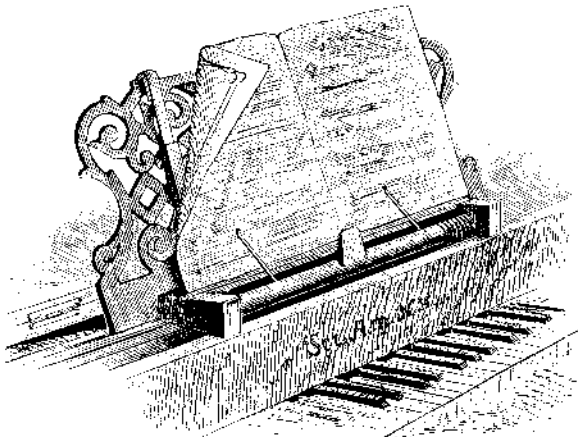


## MUSIC HOLDER.

This music holder is provided with hooked arms for attaching it to the music rack. The upper parts of the arms slide freely in the lower parts, so that they can be drawn out or shoved in to fit the rack to which the holder is to be applied. Between the end blocks of the base is journaled a rod provided with fingers, which are pressed against the leaves of the book or sheet of music by the tension of a coiled spring. In the center of the rod is a thumbpiece, by which the rod may be turned back, so that the fingers will permit



SMITH'S MUSIC HOLDER.

the leaves to be turned. When not in use, the arms are folded along the base, to enable the holder to be put away in small compass. Constructed in this manner, the holder is cheap and practical, and can be applied to any piano.

This invention has been patented by Mr. David E. Smith, of Mount Kisco, N. Y.

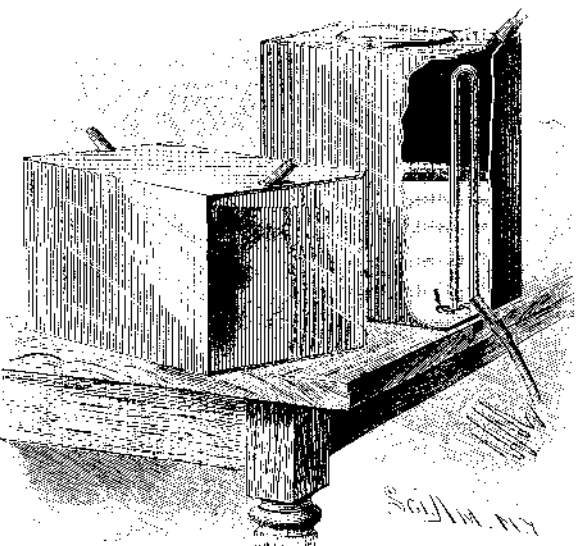
## Destruction of Moss in Greensward.

In humid soils, moss develops frequently in grass which is not very old, and completely smothers it. *La Revue Horticole* proposes the following method to get rid of this invading vegetation.

In the month of July, when it is very dry, have the lawn cut at times with a sickle, or with a lawn mower—grass, moss, and everything close to the ground. The sun's rays will in a few days destroy the roots of the mosses, which thrive at the top of the earth. The greensward will suffer very little, but it will be immediately free of all parasitic vegetation. If the necessary care be given, that is, by copious waterings, in a very short time it will become green and thicker than ever. It is not to be forgotten that, in sowing lawns, if powdered lime be cast, the mosses will soon become destroyed.

## LIQUID EMPTIER.

The short arm of a siphon secured in one side of the can, as shown in the right hand figure, extends nearly to the bottom, while the long arm extends through the side to receive a rubber tube. A short air tube is inserted in the side of the can, near the top. To fill the can, the side opposite the siphon is placed upon a support, as shown in the left hand figure, when the liquid is poured in through the air tube, the air from the can escaping through the siphon. When filled, both tubes are capped and sealed. To empty the can, a slight air pressure is created by blowing through the



GASCA'S LIQUID EMPTIER.

air tube, when the liquid fills the siphon, which continues to work as long as the liquid is supplied or until a partial vacuum is formed in the can by withdrawing part of the air through the air tube. To insure the entire removal of the liquid, the inner end of the siphon is inserted in a cavity in the bottom.

