

of patents is commenced with but very little delay after their issue. The Exhibition at the Palace is abundantly demonstrative of this fact.

Weighting Machines.

The most striking novelties in this branch of invention are the contributions of the Vergennes Scale Co., Vergennes, Vt., who exhibit two forms of Elnathan Sampson's improvement, patented last year. One of these weighing machines is in the form of a railroad track, and occupies a space one hundred and nineteen feet in length. So accurately is it balanced, and so excellent are the principles of its operation, that if an individual steps upon one of its extreme ends, his weight will be at once correctly indicated. We witnessed some experiments of this character, with much satisfaction. The price of this scale, ready set up for use, is \$2500; capacity, 100 tons. This form of weigher is capable of indefinite extension, so that if it were desirable, a machine half a mile or more in length, which would weigh with perfect certainty and accuracy, might be constructed. No pit is required below the apparatus, as the truss levers used in the ordinary machines are dispensed with. This is a great advantage.

A large platform scale, capacity 6 tons, built on the same principles, is also shown. Its floor only rises a few inches above the spot where it rests, and as stated above, no pit is required. Price \$175 ready set up. Hay scales so light as to be quite portable, yet perfectly accurate, are made in large numbers by the Company. This invention is now exhibited here for the first time. It was illustrated in the last volume of the SCIENTIFIC AMERICAN; English and French Patents have been taken out through the Scientific American Patent Agency.

Mr. John Kelly, of Sag Harbor, L. I., exhibits a very ingenious weighing apparatus for use in shops, drug stores, &c. The weight is moved by turning a thumb screw, and there is a dial with pointer which exhibits the result in pounds and minute fractions, with the most perfect accuracy. By the turn of another screw the required allowance for tare is shown. The whole forms one of the most convenient and complete weighers with which we are acquainted. This is its first exhibition. Patent applied for. John Sherry, the famous clock maker at Sag Harbor, L. I., is the assignee of this invention.

Bramble's Grain Scales are self-acting and self-registering in their operations. A trough-shaped box, divided into two compartments by a partition running lengthwise, receives the grain from a reservoir placed above. The box rests on a weighing apparatus; the grain falls in a steady stream. When a sufficient quantity to balance the scales has fallen into the box, the latter cants over a little and shuts the spout, thus stopping off the grain; at the same moment a valve in the bottom of the box opens, and the grain therein slips out, weighed and measured, into a bag; the box then tips back again, opens the spout, and receives a new load. The mechanism is quite simple, and operated wholly by the weight of the grain. A dial exhibits to the eye, and keeps an account of the quantity of grain that passes through. No human attendance is needed. Exhibited here for the first time by Wm. A. Bramble & Co., No. 68 Third street, Cincinnati, Ohio.

Messrs. Fairbanks & Co., No. 189 Broadway display several specimens of their well known and much esteemed weighing machines. Our readers are so familiar with them that no description will be required.

Messrs. Durkee, Hough, & Co., 13 Whitehall street, N. Y., also exhibit a collection of weighers, made by the Durjee & Forsyth Manufacturing Co., Rochester. Their scales are well made, but are not new inventions.

The Lazy Man's Bedstead.

Strolling along through the galleries, our attention was arrested by shouts of laughter proceeding from a group of ladies and gentlemen gathered around some apparently rich subject of merriment. Drawing near, we found the object to consist of a handsomely finished bedstead, having a soft mattress on which lay an urchin imitating sleep. Attached to the head of the bedstead was a small alarm clock, which, the polite attendant informed the company, was connected with the bed, the whole

being so combined that at a given moment the alarm bell would ring, and soon after, if the sleeper did not arise, he would, without further delay, be mechanically tumbled out of bed.—The alarm was accordingly set, the clock ticked for a few minutes, the bell rang, and then, true to its function, quick as a flash, the mattress tripped on its side, and down came the urchin rolling and sprawling on the floor, a laughing stock for all the spectators.

The above invention was patented by Mr. J. Carroll House, of Lowville, Lewis county, N. Y., July 17th, 1855. This is its first exhibition. It was illustrated by an amusing picture in the SCIENTIFIC AMERICAN a few weeks since.

Lathes for Wood Work.

There are four different kinds of self-acting turning lathes in the exhibition, as follows: Albin Warth's, patented in 1854; F. Brown's patented 1855; A. D. Crane's, patented 1854, and S. Carpenter's, patented 1855.

Warth's Lathe is a wonderful machine, and attracts large crowds of spectators whenever it is put in operation. The rapidity with which it transforms the rough sticks of wood into ornamental bed posts, table legs, banisters, also wheel hubs, tool handles, spools, and the like, is really marvellous. The stuff to be turned is swung in bearings and revolves in the usual manner.

