

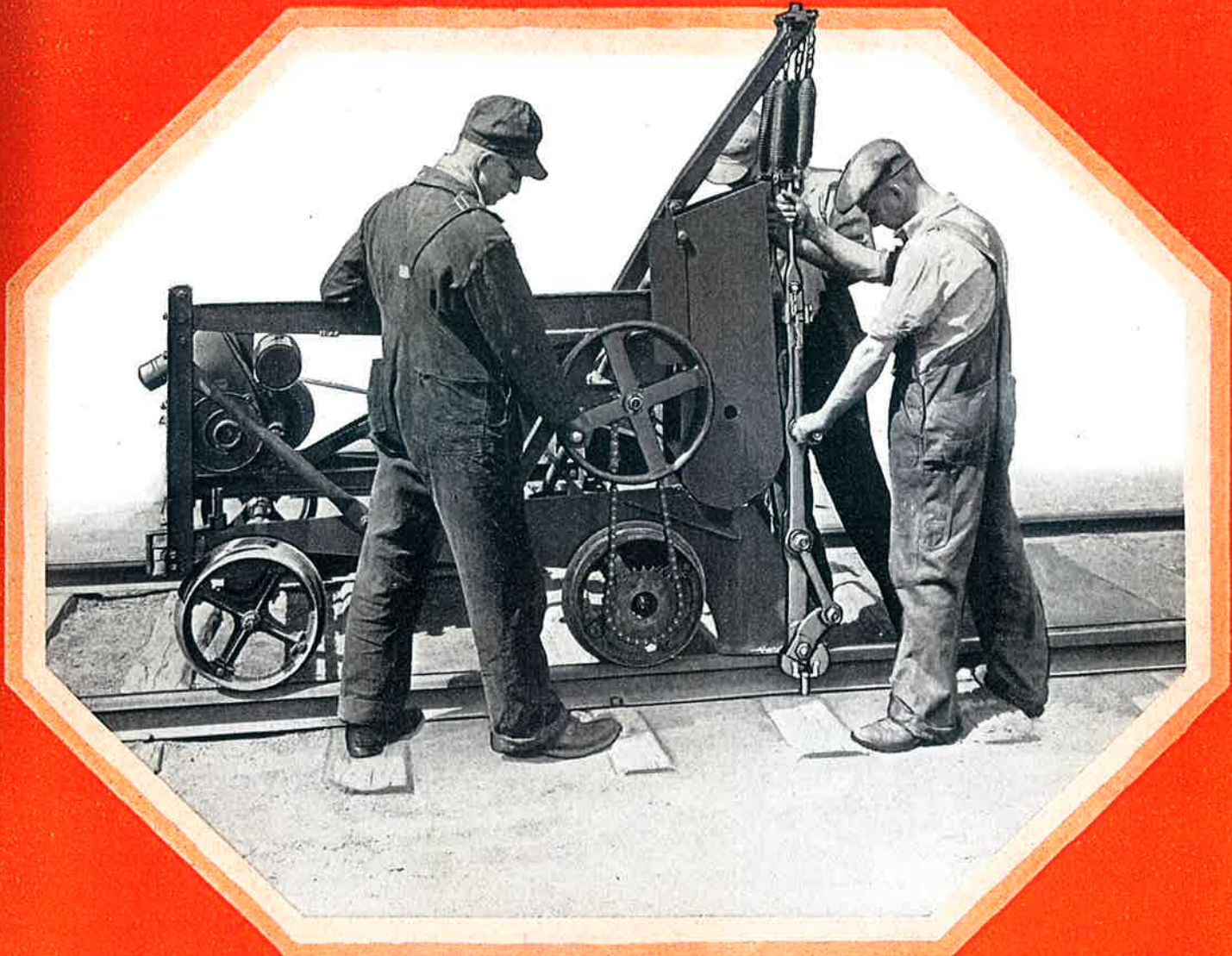
July 15, 1930
10,000

NORDBERG

Mechanical

SPIKE PULLER

PATENTS PENDING



BULLETIN 48

NORDBERG MFG. CO.



