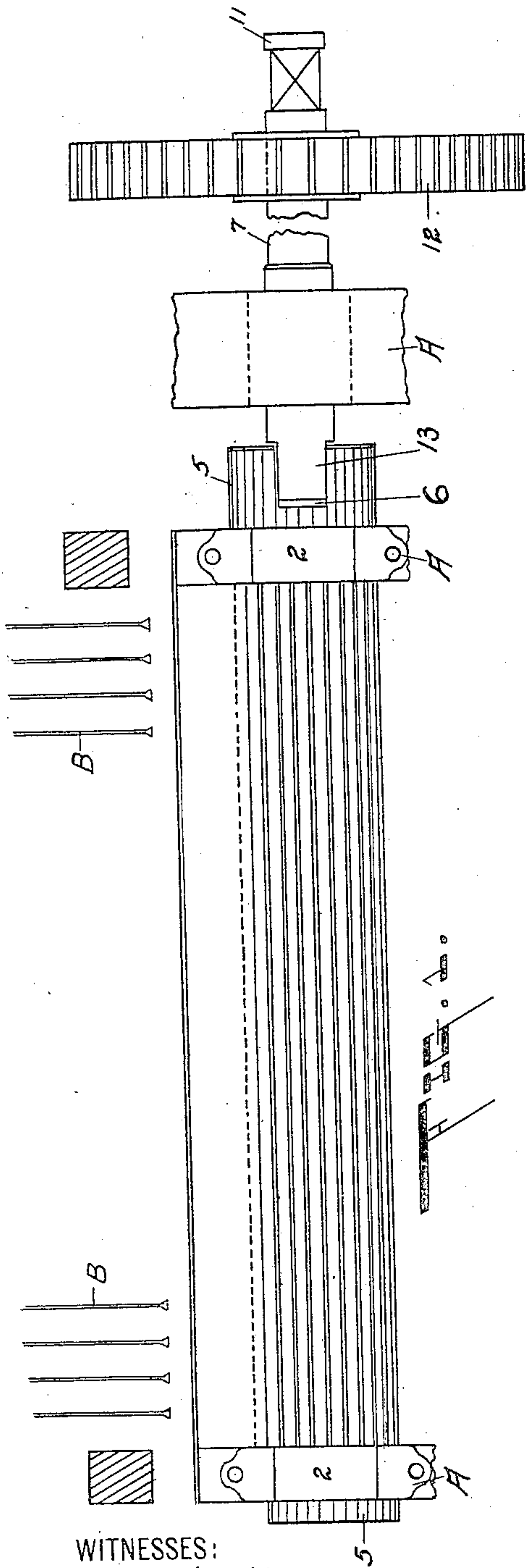


No. 838,771.

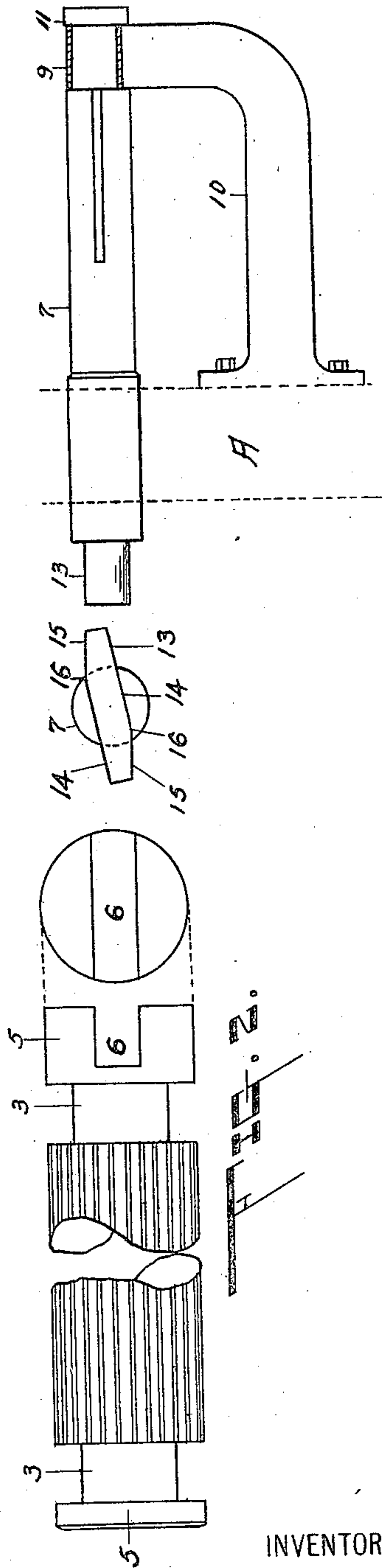
PATENTED DEC. 18, 1906.

