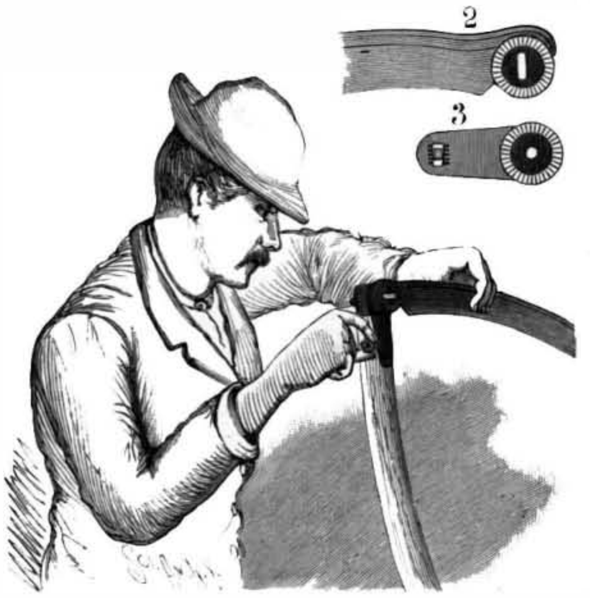
A READILY ADJUSTABLE SCYTHE.

The illustration represents a device adapted to facilitate the adjustment between the blade and snath of a brush, a cradle, or a hay scythe, enabling the operator to adjust the blade at any desired inclination to the snath, by means of a gage engaging the heel portion of the scythe and the contacting portion of the snath. The improvement has been patented by Christian Frederickson, of Cameron, Wis. Fig. 2 is a plan view of the heel portion of a scythe blade, and Fig. 3 is a bottom view of a plate having interlocking engagement with the blade, and for attachment to the snath, according to this invention. The annular toothed rib on the scythe heel has a transverse slot, and on the opposite under face of the heel are right-angled recesses, in which fits the head of the bolt by which the scythe, with the interposed adjusting plate, is attached to the snath. The adjusting plate has a clutch surface for interlocking with the similar surface on the heel of the scythe, and at the other end of the plate is a transverse slot, with teeth at each side, the slot receiving a squared portion of a bolt by which the plate is locked upon the snath, which rests upon the upper face of the plate. By loosening the bolt at the heel of the scythe, the blade may be adjusted at any desired angle, the clutch of the adjusting plate being brought into proper registry with the clutch of the scythe heel, and the bolts holding the respective parts firmly in the desired position. By this construction also the heel of the scythe blade is materially strengthened.



FREDERICKSON'S SCYTHE-ADJUSTING DEVICE.

Explosion of an Aerolite.

A large aerolite exploded above the city of Madrid, Spain, at 9:30 a. m., February 10. The explosion was accompanied by the vivid flash of light and a loud report; the buildings were shaken and many windows were shattered. The concussion was so severe that the partition wall of the United States legation building collapsed and nearly all of its windows were broken. The officials of the Madrid Observatory state that the explosion occurred 20 miles above the earth. A general panic prevailed in the city.

Coal Consumption on French Tramways.

Comparative figures of coal consumed per car mile run on French street railroads, employing different methods of propulsion, are contained in an article on electric roads, by E. Cadiat, in the Portefeuille Economique des Machines of October and November of last year.

Storage Battery Traction.—On the lines at Paris from St. Denis to the Madeleine and from the Opera to Neuilly the car mileage aggregated in 1893 502,060, or per day 1,376 car miles. (The cars have room for 50 passengers.) The steam engines at St. Denis furnished for this service 250 horse power 23 hours and 125 horse power 6 hours, a total of 6,500 horse power hours, or 4·72 horse power hours per car mile. Mr. Badois, who reported these figures, gives 2·75 pounds of coal as the consumption per horse power hour, and arrives at 12 98 pounds of coal per car mile.

Trolley.—At Marseilles, during the first two weeks of operation, 150,348 pounds of coal were consumed to run 19,970 car miles, and during the second two weeks 150,975 pounds for 18,983 car miles. The average is 7 73 pounds, which, however, includes the coal used in lighting the cars and the power station.

At Havre the following figures were obtained during October and November, 1894. It took from 1·75 to 2 horse power hours to develop a kilowatt hour; 1·28 kilowatt hours were consumed per car mile, or from 2·24 to 2·56 horse power hours, equivalent to about 6·72 pounds of coal. The cars have room for 50 passengers.

At Milan, with cars having room for 34 passengers, 0·88 to 0·91 kilowatt hour, or 1·6 to 1·76 engine horse power hour, or 4·6 pounds to 5·0 pounds of coal produce one car mile. (From a paper by M. De Marchena.)

Compressed Air Traction.—The line at Nogent-sur-Marne has grades of 4, 4·5, 5·8, and 6·2 per cent. The cars have room for 50 passengers. Mr. Badois made a test from October 29 to November 4, 1894, and found 34·5 pounds of compressed air consumed per car mile.

