

# 1875-1900

## Electrification begins

In the early years, linemen learn basic principles and hazards in realtime. Safety standards are non-existent, and most line equipment is handmade.



### Early headgear

It's not uncommon for linemen to wear hats made of felt or leather for protection.

### Digging spoon

Workers dig holes by hand with digging bars, spoons, and shovels.

### Homemade belts

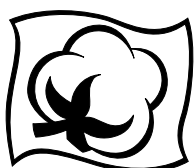
Linemen fashion belts to wrap around waist and pole—or they climb freestyle.

### Bare hands

Linemen rarely wear gloves for protection, opting instead to work bare-handed.

### Climbing spikes

Homemade climbers lack pads and have only upper and lower straps.



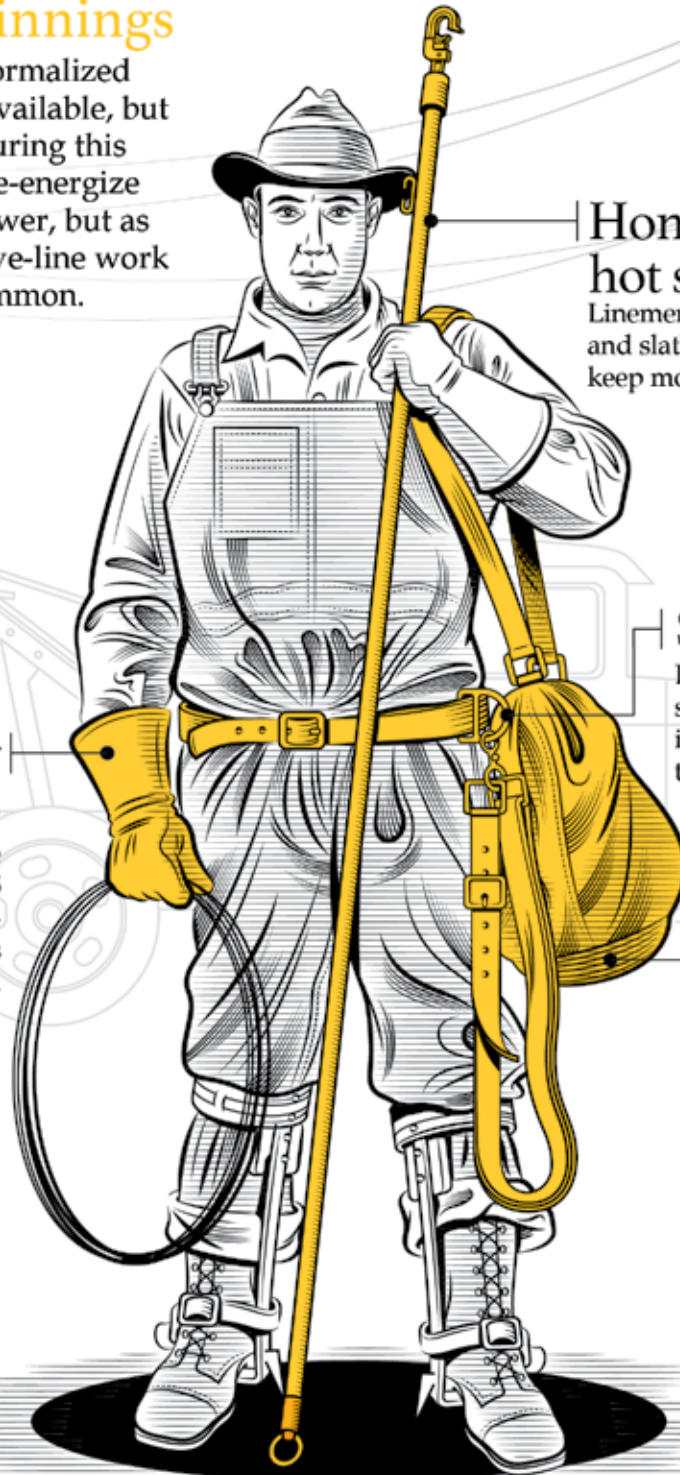
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# 1901-1925

## Safety beginnings

Safety rules and formalized training become available, but they're limited. During this period, linemen de-energize lines to restore power, but as demand grows, live-line work becomes more common.



### Homemade hot sticks

Linemen make their own hot sticks and slather them with varnish to keep moisture out.

### Standardization

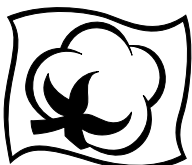
Linemen belts and safety straps are more standardized, adjustable, and attach to D-rings.

### Rubber gloves

Safer rubber gloves are introduced around 1915 along with other rubberized equipment, such as line hoses and blankets.

### Leather tool bags

Leather bags store and carry climbing and work tools.



