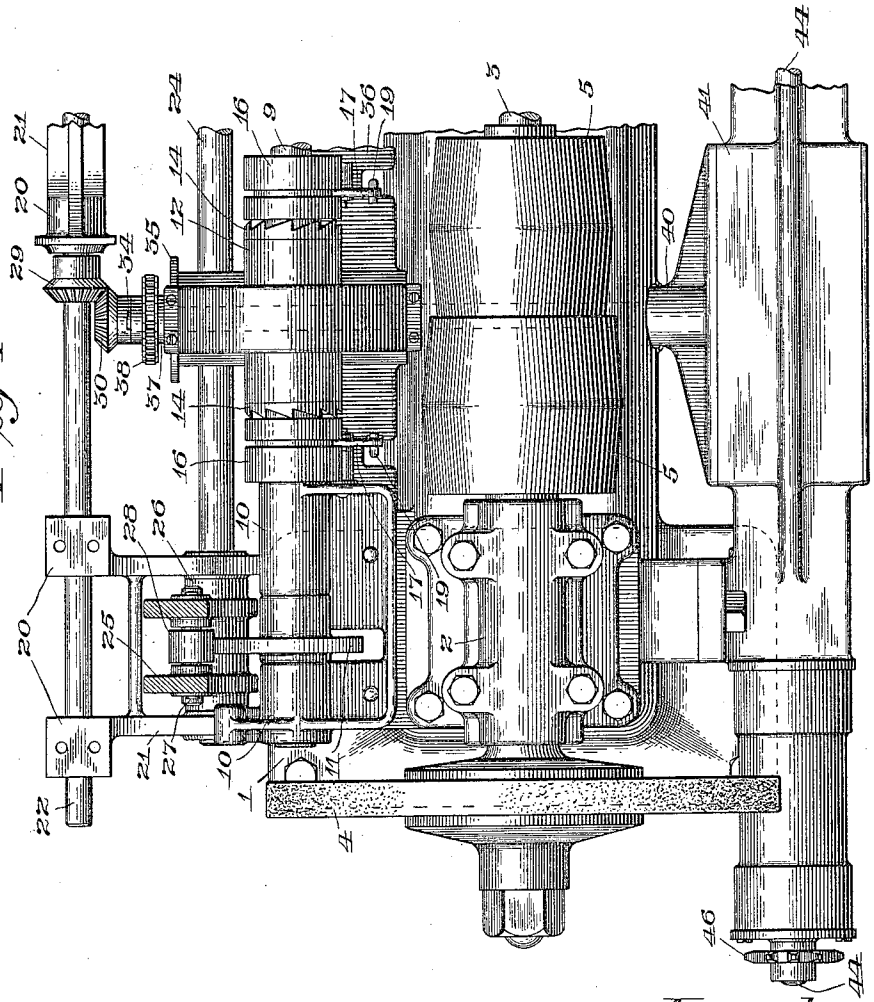
Fig. 4.



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7 SHEETS—SHEET 5.

Fig. 5.

