

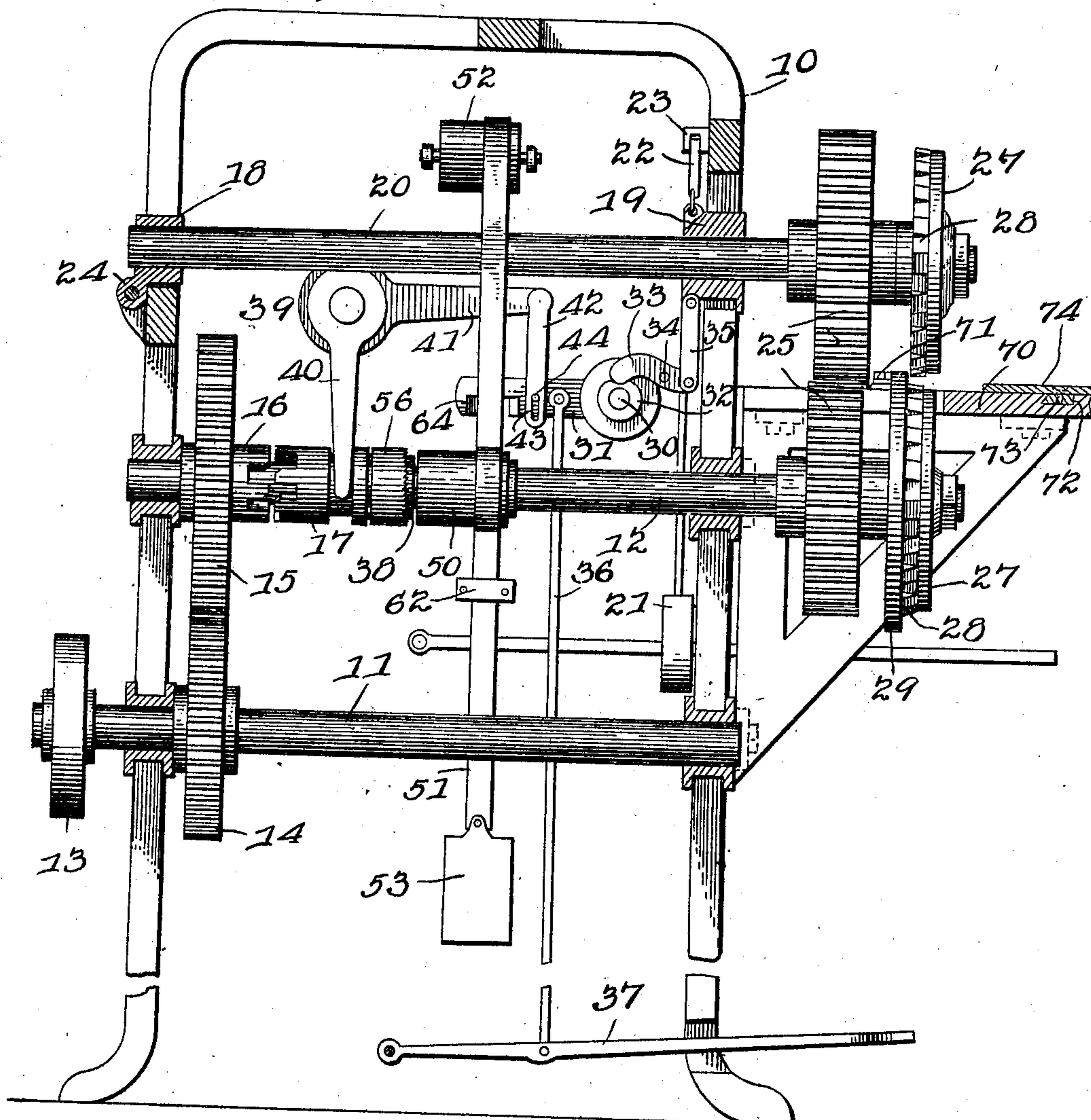
No. 832,502.

PATENTED OCT. 2, 1906.

J. A. RANDALL.
SAW SETTING MACHINE.
APPLICATION FILED FEB. 6, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

E. H. Stewart
J. H. E. Parnell

John A. Randall, INVENTOR.

By *C. A. Snow & Co.*
ATTORNEYS

No. 832,602.

PATENTED OCT. 2, 1906.

J. A. RANDALL.
SAW SETTING MACHINE.
APPLICATION FILED FEB. 5, 1906.

2 SHEETS—SHEET 2.

UNITED STATES PATENT OFFICE.

JOHN A. RANDALL, OF INDIANAPOLIS, INDIANA.

SAW-SETTING MACHINE.

