

**No. 615,888.**

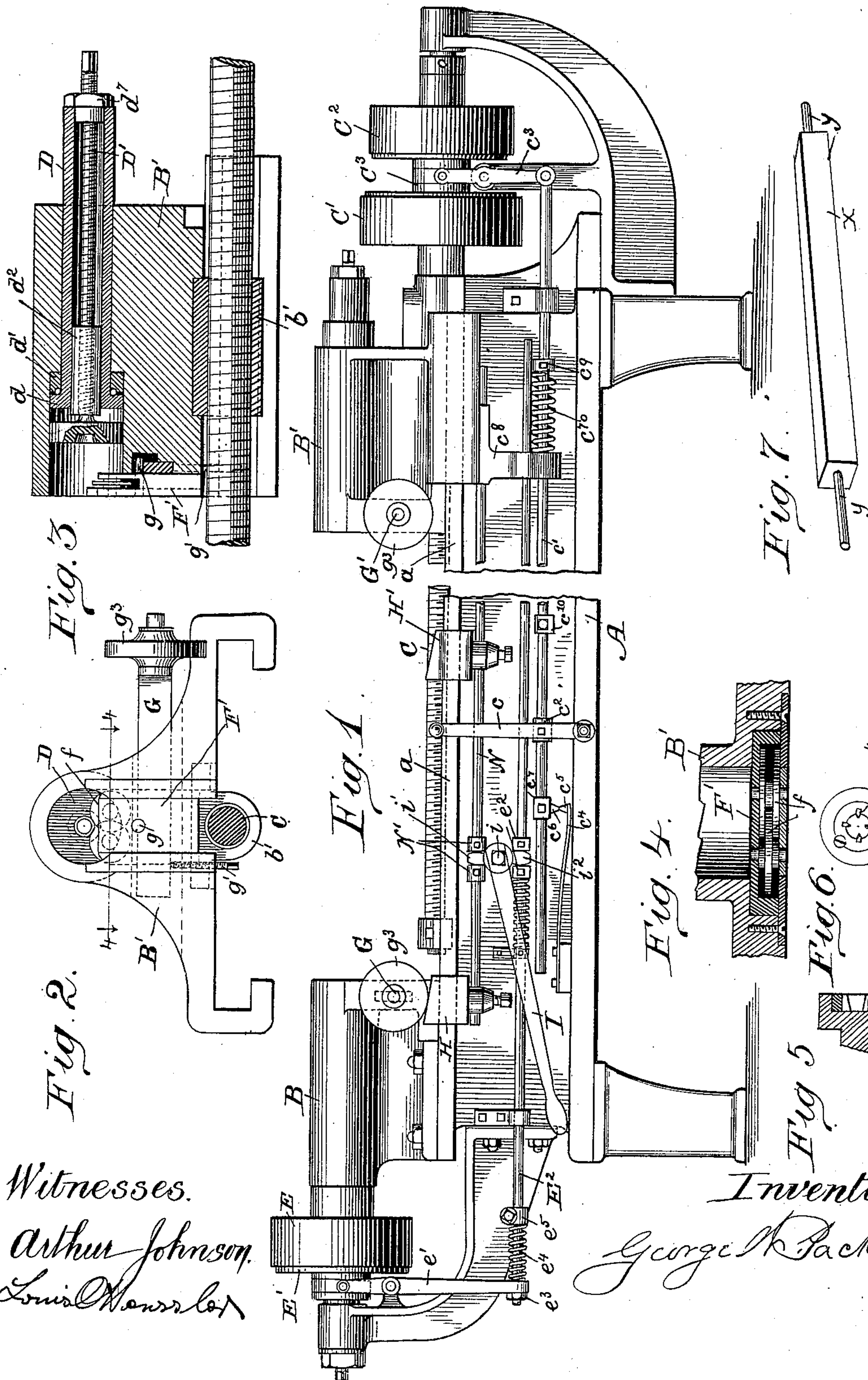
**Patented Dec. 13, 1898.**

**G. W. PACKER.**

# MACHINE FOR APPLYING GUDGEONS TO ROLLERS.

(Application filed Oct. 23, 1897.)