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# 1926-1950

## Safety training improves

The electric industry develops more formalized safety rules and procedures to protect lineworkers. In the late 1930s, apprentice programs with stricter standards also begin.

### Hats

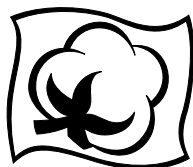
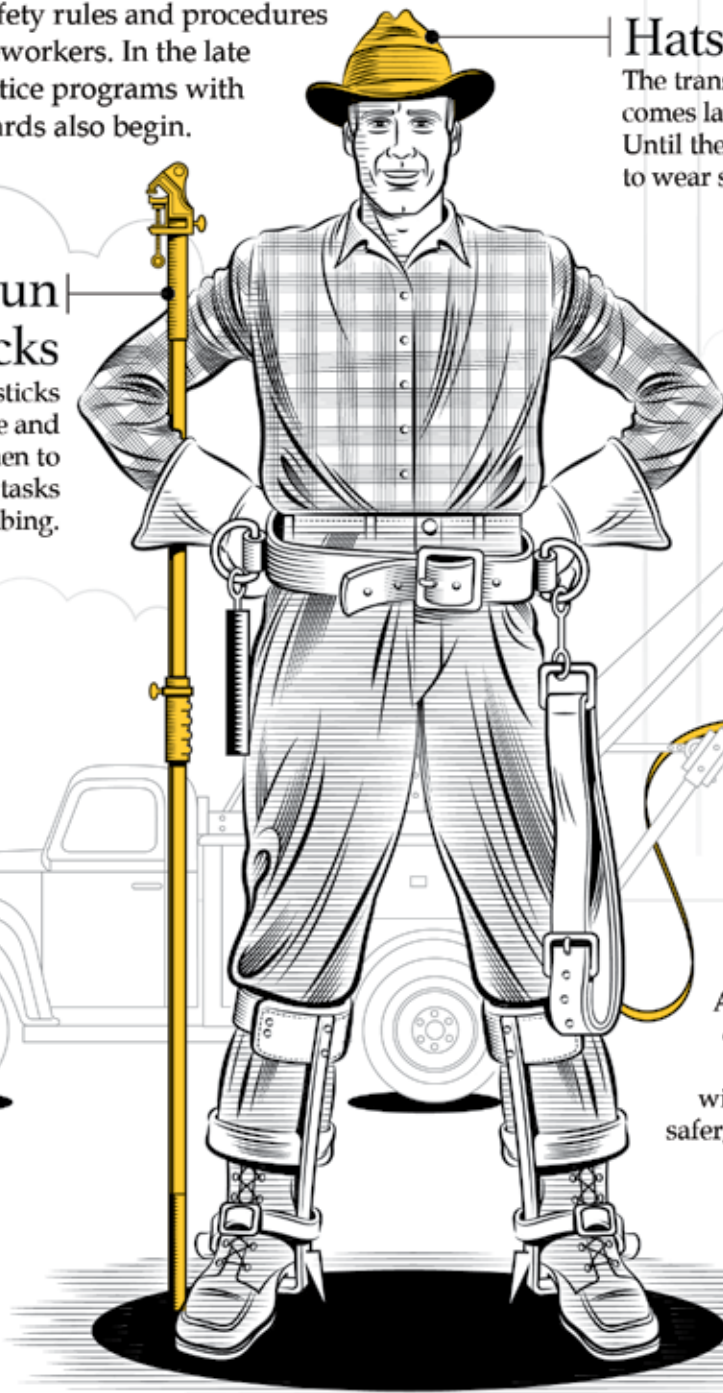
The transition to hard hats comes later in this period. Until then, most linemen elect to wear soft, Stetson-style hats.

### Shotgun sticks

The first shotgun sticks come into use and allow linemen to perform more tasks without climbing.

### Hydraulics

A-frame digger trucks evolve into hydraulic digger derrick trucks with auger, resulting in safer, more efficient work.



