

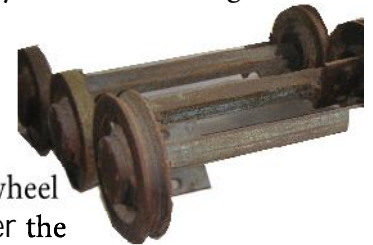
## 3-Block Saw Carriage

### F Saw Carriage

The early versions of the carriage were simple. The log was rolled on it, fastened, and the carriage was set in motion by a ratchet-works driven by a water wheel. Once started, the operator went to his other business until the cut was completed. He then “gigged” the carriage back by hand, used a crowbar to reset the log, and started the carriage in motion again. It was slow, but far better than sawing by hand. Later, cable, and then steam, powered the carriage.

The Saw Carriage still holds the log while it was being sawn. It now incorporates machinery which has been vastly improved to hold a log and move the log a “set” distance to provide various thickness’ of lumber. Except for the Band (Head Saw) Mills, no equipment used in a Sawmill required such accurate adjustment, perfect mechanical construction, and care in operation as the Saw Carriage to ensure straight and even thickness every time. The carriage had to be exactly positioned in relation to the head saw with the utmost care and accuracy!

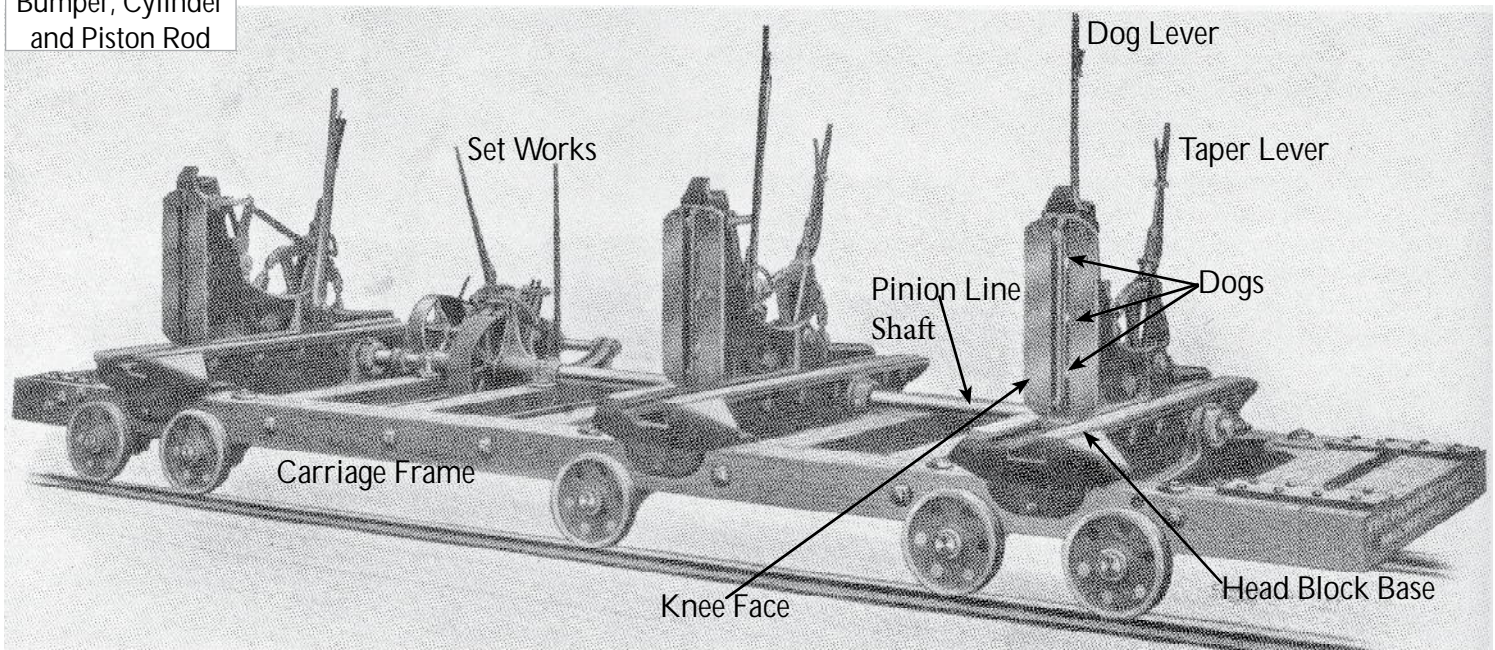
The carriage consisted of a heavy wood frame, riding on three sets of trucks (wheels) carrying three Head-blocks. It rode on two steel RR type rails. The carriage side wheels on one side had a “U” shaped flange over one rail head, the other wheel being flat and flange-less. Wheel diameters varied from 12 inches to 18 inches. The number of trucks (wheel sets) under the carriage were two axles under each Head-block or possibly only one under the center block.