No. 832,502.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed February 5, 1906. Serial No. 299,567.

To all whom it may concern:

Be it known that I, JOHN A. RANDALL, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Saw-Setting Machine, of which the following is a specification.

This invention relates to saw-setting machines, and has for one of its objects to provide a novel form of machine in which the teeth of the saws may be accurately set by means of roller-dies as distinguished from the ordinary hammer-setting usually employed.

A further object of the invention is to provide a novel form of roller-die saw-setting machine in which provision is made for automatically opening the dies after each setting operation in order that another saw may be readily placed between said dies.

A still further object of the invention is to provide a novel form of clutch mechanism for controlling the connection between the dies, the die-actuating mechanism, and the automatic die-separating mechanism.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a saw-setting machine constructed in accordance with the invention. Fig. 2 is a front elevation of the machine. Fig. 3 is a detail elevation, partly in section, of the clutching mechanism of the main shaft. Fig. 4 is a detail view of portions of the clutching mechanism detached. Fig. 5 is a detail view showing the connection of the strap to the winding-drum.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame 10, that is provided with bearings for a pair of shafts 11 and 12, that are preferably superposed and arranged parallel with each other. The shaft

11 carries a belt or gear-wheel 13, receiving motion from any suitable source of power, and on said shaft is secured a pinion 14, that intermeshes with a gear 15, mounted loosely on the shaft 12. The hub of the gear 15 is provided with a clutch member 16, which may be engaged by a clutch-sleeve 17, that is feathered to the shaft, but is free for longitudinal movement thereon. In the upper portion of the frame are two bearings 18 and 19 for the reception of a shaft 20. The front bearing 19 is adapted to suitable guides formed in the frame and is free to move vertically, a portion of the weight of the bearing and shaft being counterbalanced by a weight 21, which is secured to the lower end of the flexible member 22, that passes over a guiding-sheave 23 and is connected at its opposite end to the top of the bearing. The rear member 18 is pivoted on a pin 24 and rocks slightly as the front bearing is raised and lowered. The two shafts 12 and 20 are connected by supported gears 25 of uniform diameter and provided with elongated teeth which are in constant mesh, the shaft 20 being free to rise and fall without disengaging the gears.

Secured to the outer ends of the shafts 12 and 20 are disks 27, that serve to engage with the blade of the saw at a point within the root-line of the teeth, and said shafts also carry roller-dies 28, having interfitting die-faces for setting the teeth of the saw alternately in opposite directions. The shaft 12 further carries a guard-disk 29, which may engage with the points or crowns of the teeth in order to prevent excessive inward movement of the saw.

Mounted on a stud 30, that is supported by the frame, is a lever 31, the hub of which supports a cam 32, and said cam engages one end of a lever 33, that is pivoted at a point intermediate its ends on a pin 34, also carried by the frame. The opposite end of the lever is connected by a link 35 to the adjustable bearing 19. The lever 31 is connected by a rod 36 to a pedal-lever 37, which when depressed will turn the lever and the cam 32, the latter acting on the lever 33 and serving to pull the bearing 19 downward, thus bringing the upper setting-die into proper position with respect to the lower die, the parts remaining in operative position until the lever 31 is moved in the opposite direction.

The frame is provided with a stud or shaft 39, carrying a pair of arms 40 and 41, the arm

40 being bifurcated and fitting within a suitable annular groove in the periphery of the clutch-disk 17. The arm 41 is approximately horizontal and at its outer end carries a link 42, in the lower portion of which is a slot 43 for the reception of a pin 44, carried by the lever 31. When the pedal is depressed and lever 31 is carried down, the pin 44, acting against the lower end of the slot 43, pulls downward on the arm 41 and arm 40 is moved to the rear, throwing the clutch-sleeve 17 into engagement with the clutch-hub 16, so that at the same time the setting-dies are brought into proper relative position they will be clutched to the gear 15 and will be positively rotated.

Mounted loosely on the shaft 12 is a winding-drum 50, to which is secured one end of a strap 51, that passes upward over the guiding sheave or drum 52 and is provided at its opposite end with a weight 53 in order to keep the strap taut. At one end of this drum are arranged spring-pressed clutch-pins 55, of which there may be any desired number, said pins being arranged to engage with the teeth of a clutch-sleeve 56, that is rigidly secured to the shaft 12. One end of the clutch-sleeve 56 is recessed for the reception of a ring 58, which may be moved outward beyond the crowns of the teeth of said sleeve and engage with the pins 55 for the purpose of forcing the latter out of engagement with the teeth. From one end of the ring projects a pair of pins 60, that pass through suitable guiding-openings formed in the sleeve and are arranged to be engaged by one end of the clutch-sleeve 17 when the latter moves to release position.