There are two sliding rests, one on each side of the stuff, which carry the cutting tools. The rests move slowly along the whole length of the machine, and during their progress are made to play in and out laterally, and so cause the cutters to act on the wood; this lateral play of the rests is produced by means of guide plates located on the sides of the machine. The guide plates are of the same length as the stuff to be turned. The pattern produced in the wood is governed wholly by the formation of the guide plates; the latter are so fixed as to be conveniently removed and others substituted; this is the only change required in the machine, to adapt it to the production of different patterns of turning. In its working, all that the attendant does is simply to swing the sticks and turn on the power. We have seen some elegant specimens of fancy turning by this machine. A lad, we are told, can easily attend to two of the lathes, and in one day do the labor of fifteen men working with fifteen hand lathes. Mr. Richard E. Dibble, No. 360 Broadway, N. Y., is the general agent for the machines, the price of which is \$200 and upwards, according to size. This invention was illustrated in the last volume of the SCIENTIFIC AMERICAN. Patents for the United States, Great Britain, France &c., were taken out through the Scientific American Patent Agency. This is the first public exhibition of the machine.

Crane's Lathe is a small and apparently simple affair. The only complication is in the cutter head; this revolves with great speed, and carries a number of hoop-shaped knives, which are made to move in and out, at the required intervals, by means of a series of plugs, which enter the center of the cutter head. We should need an engraving in order to convey a clear idea of the parts. The form of the turning is governed by the shape of the plugs; the latter are changed whenever a new design is to be produced. This invention successfully accomplishes the turning of irregular forms without the use of a pattern. It works well, and is, in our view, a good invention. Price of the lathes \$300. Exhibited for the first time here, by Crane & Tompkins, 74 Wall st., N. Y.

Brown's Lathe is intended for turning spools, tool handles, &c. The chisels are moved in and out by means of rotating cams. The form of the cams governs the shape of the design produced in the wood. There is an auger that bores the spools and handles as fast as finished. The operator was only occasionally present, and we did not see the machine in motion; therefore we cannot judge of its performances. Now first exhibited by J. D. A. Mensing & Co.

Carpenter's Lathe.—This is a self-acting machine for producing tool handles, hubs, &c., invented by Samuel Carpenter, of Flushing, L. I. We are preparing engravings illustrative of its construction, and shall therefore defer our description until they are ready.

Machine for Splitting Kindling Wood.

In large cities like New York almost the only kind of fuel used for heating and mechanical

purposes is hard or anthracite coal. This substance burns very well after it is lighted, but for the start it requires a pretty hot blaze. Bits of pine wood are found to answer the purpose very well, especially in the stoves of dwelling houses; consequently there is quite a large demand for kindling wood.

The N. Y. Kindling Wood Company, J. A. Conover & Co., agents, 130 Horatio st., N. Y., exhibit, for the first time, one of their large steam machines for sawing-up and splitting kindling-wood—the patent of J. A. Conover, May 10, 1855.

At the rear of the machine there is a circular saw which divides the sticks into suitable lengths, while at the front part there is a large splitting axe, having four blades arranged at angles. These are attached to a vertical shaft, and move slowly up and down. Between the saw and the splitters there is a strong endless belt which receives the blocks of wood ends up, conveys them along towards the front till they come beneath the splitters. The stuff is here divided into kindling wood with great rapidity, and falls down in a pile at the base of the machine. The apparatus is a great attraction in the Fair. The splitters have a very stately sort of movement, and when they enter the wood seem like spades acting on the soil, handled by some monstrous giant. We are informed that a man is enabled to cut up and split fifteen cords of wood per day with one of these machines. The Kindling Wood Co. employ quite a number of horses and carts to peddle their products around the city.

Improved Plane Iron.

In this improvement the cutting iron is placed inside of a thin metallic case, open at both ends. This case, with its cutter, is wedged into the plane in the common manner. The cutter is moved up and down within the case by means of a set screw. The thickness of the shaving is adjusted with the utmost facility; all that is required being simply to turn the screw. The improvement is cheap, simple, and applicable to the planes in common use. It is an excellent invention. The carpenters and wood-workers are delighted with it. Now exhibited for the first time. Patented Sept. 18, 1855, by Horace Harris, Reed's Corners, Ontario Co., N. Y.

Match-Making Machines.

The only one shown in the Fair is that of L. & J. Thomas, patented Jan. 23rd, 1855, exhibited by Southwick, Thomas, & Co., Brooklyn. While witnessing its performance we asked the gentleman in attendance, who said he was the inventor, if he would be good enough to let us see the construction. He replied in a burly sort of a manner, that 'twasn't likely we should understand it if we looked three months. We happened to be perfectly well acquainted with its principles, but to oblige the gentleman, we will yield to his wishes, and keep that matter dark. This is the first appearance of the machine; it works rapidly, and draws a crowd, but it appears to contain little originality. Its chief features are apparently contained in Elkan Adler's patent, granted in 1854, which was illustrated and described in the last volume of the SCIENTIFIC AMERICAN.