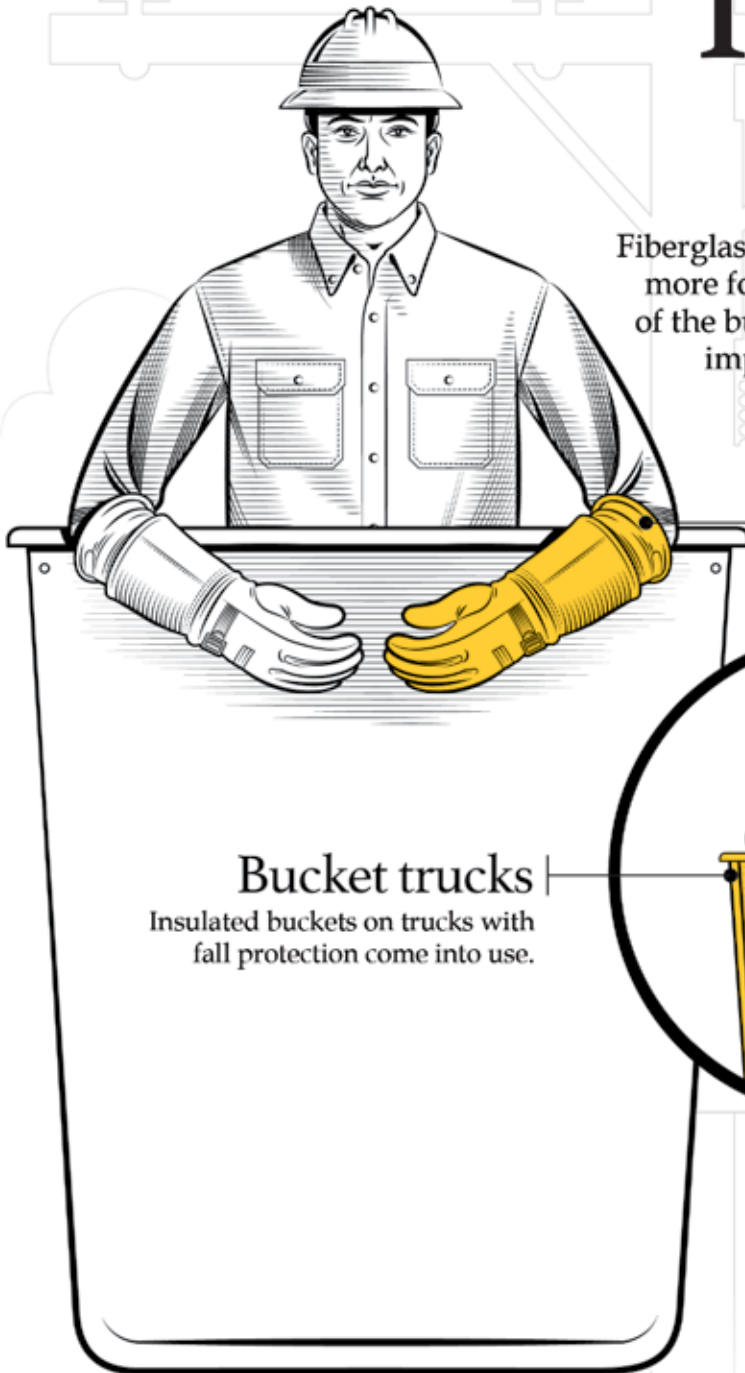
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# 1951-1970

## New heights and faster communication

Fiberglass sticks evolve to “rubber gloving,” with more formalized rules and training. The advent of the bucket truck, utility undergrounding, and improved communications are major steps.



### Rubber glove protectors

Linemen wear two pairs of gloves—leather on top of rubber—for more protection.



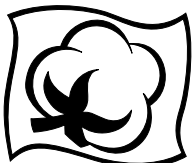
### Bucket trucks

Insulated buckets on trucks with fall protection come into use.



### Two-way radios

New applications of radio technologies improve communications during emergencies and storm restoration.



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# 1971-1990

## New law of the land

President Nixon signs the Occupational Safety and Health Administration (OSHA) law. Underground line installation gains widespread use. Material-handling bucket trucks and hydraulic and mechanical compression tools also improve work conditions.

## Hard hats

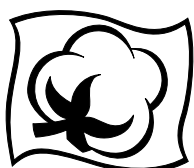
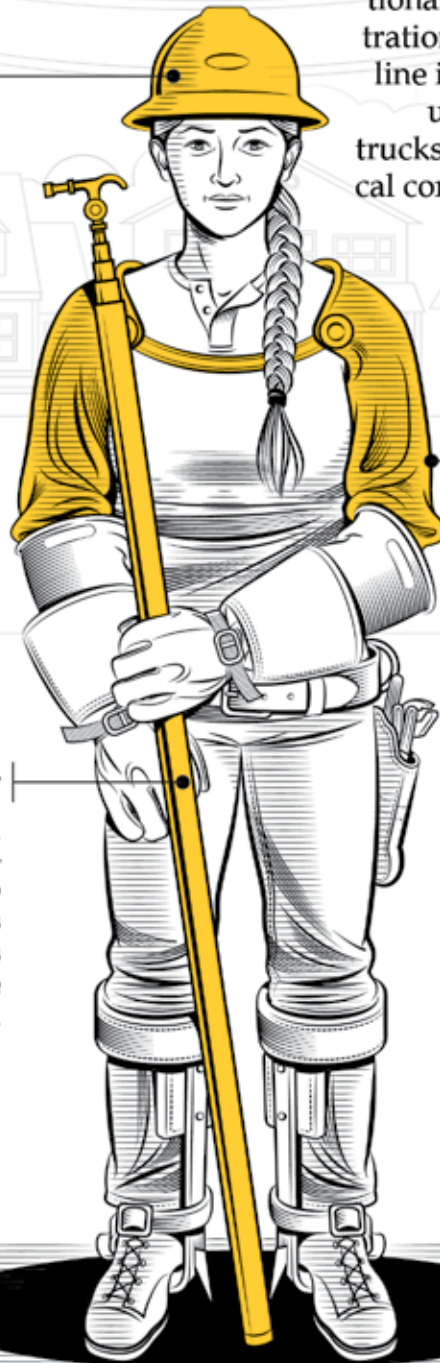
Head protection made from thermoplastics gains widespread use.