A single line relaying job under traffic.



Pulling spikes on a bridge at the rate of 36 spikes per minute.



A big saving in time and was accomplished through

OF THE various machines developed to lighten the burden of labor and increase the progress of track work, no satisfactory method had been found for the extracting of spikes until the advent of the Nordberg Mechanical Spike Puller. While this machine embodies no revolutionary principles, yet it has been received with more enthusiasm and has been given more favorable comment than any of the other labor saving track equipment introduced by Nordberg. Its simplicity, speed and ease with which even the most difficult spikes are pulled have appealed to all experienced track men, who have witnessed its performance.

Does the Work of Twelve Men

In ordinary service, with one man moving the machine and two men at the tongs, the Nordberg Mechanical Spike Puller will maintain a speed of 20 to 25 spikes per minute. On bridges where the spacing is close, or where double spiking is used, two men have pulled at the rate of 36 spikes per minute.

Easy on Operator

Pulling spikes by hand is hard work and toward the end of the day is an important factor tending to slow down the rail laying job. Since the tongs are suspended overhead from springs, the only effort required on the part of the operator is opening the jaws and gripping the spike head. The tongs are opened by a slight downward pressure, far easier than an all day job of carrying a heavy claw bar. Men who have operated the machine claim that it is the easiest job in the rail gang.

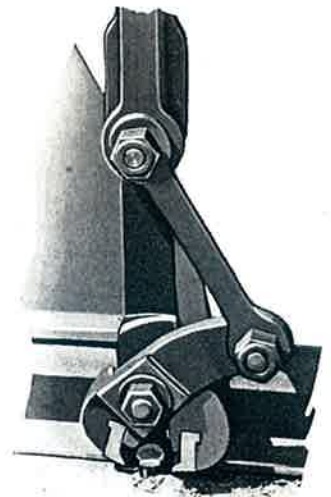
Reduces Accidents

Any one accustomed to the laying of rails realizes the many hazards involved in the pulling of spikes by hand, or other mechanical devices. Mashed fingers from claw bars slipping and injuries from the use of mauls in connection with the removing of spikes, are accidents more or less com-

mon. Flying heads from broken spikes, another source for injury is overcome since the tongs confine the broken heads. All such hazards are eliminated with the Nordberg Mechanical Spike Puller. Sheet steel safety guards enclose the gear, pinion, crank and connecting rod.

At Bridges and Switches

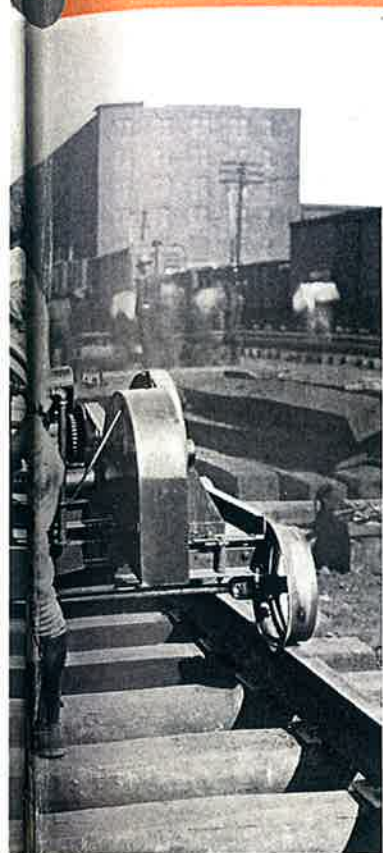
Bridges and switches invariably cause inconvenience, and delay the progress of track laying. Often it is difficult to remove spikes at such locations owing to the inability to use claw bars because of rail interference or inconvenient working positions. With the Spike Puller it is just as easy to pull spikes at either side of rail on bridges and at frogs and switches, as it is on open track.



