

our country, it is hopeless to expect this interesting branch of the textile industry to be introduced among us in the way it is carried out by the German firm, who, we understand, are at present executing a larger order for the Italian Court, including carpets at £150 and £250 each.

Proofs of Progress.

Joseph Nimmo, Jr., Acting Chief of the Bureau of Statistics, has issued a special report on the foreign commerce of the United States, from which it appears that the total foreign commerce of the United States—imports and exports—during the year ending June 30, 1878, was larger than during any year prior to 1873. The exports of domestic merchandise from the United States, during the year ending June 30, 1878, were larger than during any previous year in the history of the country. From the year 1863 to the year 1873, the net imports of merchandise into the United States largely exceeded the value of the exports of domestic merchandise from the United States, the excess of imports ranging from \$39,000,000 to \$182,000,000. During the years ending June 30, 1876, 1877 and 1878, however, the exports of domestic merchandise from the United States greatly exceeded the net imports of merchandise into the United States, the excess of imports increasing rapidly from year to year.

The principal commodities showing an increase in the quantity exported are:

Articles.	1868.	1878.	Increase.
Agricultural Implements	\$613,381	\$2,575,198	\$1,901,817
Living Animals	733,395	5,844,653	5,111,258
Bread and Breadstuffs	68,980,997	181,774,507	112,793,510
Coal	1,516,220	2,359,467	843,247
Copper and Brass, and Manufs. of	939,250	3,078,349	2,139,099
Cotton Manufactures	4,871,054	11,435,628	6,564,574
Fruits, all kinds	406,512	1,376,969	970,457
Iron, and Manufactures of	6,040,961	10,696,970	4,656,009
Steel, and Manufs. of, ex. Firearms	348,468	1,389,078	1,038,610
Leather, and Manufactures of	1,414,372	8,077,659	6,663,287
Oil Cake	2,913,448	5,095,163	2,181,715
Coal Oil and Petroleum	21,810,676	46,574,974	24,764,298
Provisions	30,278,253	123,549,986	93,271,733

What the Reaping Machine has Done.

An exchange says: "When the reaping machine—that *bête noir* of the tramp who sits in the shade and listens to the man who tells him that he ought to ride in his carriage—was introduced to the country in 1850, the number of farmers and agricultural laborers in the twelve States in which it is now chiefly used was 1,301,863, and in 1870, 2,641,830. The difference in wages was still greater. In 1850, farm hands were paid \$9 a month, and harvesthands from 80 cents to \$1.50 a day; while in 1870 the wages of the former were \$30 a month, and of the latter from \$2 to \$3.50 a day. This year farmers willingly paid harvest hands from \$1.50 to \$2.50 per day, while the manufacture of reaping machines is giving employment to thousands of skilled workmen. The same remark is applicable to all kinds of machinery, the hands employed during the last twenty years having more than doubled, and the wages quadrupled, while the population increased only 67 per cent. Comment on such a change of things is superfluous."

American Locomotives for Australia.

The Baldwin Locomotive Works, of Philadelphia, whose advertisement has for some time past been published in the SCIENTIFIC AMERICAN Export Edition, has lately shipped to Australia, by the clipper ship Colorado from this port, three powerful locomotives for Sydney, New South Wales, where they will be used on the railways owned by the Australian Government. The shipment comprises one passenger locomotive and two freight locomotives. The passenger locomotive has cylinders 18 inches by 24 inches, four driving wheels, 63 inches in diameter, and a four wheeled swinging bolster truck, with wheels 30 inches in diameter. The tender is on four wheeled trucks, in accordance with the usual American practice. All the truck wheels are steel tired. The two freight locomotives are of the "consolidation" type. These engines are of the largest and most powerful freight locomotives constructed. They weigh in working order, exclusive of tender, 102,000 pounds each. Their dimensions are: Cylinders, 20 inches by 24 inches; they have eight driving wheels, four feet in diameter. On one occasion, on the Susquehanna Division of the Northern Central Railway, where the grades are very light, one of these engines drew a train of 160 empty cars. The total length of the train was one mile. The usual work of engines on that division of the road is from ninety to one hundred loaded cars each trip.

