

THE DEWEY ARCH.

The National Sculpture Society is always in the front rank when any public work connected with the beautifying of our cities is concerned. Naturally New York, being the home of the society, is the subject of its special care. When it was known that this city would be the scene of Admiral Dewey's home-coming, Mr. Charles Rollinson Lamb proposed to the president of the National Sculpture Society, Mr. J. Q. A. Ward, that the sculptor members be requested to make plans for the decoration with sculpture of a triumphal arch, which has been considered at all times the greatest tribute which can be made to a returning victor. The scheme was warmly indorsed by the sculptors, all volunteering to do their share of the work freely. A special committee was appointed to confer with the Dewey committee, and the scheme was received with enthusiasm. When the enormous quantity of sculpture is considered, it will be seen that these public-spirited men have really made contributions which, in a more durable material, would have been worth a million of dollars. Neither time nor money was available to make a permanent memorial, so a more evanescent material has been employed.

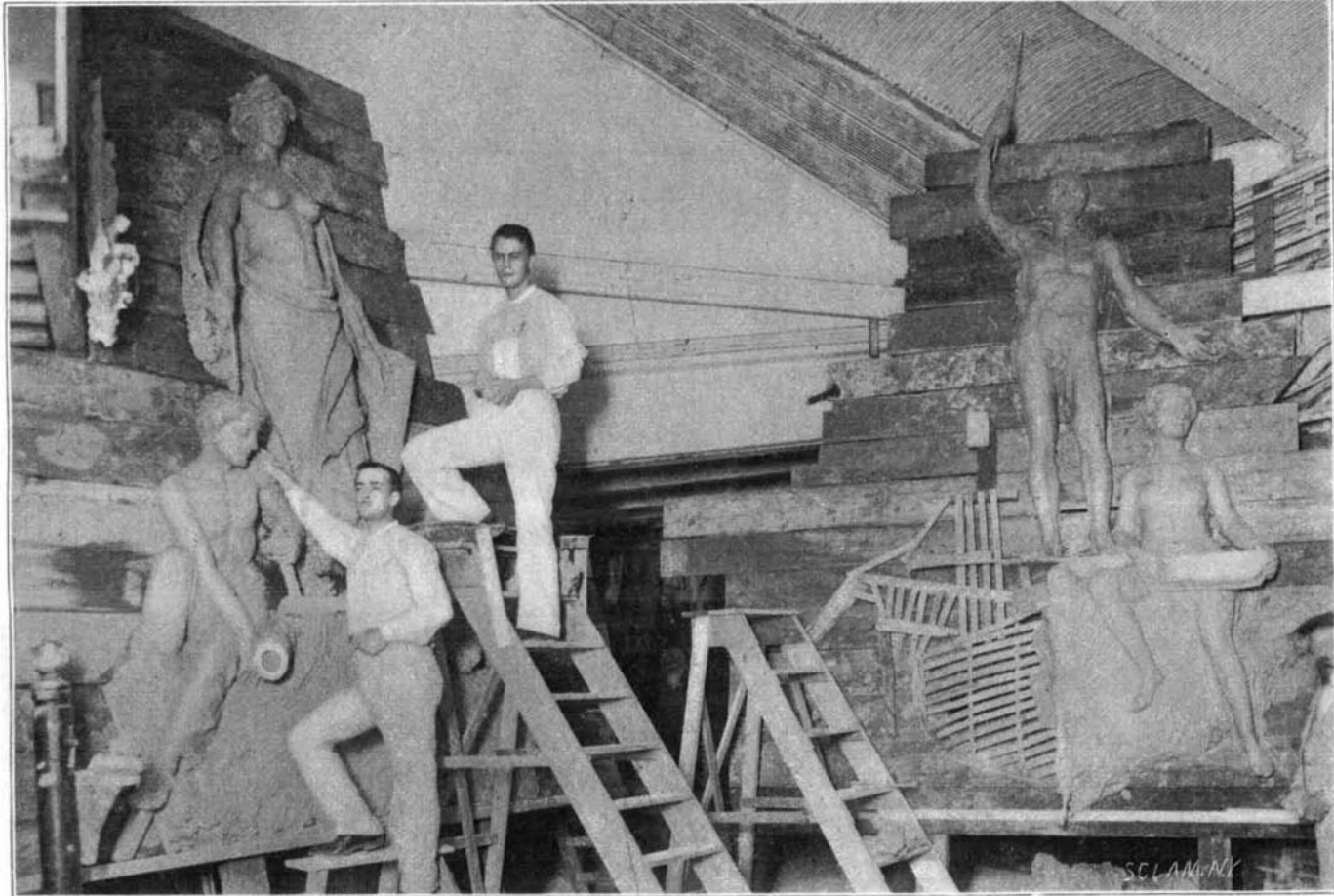
Madison Square was the logical place for the arch. Twenty-fourth Street was taken as the axis for the arch, and the colonnade starts on the north side of Twenty-third Street and ends on the south side of Twenty-fifth Street. The plans were drawn with special care by Mr. C. R. Lamb and were approved by the sculptors and the Dewey committee.