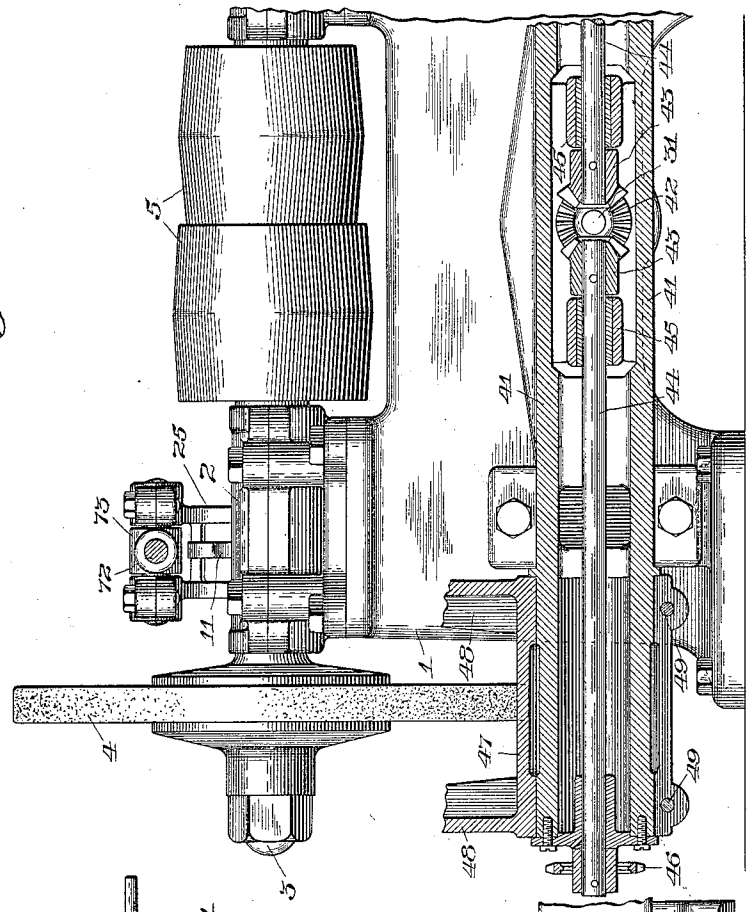
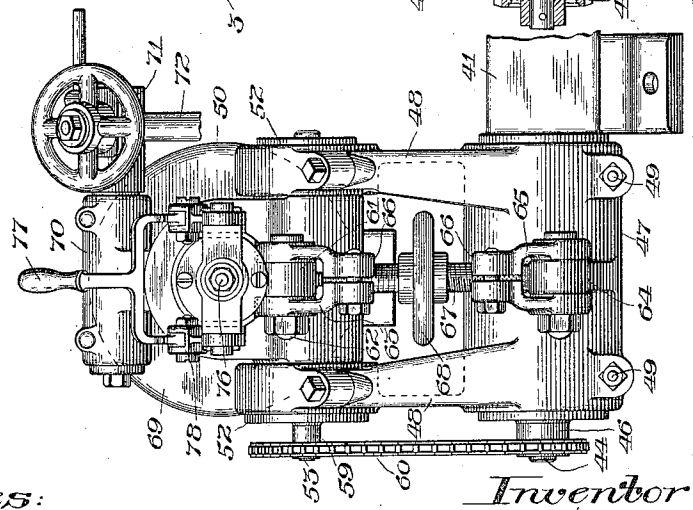


Fig. 6.



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7 SHEETS—SHEET 6.

