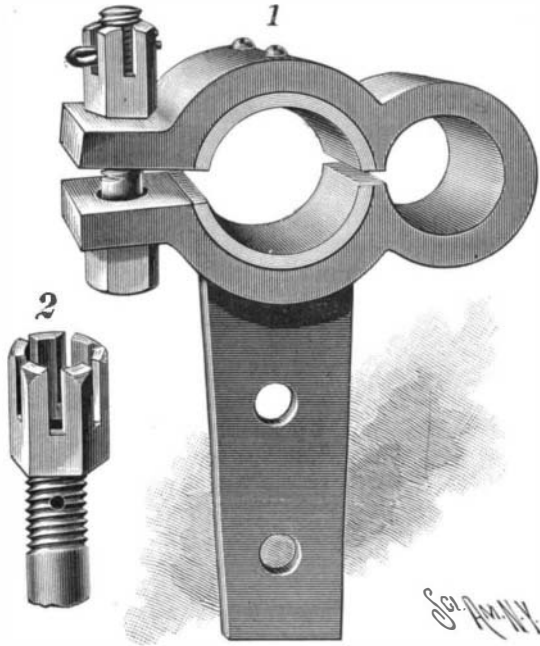


**A PITMAN-HEAD FOR HIGH-SPEED MACHINES.**

The pitman-head illustrated in the accompanying engraving is especially designed for use on high-speed machines and is so constructed that wear can readily be taken up.

Fig. 1 is a perspective view of the pitman-head. Fig. 2 is a detail showing a peculiar form of bolt used in connection with the head.

The pitman-head is composed of a body and a cap integrally connected with each other at one side by a split-ring, so that the cap is spring-supported on one



**JOHNSON'S PITMAN-HEAD FOR HIGH-SPEED MACHINES.**

side of the body. At the side opposite the split-ring, the body and cap are provided with flanges connected with each other by a bolt, so as to enable the cap to be swung toward the body in order to take up any wear that may occur in the bearing of the pitman-head. In order to lock the nut in place after such an adjustment has been made, notches are made in the nut as shown in Fig. 2, which are engaged by a lynch-pin removably held in an aperture in the bolt and passed through opposite notches in the nut.

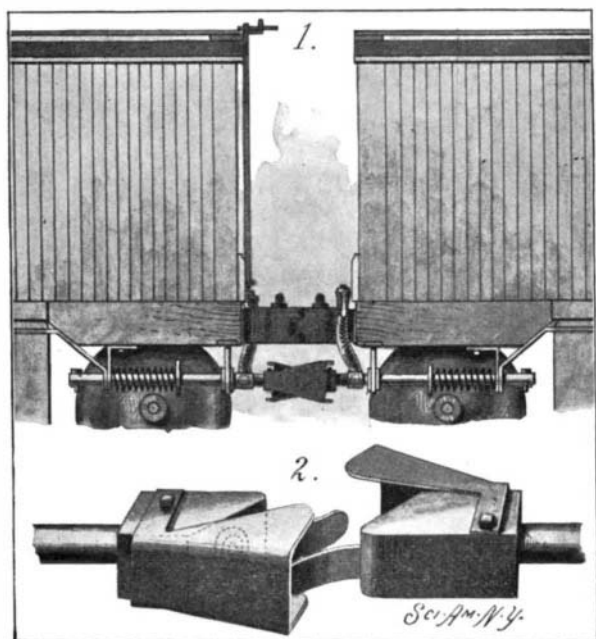
The bearing of the pitman is made in box-sections, secured to the head by set screws. Oil-holes in the cap and upper box-section permit the lubrication of the bearing and the wrist pin engaged by the head.

The pitman head is attached to the pitman bar or rod by means of an arm secured or formed on the body.

The inventor of this pitman-head is Walter Johnson, North Loup, Neb.

**A COUPLING FOR THE AIR-PIPES OF RAILWAY-CARS.**

In the accompanying illustration we illustrate a coupling for train-pipes, which is so constructed that



**SINCLAIR'S TRAIN-PIPE COUPLING.**

its sections can be automatically connected, and which is so mounted that it can move vertically and horizontally without danger of the parts' separating.

Fig. 1 illustrates the application of the coupling to two cars. Fig. 2 is an enlarged perspective view of the coupling-heads.

