THE H. W. JOHNS MANUFACTURING COMPANY'S EXHIBITS AT THE FAIR.

Among the most interesting features of the World's Columbian Exposition are the various exhibits of the H. W. Johns Manufacturing Co., represented in our first page illustration. The name of this company is inseparably associated with asbestos, its numerous applications having been made possible by their inventions and constantly increasing improvements in manufacturing processes during the past 25 or 30 years. The materials produced by this company are necessary in nearly all branches of mechanical industry, and are of such great variety that to intelligibly illustrate their various forms and applications, it was found necessary to display them in six separate departments, distributed in four of the main buildings of the Exposition. A visit to these various exhibits will convey an idea of the important position which asbestos has taken among the industries of the world.

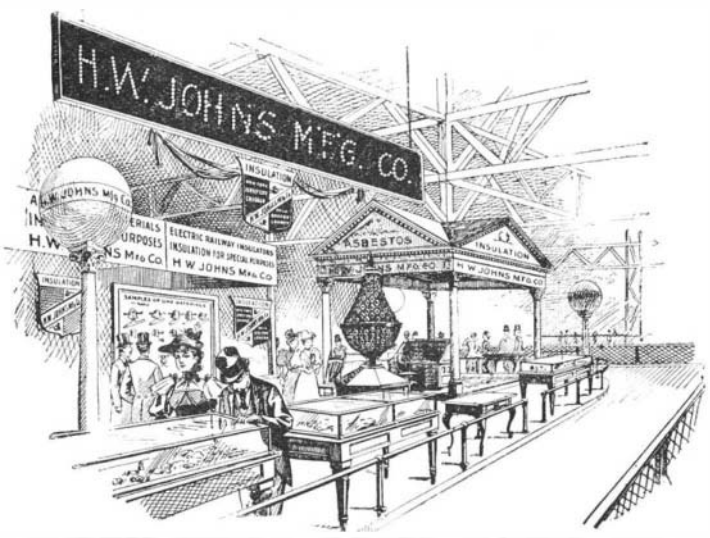
The company's general exhibit is situated in the northeast corner gallery of the Manufactures building, and consists of a comprehensive collection of the numerous specialties made by the company. This space is partially surrounded by a white colonnade, adjoining which is a conspicuous tower composed of various kinds of asbestos sectional coverings. These coverings are designed for use on steam pipes, etc., as non-conductors, being one of the many forms in which asbestos is supplied for this purpose. Other types of covering are shown in the form of a plastic material combining the properties of a felt and cement, for use on boilers, domes, large steam and other pipes, etc.; also in rolls or sheets similar in texture to hair felt, but composed partially or entirely of asbestos, and absolutely fireproof. Each different style is adapted to meet special requirements of heat insulation, durability, strength and lightness, from low pressure steam heating pipes to superheated surfaces in power plants, on locomotive and marine engines, etc. The practical application of some of the asbestos heat-saving coverings is shown in upper left hand corner of illustration, as employed in the power plant of the Exposition, which will be mentioned hereafter. The high non-conducting and fireproof qualities of the mineral are so universally recognized that there are now no approved forms of heat-insulating covering which do not consist wholly or in part of asbestos. In this exhibit are shown many forms of gaskets, or packings, for forming steam-tight joints, made from pure asbestos sheets and cloth; also a variety of wound cloth, twisted and braided asbestos piston rod packings, fireproof asbestos roofing materials, etc.; but an object of special interest is the handsomely decorated asbestos curtain, so hung as to form a pleasing background to this exhibit. Although made wholly of stone, this curtain is as flexible as any other woven fabric, and is unaffected by fire. Asbestos curtains are now in general use throughout the United States, all prominent theaters being equipped with them. They are generally used as drop curtains; scenery, flies, etc., are also made from the cloth. Other objects of interest are masks, fire shields, gloves, etc., for use in smelting works, iron and steel furnaces, etc., as protections against fire, heat, and red hot metals. A fire escape ladder made from the pure fiber hangs from one end of the structure. The large number of articles in this exhibit form an interesting collection, suggesting future possibilities of use for this mineral, which, but a few years ago almost unknown, is to-day to be found in some form in every factory, public building, or structure of any kind.