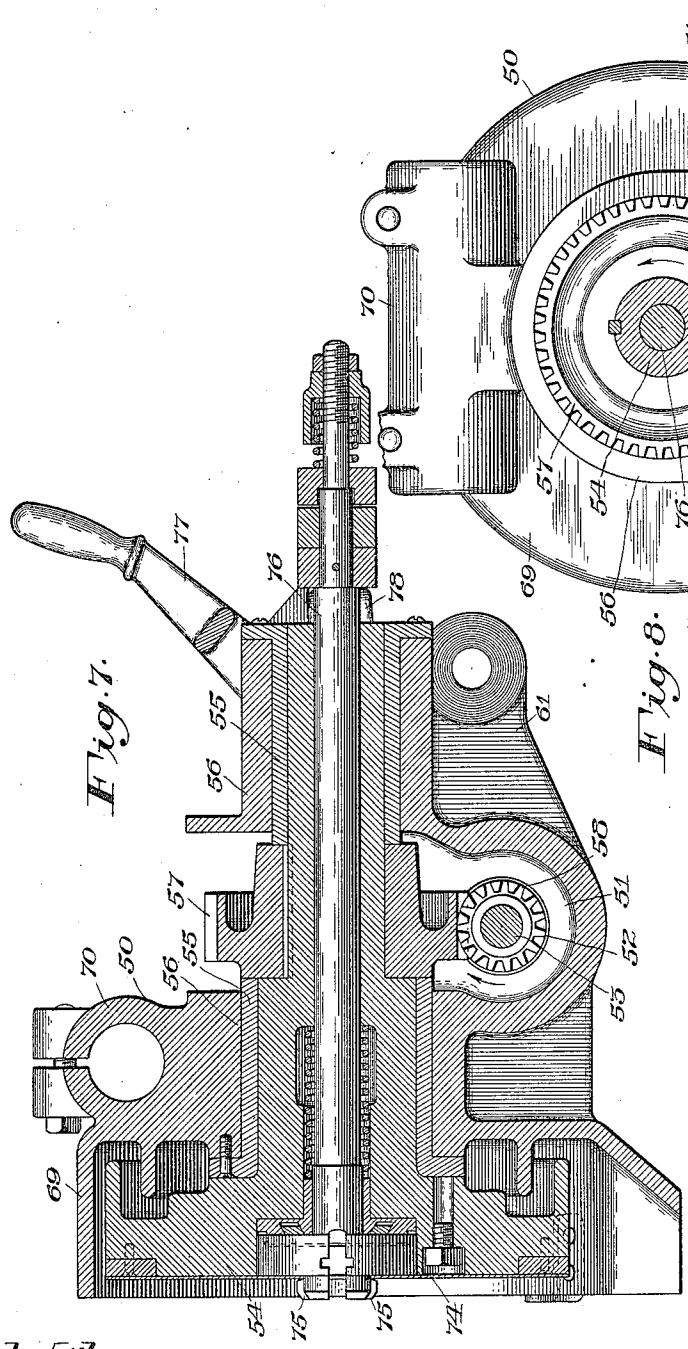

Fig. 7.

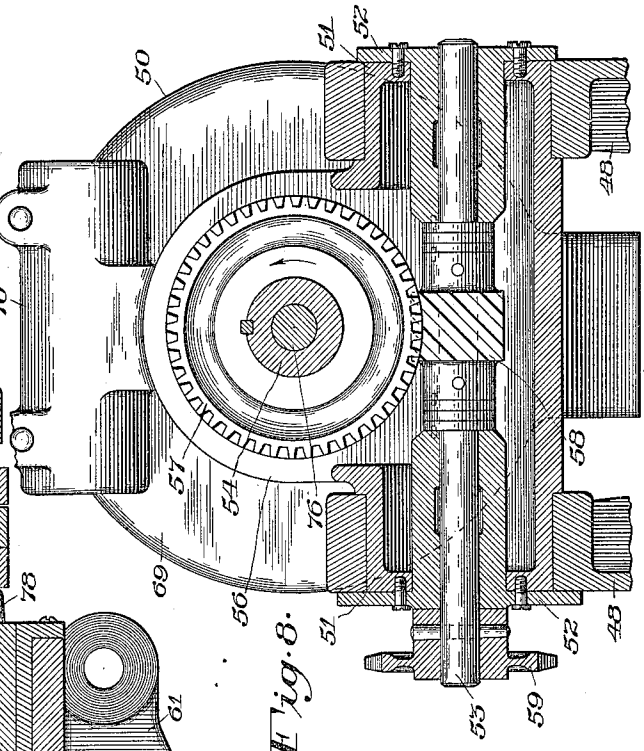

Fig. 8.

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7 SHEETS—SHEET 7.

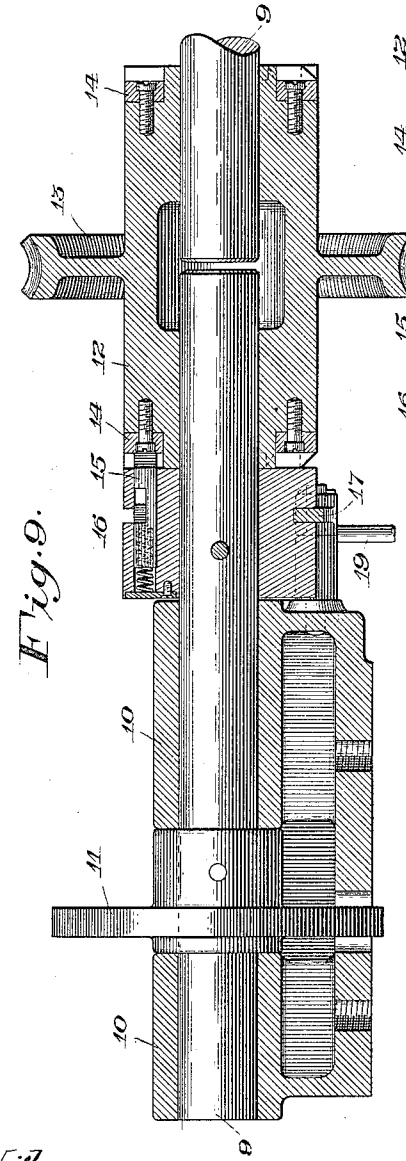

Fig. 9.

