



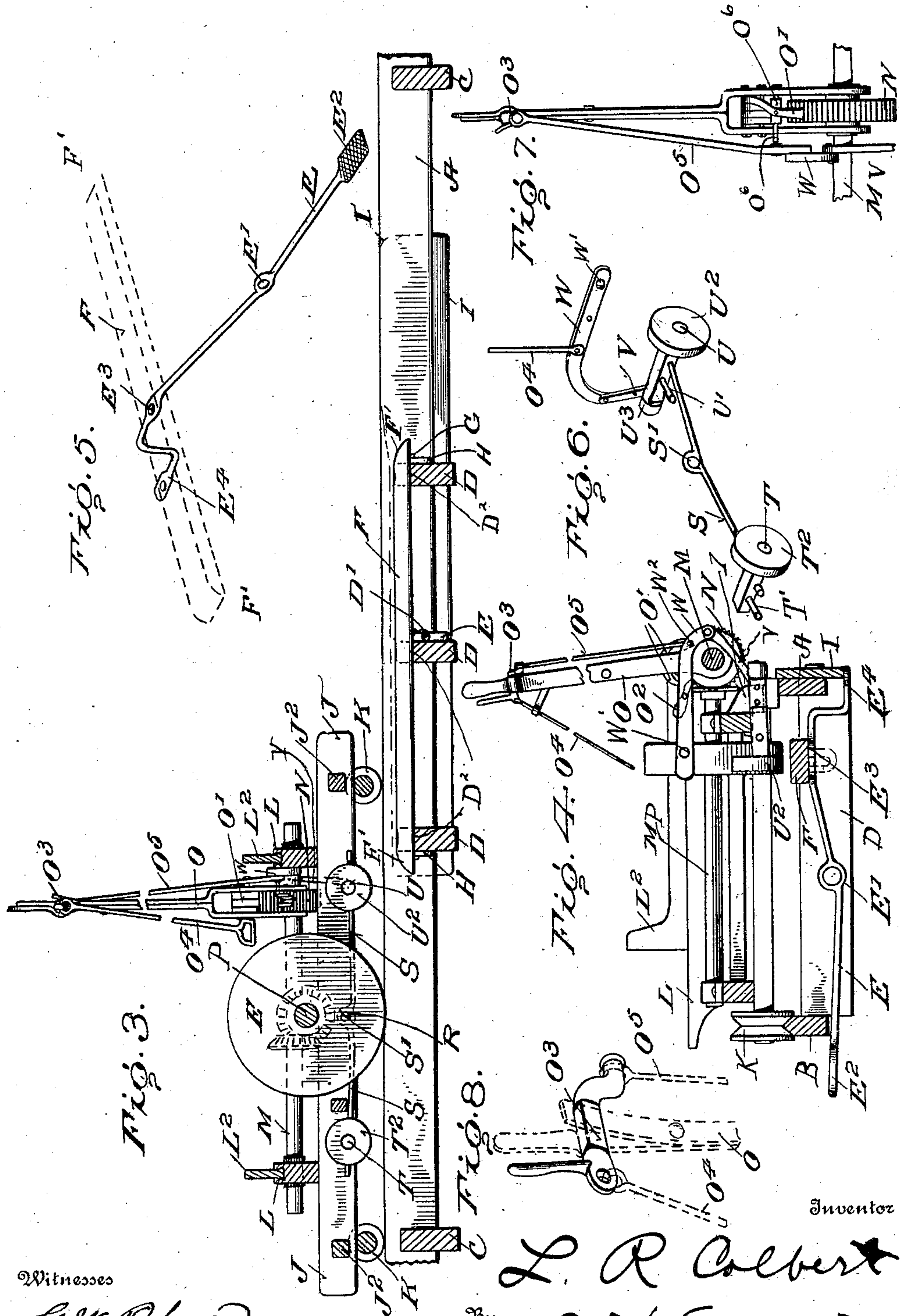
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PATENTED JAN. 21, 1908.

L. R. COLBERT.  
SAWING MACHINE.

APPLICATION FILED NOV. 9, 1906.

2 SHEETS—SHEET 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SAWING-MACHINE.

No. 877,410.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed November 9, 1906. Serial No. 342,700.