D. CRANE.  
DETACHABLE FEED ROLL.  
APPLICATION FILED MAR. 28, 1906.



WITNESSES:

Roy Wallis.  
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# UNITED STATES PATENT OFFICE.

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## DETACHABLE FEED-ROLL.

No. 838,771.

Specification of Letters Patent.

Patented Dec. 18, 1906.

Application filed March 28, 1906. Serial No. 308,491.

*To all whom it may concern:*

Be it known that I, DANIEL CRANE, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Detachable Feed-Rolls; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to feeding-rolls, and I have chosen to illustrate one embodiment of the same as forming a portion of a sawmill mechanism, though it is obvious that the invention is capable of use in other forms and connections.

A prime object of the invention is the provision of a feed-roll associated with actuating means adapted to be connected with the roll and so arranged that the roll may be moved relative thereto and entirely disconnected therefrom.

Another object of the invention is the provision of means for permitting the removal of the feed-roll from and its replacing in the machine without danger of injuring or breaking the gear-teeth of the actuating mechanism.

A still further object is the provision of means whereby the removal and replacing of the feed-roll may be accomplished without the necessity of removing the driving-shaft for the purpose of repairing the bearings of the roll, the wear on the bearings being considerable. Furthermore, the bearings of the driving-shaft may be repaired or new ones substituted therefor without removing the feed-roll, whereby to preserve the required clearance of the gears.

Heretofore it has been customary in some instances in gang-saw mills to construct the feed-roll and its shaft of one piece or integrally, and to accomplish this it is necessary to have a special forging, which must be of a diameter at least equal to the desired diameter of the feed-roll, the forging being drawn down at one end to approximately the size of the driving-shaft. My device is to obviate the difficulties of manufacture imposed by this method as well as to economize material, time, and labor, to which ends I construct my roll separately from the driving-shaft, the roll being preferably formed of a single piece of material machined to form the flutes and bearings. The flutes might not be necessary in every instance, however. The shaft is

made of another piece of material and is mounted in bearings alined with those of the roll, the adjacent ends of the shaft and roll adapted to be interlocked or otherwise releasably connected to afford a perfect construction possessing advantages which are not found in other constructions.

My invention further consists in certain novel features and combinations of parts, together with their equivalents, such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of one embodiment of my invention. Fig. 2 is a detail view of the roller removed, the key-shaft located apart therefrom.

In the particular embodiment of my invention herein shown as illustrating one form of which my invention is capable, A indicates the frame of a sawmill, and B the saws. Obviously, however, my invention is adapted for use in other arts and in different relations as well. The frame is preferably provided with bearings at either side, which bearings may be conveniently, though not necessarily, provided with caps or boxes to keep the bearing clean by preventing the access of dust and dirt thereto. Received in these bearings are the journals of a feed-roll, the roll being of larger diameter than the journals, which are reduced in size and held in place by the caps. At opposite ends the roll may be provided with heads of larger area than the bearings, the heads lying outside the bearings; but I do not wish to be restricted to the use of the heads. In the event that I do employ them one or both heads may be diametrically grooved, as at 6, though in the drawings I have shown one head only as being grooved, the grooved head being preferably wider and thicker than the ungrooved head.

A key-shaft is journaled near its inner end in the frame of the machine and projects, preferably, at right angles thereto, the outer end of the shaft being provided with a reduced journal and received in a bearing, formed in an arm, projecting from the frame, the extreme outer end of the shaft being preferably, though not necessarily, headed, as at 11.

