



**General Remarks**—The Juries at the Crystal Palace have entered upon their duties. They have been appointed from all parts of the country, with reference to their acquaintance with the particular branches entrusted to their examination. They are mostly able men, and fully competent to decide understandingly. We cannot afford the space to name the whole of them, but we give those on Classes V. and VI., and X.

**Jury D.**—Machines for direct use :  
Gen. James, Providence, R. I.  
James Bogardus, New York City.  
Victor Beaumont, "  
W. B. Leonard, "  
J. W. Ayres, "  
John P. Bell, Pittsburg, Pa.  
Samuel Woodruff, Hartford, Ct.  
Geo. Geddes, Fairmount, N. Y.

**Jury F.**—Scientific Instruments, &c.  
Prof. James Renwick, New York City.  
Prof. T. D. Buckingham, Philadelphia.  
Geo. W. Blunt, New York City.  
Dr. Gaillardet, "  
Dr. A. Clark, "  
Henry R. Kimberly, "  
Prof. Carnochan, "  
Capt. Fox, "  
Thos. S. Cummings, "  
Dr. E. S. Ludlow, "  
Dr. W. Parker, "  
J. Parkman, Boston, Mass.  
W. D. Campbell, Quebec, C. E.  
A. Noble, "

Capt. Du Pont and Davis have resigned their connection with the Crystal Palace Association. Their resignation was caused by the pressure of other duties.

**AGRICULTURAL IMPLEMENTS**—*Corn Sheller.* There is in the Machine Arcade a corn sheller exhibited by Wm. Reading, of Washington, D. C., which has one advantage over most others the ears may be shovelled into it instead of being placed in singly by hand. It is a horizontal cylinder of sheet-iron, perforated at the bottom with holes large enough to allow the corn to pass out, but not the cobs; through this passes a revolving shaft fitted with cogs or spurs arranged spirally around it. It was patented July 13, 1852.

*Clod Crusher*—In the English Department stand several agricultural implements from the manufactory of the celebrated Crosskill. The most peculiar of these is an implement called a clod-crusher, which is wholly unlike anything in use in this country. It is a roller consisting of a series of cast-iron discs placed loosely upon an axle, independent of each other, these are serrated upon the edges. Each alternate one is smaller than the other, and consequently must revolve more times. This communicates a side motion between them which, with their serrated edges, must be very effective in crushing hard lumpy ground, the purpose for which it was designed.

*Printing and Type Machinery.*—A. Delcambre, of Paris, is the exhibitor of a machine for setting, and another for distributing type. The former of these is very ingeniously constructed. The compositor sits down before a finger-board, on which is arranged all the letters of the alphabet, small and capital, with the customary pauses, &c. These are placed upon keys communicating by wires with the case at the top of the machine. This is formed by placing thin strips of metal in a vertical position, leaving sufficient space between them for a single type. Between these the type are arranged in columns, with their faces in one direction. From each of these columns of type passes a groove or channel down an inclined plane at the rear of the machine, all these uniting in one at the bottom where by a simple contrivance, the type, as it passes down, is shoved into the composing stick. By the action of another machine, not easily explained without drawings,

it is distributed in columns ready to be placed in the case.

There is also on exhibition a machine for casting type. The metal is placed in a small metallic box, which is heated by a charcoal fire, and by the action of a forcing piston a small portion of this is injected into a mould which opens and drops the type, then closes, and returns to a proper position for receiving another portion of the injected metal. The machine may be turned by hand or driven by steam or other power. It is from the manufactory of L. Johnson & Co., Philadelphia: it is the kind in common use.

Jones' Typographer, illustrated by us on page 268 of our last volume, is also on exhibition. This is a very ingenious machine, and we want to see it introduced into general use. A specimen of its printing is shown with the machine. It is certainly executed in a neat manner. [We would advise the inventor to construct his machine so that the space between the letters should not be quite so great.] His address is John Jones, Rochester, N. Y. The machine was patented June 18th, 1852.

We are sorry that there are none of Hoe's Mammoth presses in the Exhibition. They would have given foreigners an idea of the power of the Press in our free country, as well as a very good idea of what American ingenuity can do. There are in the East Nave, however, one of A. B. Taylor & Sons, and one of the Adams' presses, employed in printing the Weekly Journal of the Association.

Joseph Laing, 66 Fulton street, New York City, exhibits a lithographic press, which is part of the time in operation. It attracts much attention, and is constantly surrounded by a throng of the curious. This art has been carried to great perfection, and proves a formidable rival to the older arts of steel and copper-plate engraving,—many of the periodicals of the day being partially embellished with lithographs. The art is one of increasing importance.