*To all whom it may concern:*

Be it known that I, LUCIAN R. COLBERT, a citizen of the United States, residing at Massaponax, in the county of Spottsylvania and State of Virginia, has invented new and useful Improvements in Sawing-Machines, of which the following is a specification.

My invention relates to sawing machines and more particularly to attachments for the same, for operating the knees, the object being to provide an attachment which can be readily attached to the ordinary sawing machine now in use, and one which will feed the knees forward until the log has been sawed up, then will return the knees to any desired point, both of these results being accomplished by simply pressing down on the lever, thereby overcoming the difficulties now existing of having to work the knees forward and backward by pawl and ratchet mechanism. The above objects being accomplished without stopping the carriage to trip the pawls.

With these objects in view, the invention consists in the novel features of construction, combination and arrangement of parts hereinafter fully described and pointed out in the claims.

In the drawings forming a part of this specification:—Figure 1 is a top plan view of the carriage and a portion of the track. Fig. 2 is a longitudinal sectional view of Fig. 1. Fig. 3 is a longitudinal sectional view through the carriage and track showing the carriage moved forward. Fig. 4 is a transverse sectional view through the carriage and track. Fig. 5 is a perspective view of the lever detached. Fig. 6 is a perspective view of the operating mechanism detached. Fig. 7 is a rear end view of the pawl and ratchet mechanism and operating lever. Fig. 8 is a detail perspective view of the operating lever.

Referring now to the drawings, A indicates the plain rail and B a beveled tread rail which are connected together at the ends by the cross-beams C, and intermediate the same by the cross-beams D. Mounted upon a bolt D' carried by the side of the central cross-beam D is the foot lever E which is provided with a central enlarged apertured portion E' through which the bolt D' passes, and upon which the lever rocks. One end of the said lever is provided with a broad flattened roughened portion E<sup>2</sup> which extends out beyond the track B and forms a foot-engaging surface, whereby the lever is operated by the

foot. The lever adjacent the opposite end is provided with an enlarged apertured portion E<sup>3</sup> upon which rests a longitudinal bar F which is riveted or otherwise secured to the lever E. The said bar F has its outer ends F' beveled for the purpose which will be hereinafter more fully described.

The beams D are provided with notches D<sup>2</sup> to receive the bar F so as to allow the same to pass downwardly below a certain level for the purpose hereinafter set forth. The outer end of the lever E is turned downwardly and provided with a horizontal flat portion E<sup>4</sup> which extends outwardly under the track A a sufficient distance to allow of the ready rocking of the lever. The horizontal portion E<sup>4</sup> of the lever has resting thereon and secured thereto the bar I which is pivotally connected at one end to the outer face of the plain rail A.

Mounted on the track is a carriage of the ordinary form now in use, formed of side bars J connected together by transverse bars J<sup>2</sup>. The side bars J have secured to their under side the axles J<sup>3</sup> and J<sup>4</sup> which are adjacent the ends of the side bars. The outer ends of the axles are provided with grooved wheels K which travel upon the bevel rail B, while the inner ends are provided with plain wheels K' traveling on the plain rail A, and by means of which the carriage travels back and forth upon the track. While I have shown this form of track and wheels to prevent lateral movement of the carriage, it will be understood that this forms no part of my invention, and any desired form of carriage and rail could be used.

Secured to the upper face of the side bars J are the head blocks L provided with horizontal dove-tail grooves L' in which are mounted the knees L<sup>2</sup> and which are adapted to travel in said grooves transverse of the carriage. The lower face of the said knees are provided with teeth forming a rack which meshes with pinions M' carried by the longitudinal shaft M mounted upon the carriage in any desired manner. Rigidly fixed upon the shaft M at one end is a ratchet wheel N which is operated by a lever O loosely mounted upon the shaft M, and carrying the double pawl O', whereby the ratchet wheel N may be operated in either direction after each cut, thus either feeding the knees forward for another cut, or for bringing the knees back in a position so that another log may be placed upon the carriage. The pawl-



operating mechanism for throwing the pawl in a position to operate the ratchet in either direction is in the form of a rod  $O^5$  having its upper end connected to a shaft  $O^3$  which is mounted in the operating lever  $O$ . The lower end of said rod  $O^5$  is provided with a transverse plate  $O^6$  which is connected to the pawl  $O'$ . The raising of the rod  $O^5$  throws the inner end of the pawl  $O'$  in engagement with the ratchet, while the lowering of the rod throws the outer end of the pawl in engagement with the ratchet; thus the shaft  $M$  may be rotated in either direction by oscillating the lever  $O$ , and thus working the knees forward or backward, as desired. This construction and operation being commonly used on saw mills thus requires the operation of the set works by hand. My invention is constructed and arranged to be attached to such knee-operating means whereby the knees may be operated by the movement of the carriage.