Life Boats.

Three varieties only are on exhibition, viz., Francis', an old and familiar improvement; Tewksbury's, patented some time since; Stevenson's, a new invention, just out.

Francis' Life Boat is composed wholly of sheet metal, with air-tight chambers in the bow and stern. Its excellent qualities are everywhere known and appreciated.

Tewksbury's Life Boat is of peculiar construction. Cut off the bottom of an indian's canoe and launch the remaining sides into the water—thus having a boat with sides, but without a bottom,—and we have the outline of G. R. Tewksbury's invention. The necessary buoyancy is obtained by making the sides double, and, of course, air tight. This renders the boat so light, that planks placed midway down between the sides will still be above the surface of the water. These planks serve as the bottom of the boat; the seats are arranged in the usual manner. Capsize the boat, and we find another row of seats, all ready, the same mid-way planks serving as the bottom. It matters not how this boat is plunged into the water, for it cannot come wrong side up, both sides being alike furnished with seats. Neither

can it ever become swamped, for the bottom is always above the surface of the sea, and any water that dashes over will run away down through the cracks left in the planks for that purpose.

We are informed that a boat of this description, 18 feet long and 6 feet wide, will accommodate 35 persons, and sustain 60 or 70 others hanging upon the outside. It strikes us as being a most valuable improvement. A large tank of water is provided at the Palace, and practical experiments, at which large numbers of visitors attend, are daily made with one of the boats. Exhibited by the "U. S. Life Boat Co.," J. W. Ayres, Agent, No. 38 Broadway, N. Y. Engravings illustrative of this invention have been published in the SCIENTIFIC AMERICAN. Patented in the United States and Great Britain through the Scientific American Patent Agency.

Stevenson's Life Boat is a novel affair, so made as to be folded up and occupy but very little space. The sides are composed of strong canvas painted and doubled, with a filling of broken cork between; a great buoyant power is thus obtained. The bow parts are flexible, and bend around into graceful lines. Within is a lining of rubber cloth, and above this a light wooden frame-work, which supports the seats. The latter serve as braces to keep the boat open. A board hinged to one of the sides answers for the bottom. The boat, when spread open for use, is very strong and substantial.

Unlike some others, its buoyancy is not dependent upon rubber air chambers, which the least puncture destroys. The seats, oars, and everything required for navigation, are placed within the folds. A few days since, in company with a large crowd of spectators, we witnessed some experiments in the packing and unfolding of this invention, at the Palace. The sides opened and shut like a huge pocket-book. The rapidity with which the boat was spread for use, its strength when thus prepared, and the facility with which it was again folded together, seemed to surprise all lookers-on. Each operation required two minutes and a half. We regard it as a very valuable invention. We learn that Capt. Loper, and other gentlemen experienced in nautical matters, entertain high opinions concerning the practical excellence of the improvement. Now exhibited for the first time. Patented, 1855, by J. Stevenson, Philadelphia, Pa.

An engraving of this invention is now being prepared for our columns.

Gas Engine.

Up to the time this sheet went to press, Dr. Drake, the inventor, had not succeeded in getting his machine in operation. We have nothing, therefore, to say respecting its performances. The engine, we are informed, is quite new, and the various parts require nice adjustment. One or two men have been at work upon its fixings for about two weeks past. We hope to give some account of its movements next week.

The Cloud Engine.

We are requested by the inventor, Mr. Wm. Mt. Storms, to say that he was in error in giving us to understand that he claimed a gain, with his Cloud Engine, of seventy-three per cent. over simple steam. He now wishes it distinctly understood that he claims a gain of thirty-three and one-third per cent. only.

The Cloud engine continues its movements with unabated vigor at the Palace, and is the center of attraction among engineers and scientific men. It is a great novelty. As yet no tests of its power have been made.

During the present week experiments are to be made with the Dynamometer. We shall duly publish the results.

Steam Power at the Palace.

We have never seen, in any public exhibition, such wretched arrangements for providing steam power as the committee of the Institute have this year realized. They have but one large boiler, and the draft, or something, is so deficient that only a low pressure is, at best, maintained; there are frequent intervals when the steam falls so low that all the engines and other machines come to a dead stop; at other times the main shaft goes by fits and starts, and has an irregularity that is dangerous to delicately constructed mechanism. The exhibitors of machinery certainly labor under great disadvantages.