The "Arch of Titus" at Rome was taken as being the best ancient example which could be richly decorated with sculpture, and it was modified to meet the

special conditions. The Dewey arch was enlarged from the classic prototype, and instead of being supported on two piers, a new penetration was given east and west, the arch being deepened to one-half of the width in measurement, giving it four piers, and, therefore, adding much to its lightness. Extra columns have been added to the side, giving two groups of two columns each, thus making a motive for the colonnade. The arch is approached from the south by six double

our power as a maritime nation. The great groups on the front of the piers are the "Call to Arms" by P. Martini; "Battle" by Karl Bitter; "Return of the Victors" by C. H. Niehaus; and "Peace" by Daniel C. French. Above these on the attic acting as finials to the eight columns are full-length figures of heroic size of the great figures in American naval history, Commodore Paul Jones by E. C. Potter, Commodore Hull by H. K. Bush-Brown, Commodore Perry by

J. S. Hartley, Commodore Deatur by G. L. Brewster, Commodore McDonough by Thomas S. Clarke, Admiral Farragut by W. O. Partridge, Admiral Porter by J. J. Boyle, and Cushing by A. Lukeman. The remainder of the attic is taken up by symbolic panels and inscriptions. The four spandrels over the main entrance have bas-reliefs symbolizing the Atlantic and Pacific Oceans on the north by R. H. Perry, and the North and East Rivers on the south by I. Konti. The keystones of the arch will be surmounted by eagles. Topping all is a quadriga with a winged "Victory," the most appropriate subject for the crowning feature



MODELING FIGURES FOR THE DEWEY ARCH.

trophy columns arranged in pairs, three on either side, and the columns at Twenty-third Street and Twenty-fifth Street being reinforced by an extra column on either side, thus repeating the same effect of two columns when seen from the north or south. The first or south pair will have groups of statuary by F. W. Ruckstuhl, representing "The Army," and George E. Bissell "The Navy." Decorations by Herbert Adams will be placed on each double column.