## Rubber sleeve improvements

New sleeves extend to the shoulders for extra protection.

## Telescoping or extendo stick

Made of fiberglass, the extendo stick lets workers perform tasks like opening and closing switches or removing tree limbs while staying on or near the ground



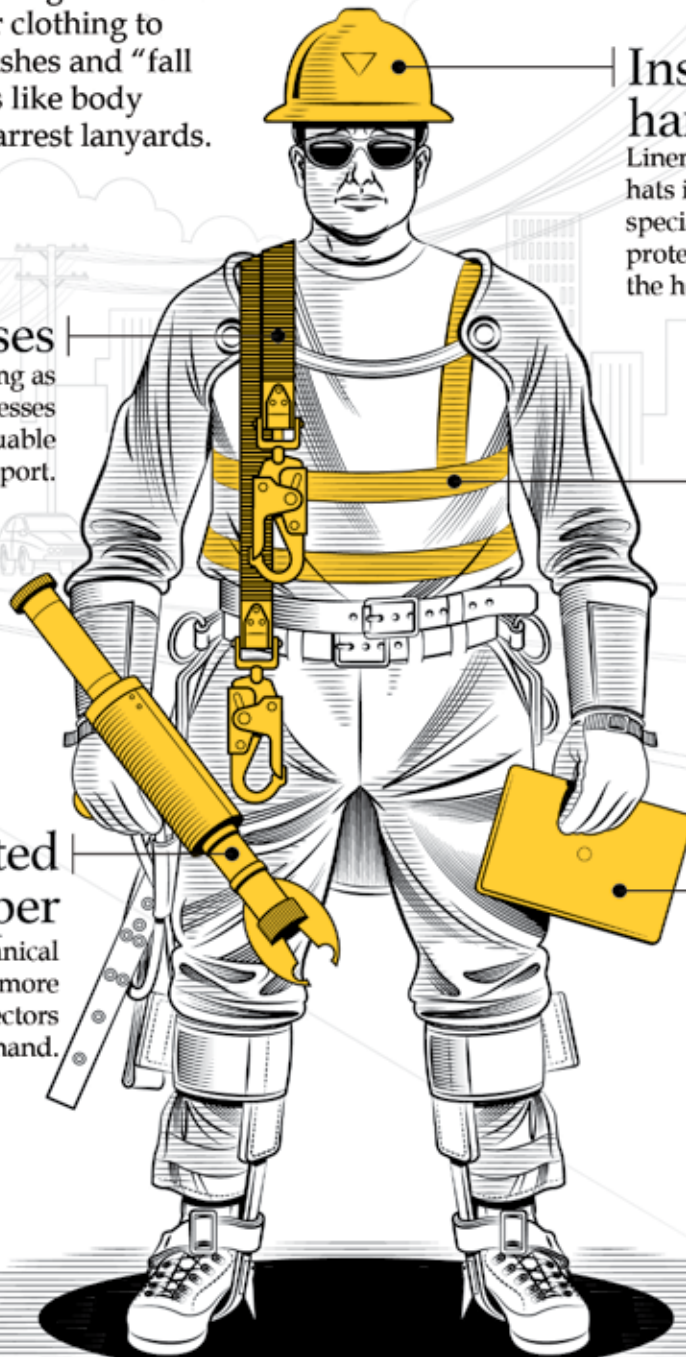
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# 1991-present

## Watching out for workers

OSHA begins requiring utilities to provide lineworker clothing to protect from arc flashes and “fall protection” devices like body harnesses and fall-arrest lanyards.



### Insulated hard hats

Linemen now wear hard hats insulated with a special polyethylene that protects against blows to the head.

### Harnesses

Linemen aren't climbing as much, so body harnesses and lanyards are valuable backup support.

### Clothing

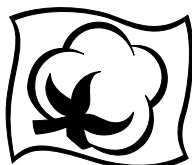
Arc-rated clothing is written into OSHA-required Personal Protective Equipment.

### Battery-operated crimper

Lightweight mechanical crimpers mean no more squeezing connectors by hand.

### Tablets

Mobile devices help lineworkers troubleshoot problems using SCADA and meter data instead of climbing a pole or going up in a bucket.



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