(No Model.)



Witnesses.

Arthur Johnson.  
Louis Wenzel.

Louis H. Hensler

*Inventor.*

George H. Packer



# UNITED STATES PATENT OFFICE.

GEORGE W. PACKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE DEERING HARVESTER COMPANY, OF SAME PLACE.

## MACHINE FOR APPLYING GUDGEONS TO ROLLERS.

SPECIFICATION forming part of Letters Patent No. 615,888, dated December 13, 1898.

Application filed October 23, 1897. Serial No. 656,242. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. PACKER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Applying Gudgeons to Rollers, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is an end elevation of the sliding tail-stock. Fig. 3 is a sectional elevation of the sliding tail-stock. Figs. 4, 5, and 6 are details, and Fig. 7 is a perspective view, of the assembled parts of a roller as it leaves the machine and is ready for turning.

My invention pertains to the manufacture of rollers made of wood or similar material which have gudgeons pressed into either or both ends, and has to do particularly with the pressing of the gudgeons into the previously-bored blanks from which the rollers are made and straightening them.

As shown in the drawings, the machine is particularly adapted to the manufacture of rollers for grain-harvesters, which are made from square lengths of wood. The lengths are first bored at the ends to admit the insertion of the gudgeons, which are entered by hand a sufficient distance to hold them temporarily in place. The piece is then ready to be operated upon by my machine.

The frame A supports a head-stock B, bolted securely to the bed, and a tail-stock B', adapted to move upon the ways *a* of the bed. The tail-stock has a nut *b'*, through which the screw C, which turns in bearings on the frame A, is inserted, which screw moves it upon the ways formed on the bed and is driven alternately in opposite directions by means of the pulleys C' and C<sup>2</sup> and the clutch C<sup>3</sup>. The said clutch may be any one of the well-known forms and is shown as being a friction-clutch capable of assuming three positions, one position (shown in Fig. 1) being that in which neither of the pulleys is clutched to the screw-shaft and the two other positions those in which either one or the other of the pulleys is clutched. The pulleys C' and C<sup>2</sup> are constantly driven in opposite directions from a counter-shaft by straight and cross belts or by other well-known devices, and when the

clutch is in the intermediate position both pulleys rotate loosely upon the screw-threaded shaft C. The clutch C<sup>3</sup> is controlled by the operator by means of the lever *c*, which is pivoted upon the bed and connected to a sliding rod *c'* at *c*<sup>2</sup>. A clutch-lever *c*<sup>3</sup> is connected to the rod *c'*. The hand-lever *c* is held in either position to which it is moved by the spring-arm *c*<sup>4</sup>, having a lug *c*<sup>5</sup>, with inclined sides, that presses against a similarly-inclined lug *c*<sup>6</sup> on the collar *c*<sup>7</sup>, which collar is secured by a set-screw or otherwise to the sliding rod. By throwing the lever *c* over toward the right-hand end of the machine the larger pulley C' is clutched to the screw C and the tail-stock B' is caused to advance toward the head-stock B at a comparatively slow speed, and by throwing it in the opposite direction until the small pulley C<sup>2</sup> is clutched to the shaft C the tail-stock B' will be given a retrograde movement at a higher speed than that given in the advance movement.

*c*<sup>8</sup> is an arm secured to the movable tail-stock B' and which extends downward, so that the rod *c'* may pass through it. The rod *c'* is provided with an adjustable collar *c*<sup>9</sup>, so placed that the arm *c*<sup>8</sup> may strike it and release the pulley C<sup>2</sup> from engagement with the screw-shaft, thus causing the retrograde movement of the tail-stock to cease automatically. I prefer to place a coiled spring *c*<sup>10</sup> on the rod to serve as a cushion for the various parts of the clutch-shifting device; but its use is not essential. On the other side of the arm *c*<sup>8</sup> the rod *c'* has another adjustable collar *c*<sup>10</sup>, which serves to shift the clutch and stop the movement of the tail-stock in the opposite direction.