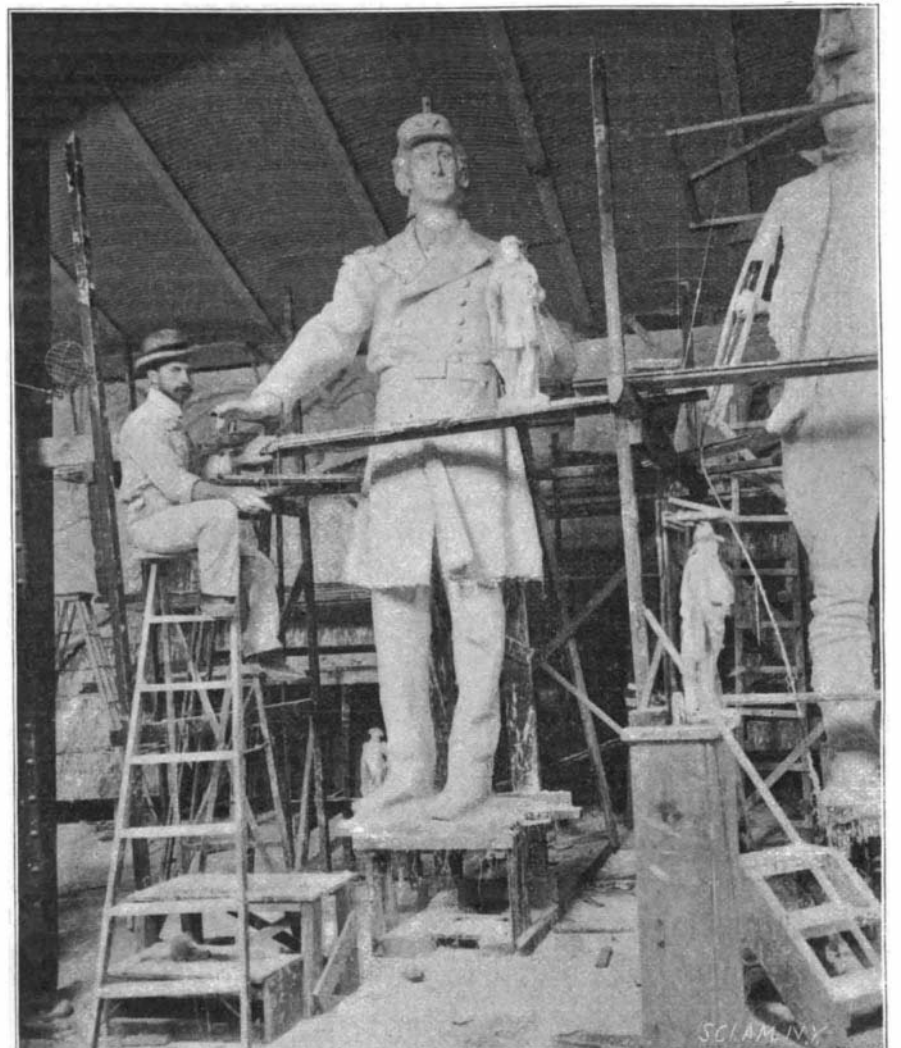
The arch proper is about 70 feet wide by 35 feet deep, while the height from the roadway to the wreath in the hand of "Victory" will be 100 feet. The sculptural decorations of the arch are intended to symbolize

of the arch. It is by the Society's president, J. Q. A. Ward. There are also reliefs flanking the arch and on the sides representing the "Progress of Civilization" by J. Gellert, and the "Protection of Our Industries" by W. Couper. Eight portraits of admirals are added as an enrichment to the spandrels of the smaller arches on the Twenty-fourth Street penetration. The upper end of the colonnade will have two large groups also.

It might well be asked how it is possible to build this enormous arch in the space of six short weeks. It only is rendered possible by that beautiful plastic material called "staff," which first came into prominence in this country at the Chicago Exposition of 1893. It is



DEWEY ARCH NOW BEING ERECTED IN NEW YORK CITY.



MODELING IN STAFF A HEROIC FIGURE OF LIEUT. CUSHING.

a cheap substitute for more durable material, and presents a handsome appearance. It consists of plaster of Paris mixed with cement and fibrous materials. The arch proper is built of wood and looks not unlike a well built scaffold. This is being entirely overlaid with staff, and the figures will be placed in position at the proper time. Some of the larger pieces will be modeled directly in place, but most of the sculpture has been enlarged in the Madison Square Garden, where our staff photographer has been able to get some photographs of the animated scene by flashlight, for in the mad rush against time there is no chance for posing.