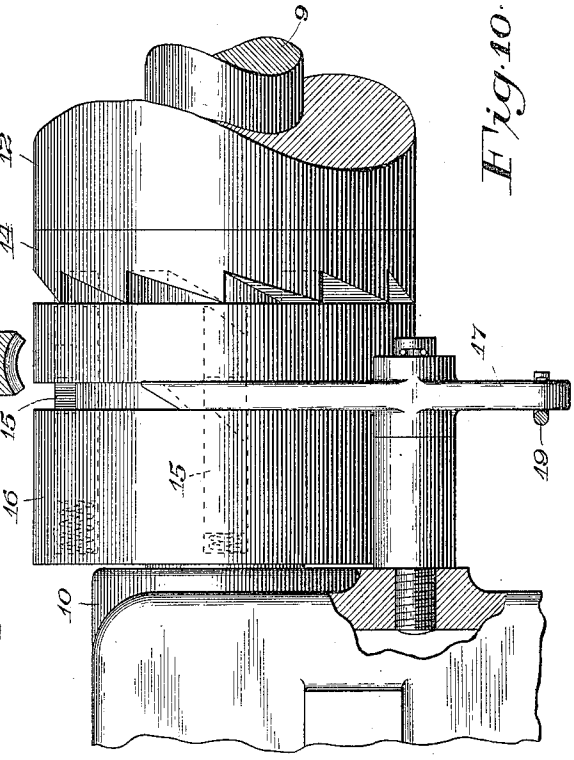

Fig. 10.

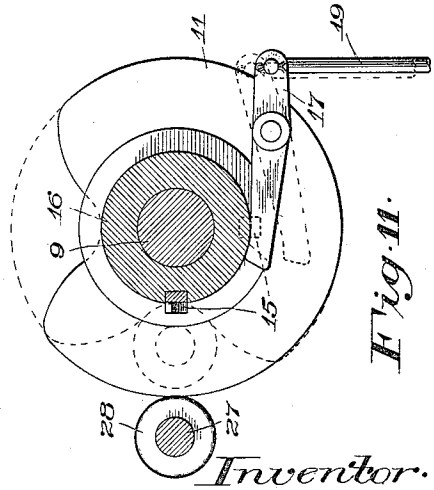

Fig. 11.

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UNITED STATES PATENT OFFICE.

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DISK-BEVELING MACHINE.

1,042,259. Specification of Letters Patent. Patented Oct. 22, 1912.

Application filed July 20, 1912. Serial No. 710,543.

To all whom it may concern:

Be it known that I, WILLIAM C. OSTERHOLM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Disk-Beveling Machines, of which the following is a specification.

My invention relates to machines for beveling the edges of disks used in connection with tillage implements, such as rolling colters for plows, furrow opening disks for grain drills, disk harrows, etc., and consists in improved mechanism, partly automatic in its operation and having the maximum capacity; the object of my invention being to provide a mechanism that may be easily and readily manipulated for the work required, and positive and efficient in operation. These objects are attained by means of the mechanism illustrated by the accompanying drawings, in which—

Figure 1 is a rear side elevation of a machine having my invention forming a part thereof; Fig. 2 is an end elevation of Fig. 1; Fig. 3 is a cross section of Fig. 1 along line A—B; Fig. 4 is a top plan view of substantially one-half of Fig. 1; Fig. 5 is a front elevation, partly in section, taken along line C—D of Fig. 3; Fig. 6 is a front elevation of one of the swinging holding chucks; Fig. 7 is a longitudinal sectional elevation of part of the chuck mechanism; Fig. 8 is a cross section of the chuck mechanism designed to illustrate the manner of transmitting motion thereto; Fig. 9 is a detached detail showing a longitudinal section of part of the clutch mechanism; Fig. 10 is a bottom view of part of the clutch mechanism; and Fig. 11 is a side elevation of one of the chuck controlling cams and part of the clutch controlling mechanism.

The same reference numerals designate like parts throughout the several views.