Referring to Fig. 3, in which the spindle D is shown in section and in its place on the tail-stock, it will be seen that the spindle D is made hollow and has a flange *d* at its inner end, between which and a grooved ring *d'* are preferably placed balls to resist the end thrust put upon the spindle. In the barrel of the spindle is fixed a nut *d*<sup>2</sup>, into which is threaded a rod D', having a head *d*<sup>3</sup>, the diameter of which is preferably large enough to fit into the enlarged aperture in the tail-stock. The rod D' is threaded for the purpose of adjusting it to suit different projecting lengths of



gudgeons required. It is squared at its outer end and provided with a lock-nut  $d^7$  to hold it in any given position of adjustment. It will be readily seen that the spindle as a whole may be considered as one capable of longitudinal adjustment relative to the tail-stock.

The spindle in the head-stock B may be considered the same as that in the tail-stock B' just described, except that the end thereof instead of having merely a hole drilled in it to receive the end of the gudgeon and hold it centrally is provided with teeth  $D^4$  (see Figs. 5 and 6) or other suitable means for grasping the gudgeon and causing it to revolve with the said spindle, which spindle can be connected at will to the constantly-running pulley E by means of the clutch E'.

Mounted in the head-stock and tail-stock are slides F and F', on which are journaled rollers  $f$ , which overlap each other, as shown in Figs. 2 and 4, between the rims of which the gudgeons may lie, as in a V, when placed in the machine. Levers G and G' are placed in slots in the head-stock and tail-stock and are adapted to bear under the projecting studs  $g$  in the slides F and F'. The levers are fulcrumed, preferably, upon the hardened points of set-screws  $g'$ , which provide for a close adjustment to suit various sizes of gudgeons.

At the outer ends of the levers G and G' are mounted rollers  $g^3$ . Blocks H and H', adapted to slide upon the ways  $a$  of the bed, are connected by a rod N in order that they may be moved at the same time. Their upper surfaces are inclined, and when by a forward movement of the tail-stock B' the gudgeons are forced to place, the blocks are moved under the rollers  $g^3$  and the rollers  $f$  are thus raised up against the gudgeons with such force as to cause the said gudgeons to be bent by the force that rotates them if they are to the least extent eccentric. The block H' is adjustable along the rod N when adapting the machine to operate upon different lengths of rollers. A lever I, pivoted at  $i$  upon the bed, has an arm  $i'$  adapted to engage collars N' upon the rod N. It also has an arm  $i^2$  adapted to engage collars  $e^2$  on a rod E<sup>2</sup> that is connected to the forked lever  $e'$  of the clutch E'. The lever  $e'$  is connected yieldingly to the rod E<sup>2</sup>, preferably by means of the nut  $e^3$ , spring  $e^4$ , and collar  $e^5$ .

The operation of my machine is as follows: The square wood piece X, constituting a roller-blank having the gudgeons Y partly entering the holes, is placed in the machine, the end of one gudgeon sinking in the jaws  $D^4$  and is held substantially centrally with the head-stock. The other end enters the recess in the tail-stock. The operator then throws the lever  $c$  to the right and the tail-stock B' is moved by the screw toward the head-stock. This movement is continued until the gudgeons reach the ends of the holes bored in the ends of the piece of wood, at which time the

lever  $c$  is moved back to its intermediate position by the arm  $c^8$  of the tail-stock engaging the collar  $c^{10}$  on the rod  $c'$ , and by means of the lever I the roller is caused to be rotated by throwing the clutch E' into engagement with the constantly rotating pulley. This movement of the lever also moves the slides upward and the rollers  $f$  against the gudgeons and straightens them. The lever  $c$  is then moved to the left in order that the tail-stock B' be moved away from the roller, which movement continues until the arm  $c^8$  strikes the collar  $c^9$  and disengages the pulley C<sup>2</sup> from the screw-shaft, when the tail-stock stops and the roller may be taken out. The lever is then moved back to its intermediate position and the clutch E' also disengaged.