Charles Starr, of the American Bible House in this city, exhibits a Backer and Finisher, used in binding books. They are ingenious and well made machines.

*Cracker Machine.*—W. R. Nevins, of 87 Eldridge street, New York City, exhibits one of the cracker machines illustrated by us on page 305, Vol. 5. Two rollers are placed at the top of the machine for rolling out the dough and passing it to the cutting roller, which is of horizontal shape, having arranged upon its faces the cutters, which are worked by springs and have followers upon their sides to clean them from the dough. From the cutters the dough is carried away upon an endless apron to the person who tends the oven. This is an excellent machine.

*Carriages*—The show of carriages is very good, but there is little of novelty here. There is a very good Broadway omnibus from the manufactory of John Stephenson, of this city, which is highly finished and elegantly painted.

Wood, Tomlinson & Co., of this city exhibit a buggy, the springs of which are of the ordinary elliptical form, but are of a solid plate of steel. Bradley & Woodruff, of Rahway, N. J., are the manufacturers of three buggies, exhibiting Hubbard's patent carriage gearing, described by us on page 106, Vol. 8; the springs are four wooden rods, two of them attached to the hind axles and front of the box, and two of them to the front axle and rear of the box. They are certainly very cheap, strong and easy, and we must give them a decided preference over the ordinary elliptic springs.

J. N. Edson, of New Orleans, La., exhibits a very nice open buggy with the springs at the side, terminating over the axles in a coil of thin steel plate.

There are many others worthy of notice only from their beautiful finish, and as all possessed this merit in a greater or less degree, we cannot notice them for this. There are some elegant French carriages in the Exhibition, too heavy, though, for less than four horses.

#### A Short Voyage.

The screw steamship Argo, an English vessel, belonging to the General Screw Shipping Co., has performed the voyage to Melbourne,

round the Cape of Good Hope, returning by way of Cape Horn, in the astonishingly short period of five months and nineteen days, six weeks of which period was spent in Australia. The actual time of the ship under steam and canvas was only 121 days—giving an average per day of 230 miles, or a little more than nine and a half miles an hour. The consumption of coal during the whole voyage was but 2,105 tons, giving an average of about 17 tons per day. The English papers state that the Argo made, with a fair wind, thirteen or fourteen knots for days together, and eleven or twelve knots close hauled—in both cases with the screw feathered.

#### Recent Foreign Inventions.

**IMPROVEMENTS IN TREATING COPPER ORES.**—Mr. A. E. L. Belford, of England, has secured a patent for certain methods of treating copper ore, in the specification of which it is stated that—1. The calcined ore is washed with water in vats of masonry, lined with wood or lead, to avoid infiltration, and placed at different heights, in order that the liquid which they receive may pass from the first to other vats by means of cocks, the material being kept agitated until the whole of the salts of copper, formed by calcination, are dissolved. The wash is then run into spare vats, and left to clarify. 2. The wash is concentrated in leaden evaporating vessels, and powdered vegetable charcoal is added, the mixture forming a paste, which may be made into bars. 3.—The bars or bricks are then melted and passed to a reverberatory furnace, to be formed into ingots.

**IMPROVED IRON MANUFACTURE.**—H. Leachman, of Compton-terrace, Islington, England, has patented a process in the manufacture of iron, in which he adds common brickdust, salt, and black oxide of manganese, to pig-iron in the boiling process. The proportions for mixing the materials in the first instance, are brickdust, 120 lbs., salt 600 lbs., and oxide of manganese 280 lbs. The quantity of this mixture to be added to the iron varies from 20 to 50 lbs. per ton, less being used as the iron is of superior quality.

**IMPROVEMENTS IN ROLLING IRON.**—Mr. C. May, of London, has patented some machinery for an improved method of rolling iron. Four steam cylinders act upon one large main wheel, and the rollers are so arranged as to be driven alternately in opposite directions, without reversing the machinery. The pile or rail may be passed backward and forward through the rolls, and be elongated in both directions, without the necessity of lifting it over the rolls.—Another claim is for arranging a series of rolls, so that they shall be at such distance apart that the iron may not be between two pairs at the same time, and yet so that the succeeding pairs of rolls may be so near as to receive the iron immediately after it has quitted the preceding pair.