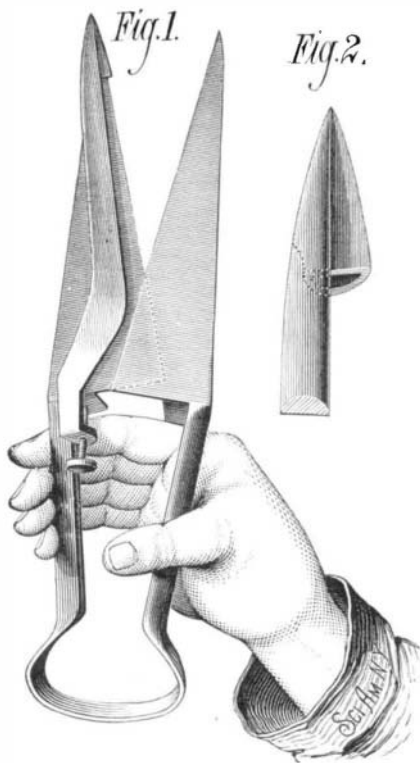
American Electro-Plate in England.

On first appearances it seems somewhat strange that American manufacturers should be successfully competing with Sheffield houses in the manufacture of silver-plated goods. Yet really it should not be a matter for surprise, for in America there are some of the best workmen whom Sheffield ever sent across the Atlantic. This, of course a great advantage in itself, is heightened by the large employment of labor-saving machinery, and the result of the combination is that the American goods have a smarter and more perfect appearance than have those made here. That American electro-plate, however, should find a market in England is certainly somewhat singular; but such is the fact. We hear of one or two large export houses that are buying American plate almost exclusively, and who have well nigh discarded the goods of Sheffield houses. That the trade is developing is evident from the fact that American travelers

in this line visit England three or four times a year, and that their pattern books are freely distributed.—*British Mercantile Gazette.*

NEW GUARD FOR SHEEP SHEARS.

With sheep shears of the ordinary form the experienced shearers is liable to cut the sheep in the operation of shearing, and in the hands of the unskilled the common shears are sure to work injury to the sheep.



HELMECKE'S GUARD FOR SHEEP SHEARS.

To facilitate the operation of shearing and to render it perfectly safe, Mr. Frederick A. Helmecke, of Round Top, Fayette Co., Texas, has devised the improvement shown in the accompanying engraving. It consists in a guard applied to one of the shear blades, and arranged nearly parallel with its cutting edge, and at such a distance from it that the opposite blade may readily pass into the space between the guard and the blade.

The guard has a socket for receiving the point of the shear blade, and a binding screw which engages the heel of the blade.

It is obvious that the blade thus protected cannot come into contact with the skin of the sheep. It will also be seen that when the guard is employed the shearing can be more closely and thoroughly done than without it.

For further information address the inventor as above.

NEW MEASURING STOPPER.

In the accompanying engraving is represented a little device, the invention of Mr. W. L. Keller, of Baltimore, Md., which must prove of great utility to druggists and chemists.



MEASURING STOPPER.

It will be readily understood from the cut. Upon the inner end of the stopper is formed a small graduated measure, which is similar to those commonly used. The stopper has a flat head that forms a stable base for the measuring glass. This invention obviates all loss of liquid, as it is returned to the bottle after the stopper is replaced. The glass need not be cleaned, as it is always used in the same liquid.

Labor in Massachusetts.