The sculptor makes his model in his studio, generally 2 or 3 feet high; he then obtains a plaster model from it, and this is taken to Madison Square Garden, where it is enlarged under the direction of Carl Beil, who had charge of the men who did the same work at the World's Fair. Usually the head and hands are modeled full size in the sculptor's studio. A wooden carcass is built to support the head and hands, and then the work of building up the man 12 feet high is begun. All of the trunk and legs are outlined with wire netting, the staff being applied over this. Pieces of wire cloth, burlap, and even excelsior are freely used. The plaster is brought in pans and is applied with trowels and coarse modeling tools. Drapery is readily obtained by using burlap dipped in the plaster. Some of the sculptors do their own work, others employ professional modelers. The proportions are kept with calipers and by means of plumb lines and scales which correspond to the ruled squares of a painter's cartoon. There is not very much finishing, except to face and hands, and the bodies are freely shaped with hatchets and rasps. Some of the figures were modeled full size, as in the alto-reliefs shown in one of our engravings; here the actual modeling clay and not the plaster is being used. A wooden framework blocks out the main masses and the clay is modeled directly on this. A small sketch a few inches high is of course made first.

The staff for the architectural part of the structure was modeled elsewhere, and the first piece was applied to the arch September 7. Admiral Dewey is certainly to be congratulated for the splendid trophy of victory, even though, a few days after the celebration, it will be only a memory.

THE Sanyo Railway of Japan has recently introduced dining cars, and sleeping cars are also to be run.

Amber in Eastern Prussia.

Amber is found all along the Prussian shores of the Baltic, but principally in the peninsula of Samland. All amber, found everywhere, is state property, but the state cannot mine amber without the permission of the owner of the ground. Before the beginning of the present century, digging was the only means employed for obtaining amber. It was done in an irregular manner, and in 1862 dredging was practiced. This was continued until 1890, when mining by means of shafts was also resorted to; diving has also been practiced with great success. Amber occurs in the so-called blue earth, a sandy clay with many grains of quartz and granite. In the dry state the earth is green, and when it is wet it becomes almost black. The blue earth is washed with water, the big lumps being reduced with the help of mallets, and passed over sieves, and the slime is returned to the sea. The shafts have a depth of from 30 to 60 feet, and further inland they may be double this depth. One mine has nearly a thousand employes. The inferior pieces of amber are made into what is called "ambroid." The pieces are washed and dried, coated on the outside with some chemical, and are then moulded with the aid of heat and pressure.

Our Trade with Africa.

Public interest in African affairs is very great at the present time, while that continent is in such an unsettled condition. Africa is regarded by many commercial nations as a great future market for exports, and the demand for United States goods is not at all backward. Exports from the United States to Africa were in the fiscal year of 1899 more than five times as great as they were in 1889, amounting in the former year to \$3,496,505, and in 1899 to \$18,594,424. From "Cape to Cairo" and from Liberia to Abyssinia American manufactures and American foodstuffs are steadily making their way into public favor, and the consumption is constantly on the increase. Railroad bridges in the Nile Valley, mining machinery in the gold and diamond districts, cloth and foodstuffs are all eagerly sought for. Exports from the United States to Africa have grown more rapidly since 1893 than those to any other of the grand divisions of the world, while Asia and Oceania come next, and they are followed by Europe, North America and finally South America.

It is an encouraging sign that not only are our exports to Africa growing rapidly, but they are evidently taking the place, to a greater or less extent, of those articles formerly supplied by other countries. The British South African Export Gazette says "that American competition has to be met in all departments of trade. This competition is also not to be ignored because the shipments in many cases are small in quantity and value, as this is a peculiarity incidental to the opening of all new markets. The energy which our transatlantic cousins put into all of their new departures is earnest of a sufficiently active exploitation in the near future. This can only be met by renewed care and energy on the part of English firms in cultivating the South African markets."

The Current Supplement.