Each coupling-head is provided with an inclined face having an inlet valve communicating with a tubular shank. Opposite the inclined face of each head, a tapering hood is located, which is attached to the head and which has an inclination from its connection with the hood laterally in an outward direction. Each hood

is also longitudinally tapered rearwardly, its front and rear ends being open. A spring-tongue is projected from the forward, contracted portion of each head, which tongue is laterally inclined in a direction opposite to the lateral inclination of the hood. By this arrangement the hood of one coupling is made to receive and guide the spring-tongue of the opposing coupling, the bearing of the tongues against the hoods being sufficient to cause the inclined faces of the opposing coupling-heads to be held in close engagement, so that the inlet-valves will be in alinement.

The tubular shank of each coupling has a branch to which the air-hose is attached, the communication between the hose and the air-pipes on the bottom of the car being controlled by angle-cocks which may be operated either from a point near the ground or from the top of the car.

At the rear end of the tubular shank communicating with the inlet-valve of each coupling-head, a collar is secured, which is attached to a bar. The bar and tubular shank are so held in hangers that the shank portions of each head may have vertical as well as lateral movement, in order to prevent uncoupling when the cars sway laterally or move vertically. The collars of the shanks are pressed toward each other by coiled springs, as shown in Fig. 1; and these coiled springs acting in conjunction with the spring-tongues of the hoods, maintain the relative positions of the various parts.

The inventor of this coupling is Millard F. Sinclair, of Humboldt, Tenn.

**Students in Forestry.**

The Forester of the Department of Agriculture announces that a few well qualified men may find positions as student assistants in the Division of Forestry. They will be assigned to practical field work, and their expenses will be borne by the government, which will also pay them \$300 per annum. The students must have an excellent knowledge of botany and must also have some knowledge of geology, mathematics, physics, chemistry, entomology, zoology, surveying, etc. The plan will probably enable the government to get intelligent and fairly well equipped young men to do the field work of the Forestry Division, and it is probable that some time the services of the students will be turned to valuable account by the Department of the Interior in its forest conservation programme.

**A WRENCH FOR TIRE-BOLTS.**

The annexed engraving represents a device intended for use in connection with the tightening and removing of tire-bolts, one end of the bolt being engaged by one jaw of a pair of tongs to prevent the nut from rotating, and the nut at the opposite end being engaged by a wrench which may be rotated so as to loosen or tighten the nut.

Fig. 1 is a perspective view of the wrench.

Fig. 2 is a detail view, showing the jaws of the wrench in partial section.

The device is mounted upon two levers pivoted together, so as to form a pair of tongs. One of these levers carries a single jaw, and the other a double jaw. The single jaw is provided with a threaded bolt, which is designed to engage the end of a tire-bolt, in order to prevent its turning. In the jaw-end of the other lever two gears are journaled. One gear has a hollow shaft forming a nut-engaging socket, and provided with a key-and-feather connection with the gear, the shaft being therefore slidable lengthwise, and yet being free to turn. A spring engages the outer end of this socket-shaft, to hold it upon the nut. The other gear has a shaft extending through the opposite jaw, which shaft carries a crank, by means of which the gears are turned.

In using this wrench the jaws are made to embrace the felly; and the threaded bolt carried by the one jaw is screwed down upon the head of the tire-bolt, the end of the socket-shaft of the one gear in the other jaw having previously been passed over the nut. On tightening the jaw-bolt, by bringing the ends of the tongs together, the pressure is resisted, not by the socket-shaft of the gear, but by the jaw. By reason of this construction the socket-shaft is not forced into the wood more than is necessary to hold the nut securely.

If it be so desired, a receptacle can be hung from the double jaw in order to receive a nut after having been removed from a bolt. The wrench has been patented by Walfrid Larson, of Kingsburg, Cal.

**American Locomotive for Sweden.**

The first locomotive manufactured by the Richmond Locomotive Works for a railroad in Sweden has made her trial trip from Richmond

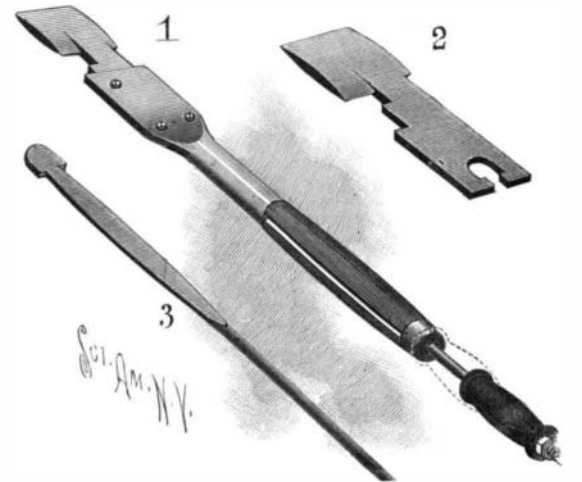
to Newport News. The contract calls for a dozen engines, and work on them will be pushed at once. The locomotive has no bell, pilot or cowcatcher, all the railroads in Sweden being fenced in.

