

of ice water, as gastric troubles and insanity sometimes resulted from its careless use as well as from water polluted with sewage matter. The effects of alcohol on highly sensitive nervous organizations were considered at length, and an increase of insanity, epilepsy, and kindred nervous disturbances was traced to its use as a beverage. Dr. Ockford also lamented the increasing use of absinthe among the intellectual classes, and regarded it as rapidly ruinous to the constitution, productive of serious disturbance of the function of the brain and nervous system, and very dangerous as a habit. He considered tea as a better beverage than coffee in cold climates, and contradicted the current notion that tea tasters became broken down in nervous function by the pursuit of their business. Coffee could be used without disadvantage as a beverage in southern climates, but in the north once a day should generally be the limit, as dyspepsia and nervous derangement frequently followed the coffee habit when inveterately indulged. He recommended caution in the use of milk—one of the most valuable of beverages and foods when pure and clean, but exceedingly liable to pollution and a frequent agent in the propagation of diseases, having in a high degree the property of absorbing putrescent matter without its presence being detectable by the senses.

Advantages of Electric Railways.

In an extended account of the construction and working of the Siemens electric railway at Berlin the London *Times* mentions as first among the advantages which the electric motor has over steam or compressed air for passenger transport, the circumstance that no heavy machinery has to be carried about to set the train in motion. The carriages can, therefore, be built in a lighter manner, thus reducing the power necessary to move them, and permitting all bridges and other superstructures to be built more cheaply than usual. Several carriages, each with a dynamo machine, can be joined to one train, and by this distribution of motive power much steeper inclines can be overcome than when the same train is drawn by a single locomotive. In addition to the ordinary brakes, means can be provided to short-circuit the machines on the carriages, and to cause them to act as very powerful brakes. The use of large stationary engines reduces the amount of fuel necessary to develop a certain power on the traveling carriage, and if waterfalls can be utilized the cost of working these railways can be further diminished. It seems probable that such railways can be usefully and economically constructed to facilitate the traffic in crowded streets, or in situations where local circumstances favor their application. From all that has been done during the last few years it is evident that the art of transmitting power by electricity has advanced rapidly, and that its practical application is continually gaining ground.

A Vessel Wrecked by a Water Spout.

The brig Bogota recently arrived at New Bedford, Mass., having on board a party of shipwrecked mariners composed of the officers and crew of the wrecked British brigantine Florence May, who were picked up in the ocean, about 600 miles from this coast, their vessel having been almost torn to pieces by a water spout. Captain Cochran, of the May, says that he sailed from New York May 13, with a crew of eight men and one passenger; weather was good, and May 23 the vessel had reached latitude 35:42, longitude 65:26, and was lying becalmed; at 2 o'clock A.M., she was struck in the bow by a waterspout, which hit her so forcibly that she was opened forward, her jibboom and head gear were twisted off, and the vessel severely strained and her seams opened, causing her to leak badly. The pumps were at once started, and for three days she drifted about in an unmanageable condition. Fortunately the weather was good, and but little difficulty was experienced in keeping her free from water, but on the third day one of the pumps gave out, the water began to gain in the hold, and the boats were prepared for leaving the brig; but at this juncture the Bogota appeared and rescued the crew, with their personal baggage. The Florence May was 213 tons burden, and was loaded with a miscellaneous cargo, consisting mainly of flour and grain.

Quick Telegraphy.

The Direct Cable Company and the *Evening Telegram* of this city seem to be justly proud of a recent feat in rapid telegraphy, by which the result of the Derby race in England was announced here in advance of all other mediums of communication. The *Telegram*, with its usual enterprise, had an operator and instrument on the grand stand at Epsom. The remainder of the story is thus recorded: "Horses got away at 10:21:5, New York time. Iroquois passed winning post 10:23:55, New York time. Result reached New York 10.24. Time occupied in transmission, 5 seconds."

