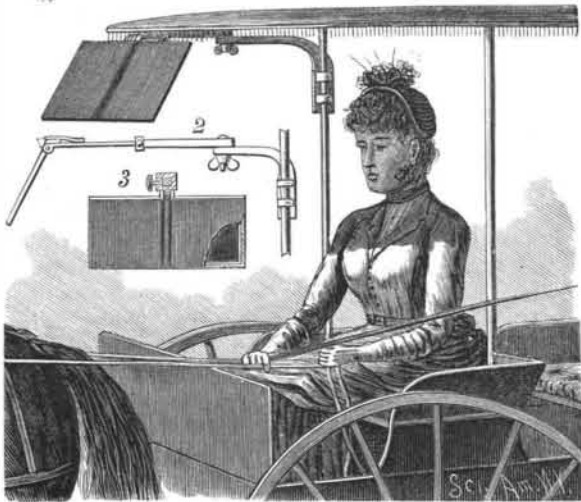


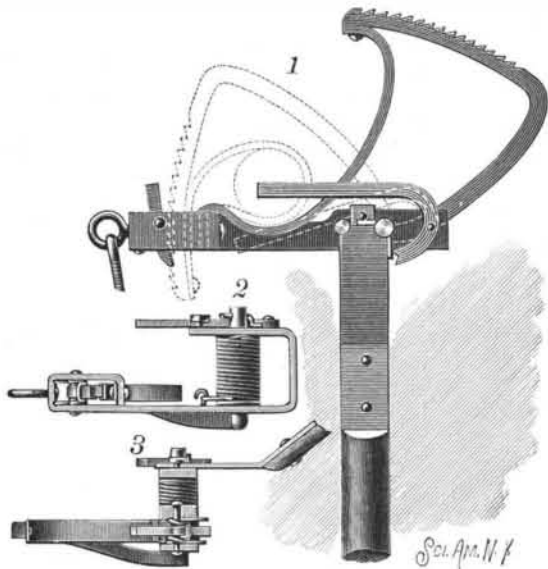
AN IMPROVED SUNSHADE FOR VEHICLES.

The accompanying illustration represents a simple and readily manipulated device, whereby the eyes of the driver may be shielded from the sun, while the device may be readily folded up and concealed out of sight when not desired for use. This invention has been patented by L. V. Luce, of No. 585½ St. Charles Avenue, New Orleans, La. Fig. 2 represents a



SUNSHADE FOR VEHICLES.

side elevation of the device, Fig. 3 showing the shade, partly in section. An angular bracket is adapted to be secured by clamps to one of the supports of the canopy of the vehicle, a horizontal arm being pivoted to the bracket, and this arm having a recess adapted to receive a rod with enlarged head, slotted to receive a lug forming a portion of the shade. This shade is preferably rectangular in form, and covered with cloth, leather, or other suitable material, the central bar of the shade frame terminating in the lug by which it is attached to the rod extending from the horizontal arm.

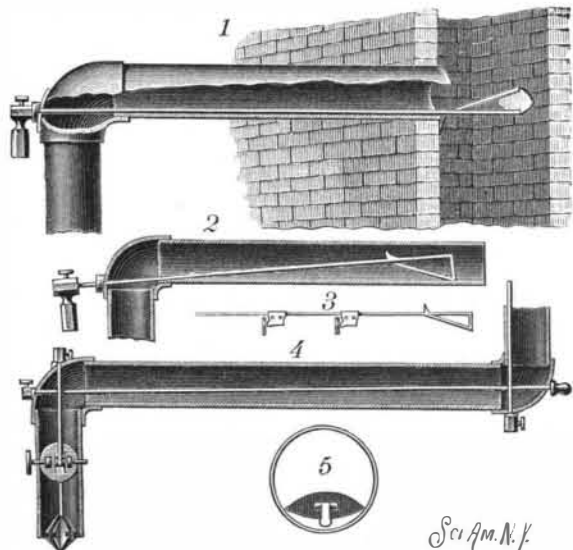


WICKHAM'S DEVICE FOR CATCHING ANIMALS

The device may be readily and conveniently attached to or detached from any vehicle; and by means of the thumb screw by which the horizontal arm is attached to the bracket, the shade may be conveniently moved to any desired position in front of or at either side of the driver, according to the direction in which the sun is shining.