**AN IMPROVED PRUNING IMPLEMENT.**

A new form of pruning implement has recently been invented, which is well adapted to the trimming and pruning of tree-branches, and which is provided with a chisel to pare or smooth broken or jagged wood.

Fig. 1 is a perspective view of the complete implement. Fig. 2 is a perspective view of the cutter. Fig. 3 shows a portion of the reach-rod.

The combined pruning hook and chisel comprises a cutter-iron having a chisel-edge on its front portion, and a pruning-knife edge which is formed in the side and which coats with a shoulder to cut the branch. This cutter-iron slides in the flattened sleeve of a socket



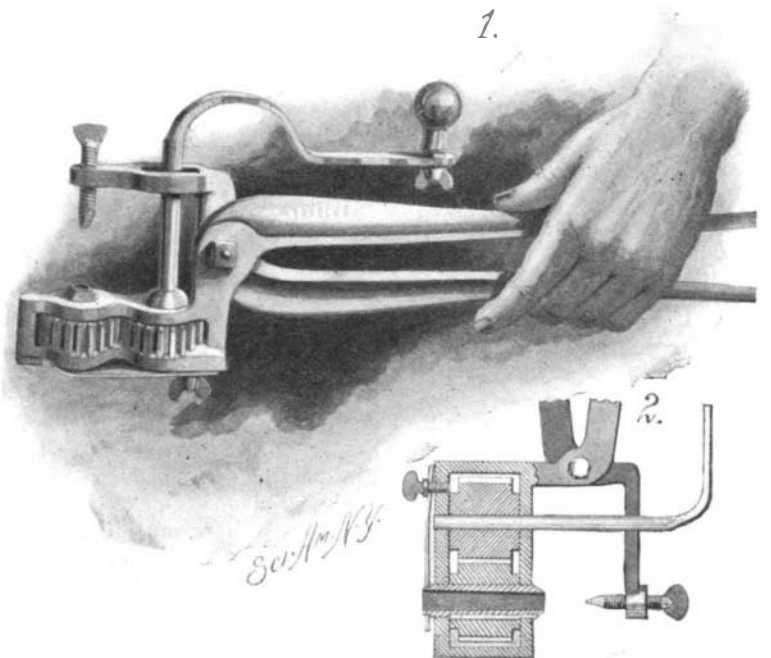
**SMITH'S PRUNING IMPLEMENT.**

on the handle of the implement. The inner end of the cutter-iron is formed with an aperture the shape of which conforms to the shape of the outer end of the reach-rod; so that the reach-rod and cutter-iron can be detachably connected. The reach-rod is flattened at one end to slide in the flattened part of the socket of the handle, and is provided with a nut at the handle-end. To deliver blows upon the stock or handle, or upon the nut on the reach-rod, a hammer-weight of convenient form for a handhold is used.

In operation the pruning-knife edge is hooked over the branch to be cut off, with the branch resting against the shoulder opposite the knife-edge. By means of the hammer-weight repeated blows are struck upon the nut on the end of the reach-rod; and these blows are communicated through the rod to the cutter. For the purpose of smoothing or cutting away wood the chisel-edge on the front portion of the cutter-iron is used, the blows in this instance being delivered upon the handle.

The implement is the invention of Isaac Smith, South Bend, Washington.

A TEXAS inventor has devised a simple shower bath which can be used where a bathroom is not piped so as to provide a fixed shower bath. It consists of an ordinary bucket with a double bottom; the lower bottom is perforated for the purpose of distributing water into fine sprays, while the second one has only one opening, which is controlled by a valve, the handle of which extends through the wall of the bucket to the outside. The bucket is filled with water and suspended on a bracket over the tub. The shower is then secured by simply turning the handle of the valve, which releases the water.



**A TIRE-BOLT WRENCH.**