

FAIR OF THE AMERICAN INSTITUTE.

The thirty-first annual fair of the American Institute opened on Sept. 27th, at Palace Garden, corner of Fourteenth-street and Sixth-avenue. There is a great contrast between the magnificent accommodations afforded, the past few years, by the Crystal Palace and those which the society have obtained the present year. This is felt especially in the amount of room perfectly sheltered from the weather. The great fire which destroyed the Crystal Palace on Oct. 5, 1858, in the midst of the fair, plunged the institute from the summit to the bottom of their fortunes, and they will now, no doubt, resume from this point their ascending course. The exhibition this year partakes of the character of the accommodations, and is less extensive than the one which was so unfortunately destroyed last year. But it has the advantage of all being fresh and new. We see nothing more of Thorwaldsen's statuary and the other old articles which had remained in the same place since the great fair of 1853. The steam-engines and other leading articles of machinery not being fully collected and in operation when this number of the paper goes to press, we shall now notice some of the other articles.

GAS RETORTS.

J. K. Brick & Co., of Brooklyn, N. Y., exhibit two clay retorts for gas-works. Clay retorts are so decidedly superior, in one respect, to those made of iron, that they have almost wholly replaced the latter in England, and our own gas-makers have just begun to introduce them. The Manhattan Gas Company have imported a number for their enlarged works; and it seems the manufacture of them has commenced in this country. In the manufacture of gas, carbon sometimes collects in a very hard form in the retort. No mode of removing it from the iron retort has yet been found, and it consequently chokes up the retort and renders it useless. But in the clay retort, the carbon is deposited less compactly and may be burned out by simply creating a current of air through the hot retort. This is done by introducing a pipe through the door and extending it inward half the length of the retort, and opening the pipe above to let the air escape. The carbon is burned into carbonic acid and passes off in the form of gas. As the use of gas is extending to almost every town and village in the country, there can be little doubt that the manufacture of clay retorts will rapidly grow up into a very extensive business.

CEMENT ROOFING.

We notice five different cements for roofing; one of them of gutta-percha, made by Johns & Crosby, No. 510 Broadway, this city. This they put on for five cents per foot, and warrant it to last five years.

CARRYING-JACK.

E. Burroughs, of Rochester, N. Y., exhibits a very convenient carrying-jack. The horizontal portion rests at the ends on two turning-plates, so that when the vertical jack has been carried to one end of the slide directly over one turning-plate, by means of a bar, the other end of the slide is carried round into the line of the moving, when the jack is worked to the opposite end of the slide. By thus successively reversing the ends of the slide, the carrying may be continued in the same direction indefinitely.

PLOWS.

The number of plows is not as great as in some previous years, but there is one on exhibition which we think is the handsomest plow that we have ever seen. It is made of cast steel, with a very sharp point and a long graceful sweep of the moldboard which makes it appear as if it would go through the ground with very little resistance. It has attached to it Stenton's "Landside-cutter," a sharp blade or wing extending about four inches from the bottom of the landside and cutting this distance under the succeeding furrow, thus enabling the plow to turn wider furrows with the same team.

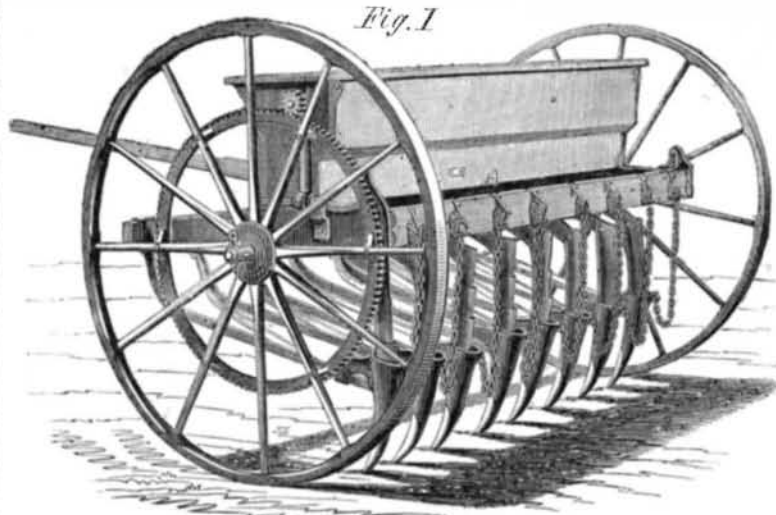
WEIGHING SCALES.

The great fortune made by Fairbanks in the manufacture of scales, has stimulated some of his Vermont neighbors to enter into competition with him. Strong & Ross have invented a scale in which the lever is attached to a rod, which it rolls. The rod is crossed by a short bar, one end of which is hung on a pivot and the other supports the platform. This scale is exhibited by Frank E. Howe, No. 191 Broadway, this city, and it is claimed to have taken several premiums over all competitors.

IMPROVED SEEDING-MACHINE.

