full justice to their reputations. Alluding to the French exhibit of agricultural machinery, the same writer says: It may be that we are able to find room for criticism here and there; that the portables are rather primitive in design and construction; that the reapers and mowers are somewhat clumsy; that bright brass drill tubes and boiler casings, and so forth, are not according to our ideas; but the broad fact still remains that the French are rapidly learning to manufacture all kinds of implements for their own use, and that they are quick to take advantage of all our improvements, as well as to note where we have failed. Under this great roof are all sorts of agricultural appliances from every part of France—from lost Lorraine to far Finisterre, from Rouen to Marseilles—some good, others indifferent, but all offering an increasing competition to us, and, consequently, placing more difficulties in our path.

The French manufacturers, it may be noted, appear to pay special attention, in the strength of cultivator tines, etc., to the great variety of soil in different parts of their country, and also discard all mere external ornaments for strength and solidity—especially in thrashers and the like large articles. In giving this measure of appreciation to our neighbors across the channel, we must not be understood to place them on a level with ourselves and the Americans, but simply do so to show that they are not asleep, but are actively and strenuously striving to supply themselves.

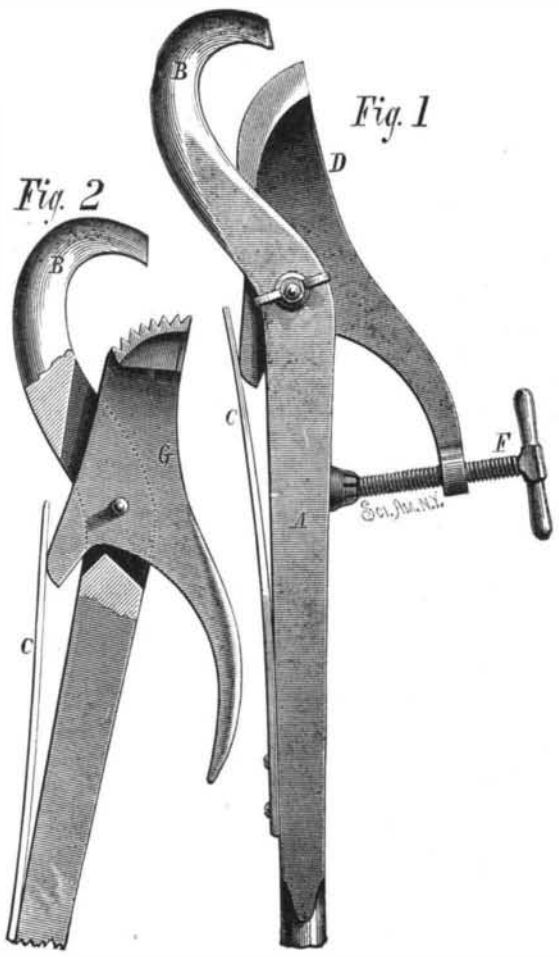
In the Swedish and Norwegian sections are a number of plows, chaff cutters, etc., which are more notable for their unusual strength than for any other quality. The plow beams and colters are uncommonly heavy, mostly of iron, and the shares, breasts, etc., are rough and uncouth. The chaff cutters are bulky and heavy, and have uninclosed feed motions. Our notice of this important section would be incomplete without a brief mention of a singular combination, shown near the Canadian timber trophy. It is a model of a combined reaper and thrasher, as used in South Australia, and of Australian manufacture. The knife bar is let down by a rack motion, and is geared on a universal joint from the road wheels, which also actuate a spindle moving the thrashing beaters in the hinder portion of the machine, into which the cut corn is forced in a continuous stream, so to speak. The machine is useful as showing the requirements of a climate where it is being already largely used; but that it is not in all respects satisfactory would appear to be shown by the offer of a reward of £4,000 for a perfect machine of the kind, by one of the Australian governments.

Roads in Baden.

In the Grand Duchy of Baden, in Germany, the government has built magnificent macadamized roads, as smooth as Central Park rides. These are lined on both sides by fruit trees—pears, apples, cherries, plums—and it is asserted that the fruit alone pays the full cost of repairs. All the droppings of the road are carefully and constantly scraped around these trees. The rain water of the road beds is led to them, and they bear most bountifully choice and valuable fruit. The beauty of such roads, nicely shaded, well kept, and in a picturesque country, is a thing never forgotten.

PIPE WRENCH AND CUTTER.

A new and very simple pipe wrench with a pipe cutting attachment is represented in the accompanying engraving.



TRULAND'S PIPE WRENCH AND CUTTER.

Fig. 1 shows the tool arranged for cutting, and Fig. 2, which is partly in section, shows the tool arranged for turning or holding pipe or round rods.

The handle, A, is curved, forming the jaw, B, near which there is a slot in which the cutter, D, is pivoted. One arm of the cutter is pressed by a spring, C, which is secured to the handle; a screw, F, passes through the other arm, and is used to force the edge of the cutter into the pipe as the tool passes over it. When the tool is used as a wrench the serrated jaw, G, is substituted for the cutter, and its engagement with the surface of the pipe is insured by the pressure of the spring, C, on one of its arms. The serrated jaw is disengaged from the pipe by the pressure of the thumb on the arm that extends downward nearly parallel with the handle.

This implement was recently patented by Mr. William L. Truland, of Lansingburg, N. Y., from whom further particulars may be obtained.