The current SUPPLEMENT, No. 1237, has a number of most interesting articles. "Notes on Manila and Cavité" describes some curious features of our new possessions. "Victoria Regia" is the subject of a large engraving dealing with this curious aquatic giant. "Archæological Discoveries at Carthage" refers to the important discoveries which have recently been made upon the site of one of the most interesting cities of antiquity. There are a number of articles devoted to trade besides the regular consular page. "Manufacture of Carbons" describes most ingenious automatic machinery for plating the carbons and presses and baking furnaces. "The Relations of Physics and Astronomy to the Development of the Mechanic Arts" is the conclusion of Prof. Abbe's interesting paper.

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RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

HARROW.—CHARLES OHAVEN and FRED P. UHIG, Fort Madison, Iowa. This clip-guard harrow-tooth holder has a solid front recessed for the reception of the tooth and adapted at the same time to strengthen and hold the tooth fast in place. The clip-guard is drawn together by means of a bolt and nut at the back of the bar through holes made for the bolt in the ends of the clip combined with the bar, tooth and bolt. This device differs from tooth-holders made of two pieces and bolted together at the back of the bar, as these give an opportunity to the clip to spring from its work and loosen the tooth.

Bicycle Appliances.

AUTOMATICALLY-OPERATED BICYCLE-PUMP. JOHN S. BUBB, Kittanning, Penn. This invention provides improvements in bicycle-pumps connected with the bicycle frame and adapted to be conveniently shifted into and out of operative position by the rider while mounted on the machine. In its essential features the invention comprehends a novel construction of pumping and distributing mechanism adapted to be disposed within the frame-tubing, and so arranged as to be operated by an eccentric of crank-mechanism connected with either the drive-wheel axle or the crank-axle.

Electrical Apparatus.

ELECTRIC METER.—ALBERT PELOUX, Geneva, Switzerland. The invention provides an electric meter of the motor-type, in which a motor system moves a metallic disk or cylinder. The disk, in turning between the poles of permanent magnets or electromagnets, acquires a speed of rotation in proportion to the electric energy expended. The meter has the merit of dispensing with movable wires upon the armature, thus making an exceedingly strong apparatus, as the movable part consists only of a spindle, two iron cores, a disk, and a movable brush. The meter may be employed for a three or five-wire system.

ELECTRIC SWITCH.—ALBERT E. WELLS, Pittsfield, Mass. The electric switch has a terminal-block box provided with a cover having a slot registering with a slot in one side of the box proper. A two-armed shutter within the box has one of its arms pivoted on the inside of the box, the arms of the shutter being adapted to close the slots. This switch is simple in construction, positive in its action, large in capacity, and is arranged to insure a simultaneous breaking of all points in a circuit, and to reduce the arcing to a minimum.

VISUAL SIGNAL APPARATUS.—RUDOLF EINHIGLER, Manhattan, New York city. The invention provides an electrical signal device particularly adapted for use in offices or buildings, and comprises a series of main annunciators placed in a suitable position and upon the inner or normally-hidden side of each one of which is placed a numeral designating a person to be called. In connection with each one of the main annunciators an auxiliary annunciator or a series of auxiliary annunciators is provided, electrically operated and controlled from various points of a building or the like, remote from the main board, so as to indicate the calling person to the person called.

Engineering-Improvements.

CUT-OUT COCK FOR ENGINEERS' VALVES. DENNIS BROWN, Somerset, Ky. This cut-out or stop-cock is especially designed for use when a number of locomotives are coupled to a single train, the arrangement then enabling a connection to be established between the train-line pressure and the train-pipe gage, so that each engineer can see what pressure is in the train-pipe and what is drawn off by the engineer of the leading engine. Should the leading engine not charge or control the brakes, the engineers of the other locomotives can instantly charge and handle the brakes.