Intermediate the ends of the shaft is secured a gear-wheel 12, and at its extreme inner end the shaft is provided with a key 13,



extending transversely of the end of the shaft. This key is beveled or reduced on its opposite longitudinal sides, as shown at 14 14, the beveled portions being parallel  
 5 with and overlapping each other, so that the key is of less width than the groove in the head of the roll in which it is received to afford a clearance and is inclined relative to the groove, the opposite parallel unbeveled faces  
 10 15 15, located at opposite ends and on opposite sides of the key, being spaced laterally a distance apart equal to the width of the groove and adapted to slidingly fit into the groove, so that when the key-shaft rotates  
 15 the faces 15 will engage opposite walls of the groove at the opposite ends thereof, whereby to impart a rotary movement to the roll.

The key is formed so that it has a slight play in the groove in order that it may be  
 20 slipped in and out, and as the bearings of the shaft and the feed-roll will not in all probability wear equally the key is allowed to slide in the groove in the head, and when the shaft and feed-roll are off center and out of  
 25 alinement the key will rock on one heel 16 or the other, depending upon the direction of rotation of the shaft, such heels being on opposite sides of the key and at the point of greatest thickness of the key. It will be ob-  
 30 served that the key is of an approximately rhomboidal configuration.

From the foregoing it will be seen that when the key and groove lie in substantially vertical positions the feed-roll may be re-  
 35 moved or disconnected from its key-shaft for the purpose of permitting access to the saw-sash to replace worn or broken saws, for instance, or for repairing the bearings by removing caps 2 2 and raising or prizing up the  
 40 roll without the necessity of touching the drive-shaft or other actuating mechanism. Obviously the drive-shaft may be removed without disturbing the feed-roll.

It is evident that many changes might be  
 45 made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth.

50 Having thus fully disclosed my invention, what I claim as new is—

1. In a gang-saw mill, the combination with a suitably-journaled drive-shaft, of a feed-roll transversely slotted at one end and  
 55 separately journaled in the frame of the mill, the end of the shaft receivable in the slot to drive the roll, the feed-roll capable of being removed and replaced transversely to and independently of the shaft.

60 2. In a gang-saw-mill frame, the combination with a shaft journaled therein, of a feed-roll journaled in the frame independently of the shaft and in alinement therewith, the adjacent ends of the shaft and feed-roll detach-  
 65 ably and positively engaging each other, the

shaft and feed-roll being transversely removable relative to and independently of each other.

3. The combination in a gang-saw mill, with a shaft and a feed-roll, independently  
 70 journaled in alinement relative to each other, of a key carried by the shaft, the roll having an open-ended groove, formed across one end thereof, to slidingly receive the key inserted  
 75 endwise therein to permit either the roll or shaft to be moved and replaced relative to and independently of the other.

4. A feeding mechanism for gang-saw mills, comprising a suitably-journaled feed-roll, a head on the feed-roll having a groove  
 80 formed across the end thereof, a driving-shaft journaled independently of and located in approximate alinement with the roll, and a key on the end of the shaft, the key ex-  
 85 tending transversely of the shaft and removably received endwise in the groove in the head, the roll and shaft removable from each other in a direction transverse to their longitudinal axes.

5. A feed mechanism for gang-saw mills,  
 90 comprising a feed-roll, journaled in the mill, a shaft journaled independently of the roll, one end of the roll being extended beyond its journal and provided with a groove extend-  
 95 ing transversely of the roll and open at one end at least, a transversely-extending key on the adjacent end of the shaft, the key being approximately rhomboidal in shape, and slidingly received endwise in the groove.

6. A feed mechanism comprising a feed-  
 100 roll having a groove formed therein, a shaft independent of the roll, and a key located on the shaft and adapted to be slidingly received in the groove, the key being beveled  
 105 on opposite sides, the bevels extending from opposite ends of the key and heels formed on opposite sides of the key and equidistant from the axis of rotation, the lateral distance between the heels being the width of the  
 110 groove.

7. In a gang-saw mill, the combination with a feed-roll journaled in the frame of the mill, of a drive-shaft also journaled in the frame of the mill in alinement with but inde-  
 115 pendently of the feed-roll, one end of the roll being transversely grooved, to receive the end of the shaft, the shaft and roll being independently supported in the frame and re-  
 120 movable relative to each other, the shaft and roll being moved in a direction transversely of their longitudinal axes when being removed or replaced, and incapable of endwise movement longitudinally of their axes.

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

DANIEL CRANE.

Witnesses:

C. E. RUSSELL,  
 MARY L. RUSSELL.