Bumper, Cylinder and Piston Rod

The length of the carriage track was more than double the length of the carriage. Carriages are built for a range of log diameters and lengths with their dimensions depended upon the logs cut for that mill. Track cleaning devices were attached to the carriage to keep the rails clear of sawdust and rubbish.

Three hand Head-blocks were placed across the carriage. The upright moveable portion of the Head-block was the Knee, and a Pinion Line shaft through the Head-blocks controlled the movement of all the Knees. The Set-works were attached to this shaft.

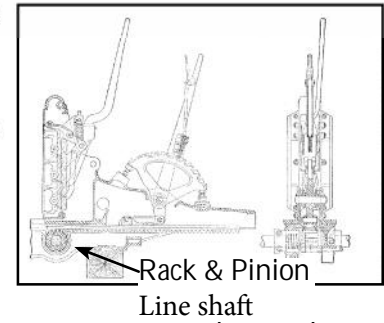


Logs were firmly placed on the Head Blocks against the Knees with Dogs **F** holding a log with a vice-like grip. The log had to be securely held onto this fast-moving, quick-starting, and quick-stopping carriage as it shuttled from the Log Deck to the Band (Head Saw) Mill **G** and back. The knee is an upright, hollow, metal framework containing the log dogs, which engage and hold the log on the carriage. A hand lever engages or retracts the dogs with rack-and-pinion gears for the size of the log or cants being sawed. These consist of two sets of teeth, one pointing upward, the other

downward. The motion of the lever forces the teeth into the log. On the final cut, these dogs are receded and a single board dog, top and bottom, engages the timber on the edge. Carriage dogs were operated by hand. If the timber is very uneven, or quite often for the first cuts of slabs, a hammer-dog was used to hold the logs until a dogging-face was secured.

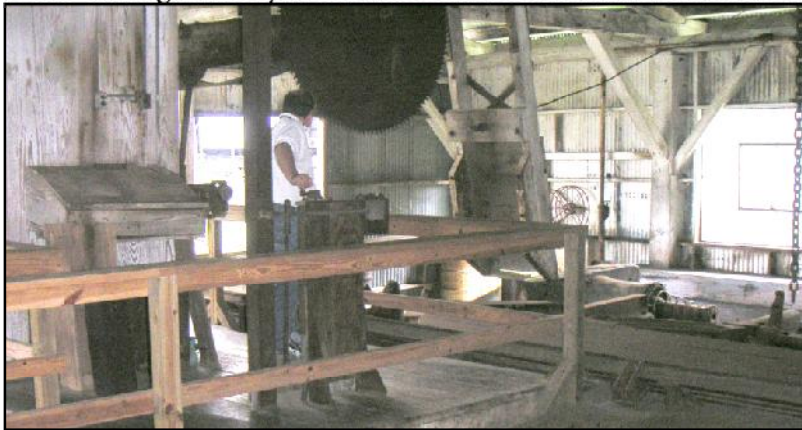
The carriage was shuttled back and forth by the Head Sawyer. Three men who rode the carriage, two were the Doggers. Their job was to operate the various dogs and other work assigned to them. The third was the Setter who had to be constantly alert, know the essentials for grading of boards and had to have an excellent knowledge of the best way to turn and saw a log to get the highest quality as well as the maximum quantity of lumber out of a log.