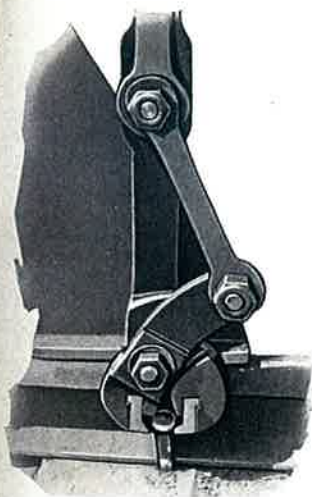
The wide opened jaws permit the spike head to be easily gripped.

Straight Pull

The pull exerted on the spike is directly upward, there being absolutely no tendency to distort or bend. No matter how hard the spike may be to remove, it will not be bent in the process. Spikes that are still in fair condition and have a reclaim value, if they were driven in straight, they will be removed in the same condition. This straight pull will save labor where spikes are used again.



Large yard rebuilding job
use of the Spike Puller.



Note the inserted jaws
and rugged construction
of the tongs.

machine has a pulling capacity sufficient to remove spikes driven into solid oak ties, without first starting the spike by a blow from a spike maul. It is designed for and capable of exerting a pull of 10,000 pounds when pulling spikes at regular intervals, without causing any appreciable reduction in engine speed. The ample power of the engine and the inertia stored up in the heavy belt pulley and fly wheel, readily carry the load over the peaks no matter how hard the pull may be.



Here the machine pulled as many
spikes as 12 men did by hand.



Turning the machine to pull on opposite rail.

Pulls All Spikes

One of the outstanding features of the Nordberg Mechanical Spike Puller is its ability to pull any spike accessible to the tongs. Spikes with small, and corroded heads that will slip through the claw bar, or spikes with broken or rusted off heads which formerly held up the "pulling out" gang can easily be pulled with this machine. "Cut throat" and "hump-backed" spikes, which are difficult to pull by hand or any other mechanical means, are quickly and positively pulled. If the body of spike protrudes far enough to be gripped by the tongs, it can be removed.

The design of the tongs is such that the greater the force required to pull the spike, the greater the gripping action of the tongs. The

Self-Contained

The machine is a self-contained unit that can be lifted from the track, pushed to the side by a few men or towed behind a motor car. When used for relaying on single line, or on "hot track," the ease with which this mechanical puller can clear the track is a feature that will be appreciated by those who have objected to the use of heavy equipment on track where traffic must be maintained. Its weight is approximately 1200 pounds.

Simple Construction

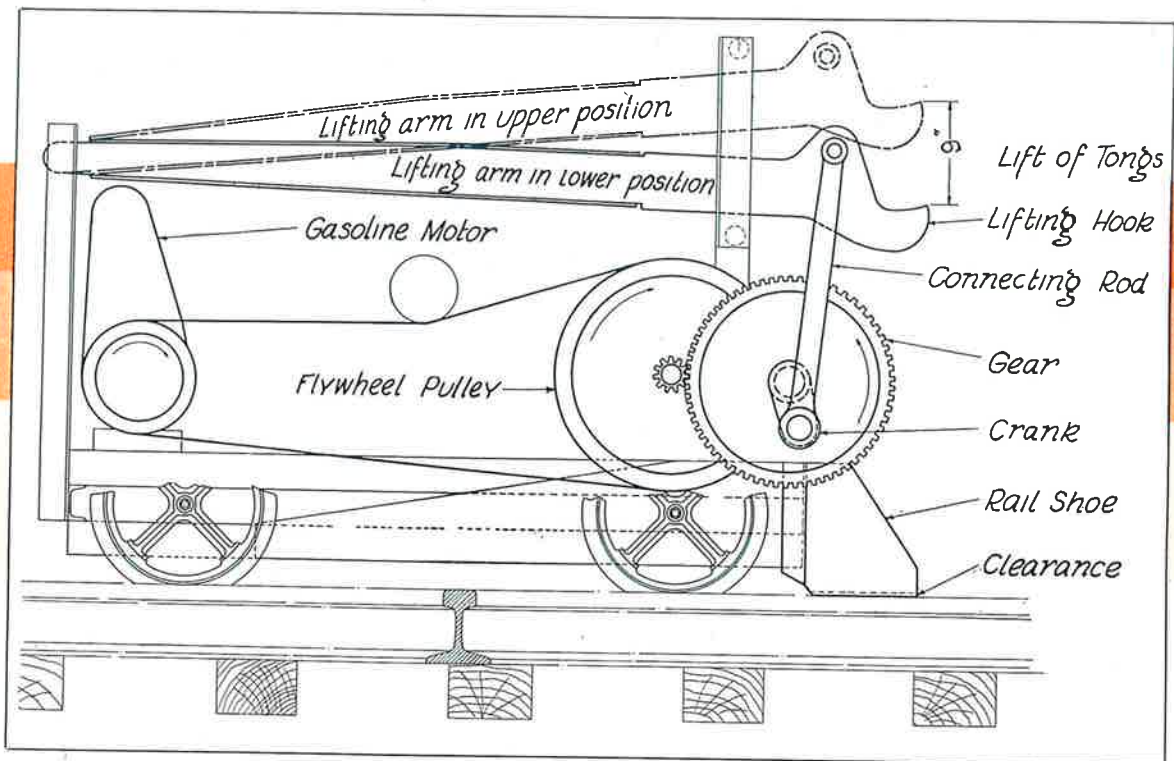
The Nordberg Mechanical Spike Puller consists of a welded steel frame work carried on four wheels, at one corner of which is a $2\frac{1}{2}$ horsepower gasoline engine belted to a heavy flywheel over the other axle. This wheel carries a pinion driving a large gear at one end of a shaft, while at the other end is a crank and connecting rod for conveying the lifting action up to the horizontally placed lifting arm from which the actual pull on the spike is made.