GOVERNOR CUT-OFF.—MARTIN O. ARNEGAARD, Hillsborough, N. D. The governor cut-off is an improvement on a similar device patented by the same inventor. The novel features of the present invention are found in the construction of the pivoted bar forming a flexible downward extension of the vertically-slidable governor "shaft" or bar, in the tension adjustment for the spring-counterbalance for the governor shaft or bar, whereby the speed of the engine may be changed at will without materially affecting the sensitiveness of the governor, and in the improved attachment of the governor-arms to the cross-head of the sliding shaft or stem.

Mechanical Devices.

WAVE-MOTOR.—WILLIAM A. NORTON, Port Richmond, Richmond, New York city. The wave-motor comprises two connected floats, on one of which a rock-shaft is mounted operatively connected with the other float. Gear-wheels have clutch-connection with the power-shaft and are engaged by racks operated alternately in opposite directions by the rock-shaft. A water-motor is connected with the power-shaft. Mechanism actuated by the rock-shaft supplies water to the motor. The waves rock the floats, thereby operating the racks to impart motion to the power-shaft. At the same time water is supplied to the motor. The rack-and-gear motion is designed to start the operation.

STENCILING MACHINE.—STUART B. MOORE, Brooklyn, New York city. In shipping goods it is always desirable to stencil the address. But to use metal stencils for each shipment would be too costly. It is therefore desirable to be able to make paper stencils which shall last a reasonably long time. A machine for forming such stencils is provided by the present invention. The machine comprises two superposed connected disks respectively carrying dies and punches adapted to receive the stencil-sheet between them. An index plate or disk is fixedly secured to the punching-disk and is carried above the frame. The disks are pivoted to rotate upon a block reciprocated with the disks in the guideway of a frame.

BOX-SEALING MACHINE.—JOSEPH T. CRAW, Jersey City, N. J. This machine is adapted to seal the flaps of paper boxes after the boxes have been filled and is of such simple construction that the boxes may be conveniently manipulated by a single operator. The invention provides for the distribution of cementing or gluing material to the portions of the flaps to be sealed. The cement or glue is automatically applied and the flaps folded to a sealing position. The operator has merely to feed the filled boxes to the machine.

AUTOMATIC LATHE. LUCAS A. CARSON, Hopeville, Ohio. The object of this invention is to provide an improved lathe designed for automatically turning,

borings, sawing off, and completely finishing small articles of wood. The lathe comprises a support for a stick. The stick is moved in the support by a spiked wheel which can be rotated intermittently in opposite directions and through different distances. The stick can be held in the support against accidental movement, and can be operated upon by various tools in the different positions to which it is moved.

COMPUTING-MACHINE.—JOHN J. WALL and HERMAN ROGALSKY, Buhler, Kans. This invention provides for the use of merchant and custom millers, a convenient computing-machine for the purpose of finding out at a glance how many pounds of flour or feed are to be given in exchange for a certain amount of bushels or pounds of wheat at a certain number of pounds to the bushel, thus saving much valuable time in computing and also avoiding the possibility of error in separately figuring the accounts.

HOOP-MACHINE.—JAMES FOWLEY, Cobden, Ill. This machine makes barrel-hoops directly from the log, with one end tapered to a thin edge to form the lap and the other end pointed to form the outer wrap. With the vertical or slicing saw are connected a series of five vertical cutter-heads arranged in front of the saw, one set having relatively stationary bearings and the other set having respectively blades with V-shaped cutting edges and plain blades, means being provided for giving them an automatic motion to and from the log to form pointed ends and bevel-faces on the opposite ends of the log.

ANIMAL-TRAP.—WILLIAM H. HARDEN, Quitman, Ga. The self-setting trap has an entrance-compartment connected by a passage with a second compartment. In the passage is a tilting platform. A gate controls the opening of the passage into the second compartment, the platform tilting into and out of register with the gateway of the gate. Connections between the gate and the tilting platform cause the platform to open the gate as it moves into register with the gateway. A clock-mechanism readjusts the tilting platform. The various operations described are effected by the animal as it seeks to escape.