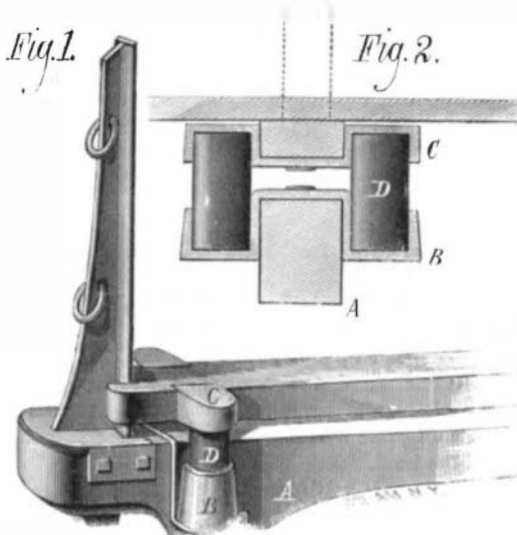
Electrical Light Patents.

About 175 patents have so far been granted for patents relating to electrical lighting, in this country, and about three hundred more applications for patents thereon are now pending.

When we consider the large number of patents now existing for telegraphing instruments, telephones, alarms, electrical batteries, switches, and the divisions of electrical devices, it will readily be understood that the Patent Office at Washington is rapidly becoming a great store house of novelties relating to electricity, and that this branch of invention is already one of extraordinary magnitude.

IMPROVED WAGON SPRING.

The engraving shows an improved wagon spring lately patented by Mr. Christopher Heinen, of Fort Laramie, Wyoming Territory, and designed to lessen the concussion between body and bolsters. The bolster, A, is supplied at the ends with removable standards, and with sockets, B, formed in one piece with a saddle plate fitted on the bolster. Inverted sockets, C, made like the sockets, B, but somewhat



HEINEN'S WAGON SPRING.

shallower, are secured to a bar extending parallel with the bolster, A, and guided by the standards. In the sockets, B, are placed springs, D, which may be either of rubber or steel. The upper ends of these springs are received by the sockets, C.

With this construction the body of the wagon has an elastic support, which relieves it from shocks and the running gear of the wagon, and at the same time relieved from the downward blows of the load.

This device can be readily applied to wagons already in use, and will not only break the concussion between the body and bolster, so as to avoid injury to the load by jarring, but it will increase the durability of the wagon.

Fig. 1 is a perspective view of one end of a bolster having the improvement applied, and Fig. 2 is a transverse section showing the relation of springs, sockets, and bolster.

IMPROVED AIR PUMP.

The illustration represents a powerful double-acting hand pump for air or gas lately brought out by Mr. H. Weindell, 405 N. Fourth street, Philadelphia. A smaller pump for air only



WEINDELL'S AIR AND GAS PUMP.

was illustrated in this paper on Oct. 15, 1876, in which the leading principle is the same as in the pump now illustrated. The present improvements made consist mainly in greater simplicity and different construction in the pumping cylinder to adapt the machine to more varied uses.

By moving the hand lever, consisting of the frame containing the slide rod, piston, and piston rod, the two flywheels are rotated, and the momentum acquired by these is sufficient to bring the cylinder to a point where the resistance of the compressed air is equal to that in the receiver. At this point the slide rod (on hand lever) and the crank (formed on the flywheels) stand at such an angle as to work like a toggle-joint and compress and expel the air with great force.

The particular pump shown is expressly designed as exhaust pump. It, therefore, has a long stroke (6 inches) and very large and light inlet valves of 2 3/8 inches diameter, consisting of leather plates backed by sheet brass. The flywheels are 15 inches in diameter, and the entire machine is very strongly built, weighing almost 70 pounds. It will, when compressing air at its regular working speed of about 110 revolutions a minute, readily give in its 2 3/8 inch cylinder 22 pounds pressure to the inch. In exhausting it will also quickly raise mercury within three-quarters of an inch of the barometric pressure. This is with valves actuated by air pressure only. The same pump is also built for a better vacuum yet, having for this purpose valves operated by friction only, and a simple contrivance connecting automatically for a short time at each stroke both sides, thereby answering as a Babinet cock, making very complete exhaustion possible.

The Lady Franklin Bay Colony.