A STOVEPIPE ANCHOR AND FLUE CLEANER.

The accompanying illustration represents a device for locking stovepipes to the chimneys, and also pro-



OLDFIELD'S STOVEPIPE ANCHOR AND FLUE CLEANER.

viding for the cleaning of the pipes. It has been patented by Mr. Leonidas H. Oldfield, of No. 72 West Washington Street, Chicago, Ill. Fig. 1 is a sectional view of the device when used to anchor a pipe to a chimney, and Fig. 4 represents a stovepipe tied therewith. Fig. 2 shows the device in position for use as a pipe cleaner, Fig. 3 representing the rod provided with additional cleaners, while Fig. 5 represents a cross section of pipe with additional cleaners, which, when not in use, are made to assume a horizontal position. The invention consists essentially of a rod with a spur extending from one side and a plate extending from the other side, a catch or handle being arranged in connection with the rod, the rod being held in place to lock the parts by a thumb screw on its outer end. To clean the pipe the handle is turned up to free the spur from engagement with the flue wall, bringing it into the position shown in Fig. 2, when the soot may be readily removed by reciprocating the rod.

AN IMPROVED ANIMAL CATCHER.

The illustration herewith represents a recently patented device specially adapted for catching hogs, sheep, etc., by the leg. Fig. 1 represents a plan view of the device, the full lines showing it as set for use, while the dotted lines represent the position of the parts when in engagement round an animal's leg. Fig. 2 is a side elevation of the device, and Fig. 3 a sectional end elevation. The main frame of the device has a handle by which the operator moves a tripping lever therein against the animal's legs, when the handle becomes detached, as the animal is caught, the operator then holding the animal by a rope attached to a ring in the other end of the frame. A shaft, actuated by a spring, is mounted to turn in the frame, the tripping arm being held on the shaft, while a segmental arm is also held on the shaft, and a band, preferably of leather, is secured to this segmental arm and to the frame. A spring pawl is fulcrumed on the frame and adapted to engage the notches on the segmental arm as it is brought to closed position, folding the leather band around the animal's leg, and locking it in place.

For further particulars with reference to this invention, address the inventor, Mr. Thomas Wickham, in care of James Wickham, No. 212 South Barstow, Eau Claire, Wis.

AN IMPROVED SPRING BACK FOR STOOLS, ETC.

A spring back for use on piano and organ stools, chairs, and office stools, and especially the high desk stools used in banks, etc., is illustrated herewith, and has been patented by William P. James, of Lincolnton, N. C. Figs. 1 and 2 represent side and rear elevations showing the device as applied, and Fig. 3 a sectional view. The seat may be of any desired shape, but the back support is connected thereto by a frame, preferably of round bar iron, having two downwardly projecting limbs, each suitably bent and formed with a crook where the frame comes close to the back of the seat. The frame is here connected to the seat by metal loops, and is further bent below to form a loop projecting inward beneath the seat. A spiral spring, bearing at one end against a plate secured to the under side of the seat, bears at its opposite end against the loop portion of the frame, which has its motion limited by working within a hook forming part of the spring-carrying base, to restrict the spring seat back from working either too far forward or backward. By this construction the frame is restrained from independent up or down and lateral movement, but is free to rock forward and backward.

CRYSTALLIZING FRAMES FOR MONOGRAMS, DESIGNS, ETC.