A few weeks ago Carroll D. Wright, Chief of the Massachusetts Bureau of Statistics, was called as a witness before the Congressional Labor Committee, and testified as follows:

"In my official capacity I have given special attention to labor statistics, and am the author of the recent report which has been given to the public through the newspapers and otherwise. I have compared that report with the census of 1875, and find the two entirely in harmony. The number out of employment is about the same as in 1875, though the census of 1875 does not take into account the laboring men out of employment. In it there is a column of those never employed—persons of leisure. Both reports exclude those in almshouses; it may be that there are a few more now than in 1875; but the difference is very little. After the panic of 1873, there was an increase in the number of paupers all through the country; this has since been decreasing steadily; I have made very extensive inquiries throughout the United States, and have found no such condition of things as has been represented before this committee; I have no doubt the reports of destitution in the coal region are correct, but it is diminishing; I cannot tell the causes of this any more than I can tell how an apple grows; I have found as great difficulty in accounting for periods of prosperity as of suffering; I do not believe that the relief has come very greatly from the removal of the unemployed to other places; you cannot make a State prosperous by depopulating it."

Mr. Wright said that the shoe manufacturers of Massachusetts were enlarging their works, and the Amoskeag Print Works, at Worcester, N. H., was putting in 900 extra looms. Mr. Crompton, the loom manufacturer, had more orders than he could fill. The same improvement appeared in other States, and in all branches of trade, except the iron industry.

"Last year the work of laborers in Massachusetts on boots and shoes averaged eight hours a day; that of operatives in cotton mills from nine to ten hours a day; and that of carpenters and joiners about nine hours a day. Machinery does not take the place of labor; it calls for a higher class of labor. The wages of carpenters have increased from \$1.75 in 1859 to \$3.50 in 1868, and thence have fallen to \$2 in 1878. The purchasing power of the wages is not quite so great now as it was in 1859. The wages and the moral, intellectual, and physical condition of the workmen have been steadily improved during the last 100 years by the use of machinery. In Massachusetts it would require a population of 9,000,000 to do the work without machinery, which is now done with a population of 1,650,000; the accumulated property of the State would be used up by this extra population in less than two years, and the condition would then be worse than in China and India now."

Labor and Trade in Italy.

Mr. Charles McMillan, United States Consul-General at Rome, reports that in that part of Italy labor is in excess of demand. The wages of woolen, cotton, and silk spinners and weavers have not increased during the last 10 years. There has been a slight increase in the wages of masons, bricklayers, blacksmiths, and servants. Carpenters' and joiners' wages have increased 40 per cent.; tailors', shoemakers', and stonecutters', 20 per cent.; machinists', 15 per cent. A day's work is 10 hours, with half an hour for dinner in winter, and one and a half in summer. The advance in wages since 1873 is slight, and bears no proportion to the advance in the cost of living. When Rome became the capital of Italy, owing to the great influx of people, rents advanced from 75 to 100 per cent, where they still remain. Articles of food advanced in price 25 per cent, and have not yet sensibly decreased. Wages also increased at the same time—in some cases 40 per cent. The commerce of Italy has fallen off in imports and exports during the last five years, owing to the Eastern war, overstocked markets, and uncertainty as to the ratification of a commercial treaty with France. As regards Rome, there has been a slight improvement in its commerce and in its exports to the United States. Its principal articles of export are wool, cheese, hides of small animals, statuary, and other works of art. Manufactures of wool, cotton, silk, and leather are absorbed at home and in the neighborhood. The expenditures of the large number of visitors to Rome form a considerable part of its trade. The United States is now represented in Rome by 17 sculptors and 18 painters. The imports from the United States consist almost wholly of petroleum, cotton goods, sewing and agricultural machines.

MR. J. E. MONTGOMERY, United States Consul at Geneva, Switzerland, reports to the Department of State that he is constantly receiving letters from the United States upon the subject of introducing goods and products into Europe. He recommends generally, as the most effectual, if not the only method of increasing our trade with Europe, that manufacturers, producers, and others, should forward samples of their respective goods to responsible firms in the chief cities, with explicit statements as to the cost of importation of said goods to wholesale dealers in Europe.

THE rage for exhibitions has now spread even to Central Asia. The latest news from Tashkend states that an agricultural and industrial exhibition is about to be held there. Great preparations are being made for it at Samarcand, and the government has promised gold and silver medals to the exhibitors, as well as—honorary caftans!