

## THE FAIR OF THE AMERICAN INSTITUTE.

We continue our notices of the Fair in this issue. It will remain open for some days longer, until Oct. 19th. We have already given the principal novelties attention, and devoted a large portion of our space to the interests of the exhibitors, and have not intentionally overlooked any object of general interest.

## HARD-RUBBER COLLARS.

Steel collars have been in vogue for some time, and are much liked by some. Of late, hard-rubber manufacturers have introduced a new style of goods for mourning use, consisting of ties, collars and cuffs, made of hard rubber. They look like silk in finish, and are, of course, capable of great variety in ornamentation.

## BREAD AND MEAT CUTTER.

This machine was invented in response to a call for such a one published in our correspondence. It is a very substantial affair, and is quite the same in construction as a circular saw without teeth. The knife is circular and is driven by a belt and treadle, and there is a sliding table which can be gaged to cut to any desired thickness. John Burgum, Concord, N. H.

## AMERICAN NEEDLE COTTON GIN.

This is a new kind of cotton gin, wherein the cotton is cleaned by a series of needles on endless belts, instead of by saws, as usual. H. V. Scattergood, Albany, N. Y.

## BUTTON-HOLE MACHINES.

The button-hole machines seem to have reached great perfection. The Union Button-hole Machine Co., of Boston, Mass., exhibit one of their machines in operation doing perfect work. In this machine the needle skips from side to side of the braid around the button-hole, at every stitch, and works around it at the ends with great accuracy and elegance of execution. It makes fifty button-holes an hour.

Messrs. Wheeler & Wilson exhibit one of their well-known button-hole machines also; it is well worth looking at.

## SHINGLE-CUTTING MACHINE.

A few years ago machines were introduced for making shingles very rapidly by paring them from a block of wood, the block having previously been subjected to the action of hot steam for four or five hours. The shingles which were cut by this process, on exposure to the sun, developed fine cracks or splits, and, in consequence, they went generally out of use. Mr. John D. Chism, of No. 684 Sixth avenue, New York, has on exhibition at the Fair a machine which he claims overcomes the difficulty. He argues that the cracking of pared shingles was the result of a wobbling motion of the cutting blade, owing to the frame of the machine being made of wood, and contends that, by making the frame of his machine of iron, he gets a perfectly steady motion to his knife, and produces a perfect shingle. His machine has also a novel and very positive feed motion for the block.

## A COMPACT STEAM ENGINE.

Mr. George B. Brayton, of No. 84 Washington street, Boston, exhibits a steam engine of six horse-power, which is one of the most compact machines, including engine and boiler, of any that we have ever seen of this power. The engine is an oscillator, taking and discharging steam at the trunnions, the novelty being in the boiler. A rectangular cast-iron chest has the fire in its lower part. Directly over the fire are a series of one inch and a half wrought-iron tubes, slightly inclined, with their lower ends closed by screw plugs, and their opposite ends opening into a series of cast-iron chambers, which extend longitudinally across the chest above the pipes. These chambers are divided by cross webs, cast with them, into cells four inches wide and thirteen inches deep, the openings from one cell to another being only one inch and a half in diameter. The object of this arrangement is to so obstruct the communication between the several parts of the boiler, that, in case of a rupture, no large quantity of the hot water could be so suddenly thrown into the air as to cause a violent explosion. The manifest objection to cast iron for boilers is, that the requisite thickness of the walls obstructs the transmission of heat from the fire to the water. The exhibitors of this engine claim, however, to get a horse-power by the expenditure of two

and a half pounds of coal per hour—a very good result for so small an engine.

## HASH MACHINE.

Hash is a standing joke with a certain class in the community who are always ready to make fun of any thing. Nevertheless, hash is not to be despised when you know what it is composed of, and who has made it. It is quite tedious to chop up a quantity of meat, and therefore machines have been provided to do it by power. All that is necessary is to put the meat in a case containing a number of revolving knives; then turn a handle and the hash is made. All the meat is minced before it issues from the further end, where there is a spout to allow it to discharge. These machines are easily worked and cleaned. Miles Manufacturing Co., No. 59 Lewis street, New York.

## TRUE'S POTATO PLANTER.

This machine is on exhibition at the Fair, and is highly approved of by those who have used it; it will do the work of ten men, and as perfectly as it can be done by hand. The inventor has been many years engaged upon it.

## SALES OF PATENTS.

We noticed in our last week's issue, that a number of patents had recently been sold for quite large sums. The clergyman alluded to who had been offered \$50,000 for his United States patent, informs us that he has since consummated a sale of it for \$200,000. The invention is on a valve for a steam engine, and is illustrated in No. 7, present volume, SCIENTIFIC AMERICAN.

One half of the patent on a tobacco pipe granted to Edwin Hoyt, on the 26th ult., has been sold, we are informed, for \$2,500.

The inventor of a very novel music stand, for which a patent was recently solicited through this office, and allowed, but which is not yet issued, says he has been offered \$3,000 for his invention, but refused it, for the reason that he had orders for all he can make during the next twelve months.

And we know of a still larger number of patentees less fortunate in finding purchasers, but abounding in faith that their inventions will be appreciated some time, when a fortune will crown their patient waiting.