1 represents the main frame member of the machine, having bearing boxes 2 secured to opposite ends thereof, in which is journaled a shaft 3 having grinding wheels 4 secured to opposite ends thereof and pulleys 5 to its middle portion between the bearing boxes 2. The grinding wheels are partially inclosed by sectional casings 6 that are secured to the main frame 1 and connected at their upper sides by means of a cross tie member 7, and 8 represents feed water pipes supported by said cross tie member and leading from a source of water supply to the operative faces of the grinding wheels.

9 represents a two-part feed shaft journaled in bearings 10 secured to the main frame member of the machine, arranged in the same horizontal plane as shaft 3 and parallel therewith, having cams 11 secured to opposite ends thereof, and the inner adjacent ends thereof coupled together by means of the hub 12 of a worm gear member 13, and 14 represents toothed clutch plates secured to opposite ends of the hub and adapted to engage with clutch dogs 15 carried by clutch members 16 secured to the separate parts of the shaft, the clutch dogs being controlled by means including pivoted levers 17 and foot treadles 18 connected with the levers by means of links 19.

20 represents bearing boxes carried by bracket members 21 secured to the rear side of the main frame member 1, at opposite ends thereof, and 22 represents a transversely arranged shaft journaled in said bearing boxes and carrying a pulley 23 that may be secured to either end of the shaft as may be desired.

24 represents a relatively fixed shaft having opposite ends thereof carried by the bracket members 21, and 25 represents yoke members having sleeves 26 at the lower ends thereof whereby the yokes are journaled upon the shaft 24 in a manner permitting them to swing in a fore and aft direction at right angles with the axes of the grinding wheels.

27 represents studs carried by the yokes 25 in substantially the same horizontal plane as the axes of the two-part feed shaft 9 and having rollers 28 journaled thereon that engage with the cams 11.

29 represents a bevel pinion secured to the middle portion of shaft 22 and meshing with a corresponding pinion 30 secured to the rear end of a shaft 31 journaled in bearings 32 carried by the frame of the machine, and arranged in a fore and aft direction thereon, and 33 represents a sprocket wheel secured to shaft 31 adjacent pinion 30.

34 represents a shaft journaled in bearing boxes 35 carried by bracket members 36 secured to the main frame, said shaft being arranged parallel with shaft 31 and in the same vertical plane. Secured to the rear end thereof is a sprocket wheel 37 that is operatively connected, by means of a sprocket chain 38, with sprocket wheel 33,

and 39 represents a worm gear member secured to shaft 34 and engaging with worm gear member 13. The front end of shaft 31 is journaled in a bearing box 40 carried by a transversely arranged hollow frame member 41, having opposite ends thereof secured to the base of the machine, and 42 represents a bevel pinion secured to the end of the shaft and meshing with a corresponding pinion 43 secured to the inner adjacent ends of shafts 44 journaled in bearing boxes 45 secured to frame member 41, and 46 represents sprocket wheels secured to the opposite ends of shafts 44. The ends of the hollow frame member 41 are formed to receive sleeve members 47 forming part of the chuck carrying members, having vertically arranged arms 48 spaced apart laterally, the sleeve members being adjustably clamped to the member 41 by means of bolts 49.

50 represents a rocking chuck carrying member having trunnion members 51 at opposite ends thereof that are journaled in bearings formed in the upper ends of arms 48, and 52 represents bearing boxes carried by said trunnions and having a transverse shaft 53 journaled therein.

54 represents a chuck head, and integral therewith are bearing portions 55 whereby the chuck is journaled in bearings 56 carried by the rocking carrying member 50, the bearings being spaced apart in a manner to receive a gear member 57 between them that transmits rotary motion to the chuck head through the intermediacy of a spiral gear member 58 secured to shaft 53 and sprocket wheel 59 secured to the end of shaft 53 and operatively connected with one of the sprocket wheels 46 upon shaft 44 by means of a chain 60.

61 represents a depending ear member integral with the front end of the rocking chuck carrying member 50, having a lateral opening that receives a bolt 62 whereby a clevis member 63 is pivotally connected with the ear 61, and 64 represents an ear member integral with sleeve members 47, having a clevis 65 like in form with that of clevis member 63, pivotally connected thereto, said clevises being provided with right and left threaded shank portions 66 that receive opposite ends of an adjusting screw 67, and 68 represents a hand wheel secured to the screw whereby the operator may adjust the position of the rocking gear frame relative to the chuck carrying members 48 for the purpose of varying the angle of the chuck relative to the grinding wheels.