There are two exhibits of the H. W. Johns Manufacturing Co. in the Mines and Mining building. The principal one is on the main floor near the center, and is depicted in the center of our frontispiece. This shows machinery in motion, illustrating one of the processes of manufacturing asbestos. Here may be seen the separation of the fibers from the rock, the spinning of yarns, and the weaving of cloths. Various finished products from the mineral are shown, including a handsome curtain, similar to the one described above. The other, known as the technical exhibit, is in the gallery on the western side of the building, in a large case, and consists of specimens of asbestos ores from all parts of the globe—a rare collection, and one of great interest to the mineralogist.

In Machinery Hall may be seen the great pipes of the Exposition's power plant. These steam pipes, leading to more than fifty engines, the connecting pipes to the long battery of boilers, the main steam pipe and branches and many minor connections throughout the buildings are covered with H. W. Johns abestos coverings.

In the handsome pavilion shown at the top of the page is an elaborate exhibit of the paints, etc., manufactured by the company. The materials here exhibited comprise all paints, varnishes, stains, etc., used for exterior and interior decoration, including shingle stains, wood stains, fine colors in oil, varnishes, wood fillers, floor paints, roof paints, fireproof paints, etc. The practical uses of all the above articles are shown in the treatment of the structure, the interior of which is ingeniously wrought in panels, columns, friezes, etc., decorated with colors, stains and varnishes. H. W. Johns liquid paints have a world-wide reputation and command a higher price than any other.

In addition to the well-known fire and acid resisting qualities of abestos, the fiber in its pure state is recognized as one of the best electrical insulators known, and the company's sixth exhibit, illustrated in the accompanying sketch, shows a great number of forms of insulation. It is situated in the west gallery near the center of the Electricity building. One of the most important products of asbestos is vulcabeston, which is a strong, tough, fibrous material composed of asbestos and India rubber vulcanized. Vulcabeston is the standard insulating material for magnet spools, bushings, washers, armature rings and other parts of electrical apparatus, especially where subjected to mechanical injury, and is used in dynamos, motors, arc lamps, switches, street car controllers, rheostats, etc. Mica, like asbestos, is also an excellent insulator for certain electrical purposes. From this is manufactured the so-called moulded mica, which is composed of flakes of mica and adhesive insulating substances moulded under pressure. Moulded mica is used in insulating the well known trolley line materials. It furnishes the insulation for waterproof incandescent lamp sockets and rosettes and is made in a variety of forms for special purposes. To meet the requirements due to recent improvements in trolley line construction, the insulating material must be of the best, and all parts must be amply strong to endure the strains of overhead suspension. This company's insulators are designed for such conditions, being exceptionally substantial and durable. They insulate the greater part of the trolley lines in the United States. Samples of insulating pieces and electrical apparatus are shown,



THE WORLD'S COLUMBIAN EXPOSITION—ELECTRICAL GOODS EXHIBIT OF THE H. W. JOHNS MFG. CO.

fully illustrating the applications which have been made and comprising the most extensive and complete collection of electrical insulators ever exhibited. The large generators of the Westinghouse Electric and Manufacturing Company, furnishing current for the thousands of lamps which illuminate the grounds and buildings of the Exposition, are insulated with vulcabeston, showing another interesting illustration of the practical application of the goods exhibited by the H. W. Johns Manufacturing Company.

It is worthy of remark that the H. W. Johns Manufacturing Company occupy a unique position in the Exposition, having the largest number of exhibits of any manufacturer.

Potential of the Atmospherc.

What is the difference of potential between the air at the top of the Eiffel tower and of the ground at the foot? This is the question, interesting alike to electricians and to meteorologists, which has been put to and the answer sought by M. Chauveau, of the Meteorological Department at Paris. The result is rather astonishing. One would expect a few volts difference of potential—even a few hundred volts. But the answer is 10,000 volts! This certainly seems extraordinary at the height of 1,000 feet only, yet on a recent visit to the Eiffel tower one of our representatives, says the London *Electrical Engineer*, saw the attendant at his tests, and the amount was then over 7,000 volts. A noticeable spark, clearly seen and heard in broad daylight, of some millimeters length, was taken from the outside knob. This apparatus is of the simplest, but accurate means of measurement are installed. A Thomson battery of several hundred volts as standard, a reflecting potentiometer, and a photographic register of the light spot are the means used for obtaining the curves of rise and fall of potential. Plotted against curves of thermometer, barometer, and hygrometer, this will probably tell an interesting tale.