The knees are operated through the shaft  $M$  by the pinions  $M'$ , and secured to said shaft intermediate its ends is a beveled gear  $M^2$  which meshes with a beveled gear  $P^2$  carried by the shaft  $P$ . The said shaft  $P$  extends transverse the carriage and is rotatably mounted in the upper faces of the side bars  $J$ . Carried by said shaft intermediate the side bars is a large friction wheel  $Q$  which is directly over the bar  $F$  and of such a diameter as to pass over the said bar without engagement therewith, when the bar is in its normal downward position. By this construction it will be seen that the knees are not operated during the reciprocation of the carriage.

Carried by the inner face of the plain track  $A$  is a rod  $S$  which has a central opening  $S'$ , and through which the bolt  $R$  passes, and by means of which the rod is pivotally supported. The outer ends of said rod pass through short axles  $T$  and  $U$  which are provided with pivots or pins  $T'$  and  $U'$ . The said pins are mounted in brackets 1 and 2 carried by the rear face of the rear bar  $J$  of the carriage, and thus said axles are allowed to rock on said pins. The outer ends of said short axles are provided with rollers or wheels  $T^2$  and  $U^2$  which are directly over the bar  $F$ . The short axle  $U$  on the opposite end from the roller  $U^2$  is provided with a small roller  $U^3$  which is directly over the bar  $I$ . The axle  $U$  between the roller  $U^3$  and pin  $U'$  has pivotally connected thereto a link  $V$  which has its upper end pivotally connected to the lower end of the lever  $W$ , the said lever having its other end pivotally connected to the head-block at  $W'$ . The said lever is connected to the lower end of the rod  $O^5$  at  $W^2$ , whereby the raising and lowering of the lever  $W$  operates the pawls the same as when the shaft  $O^3$  is operated by the usual mechanism shown. Pivotally connected to the lever is

a back pawl  $O^2$  which engages the ratchet wheel  $N$  and absolutely prevents any backward movement of the shaft.

The normal position of the bar  $F$  is in its downward position, and thus the saw carriage is adapted to move back and forth under the control of the usual operating means, and the knees fed forward by rocking the lever  $O$ .

The saw being at the point indicated at  $X$  the sawing takes place when the carriage is moving in the direction indicated by the arrow in Fig. 1. After the carriage has been returned to the extreme right of the track in Fig. 1 the log being cut is some distance to the right of the saw-point  $X$ . The pawl  $O'$  is set with its inner end in engagement with the ratchet wheel  $N$ , and thus carrying the knees forward. The carriage is started to travel in the direction indicated by the arrow when the foot lever is depressed, which moves the bar  $F$  upwardly so that it will engage the lower face of the friction roller  $Q$ , and through the medium of the beveled gears  $M^2$  and  $P^2$  the shaft  $M$  is rotated to feed the knees forward. When the log has been moved forward the proper distance for the width of the plank to be cut the lever is released, thus stopping the knees. All of this takes place before the end of the log reaches the saw. After the cut is completed the carriage mechanism and the operation is repeated to saw another plank.

After the log has been sawed up and the carriage starts to return, the lever  $E$  is depressed which throws the bar  $F$  upwardly and the movement of the carriage causes the bar  $F$  to engage the roller  $U^2$  which rocks the short axle on its pivot  $U'$ , drawing the link  $V$  downward and drawing the outer end of the pawl in engagement with the ratchet  $N$ , as shown in Fig. 4. The continued movement of the carriage brings the friction wheel in engagement with the bar  $F$ , which carries the knees back to a position so that another log may be placed thereon. A new log is then placed upon the carriage and the carriage started forward. The lever  $E$  is again depressed which throws the bar  $F$  and plate  $I$  upwardly. The rollers  $T^2$  and  $U^3$  simultaneously engage their respective bars and rock the rod  $S$  on its pivot  $R$  and force the link upwardly, throwing the outer end of the pawl  $O'$  out of engagement with the ratchet and throwing the inner end of the pawl in engagement with the ratchet. The forward movement of the carriage causes the friction wheel to rotate, thus moving the knees forward, and when the log has reached the proper position the lever is released. A small portion of a revolution of the friction wheel causes the knees to be fed forward sufficiently far to cut a plank of any thickness, and therefore the lever is released before the bar  $F$  reaches the roller  $U^2$ , and thus



preventing the pawls from again being tripped.