A special construction of frames prepared to retain crystals, as of salt, alum, or other crystallizing material, for the production of monograms, mottoes, and various designs, is illustrated herewith, and has been patented by Mr. Albert E. Beller, of Ogden, Neb., the illustration also representing an emblematic device thus produced. The frame is an open or skeleton one, formed of wire, wood, or other suitable strips, to inclose or support and form the design. These several wires or strips, or such portions as are intended to be incased by crystals, are then covered or wrapped with soft and flexible or fibrous material, to which the crystals will adhere. The whole frame thus covered is then steeped in any suitable crystallizing solution, and allowed to remain therein until a sufficient deposit of crystals has been made upon the covered portions, the uncovered parts of the frame being left bare by reason of the non-affinity of the crystals to form on or adhere thereto.

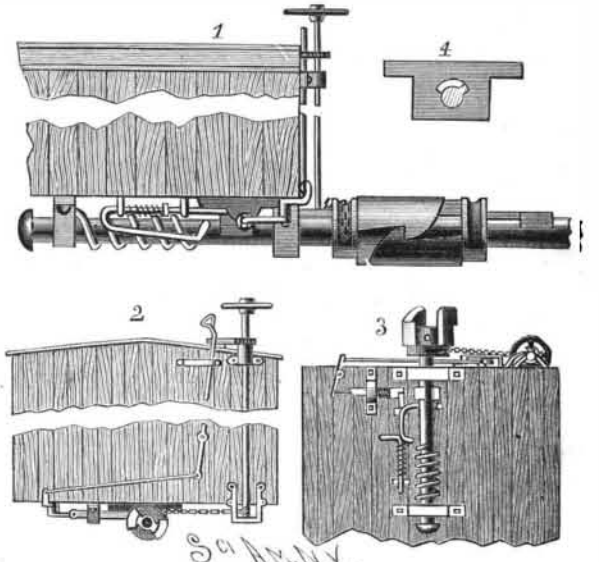
Advantage of a Trade Mark.

Last year, says the *Canadian Manufacturer*, a firm in London, Ont., inserted in the papers an advertisement of a stove polish, to which they gave the name "Nonsuch," and which they recommended in a card headed "Hello! Nonsuch." A gentleman who desired to write to the firm forgot their name entirely, but remembered distinctly the "Hello! Nonsuch." So he risked the consequences and addressed his communica-

tion to "Hello! Nonsuch, London, Ont.," and the fame of the article, combined with the quick intelligence of the postal authorities, triumphed over every obstacle, and the letter reached its destination.

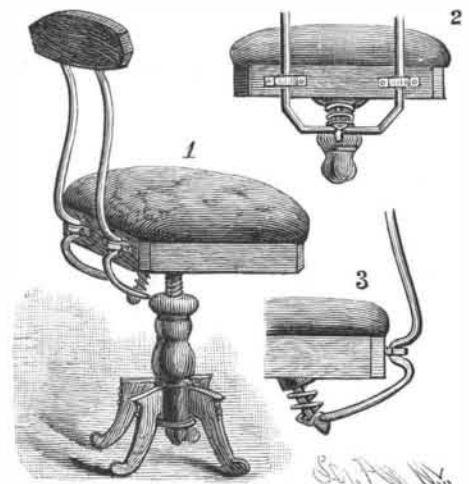
AN IMPROVED CAR COUPLING.

A car coupler designed to be automatic in its action, and preclude danger to the trainmen, by obviating the



SWENSON'S CAR COUPLING.

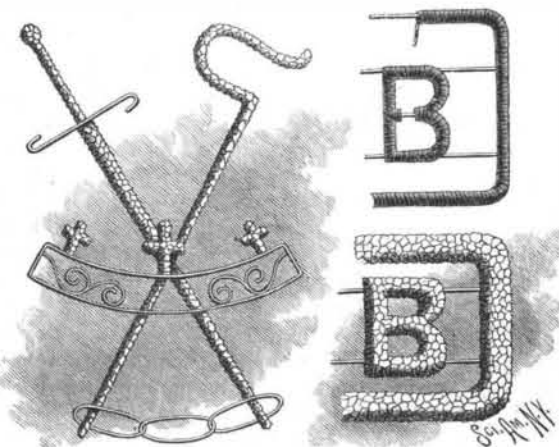
necessity of their going between the cars, is illustrated herewith, and has been patented by Mr. Alfred Swenson. Fig. 1 is a side view and Fig. 2 an end view of a portion of a car body provided with this coupler, Fig. 3 being an inverted plan view of the car body and coupler. The draw-bar is made integral with a draw-head having a central cylindrical section and two hooks, with inclined forward edges, and upon the draw-bar is a longitudinal rib, to the rear of which is a flat-faced boss or projection. The forward portion of the draw-bar is supported by a block having a recess within which the longitudinal rib rides, as shown in the sectional view, Fig. 4, such recess acting as a stop to prevent too great rotation of the draw-bar and coupling-head, while a spiral spring around the draw-