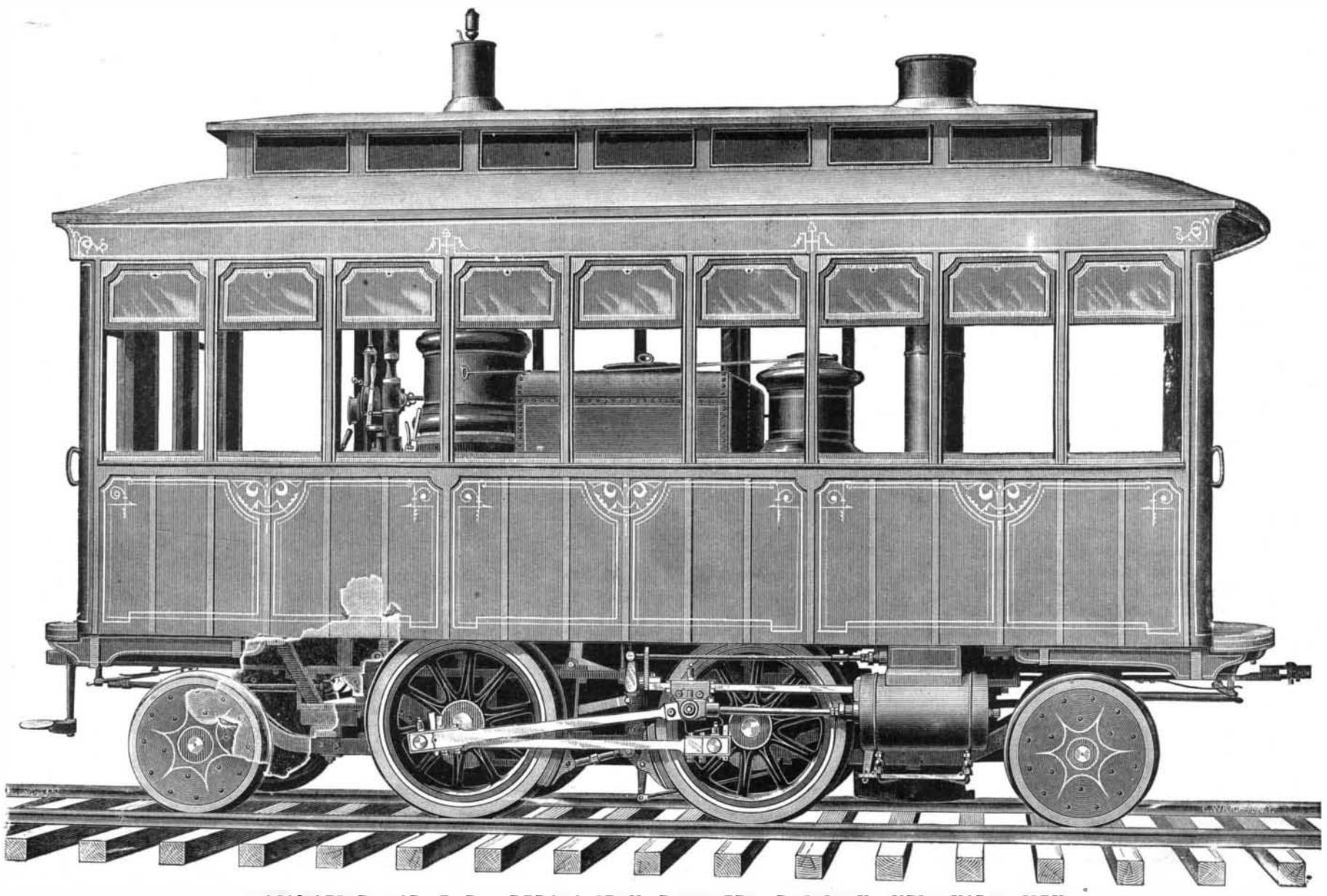
A Mirror Telegraph.

A party of gentlemen were standing on the Lake House porch recently watching the telegraphing between two parties of United States Signal Surveys. One party was stationed on the highest peak of the mountain range northeast of us, and the other on one of the peaks near Lake Tahoe. The telegraphing is done by an instrument known as the heliotrope, which concentrates the rays of the sun to a focus and casts them straight ahead, similar to a mirror, and by an agreed series of long and short flashes can communicate the temperature, etc., from point to point similar to telegraphing. This is in general use over the United States, and is of great value to the Weather Bureau. The party whose signals were noted is situated thirty-five miles from here, and yet the flashes were as bright as the sun.—*Reno (Nev.) Journal.*

WE understand that the fine steam engine now driving the machinery at the Mechanics' Exhibition in Boston has been purchased by Professor Edison, and will be placed in his laboratory at Menlo Park, N. J. The engine was built by C. H. Brown & Co., of Fitchburg, Mass., and is remarkable for its efficiency and finish.

LOCOMOTIVE FOR THE METROPOLITAN ELEVATED RAILWAY.

We publish on this page an engraving of one of the locomotives used on the Metropolitan Elevated Railway. The dimensions of these engines are as follows: Cylinders, 10 inches in diameter by 16 inches stroke; driving wheels, 39 inches diameter; truck wheels, 28 inches diameter; total wheel base, 15 feet 6 inches. The boiler is made of steel and has 125 flues 1½ inch in diameter and 70 inches long. The fire box is 42 inches long by 27 inches wide; axles, 4½ inches diameter; capacity of the tank, 320 gallons; weight of the engine loaded, 32,500 lbs.; weight on driving wheels, 27,500 lbs. These engines have now been working for several months, and have done good service. They pass around curves of 90 feet radius, and the heaviest trains consist of three loaded cars. The engines last ordered have larger boilers, and the cab is made shorter, so as to expose the water tank and a part of the boiler to view.



LOCOMOTIVE FOR THE METROPOLITAN ELEVATED RAILWAY, NEW YORK CITY.