The members of the Arctic expedition under the command of Lieutenant Greeley, have assembled at St. Johns, Newfoundland, intending to start July 4, for Lady Franklin Bay. The whaling steamer Proteus has been chartered for the conveyance of the enlisted men and officers detailed by the Signal Service Bureau for the expedition. The personnel of the expedition is as follows:

Lieutenant A. W. Greeley, Fifth Cavalry (in charge); Lieutenant James B. Lockwood, Lieutenant Frederick T. Kislingburg, Sergeants Edward Israel, W. S. Fewell, George W. Rice, and D. C. Ralston, of the Signal Corps; Sergeants D. L. Brainard and D. Sinn, and Corporals D. C. Starr and N. Sailor, Second Cavalry; Corporal P. Grimm, Eleventh Infantry; Corporal J. E. Elison, Tenth Infantry; Privates Black and Gardiner, Signal Corps; J. Frederick, Second Cavalry; J. Ryan, Second Cavalry; W. Ellis and T. M. Connell, Third Cavalry; Charles B. Henry, Fifth Cavalry; J. Bender, Francis Long, and W. Whistler, Ninth Infantry; J. H. Bredbrick, Seventeenth Infantry; and W. H. Cross, general service.

The expedition is intended to establish a permanent scientific colony at the most suitable point north of the eighty-first parallel and contiguous to the coal seam near Lady Franklin Bay. The official instructions provide that after leaving St. Johns, N. F., except to obtain Esquimaux hunters, dogs, clothing, etc., at Disco or Upernavik, only such stops will be made as the condition of the ice necessitates, or as are essential in order to determine the exact location and condition of the stores cached on the east coast of Grinnell Land by the English expedition of 1875.

The main purpose of the colony is meteorological observation, the station being one of eight or more to be established for such work by the United States, Russia, Norway, Sweden, Holland, Denmark, Austria, and probably also by Germany, France, Great Britain, and Canada. The American colony engage in the work of geographical exploration by sledge parties, and will give careful attention to the collection of specimens of vegetables, animals, and minerals. Incidentally they will keep a sharp lookout for the Jeanette expedition, which may drift into that quarter.

Drifting Half a Year.

The following report of the rescue of nine Japanese sailors by the Pacific steamship City of Peking, is printed in the San Francisco *Chronicle* of June 13: The Japanese had been blown out to sea in a storm which occurred December 9, 1880. They lost their masts and rudder in the storm, and had been drifting at the mercy of the winds, they knew not where. After their own provisions were exhausted they subsisted on their cargo, mostly beans and dried fish, and such rain water as they could catch during the six months which had elapsed since the typhoon occurred. They had burned most of the small woodwork, doors, berths, windows, etc., of their vessel for fuel, and were on short food rations, 40 beans per day for each man being the allowance. Their fire, when put out from time to time, they had rekindled by rubbing two pieces of wood together. They had given up all hope of ever seeing land or anything human again, when, on Saturday, the 28th of May, in latitude 36° 37' north, longitude 143° 54' east, about 300 miles from the Bay of Yeddo and Yokohama, they sighted the Peking on the wide waste of water. Captain Berry, in answer to their signals of distress, bore down and sent one of the boats off with an officer and the doctor to examine into their sanitary condition, and the poor souls were soon landed on her deck. One of their number had died the day previous from exposure, hunger, and anxiety.

Discovery of an Aztec Calendar Stone.

The *World's* correspondent at Mexico reports the discovery of a new Aztec calendar stone. It was found, June 2, by Captain Eavans under a dilapidated Indian hut, which stood on the place that once formed the favorite garden of the Texocan "Poet Prince" Netzahualcoyotl. It is a stone slab, eight feet by six, covered with hieroglyphs, and near the center of it is a clearly cut calendar—similar to the famous "Aztec Calendar stone" which is now attached to the cathedral in the city of Mexico. The stone goes to the Mexican National Museum. Further excavations are to be made on the same site, and since King Netzahualcoyotl "the Wise" built his palace on a hillock on which the residence of the sovereign lords of a more ancient nation had stood, it is probable that further researches in that locality may lead to interesting discoveries.