**IMPROVED PISTON.**—Mr. R. E. Peterson, London, has patented a new piston, consisting of a flexible or elastic material, of a hollow hemispherical or conical shape, provided with a rim or flange round its outer edge, held fast by screw bolts between the flanges of two metallic hemispherically-shaped vessels, which form the cylinder, within the upper of which the flexible piston is placed, so as to form a steam-tight chamber between its upper surface and the inner one of the metal hemisphere. The piston-rod passes through a stuffing box attached to the top of the upper hemisphere, and is securely fastened to the upper part of the flexible piston.

**IMPROVEMENTS IN THE MANUFACTURE OF SULPHURIC ACID, &c.**—Mr. G. Robb, of Glasgow, Scotland, has recently taken out a patent for improvements in the manufacture of sulphuric acid, alkalies, and their salts. The claims are for the use of powdered pyrites, cinder, oxide of iron, or oxide of manganese, formed into masses with clay or alumina; a mode of keeping up the heat of the kiln or furnace by the use of heated air, carbonic oxide, or other cheap combustible gas, or heated products of combustion. For the decomposition of common salt in a state of admixture with oxide of iron, pyrites, cinder, or oxide of manganese, by passing the vapor of sulphurous acid through such compound; operating on pyrites for pro-

ducing sulphuric acid, the heat being obtained from the combustion of such pyrites. The use of bicarbonate of soda, as the source of carbonic acid, for effecting the decomposition of sulphuret of sodium; and the use of sulphate of lime, and the agents before mentioned, in the reduction of sulphuret of sodium to sulphate of soda.

**IMPROVEMENTS IN SHIP PROPELLERS.**—W. J. Burch, of Crag, near Macclesfield, England, patentee.—The propulsion is not effected by a disc, but by vanes or helical sections, which he calls "fins," set in the circumference of a disc, or wheel, to which the corresponding lines of the vessels are prolonged, so as to form a kind of cylindrical-shaped projection, from the position of the disc tapering aft to the stern post, and forwards forming a continuation of this quasi-cylinder, or trunk, to a little abaft the beam.—Above and below the disc are apertures for the passage of the fins. Six vanes are set upon the disc, and, revolved by the motive power, propel the vessel. The advantages alleged are, that the truncated lines act in the manner of Griffith's globular center, in nullifying the central resistance, which chokes the ordinary screw, an object which is a grand desideratum, if attainable. "The advantages," says the inventor, "gained by this arrangement, consist in shielding the ineffective surface of the propeller from the passing current, and leading the water upon the fins at such a radial distance from the axis as will secure the whole power applied in the right direction. By this alteration of the locality of the screw, the current is thrown direct on the helm."

[Collated from our foreign exchanges, "Mechanic's Magazine," "Newton's London Journal," "Artizan," "L'Invention," Paris, &c.]

#### Foreman's "Electric" Process for Raising Ships.

We were present a few days since at the Atlantic Dock, Brooklyn, to witness the raising of a "ship of one hundred tons burden," by the above process, which has just as much to do with Electricity as it has with the Moon, and no more.

Two cast-iron generators were partly filled with wet gunpowder and connected with a cast-iron retort or purifier filled with water, from which passed a coil of cast-iron tube of about ninety feet in length. The whole apparatus was placed in a box about six feet square and two feet high, which was filled with water. From the end of the coil a hose, dividing in two parts, passed to six casks lashed to the sides of an old canal boat which was sunk in about fifteen feet of water.

The powder in one of the generators was then ignited by a pistol which was fired into it, and by its slow combustion carbonic acid and carbonic oxide gases were of course generated; these passed through the hose into the casks previously filled with water, and displaced it—holes having been made in the bottom of the casks for the water to pass out. In a little less than two minutes after the powder was ignited the boat rose to the surface, but before all the casks had filled the hose burst and prevented any further success.

We are inclined to think very favorably of this process, but the experiment, though trumpeted by some of the papers, as "eminently successful," proved nothing. When we arrived at the spot the canal boat, which had been filled with water and pretty well loaded with stones, was yet floating; after an additional quantity of ballast had been added, it sank. But mark, an amount just sufficient to sink it was used, so that a very slight change of specific gravity would cause it again to float. Hence it would have been strange indeed if it had not risen.

But as we have said, we think well of the plan; it is certainly far cheaper, simpler, and more speedy than those previously employed—the whole apparatus takes up but little room, and can be transported by railroad to any part of the country. The inventor contemplates using flexible camels instead of casks, and the employment of some other material besides gunpowder for the generation of the gases. We are fearful, however, that the bursting of his hose will prove a serious difficulty. It is all we conceive that stands in the way of complete success.