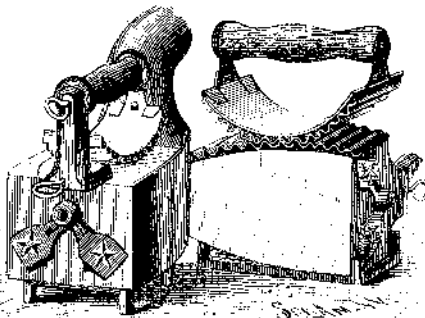
This invention, has been patented by Mr. Jesus Gasca, of Guanajuato, Mexico.

## A New Electrotyping Solution.

Dr. Gore, F.R.S., the well known authority on electro-deposition, has discovered that an aqueous solution of asparagine is a good medium for electrolytic baths. The solution he used was not quite saturated, and consisted of about 0.88 gramme of crystals of asparagine dissolved in 18 cubic centimeters of distilled water. It was feebly acid to the test paper, and was employed at a temperature of about 70 degrees Cent. Some of the liquid was more or less saturated with different metallic oxides, and the resulting baths electrolyzed by currents from one to six cells of zinc and platinum in dilute sulphuric acid. Good deposits of cadmium were thus obtained, 0.23 gramme of hydrate oxide of cadmium dissolved in 20 cubic centimeters of the solution, using an anode of cadmium and a cathode of copper. Zinc was deposited from 0.28 gramme of zinc oxide in 23 cubic centimeters of solution. Magnesium in a film was also deposited from calcined magnesia with magnesium and copper electrodes; copper was obtained from cupric oxide with copper and platinum electrodes; mercury from red mercurous oxide with platinum electrodes; and silver from oxide of silver with a silver anode and platinum cathode. In the latter case the deposit was good, the bath consisting of 0.33 gramme of silver oxide in 20 cubic centimeters of asparagine solution.

## IMPROVED SAD IRON.

This iron is in fact a miniature stove with polished surface, and is used in the same manner and is as convenient as a common flat iron. The heat can be regulated by the dampers at the heel of the iron; when using the iron, these dampers, which also serve as doors through which to introduce the fuel (charcoal), are wide open, and by partly or entirely closing them the heat can be reduced should the iron get too hot. Upon the under side of the handle, which is detachable, is a curved fluting iron corresponding with a fluted piece fixed to the side of the main iron, as shown in the engraving. It will be seen that this simple construction forms a self-heating, fluting, polishing, and smoothing iron.



THE MULTUM-IN-PARVO IRON.

This invention has been patented by Mr. H. S. Pease, of Peoria, Ill.

## The Railroads of the World.

The *Archiv für Eisenbahnwesen* gives statistics of the railroads of the world, prepared for the most part from official sources, making the aggregate length, at the end of 1884, 290,750 miles, of which no less than 62,788 miles have been opened since 1879. Of this there were in the several grand divisions of the world:

	1884.	1880.	Increase.	P. c.
Europe.....	117,604	104,606	13,088	12.5
Asia.....	12,757	9,905	2,852	28.8
Africa.....	4,075	2,842	1,233	43.4
America.....	148,738	105,766	42,972	40.6
Australia.....	7,480	4,344	2,442	54.5

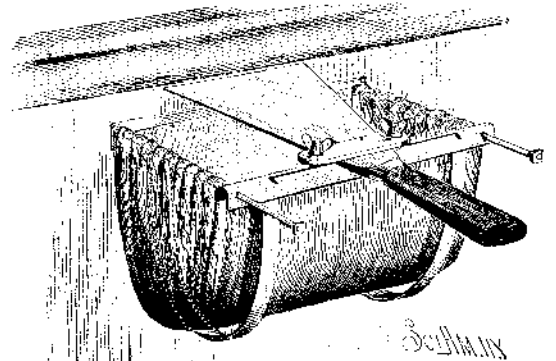
Of the 290,750 miles of railroad in the world, no less than 174,016, or 60 per cent, are in English speaking countries. The countries which have the greatest mileage in proportion to population, or the smallest number of inhabitants per mile, are Australia (364 people per mile), the United States (460), and Canada (486). Even the Argentine Republic has a smaller population per mile than any European country, namely, 1,000; while in Europe, Sweden, which has fewest, has 1,113; Great Britain and Ireland, 1,870; Germany, 1,983; France, 1,943; Belgium, 2,106; Austria-Hungary, 2,786.