On the strap 51 is secured a block 62, which may be adjusted along the length of the strap and locked in any desired position. On the free end of the cam-lever 31 is secured a block 64, having a pair of arms which fit snugly against the opposite sides or edges of the strap 51 in position to be engaged by the block 62 at the completion of each saw-setting operation. The block 62 having been properly adjusted and a saw inserted between the setting-dies 28, the operator depresses the pedal, and this movement operates through the cam-disk 31 to turn the cam 32, and thus draw down the bearing 19, the shaft 20, and the die carried by said shaft 20, so that two setting-dies shall be in operative position with respect to the saw. At the same time the movement of the lever is transmitted to the link 42 and arms 40 and 41 to the clutch 17, causing the latter to engage the clutch 16 on the gear 15. The setting operation immediately begins, the dies being held in proper position and being positively rotated. As the clutch 17 moves in the direction of the clutch 16 the ring 58, being engaged by the spring-pressed pins 55, will be moved in the same direction until said pins

engage between the teeth of the clutch-sleeve 56, and as the latter is keyed to the shaft the winding-drum 50 will be compelled to rotate, winding up the strap 51 thereon and slowly advancing the block 62 in the direction of the block or arms 64. At the proper moment, depending on the length of the saw and the adjustment of the block 62, said block 62 will engage the arm 64 and will move the cam-lever 31 upward, thus allowing the lever 33 to descend and the weight 21 to raise the upper shaft and setting-die in order to free the saw. The movement will also be transmitted through the arms 41 and 40 to the clutch 17, moving the latter from engagement with the clutch 16. The clutch 17 engages the pins 60, thus forcing the ring 59 in the direction of the pins 55, so that said pins will be forced out of engagement with the teeth of the clutch-sleeve 56, whereupon the counterweight 53 will descend and allow the parts to reassume normal positions in readiness for another operation.

In order to properly guide the saws, a table 70 is used, and to the table is secured one or more gages 71, that are disposed in alignment with the guard-disk 29 in order to properly guide the saws. The table is further provided with a slot 72, one wall of which may be dovetailed or inclined, and within this slot is a block 73, carrying an apron or strip 74, which may be adjusted in order to accommodate saws of different widths.

It is obvious that with a device constructed in accordance with this invention teeth of saws of any type may be rapidly and effectively set, and by changing the character of the dies the device may be employed for the setting of hand-saws, band-saws, circular saws, or saws of practically every description.

I claim—

1. The combination in a saw-setting machine, of a frame, a pair of superposed shafts, saw-setting dies carried by said shafts, a slidable bearing and a pivoted bearing for the upper shaft, a counterweight having a flexible connection with the upper shaft and tending to elevate the same, means for depressing the shaft to bring the dies into operative relation, means for locking said shaft in depressed position, and automatic means under the control of the lower shaft for releasing the upper shaft at the completion of each saw-setting operation.

2. In a saw-setting machine, the combination with a frame, of a pair of superposed shafts, a slidable and a pivoted bearing for the upper shaft, saw-setting dies carried by the shafts, a counterweight having a flexible connection with the slidable bearing and tending to separate the dies, a cam-lever, a cam carried thereby, a pivoted lever having one end bearing on the cam and its opposite end connected to the slidable bearing, a

treadle connected to the lever, and means under the control of the lower shaft for automatically shifting the cam and permitting separation of the dies at the completion of each saw-setting operation.

5 3. In a saw-setting machine, the combination with a frame, of a pair of superposed shafts, one of which is movable with respect to the other, saw-setting dies carried by the shaft, gears on said shafts, a driving-gear mounted loosely on the relatively stationary shaft, a clutching member for connecting the driving-gear to the shaft, a second clutch-sleeve rigidly secured to the shaft and having
15 teeth at one end, a ring carried by the sleeve and movable over said teeth, pins projecting from the ring through openings in the sleeve and arranged in the path of movement of the clutching member, a winding-drum loose on
20 the shaft, spring-pressed pins carried by said drum and arranged to engage the teeth, the

engaging movement being under the control of said ring, and clutching member, a strap secured to the winding-drum, means for guiding said strap, a counterweight at the free
25 end of the strap, an adjustable block carried by said strap, a cam-lever having arms disposed in the path of movement of said block, a cam carried by the lever, a lever pivoted at a point intermediate its ends and having one
30 end bearing on the cam and the other end connected to the movable shaft, an operating-lever for the clutching member, and means for connecting the cam-lever to said operating-lever.

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

JOHN A. RANDALL.

Witnesses:

HARVEY B. STOUT,
PAUL A. RANDALL.