

New Applications, Inventions and Industries Wanted.—One of the most important fields for present improvement, application and invention is in the greater production and utilization of the productions of the soil. Invention in rat-traps, nail machines, wire benders, screw cutters, and a hundred thousand ways of producing iron and metal appliances at a cost next to nothing are abundant; the country has gone crazy upon patents, but largely to no great service to anybody. What is now wanted is a little practical application to an increase in the farm products and their greater utilization.

The nation wants two blades of grass to grow where there is but one, two bushels where there is but one, two hogs, two cows and calves, two sheep and two hens, chickens and turkeys, and in many instances half a dozen of all of these where but one is now found. There needs be more and better butter and cheese, and a better care of it, more and better gardening and better care of fruits and produce when raised.

There wants preserving establishments, so that corn and tomatoes, and peas and pears and peaches need not be brought from Maine and California. Discoveries of processes of desiccating vegetables for foreign markets. Immense fortunes are now making in packing fruits at Eastern points; profit is making in St. Louis, in drying eggs and packing beef for other markets, and yet eggs are abundant at 7 and 8 cents a dozen and good profit in raising poultry. Beef, pork and veal and mutton are always in demand at a profit. America ships \$20,000,000 of lard to France to be made into oil and shipped here again and to other points. Not half the milk is produced there is a market for. The rugged lands of the East produce milk and condense and can to a profit, so may the West.

Germany and France put up a vegetable, pea and meat soup material, giving a dinner for two cents. We want a dozen such industries. Dried and canned corn, dried and prepared squash, pearl barley, starch vermicelli and macaroni, and many similar products.

Corn is now made into sugar with profit, but there should be a hundred such sugar establishments. Not half the attention is given to fall and winter vegetables that there is a demand for. Beets for sugar and for stock is an industry almost entirely neglected. Flax has no place at all in this country. If our inventive minds will give their attention to this branch of industrial development for a few years and demonstrate the practicability of a garden of Eden and a good living in every plat of 10 acres they will do the country a service.—*The Age of Steel*, ii. 8.

The Sewing-Machine.—The sewing-machine first appeared as a practical invention about thirty years ago. Thimonnier, the real originator of the idea, was a Frenchman, and, like too many great inventors, he did not live to enjoy any part of the fruits of his genius. Elias Howe, who followed Thimonnier, was an American working artisan, and found his first real support in England about 1847. At the present time, that is, about thirty years after the establishment of the invention, there are upwards of 4,000,000 sewing-machines in use in various parts of the world; and the annual number of new machines produced in this country is estimated at 80,000, employing about 100,000 persons. In France, Germany, and Belgium, the production of machines is very large, and in the United States the annual number turned out is perhaps greater than in the whole of Europe. In 1862 it was estimated that in the United States each ma-

chine saved to its owner \$10.50 a week, or say \$650 per annum, in wages alone, or an aggregate saving in wages, for the whole country, of about \$50,000,000. In 1875 the aggregate saving had risen to \$500,000,000.

As the general result, Mr. Plummer says that "taking all various industries in which the machine is used, the wages of the machinists may be estimated as being from 50 to 100 per cent. higher than the wages received by hand-workers before the machines appeared in several industries." And he goes on to add: "The changes introduced by the machine have been with considerable advantages as regards the physical and social condition of the workers. There is a great improvement in their health and in the comfort of their homes. As regards the shoemaking population, both male and female, the change amounts to an absolute revolution, and decidedly for the better."

The sewing-machine has most effectually stimulated invention in other directions. In all leather manufactures, for example, the old, painful, unhealthy processes are now nearly all done by machinery driven by steam. In the stay and clothing trades the severe labor of using heavy shears by hand is superseded by steam-driven cutters, by the aid of which one man does the work of twenty. The cheapness arising from these appliances has so enlarged the demand that the quantity of labor employed in these trades is far greater than before.—*Popular Science Monthly*.

Inland Sea in Algeria.—MM. Dumas and Daubree have urged several objections to the proposed artificial inland sea in Algeria, and agree with M. Naudin, who read a paper on the subject at a recent meeting of the Academy of Sciences, that its sanitary effects would be deplorable. It is thought that to fill the shallow basins of the region which it is proposed to convert into a sea with salt water would be equivalent to reproducing in Algeria all the worst features of marshy plains. Captain Roudaire, who proposed the scheme, admits that even in the centre there would nowhere be more than about 80 feet of water, and the whole coast line would have so little water that it would be little better than a sand-bank with an admixture of salt and fresh water, upon which the strong tropical heat would act in the most deleterious manner for two-thirds of the year, causing a rapid decomposition of organic matter, and spreading contagion for miles in every direction. M. Naudin considers that there is no similarity between this district and Egypt, the climate of which country has been much improved by the creation of the Suez Canal and the plantation of trees; for, according to him, while Egypt lies between two seas, and is traversed by an immense river which has periodical overflows, the Algerian district is far from the sea, and is bounded by arid deserts.—*The Engineer*.

Colossal Balloon at the Paris Exhibition.—Among the objects of interest at the Paris Exhibition of 1878, will be a monster captive balloon. It will be 16 feet higher than the Arc de Triomphe. It will be strong enough to carry an engine and its driver; it will hold 50 persons at one time, and raise them to an elevation of more than 1,600 feet. It will be made of alternate layers of silk and India-rubber, which will be joined together by more than 3½ miles of cotton. The balloon will be held captive by cables capable of resisting a strain of 10,000 kilogrs.—*Manufacturer and Builder*, ix, 197.