The cost of railroads, as is well known, has been greatest in Great Britain, being there \$205,842 per mile of roads; for the Belgian state railroads it is \$123,986; for the French railroads, \$124,642; for the German state railroads, \$105,204; for the German private roads, \$71,877; for the Austro-Hungarian roads, \$104,420. The cheapest system of Europe is the state railroads of Finland, \$30,102; the other Russian railroads stand at \$82,244, against \$63,250 per mile for the railroads of the United States.

The whole cost of the railroads of the world has been more than \$24,000,000,000, which, however, is only about \$24 per inhabitant. In this country the expenditure has been about \$133 per inhabitant; in Great Britain, \$107; in Germany, \$47; in France, \$57; in Austria-Hungary, \$33; in Italy, \$19; in Belgium, \$41; in Sweden, \$25; in Spain, \$29; in Russia, \$14; in Canada, \$89.

## SCRAPING KNIFE FOR PAINTERS.

Attached to the scraper is a bag of canvas or other fabric held in an elastic frame composed of spring bows joined by cross pieces and rods that form the upper side pieces of the bag. The rods are made fast to the rear cross piece, but pass loosely through holes made near the ends of the front cross piece, through which they slide when the receptacle is partly closed, as shown in the engraving. The front cross piece is made half tubular, and is slotted for the passage of screws, by which the knife and bag are fastened together. By loosening the screws, the knife can be shifted to stand near the center or near either end. By the use of this



O'NEIL'S SCRAPING KNIFE FOR PAINTERS.

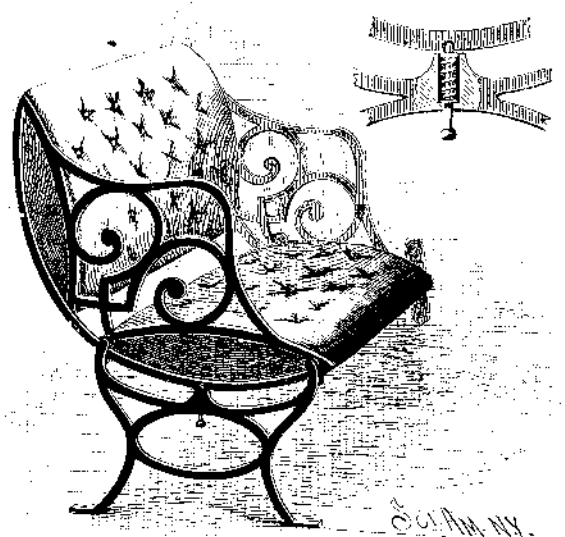
device, which is the invention of Messrs. Charles and Richard O'Neil, of 219 East 46th Street, New York city, all debris removed from a wall in scraping it may be caught in the receptacle; and by shifting the knife its corners may be moved along a moulding or angle, and as the receptacle can be opened and closed to and from the knife, it will not interfere with the edge of the knife, being shoved with a forward thrust entirely up to a moulding or wall.

## Preparing Leaves to Show Starch Grains.

The leaf, according to Prof. J. Sachs, must be bleached and made transparent in this way: The fresh leaf is placed in boiling water for ten minutes, then the chlorophyll is extracted with alcohol. This decolorizes the leaf without rupturing the starch cells. Treatment with iodine then makes the starch visible, and the greater or less intensity of the blue color is an apparent indication of the greater or less quantity of starch. Comparative experiments may be made by exposing part of a leaf to sunshine and protecting the other part. In the evening a leaf shows much more starch than in the morning.

## IMPROVED CAR SEAT.

This seat is so made that it can be readily reversed without interfering with other seats in the car. The end frames consist of a single casting, shaped as clearly shown in the engraving. The rail is formed on a circular curve, and is grooved longitudinally on opposite sides, and received between grooved rollers supported by the end pieces of the seat frame or by one end piece and plates secured to the wall of the car. The cushions are supported by the curved rails and bars as shown, and act interchangeably as seat and back; the ends of the frame are symmetrical in form, so that they present the same appearance in both positions. The seat is held securely in either position by a spring bolt



WOODMANSEE'S IMPROVED CAR SEAT.

passing through a socket in the upper cross bar of the end piece, as shown in the small cut, and entering one of the notches formed in the curved rail. To reverse the seat, the bolt is withdrawn, when the back can be pushed down in a circular path until it occupies a horizontal position and serves as the seat.

This invention has been patented by Mr. Charles H. Woodmansee, of Norton, Kansas.