The chuck carrying member 50 includes a casing 69 inclosing the chuck head 54 and provided with a laterally arranged sleeve member 70, in which is journaled a stud 71 having an opening therein that adjustably receives the front end of a rod 72 arranged in a fore and aft direction, having the rear end thereof adjustably connected with a trunnion block 73, having the oppositely disposed trunnions journaled in bearings carried by the upper ends of yoke members 25, whereby the position of the chuck carrying member relative to the grinding wheels is controlled by the cams 11.

74 represents a disk secured to the face of the chuck head 54 by means of radial sliding jaws 75 that are controlled by means of an axially sliding shaft 76 controlled by means of a hand lever 77 and a toggle mechanism 78.

In operation motion is transmitted to the grinding wheels by a driving belt, that may be placed upon either of the driving pulleys 5, and rotary motion is transmitted to the combined clutch member 12 and worm gear member 13 of the feeding mechanism, and to the chuck head by means of pulley 23. The initial position of the chuck mechanism is as shown by dotted lines in Fig. 2, with the roller 28 engaging with the depressed portion of the cam 11. A disk to be beveled is placed in one of the chucks and the operator depresses the treadle upon the end of the machine and causes the clutch mechanism carried by the feed shaft to engage in a manner to impart one complete revolution of one of the parts of the two-part feed shaft 9, and the cam member 11 upon that part of the shaft causes the constantly rotating chuck at the opposite side of the machine to approach the grinding wheel, and the disk is beveled to a cutting edge during one rotation of the cam 11, and the roller 28, being received by the depressed portion of the cam, permits the yoke 25 to swing forward and the chuck carrying member controlled thereby to recede from the grinding wheel, the operator placing the disks in the chucks and operating the clutch controlling treadles alternately.

What I claim as my invention, and desire to secure by Letters Patent, is:

1. A machine of the class described including, in combination, a rotatable grinding wheel, a rocking frame movable toward and from said grinding wheel, a chuck carrying frame pivotally mounted upon said rocking frame and adjustable at varying angles relative thereto, a rotatable feed shaft, a cam secured to said feed shaft, means for rotating said shaft including clutch mechanism, a swinging yoke engaging with said cam, an adjustable connection between said yoke and said chuck carrying frame, and manually operable means for controlling the operation of said clutch mechanism.

2. A machine of the class described including, in combination, a main frame, a shaft journaled upon said frame and having a grinding wheel secured thereto, a feed shaft journaled parallel with and in rear of said first mentioned shaft, a cam secured

to said feed shaft, independent means for transmitting rotary motion to said shaft including a clutch mechanism mounted upon said feed shaft, a swinging yoke having one end thereof pivotally connected with said main frame and engaging with said cam, a rocking frame having one end pivotally connected with said main frame and movable toward and from said grinding wheel, a chuck carrying frame pivotally mounted upon the opposite end of said rocking frame and adjustable at varying angles relative thereto, an adjustable connection between the opposite end of said yoke and said chuck carrying frame, manually operable means for controlling said clutch mechanism, and a chuck head rotatably mounted in said chuck carrying frame and operatively connected with the means for transmitting motion to said feed shaft.

3. A machine of the class described including, in combination, a main frame, a shaft journaled upon said frame and having grinding wheels secured to opposite ends thereof, a two-part feed shaft journaled upon said frame, independent means for transmitting motion to said shaft, a combined clutch and power transmitting member mounted upon the inner adjacent ends of said two-part feed shaft and operative to transmit independent motion thereto, cams carried by the opposite ends of said two-part feed shaft, swinging yokes engaging with said cams, chuck carrying frames pivotally mounted upon said main frame and operatively connected with said swinging yokes, and means whereby said clutch mechanism may transmit motion selectively to either part of said two-part shaft.

4. A machine of the class described having, in combination, a main frame, a grinding wheel rotatably mounted upon said frame, a swinging frame movable toward and from said grinding wheel, a chuck carrying frame carried by said swinging frame and adjustable at varying angles relative thereto, a chuck rotatably mounted in said chuck carrying frame, and means for automatically advancing said chuck and swinging frame toward said grinding wheel.

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