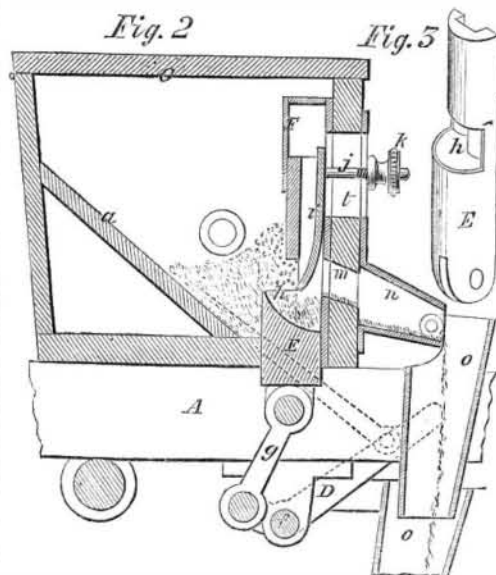
We present this week, illustrations of another seeding-machine which will doubtless claim its share of attention from the large farmers of the West, among whom it originated. The seed is fed out by a reciprocating slide, and the quantity is adjusted by a novel device.

Fig. 1, is a perspective view of the whole machine, Fig. 2, is a cross section of the seed-box, and Fig. 3, represents the slide for measuring the seed. A shaft, *f*, extends the whole length of the seed-box, and receives a rocking motion by means of the connection of the crank, *D*, with the small pinion, shown in Fig. 1. By the rocking motion of the shaft, *f*, a vertical reciprocating motion is given through the arm, *g*, to the slide, *E*.



FOREMAN'S SEEDING-MACHINE.

The slide, *E*, is of a same cylindrical form as shown in Fig. 3, with an opening, *h*, through its front part to form a cup, as shown. A plate, *i*, extends down into the slide, *E*, and is bent forward, so as partly to close the opening in the front part of the slide. The plate, *i*, is fastened to the back part of the seed-box by a screw, *k*, which passes through a slot in the plate, *i*, so that the plate, *i*, may be raised or lowered, and thus the opening in the slide, *E*, may be varied in size, and the quantity of seed delivered be thus adjusted. After the seed is admitted into the slide, *R*, it is passed out at each mo-



tion of, *E*, through the opening, *m*, in the seed-box into the tubes, *o o*, which lead it down into the furrow back of one of the teeth shown in Fig. 1, each tooth being furnished with a corresponding slide, *E*, and conductors *o o*, of the seed. Motion is given to the small pinion by the large gear wheel as shown in Fig. 1. *A*, is the frame on which the seed-box rests, *C*, the top of the seed-box, *a*, a diagonal board to guide the seed back, and *F*, a guide in which the slide *E*, works.

The patent for this invention was granted to Daniel Foreman, of Navarre, Ohio, June 28th, 1859. Any further information may be obtained by addressing the assignees, G. W. Swerenger & Co., of the same place.

COMPASSES OF THE GREAT EASTERN.

The engines of this noble vessel are stated to have worked with the precision of clockwork, and their motion seems not to have been disturbed by the explosion which took place on board. Her immense strength and powerful machinery have inspired great confidence in her ability to brave the storms, and make a successful voyage across the ocean. There is one little instrument which might be carried in the inside of a gentleman's hat, upon which the safety of that vessel is as much dependent as her machinery—we mean the compass. If that were to point West instead of North, the great ship might be navigated to dash unexpectedly upon a rocky shore, instead of sweeping truly and grandly into Port-

land harbor. On board of steamships, great local attraction is experienced on account of the machinery; and as this is in proportion to the mass of metal, iron ships exert most powerful influence on the magnet, hence the reason why several such ships have been wrecked by steering on wronged courses, as was the case when the *Great Britain* ran ashore in Dundrum Bay some years ago. It has been a problem of vast consequence to construct compasses in such a manner as to obviate local attraction, and permit the needle to vibrate with the great

earth-current of our globe. A society in Liverpool has been long in existence for obtaining facts in regard to this important subject, and the late eminent Dr. Scoresby made a voyage to Australia and back to England, for the purpose of discovering, if possible, a means of obviating local attraction, but his efforts were unsuccessful. The proprietors of the *Great Eastern*, well aware of the great amount of local attraction which must be experienced in such a mass of floating iron, put the matter in the hands of Mr. Grey, of Liverpool, a celebrated compass-maker and inspector of nautical instruments to the British Government, and he seems to have met the difficulty by applying an American invention, for which a patent was issued to Calvin Kline of this city, about a year ago. The compasses on the *Great Eastern* are described as follows in the *London Daily Telegraph*:—

"The binnacle on the *Great Eastern* consists of an enclosed battery of magnets adjustable by vertical screws, which move the magnets according to the deviation of the compass, consequent upon the influence of iron. The extent of the deviation is detected by celestial and terrestrial observations, and when the instruments have been once perfectly regulated, the process of re-adjustment, whenever this may become necessary, is so exceedingly simple that, by merely placing the ship's head in two positions—namely, North or South, East or West—the compass in the northern hemisphere can be made perfect. If alteration of an opposite character should take place in the ship's magnetism, by reversing the position of the magnets, and adopting the same process with reference to the ship's head, the instruments can be restored to their original accuracy. To obviate the dangerous influence resulting from the heeling of the ship, an apparatus is used with a moveable vertical magnet in the center, and it is no uncommon occurrence for the needle of this magnet to be deflected to the extent of 50°, and even upwards. This disturbance produces oscillation of the card whenever the vessel rolls, the frequent repetition of which eventually causes the card to revolve with such velocity as to render it worse than useless to the seaman."

In Mr. Kline's patent a battery of magnets, placed either above or below the needle, is described and claimed. The magnets are adjusted by a vertical screw, so as to neutralize the local attraction upon the needle, and thus render it reliable for the largest as well as the