MOTOR.—EDGAR L. GARVEY, Gainesville, Tex. The present invention provides a fan or like motor in which the energy is stored up by a spring and conserved efficiently. Operatively connected with a rotatable spring-carving and spring-actuated drum is a train of gear-wheels which drive a shaft. A pinion is splined on the shaft and is adapted to slide thereon in order to engage the different gear-wheels to vary the speed.

RATCHET-MECHANISM.—LOUIS P. WELLMAN, Taunus, N. J. This mechanism is designed to convert reciprocating into rotary motion. The ratchet-wheel has teeth provided with sloping side surfaces. An operating lever is provided formed in two separable halves having a common pivot and drawn together by connecting springs. The tooth-engaging ends of the lever have their inner ends beveled and slightly rounded at the corners. The device is particularly designed for use with mechanisms driven by the reciprocation of the feet or hands.

MACHINE-GUN.—HON. EDWIN M. CAPPS, San Diego, Cal. The invention relates to improvements in rapid-firing machine-guns; and it refers particularly to guns in which the barrel and firing mechanism are arranged to operate in conjunction with the cartridge-holders, having a series of cartridges arranged to be successively fed

into a firing position. The invention provides a novel barrel and firing mechanism and automatically-fed cartridge-holders designed to fire any of the ordinary forms of military cartridges in which premature firing is rendered impossible and in which non-explosion will not impede the firing action of the gun. The invention also furnishes a novel method of sighting by means of stadia measurement.

Miscellaneous Inventions.

PACKING-CASE.—THOMAS MILLER, Jr., and WILLIAM O. JOSLIN, Springboro, Ohio. This invention seeks to provide a knock-down tobacco-case with a simple fastening device for securing the several parts together and so arranged that there are no projections to prevent several cases from being packed closely together. The end-pieces of the case have cleats on the inner side. The top, bottom, and side pieces have also cleats on the inner side. Through openings in the cleats fastening bolts pass, each consisting of sections arranged at right angles to each other. A shoulder on one of the sections engages the inner side of the case; and nuts engage the screw-threaded portions of the bolts. By loosening the nuts on the sides, the case expands and can then be readily lifted from its contents.

DUST-CART.—FRANZ LOOS, Carlsbad, Austria-Hungary. The cart can be filled without causing unpleasant dust and can be automatically dumped at the desired place. A special feature of construction is a portion forming a dust inlet and having a sliding bottom and a sliding cover, both connected with a bell-crank lever whereby they are operated. Swinging on the cart is a dust-box having a sliding cover, which dust-box is capable of being connected with the sliding bottom, the cover of the box being engaged by the bell-crank lever.

WAGON-STANDARD.—REINHOLD KLATT, Strong City, Kans. The standard has a body and base, the latter being provided with a downwardly-extending marginal flange inclosing the end of the bolster. Fastening devices are passed through the bolster and the base of the standard. A strap is fastened down on the top of the bolster and has engagement with the base of the standard. The standard does not in any way weaken the bolster to the extent necessary in the application of the ordinary standards.

ACETYLENE GAS MACHINE.—JACOB D. KAUFMAN, CHARLEY B. TITUS, and ADNAH E. VANARSDALE, Little River, Kans. It is the object of this invention to provide an acetylene-apparatus having a large carbide capacity and so arranged that the generator is completely surrounded by water, thus keeping the gas cool. Within the gasometer the generator is arranged. Removably placed in the generator are carbide-holders, each having a perforated top or cover through which water is passed. A gas-pipe leads from the lower portion of the generator and upward into the gasometer and has a portion coiled around the generator. Distributing and blow-off pipes are provided.

SHADE-FRAME.—FRANKLIN E. HOWARD, Buffalo, N. Y. This shade-frame for electric lamps has supporting-arms adapted to engage the lamp. To the arms a continuous ring is attached having tapering sides on which the shade is supported. A continuous flange is projected upwardly from the inner edge of the ring and is capable of yielding inwardly to admit the shade to the ring. The flange stands out normally to hold the shade in place.