Having thus fully described my invention what I desire to secure by Letters Patent is:

5 1. In a sawing machine the combination with a carriage and its knees, of a shaft mounted on the carriage and operating said knees, a lever, pawl and ratchet mechanism for operating said shaft, a friction wheel  
10 mounted on the shaft and geared to the shaft, a vertically movable track below the friction wheel and adapted to be brought in engagement therewith, an intermediately pivoted lever connected to the carriage, rollers car-  
15 ried by the ends of said lever and adapted to be engaged by the vertically movable track, an arm pivoted to the carriage and connected to the pawl operating mechanism, and a link connection between the outer end of said  
20 arm and one end of the intermediately pivoted lever.

2. In a sawing machine the combination with a carriage and its knees, of a shaft mounted on the carriage and operating the  
25 said knees, a lever, pawl and ratchet mechanism for operating said shaft, a friction wheel mounted on the carriage and geared to the shaft, a vertically movable track below the friction wheel, and adapted to be brought  
30 in engagement therewith, a lever intermediately pivoted to the carriage rollers carried by the ends of said lever and adapted to be engaged by the vertically movable track, a lever pivoted to the carriage and operatively  
35 connected to the pawl operating mechanism, a link connected to the outer end of said lever and to one end of the intermediately pivoted lever, and a weighted pawl pivoted to the said arm and normally in engagement  
40 with the ratchet wheel.

3. In a sawing machine the combination with a carriage and its knees, of a shaft mounted on the carriage and operating said knees, a lever, pawl and ratchet mechanism  
45 for operating said shaft, a friction wheel mounted on the carriage and geared to the shaft, a vertically movable track below the friction wheel and adapted to be brought in engagement therewith, a lever intermediately pivoted to the carriage, transverse  
50 axles carried by the end of said lever, rollers carried by the inner ends of said axles and a link connection between the outer end of one of the axles and the pawl operating means.

55 4. In a sawing machine the combination with a carriage and its knees of a shaft

mounted on the carriage and operating said knees, a lever, pawl and ratchet mechanism for operating said shaft, a friction wheel  
60 mounted on the carriage and geared to the shaft, a vertically movable track below the friction wheel, a pivoted plate parallel with the vertically movable track a pivoted foot lever connected to said track and the pivoted  
65 plate for simultaneously moving the plate and the track upwardly, a lever intermediately pivoted to the track, axles, carried by the outer end of said lever, rollers carried by the inner end of said axles, a roller carried by  
70 the outer end of one of said axles, a pivoted arm above the axle and connected to the pawl operating mechanism and a link connection between said arm and the axle.

5. In a sawing machine the combination with a carriage and its knees of a shaft  
75 mounted on the carriage and operating said knees, a lever, pawl and ratchet mechanism for operating said shaft, a friction wheel mounted on the carriage and geared to the shaft, a vertically movable track below the  
80 friction wheel, a pivoted plate parallel to the vertically movable track, an intermediately pivoted lever, rollers carried by the outer end of said lever and in a plane above the lower edge of the friction wheel and adapted to be  
85 engaged by the vertically movable track and plate respectively, and means connecting said lever and the pawl operating mechanism and means for operating the track and the plate.

6. In a sawing machine the combination  
90 with a carriage and its knees, of a shaft mounted on the carriage and operating said knees, a lever, pawl and ratchet mechanism for operating said shaft, a friction wheel mounted on the carriage and geared to the  
95 shaft, a vertically movable track below the friction wheel, an intermediately pivoted lever, axles having their outer ends connected with said lever, and intermediately pivoted, rollers carried by the inner ends of said  
100 axles, a pivoted arm above one of said axles and parallel therewith and connected to the pawl operating mechanism and a link connected to the outer end of said arm and the outer end of the axle.  
105

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

LUCIAN R. COLBERT.

Witnesses:

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C. R. WRIGHT, Jr.