We would not encourage all inventors to expect that they may realize a fortune without further effort than obtaining their patents; but we believe, where the invention is a good one, and the patent is properly secured, and where the same, or even less, energy is expended in making sales that the owner would exert at his trade, he would usually realize far better pecuniary results.

## THE COOPER UNION NIGHT SCHOOLS.

It is impossible to overestimate the benefit mechanics, clerks, and young men of all professions, have received from the Cooper Union Schools. While others, who have been fortunate enough in early years to procure a liberal education, are toiling up the steps of fame, hard after them comes the artisan and the sturdy workers, determined to dispute the possession of wealth and renown; for both of these distinctions are possible with the possession of an education. It will be seen from the programme published below that, by the munificence of Mr. Cooper, a splendid course of lectures can be heard at the Institute without money and without price. These lectures are in connection with the schools, where competent teachers are employed to instruct persons in all branches of education. The programme of the second week's lectures before the classes, by Prof. Chas. S. Stone, is:—Monday, Oct. 16, Natural Philosophy—Motion and its Laws; Tuesday, Oct. 17, Elementary Chemistry—Chemical Affinity and the Laws of Combination; Wednesday, Oct. 18, Analytical Chemistry—The Alkaline Group; Thursday, Oct. 19, Elementary Chemistry—The Chemical Nomenclature and Symbols; Friday, Oct. 20, Natural Philosophy—Gravity and Its Laws.

The Lectures are changed through the winter, and are open to the public, but visitors are not admitted after a quarter before eight o'clock.

A FIELD of wheat buried under an avalanche for twenty-five years proceeded on its growth, etc., as soon as the snow had melted.

## FOREIGN SUMMARY.

A VISIT to James Watt's workshop is thus graphically described by an Edinburgh gentleman attending the British Association:—We were admitted into his workroom—a garret at the top of the house. It appears he had a scolding wife, who didn't like the messes and noises he made, so he was sent to the attic. This room is exactly as Watt left it. The very ashes are still in the grate; his little lathe has a bit of unfinished work in it; tools lie about; books and drawings are in old drawers, and strewed here and there. It is a miserable place. Only four of us could get in it at one time. In fact, the daughter of the house who went with us had to tuck herself up into all manner of shapes to prevent her crinoline sweeping all the letters into the corners. The house is a very good one, and Watt was rich when he died there; but it's clear his wife kept him and his little workroom in the background. This room has only been recently opened. By the will of Watt's son it was ordered to be left forever as the old man left it when he last went out at its door. It was not looked into for more than thirty years.

SEVERAL inventions have lately been patented for the prevention of accidents in coal and other mines, but perhaps the most simple and complete apparatus is that of Messrs. Denton and Whittaker, which consists in the application to the cages of strong iron springs, which catch the woodwork on every stoppage of the cages, and effectually prevent them from slipping. In case of an accident such as that which occurred at Wigan last week by the breakage of the rope, this apparatus would at once have stopped the cage, and prevented the great loss of life which took place. The invention also provides against accidents from overwinding, a slipcatch giving way when the cage has reached the required height. The patent has been successfully tried on the Ardsley colliery of Messrs. Firth, Donisthorpe & Co.

THE Paris correspondent of the *Chemical News* states that an important experiment has been made by M. Duchemin during a holiday at the seaside. He made a small cork buoy, and fixed to it a disk of charcoal containing a small plate of zinc. He then threw the buoy into the sea, and connected it with copper wires to an electric alarm on the shore. The alarm instantly began to ring, and has gone on ringing ever since, and, it is added, that sparks may be drawn between the two ends of the wires. Thus the ocean seems to be a powerful and inexhaustible source of electricity, and the small experiment of M. Duchemin may lead to most important results.

THE SIXTH SENSE.—Dr. Hughes Bennett, Professor in Edinburgh University, lately read a paper before the British Association of Science, wherein he announced that the tendency of modern physiology was to ascribe to man a sixth sense. If there be placed before a man two small tubes, the one of lead and the other of wood, both gilded over so as to look exactly alike, and both of the same temperature, not one of the five senses could tell the man which is lead and which is wood. He could tell this only by lifting them, and this sense of weight was likely to be recognized as a sixth sense.

THE Rev. W. R. Dawes concludes that the ruddy tint of the planet Mars does not arise from any peculiarity of the color of its atmosphere, as the redness is most apparent in the center where the atmosphere is thinnest, and it is suggested that it arises from the color of the soil.

SAYS Mencius:—"If I am treated rudely, let me examine into the cause, and if I cannot discover any sort of impropriety in my own conduct, I may disregard the rudeness, and consider him who displays it as no better than a brute, and why should the conduct of a brute disturb me?"

In the year 1325 a vessel is recorded to have brought corn from France to Newcastle and to have returned laden with coal.

TO CARRY on the coasting trade in coals to London, 10,000 tuns of gravel are weekly supplied in the Thames for return ballast.

ONE-THIRD of the coal used in France is imported from England, Belgium and Prussia.

POTATOES grow at Quito at an elevation of 10,000 feet above the sea, but olives not above 1,250 feet.