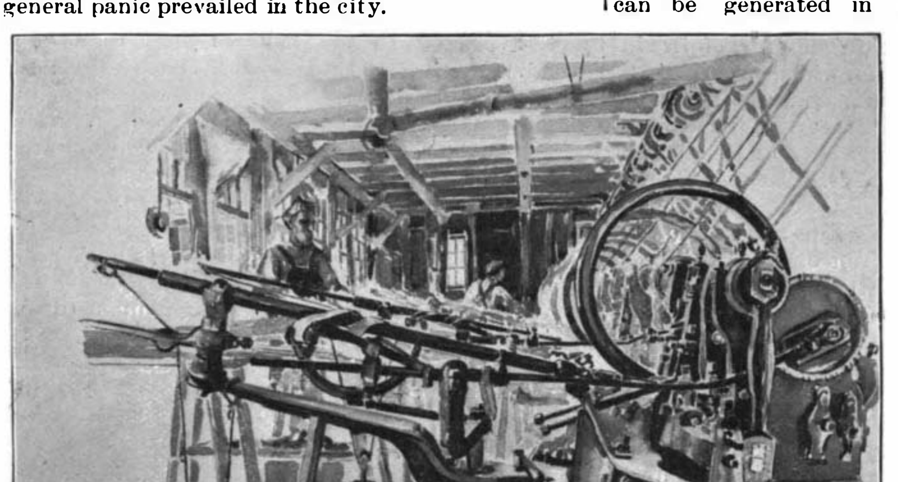
To arrive at the corresponding coal consumption, Cadiat makes the following considerations: In an engine, as there used, from 100 to 150 horse power, 17·6 pounds of steam will develop a horse power. One horse power delivered to an air compressor of good design will produce 10 pounds of compressed air at 600 pounds per square inch (the pressure adopted on said line).

Expressed in steam, the expenditure is, therefore, $34·5 \div 10 \times 17·6 = 60·7$ pounds, to which he adds $\frac{1}{12}$ for a certain loss, and arrives at 66 pounds of steam consumed per car mile, which, he states, can be generated in best French boilers with 4·8 pounds to 5·5 pounds of coal.

Lactates for Electro-plating Baths.

Metallic lactates are strongly commended to electro platers by Dr. Jordis, in a communication made to the German Electro-Chemical Society. He affirms that lactic acid affords an excellent solvent in electro-plating baths, and yields good, adherent metallic deposits. He reports that he has succeeded in obtaining from lactate baths, coatings of copper and brass, of varying shades, on iron, zinc, and copper; of zinc on iron and copper; and of iron on nickel. Silver lactate yields a pure white coating of silver on amalgamated brass, which takes a high polish.

PREPARATIONS are in progress at Glasgow University for celebrating Lord Kelvin's fifty years' connection with that body.



STRIPPING SHEETS FROM WHICH TACKS ARE MADE.

THE MANUFACTURE OF TACKS.

In many villages and towns of southeastern Massachusetts, the manufacture of tacks, or "tacking," as it is termed, is one of the foremost industries. Abington, Whitman, Taunton, Middleboro, Plymouth, Kingston and other adjacent places furnish a greater part of the supply.

In Kingston much of the earliest work in this line was done, and here the first machine for making tacks was invented. The manufacture of tacks was begun in this section, about the year 1820, according to the memory of one of the oldest "tackers." Like all first products, they were rudely made.

At intervals, through the countryside an old man traveled from house to house, much as did the tinware man, and peddled tacks. This old fellow, a native of Taunton, named Albert Field, made his tacks by hand, using a vise and dies, and with a clamp so arranged that by pressing with his foot, the blank (a small piece of iron) was held, while with a hammer he fashioned the tack.

BURNISHING TACKS IN THE "TUMBLER."

The inventive faculty of the Yankee found a field in making tacks, and soon a machine was invented in Kingston, by one named Reed. This contrivance cut a headless sort of tack. Melborne Curtis, of Middleboro, then invented a machine having a lever attachment, which headed the tack. About 1840 an improved machine, called the Blanchard, came into general use. About fifteen years ago, steel was tried. This was domestic steel, manufactured in Pennsylvania, Virginia and Ohio.

The majority of shoe tacks are cut from Bessemer steel. Shoe tacks have been used only about forty-three years, the first having been made in Whitman, by H. H. Brigham and Deacon Cook. These tacks are fine, with small heads, so that the awls and other sharp tools used by the shoemakers cannot be greatly injured by contact.

The machine tack is finely pointed, quickly forced into leather, and remains standing firmly until driven. To test the point, a tack is pressed into the thumb nail of the "tacker," when if it penetrates and stands easily, it is considered all right. Twenty-five or more different varieties of shoe tacks and nails are used for shoe manufacture.

Among the many styles are the roundhead, flathead, brass, countersunk, shankhead and lasting, while new styles are constantly being made.

A large supply of tacks is exported. Quantities go to England, South America, Australia, France and Germany. The sheets of rolled steel come in bundles, usually thirty-six by twenty inches.

When ready to be used, a workman called a "scaler" takes these sheets one by one, and puts them into a vat of vitrol, which removes the scales. When the scale is removed, the plate is washed in water, and dipped into a bath of lime or white wash, which neutralizes the acid. Another workman passes the sheets