The means of obtaining the potential of the surrounding air adopted is that suggested by Lord Kelvin, of discharging fine streams of water. A small tube attached to a cistern of water projects out into the air for some six or eight feet. The tube and cistern are very carefully insulated, and a wire is led down to a knob within reaching distance, also highly insulated. On turning on the water jet a fine stream of water floats away on the air. In a minute or two the whole apparatus, which has some considerable capacity, is charged and sparks can be obtained. In registering, a wire is carefully taken through into the dark room and registers automatically in the way mentioned. M. Chauveau devotes a good deal of time and attention to this interesting experiment, mounting the Eiffel tower, every day, rain or shine, and on some days in winter, when the wind blows a perfect gale, this is by no means a pleasant or even a safe task. In winter, of course, the reading is very difficult, for the water freezes, and the other way to obtain the potential, by means of a gas flame, is not less troublesome. Sufficient curves have been taken, however, to lead to interesting results. The potential rises and falls in well defined curves, and very nearly a year's records have been obtained. The potential varies very much—from 3,000 to 7,000 volts is common—and on a brilliant, clear day, at this time of the year, 10,000 volts, we were told, was not uncommon.

The Schneider System of Cremation.

The system of cremation used in the new cremation urn at Cypress Lawn Cemetery, San Francisco, is that invented by Richard Schneider, an engineer who lives in Dresden, Saxony, says the San Francisco *Examiner*. It is the same introduced within the last year at Hamburg, and is probably the best process yet known. Under the Schneider system fuel is put into a gas regenerator and lighted, and when the gas is formed it is mixed with air. During the process of combustion the flame heats the fire-bricks which wall the incineration chamber, and the products of combustion, after passing through the chamber and a fire-clay grating, are carried off through a flue. After the fire has been burning for some hours the regenerator becomes bright red and the incineration chamber shows a white heat. Then the operation of reducing the human body to ashes may be commenced. The body is placed in a marble sarcophagus, which stands in a niche at the right of the main auditorium of the crematory. A button being pressed, the body is lowered by machinery into the preparation room, where it is stripped and wrapped in a sheet soaked in alum water. It is placed in an iron receptacle whose bottom is covered with a solution of alum and water. The door of the incineration chamber is then swung open and the body is given to the consuming heat. Through an opening in a door of the chamber the official in charge of the operation closely observes the progress of the incineration, and when it is concluded he reverses the gas and air valves and the ashes fall into the ashpit of the crematorium. No fire is visible. A rosy light, the product of more than 2,000 degrees of heat, plays around the shrouded form. No sight could be more impressive, few more beautiful.

A Royal Household.

Whitaker's Almanac for 1893 contains a vast amount of useful information. Some of the details relating to the Queen's household are very curious. The Lord Steward receives £2,000 a year for his services, as does also the Lord Chamberlain. The Examiner of Plays draws £320 per annum; the Bargemaster receives £60; the Keeper of the Swans gets £30; the Pages of the Back Stairs, £250; the Pages of the Presence, £200; Pages Men, £100; Royal Housekeepers, £120; Master of the Queen's Band, £300; Physicians in Ordinary, £200; Dentist to the Household, £70; Poet Laureate, £72; Clerk of the Closet, Chapel Royal (Bishop of Rochester), £7. The Master of the Horse is a very important personage indeed, receiving £2,500. The Equerries in Ordinary draw £500 to £600. The Bedchamber Women get £300. Some of the titles sound strange to American ears, as: Gentleman Usher of Black Rod, Painter in Ordinary, Surveyor of Pictures, Master of the Music, Her Majesty's Body-Guard of Yeomen of the Guard, Serjeant Trumpeter, Hereditary Grand Almoner, Lady Rider, Master of the Buckhounds, Whippers-in, Acting Mistresses of the Robes, Groom of the Robes, Lord Warden of the Stanneries, and Groom of the Stole (household of H. R. H. the Prince of Wales). These positions, in many cases, are filled by titled noblemen and ladies of high degree.

A Cap for the Obelisk.

Cleopatra's Needle, or the Central Park obelisk, is to have a gilded cap. It has been found that obelisks were originally provided with a top covering. The park commissioners have empowered the purchase of an aluminum cap, which will be gilded. The obelisk is now being treated again, so that it will stand the rigor of our climate.