The spike tongs are suspended at one corner of the machine from springs directly over the hooked end of the lifting arm. At that same corner of the machine is a heavy steel shoe welded to the frame and so arranged to take the reaction of the pull, thus relieving the wheels and axles of any load other than the weight of the machine.

Normally this shoe is held in a raised position with about $\frac{1}{4}$ inch clearance between rail and shoe. As soon as a downward pull is exerted, springs holding the shoe off the rail are compressed, thus allowing the shoe to rest on the rail. The shoe automatically returns to the raised position when the pull is removed.

Method of Operation

Not until the Nordberg Mechanical Spike Puller has been seen in operation can one appreciate its simplicity and ease with which the spikes are drawn. The machine is moved from tie to tie by means



This shows the simple mechanism for operating the lifting arm.

of the crank and chain drive at the side, which permits quick and accurate spotting. The instant the machine is stopped, one of the operators slips the tong jaws over the spike head and moves the top of the tongs over so that the hook on the end of the lifting arm can engage the lug on the tongs. As the hook continues to move upward through its 9-inch travel, it exerts a tremendous force, lifting the tongs and consequently pulling the spike. While the operator on the inside is pulling that spike, the operator on the outside has grasped the outside spike and the instant the hook is released, the lifting process is repeated with the other tongs. Grasping the spike even when the machine is still in motion becomes a simple matter after a few hours practice. The design of the tongs and the manner in which they are actuated permits the spike to be quickly and positively grasped. To open the tongs, the operator only has to exert a slight downward pressure to overcome the tension of the spring directly above the handle. As soon as the pressure is released, the jaws close in on the spike and are held in the closed position by spring tension. The instant the spike

is free from the tie, the tongs automatically open and drop the released spike to the ground.

Low Operating and Maintenance Expense

The cost of operation is exceedingly low. But three gallons of gasoline are required per day and the oil consumption is correspondingly low. Since all parts run at comparatively slow speeds and have bearings with removable bronze bushings provided with pressure system of grease lubrication, long life to the wearing parts is assured. The tongs are fitted with renewable hardened steel jaws, replaced in a few moments at a negligible expense.



Examples of crooked and badly cut spikes pulled by the Spike Puller.

Easily Turned by Two Men

When necessary to turn the machine to pull spikes on the opposite rail, or raise it for the insertion of run-off rails for setting off the track, this can easily be done by two men. A heavy jack screw is attached to the machine at its approximate balancing point.