The hand Set-works were incorporated into the shaft connecting the head-blocks. This mechanism advanced or retracted all knees a certain distance simultaneously. It was operated by the Setter sitting/riding on the carriage, who received his instructions by hand signals from the Head Sawyer for the width of the next cut or if the log was to be turned. The Setter had a brass faced dial on the set works which he used to determine the distance to move the set-works. Set-works were operated by hand controls. The Taper Lever Quadrant enables the Dogger to move a given knee permitting logs with flaring butts to be sawed parallel to the axis of the log.



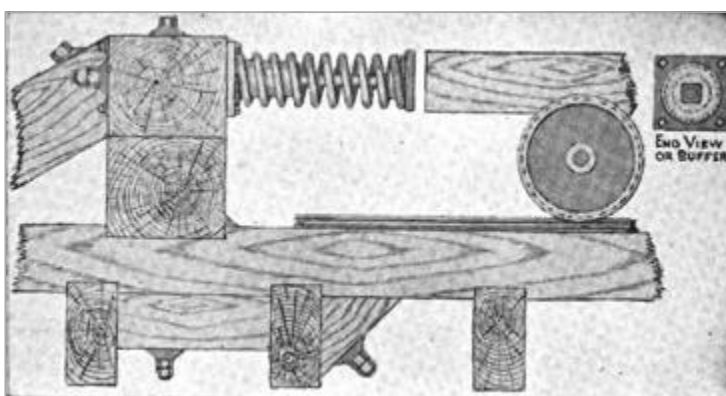
Set Works dial shown with Setters seat in bottom left corner.

The steam-feed was the most common feed in the larger mills like the VCLCo. It consisted of a number of castiron pipe sections which could be coupled to suit the length of carriage and capped at the ends. The bore of the cylinder varied upward from 8 inches to 14 inches in diameter. Within this cylinder was a piston which was attached by a piston rod to the carriage. The cylinder was bolted to the mill floor between the tracks near the flat rail and steam port pipes were attached to each end of the cylinder from the valve chest controlled by the Head Sawyer's lever. This lever controlled a valve which admitted steam to the cylinder in the required direction of travel and at the speed desired. The development of the steam-feed greatly increased the speed of the saw carriage and with it, a resulting increase of mill capacity. The speed of a carriage could be quite high with 400 feet per minute travel when sawing and 1,000 feet per minute travel on the return. This speed earned it the name of "Shot Gun" feed, especially on the return movement. The shot gun feed was the fastest carriage return ever developed and was aptly named as the carriage was actually "blasted" back on the return movement. Today, no carriage moves that fast, for occupational safety standards would prohibit its use.

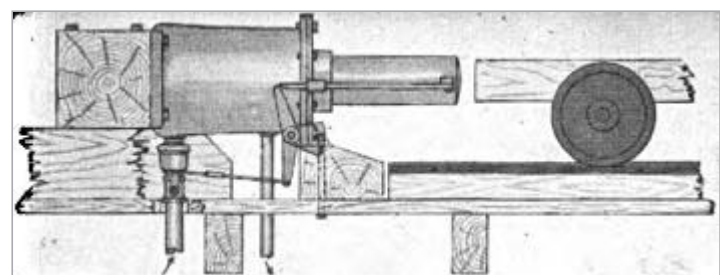


Head Sawyer operating the steam-feed. Note; Spring Bumper.

The final and necessary part of the carriage was a spring  $F_b$  or permanent Carriage Bumpers  $F_a$  at the extreme ends of carriage travel. It absorbed the shock of the carriage at either end, especially on the return movement, for quite often the speed of the returning carriage was misjudged and without it, the carriage could have been damaged.



Spring Bumper



Steam Bumper