The spindle D is adapted to turn in the tail-stock B', so that the socket for the reception of the end of the gudgeon may rotate freely, and thus prevent its becoming rapidly worn.

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

1. The combination of the head-stock B, and the tail-stock B', said stocks provided with supports for the gudgeons of a roller-blank, mechanism for moving the tail-stock toward the head-stock to force the gudgeons into the ends of said blank, and means for rotating the head-stock support to revolve the blank after the gudgeons have been forced into its ends.

2. The head-stock B having a rotary spindle therein adapted to receive and clutch the gudgeon to be driven, the tail-stock B', the head-stock B permanently secured to a bed-piece and the tail-stock B' adapted to slide on suitable guides, supports in each stock in which the gudgeons may lie and thus be supported and in turn support the bar into which they are to be driven, means for moving the head-stock and tail-stock nearer together, means for rotating the said bar of wood and gudgeons when the latter are driven, and means for raising the supports to force them in contact with the rotating gudgeons and thus straighten the latter, substantially as described.

3. The head-stock B having a rotatable spindle, said spindle having a chuck to engage one of the gudgeons to be driven, a support adjacent to said chuck in which one of the gudgeons may be placed, the tail-stock B' adapted to slide upon the bed-piece common to both stocks, the one B permanently secured to said bed, and the other, B', having a support to sustain the end of the gudgeon and permit it to rotate, and a rest adjacent thereto into which the end of a gudgeon may be laid, means for forcing the tail-stock B' toward the said head-stock B and thus force the gudgeons into the bar of wood, means for causing rotation of the chuck in the spindle of the head-stock B, and means for raising the rests forcibly against the gudgeons while they are rotating, in order to straighten them, substantially as described.

4. The head-stock B having a rotatable spin-



dle therein, said spindle provided with a chuck, the tail-stock B' having a socket adapted to receive one of the gudgeons that are to be driven, an upwardly-movable slide adjacent to the chuck in the head-stock B, and one adjacent to the socket in the tail-stock B', each of said slides supplied with two or more antifriction-wheels so placed as to form a notch between them into which the gudgeons to be driven may lie in suitable position to be received by the chuck and socket of the spindles when the machine is set in motion, means for moving the movable tail-stock B' toward the head-stock B, and thus force the gudgeons into the bar of wood in which they are placed, and means for raising the slides forcibly against the driven gudgeons, and thus straighten them relative to each other and the bar of wood between them, substantially as described.

5. The combination of the head-stock B and the tail-stock B', the former provided with a rotatable spindle having a chuck adapted to receive the projecting end of one of the gudgeons to be driven, and the latter provided with a longitudinally-adjustable socket adapted to receive the end of the other gudgeon to

be driven, said tail-stock B' movable on a supporting-bed to which the head-stock B is permanently secured; means for moving the said tail-stock B' toward the head-stock B, and thus force the supported gudgeons into the wood, and means for automatically straightening said driven gudgeons, substantially as described.

6. The combination of the head-stock B, and the tail-stock B', said stocks being provided with supports for the gudgeons of a roller-blank, mechanism for moving the tail-stock toward the head-stock to force the gudgeons into the ends of said blank, means for rotating the head-stock support to revolve the roller-blank after the gudgeons have been forced into it, means for moving the tail-stock in the reverse direction away from the head-stock, and means for automatically disconnecting the reversing-pulley from the tail-stock driving-shaft when said stock reaches the end of its return movement.

GEORGE W. PACKER.

Witnesses:

ARTHUR JOHNSON,  
LOUIS O. HEMSLEY.