JAMES' SPRING BACK FOR STOOLS OR CHAIRS.

bar causes the rib to normally rest in the position shown in this figure. As two cars provided with this coupler approach each other, the inclined faces of the hooks on the forward ends of the draw-heads are forced to pass each other, when the main spring on the draw-bar causes the hooks to engage each other, as shown in Fig. 1, when the draw-heads are coupled. To uncouple the cars, a vertical shaft is operated, provided with a pawl and a ratchet, and a hand-wheel above the roof of the car. This shaft is connected to the draw-head by a chain bound upon a semi-sheave formed on the draw-bar just to the rear of the draw-head.

For further particulars with reference to this invention, address Mr. Peter J. Palmquist, Greenview, Ill.



BELLER'S CRYSTALLIZING FRAME.

American Association for the Advancement of Science.

The thirty-eighth meeting of this association will begin in Toronto, Canada, Aug. 27, at the Queen's Hotel, the sessions to continue for a week, and the meeting closing with excursions extending to Sept. 7. A special circular in relation to railroads, hotels, etc., will be issued by the local committee, of which Mr. Charles Carpruael is president and Prof. James Loudon secretary, and members about changing their address for the summer should notify the committee. The officers elected for the Toronto meeting are:

President—T. C. Mendenhall, of Terre Haute, Ind.

Vice-Presidents—A. Mathematics and Astronomy—R. S. Woodward, of Washington. B. Physics—H. S. Carhart, of Ann Arbor, Mich. C. Chemistry—William L. Dudley, of Nashville, Tenn. D. Mechanical Science and Engineering—Arthur Beardsley, of Swarthmore, Pa. E. Geology and Geography—Charles A. White, of Washington. F. Biology—George I. Goodale, of Cambridge, Mass. H. Anthropology—Garrick Mallery, of Washington. I. Economic Science and Statistics—Charles S. Hill, of Washington.

Permanent Secretary—F. W. Putnam, of Cambridge, Mass. (office Salem, Mass.)

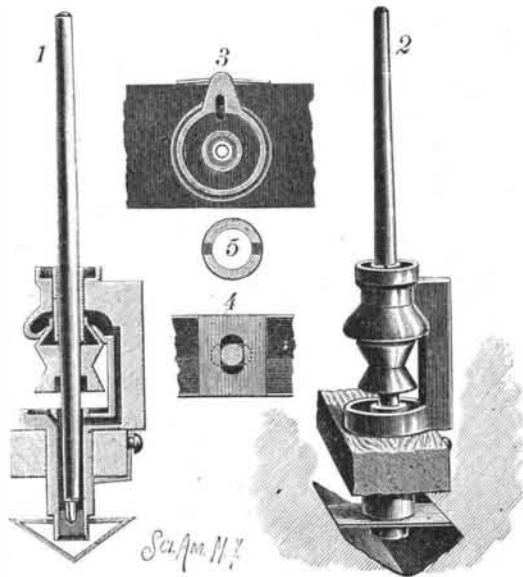
General Secretary—C. Leo Mees, of Terre Haute, Ind.

Secretary of the Council—Frank Baker, of Washington.

Secretaries of the Sections—A. Mathematics and Astronomy—G. C. Comstock, of Madison, Wis. B. Physics—E. L. Nichols, of Ithaca, N. Y. C. Chemistry—Edward Hart, of Easton, Pa. D. Mechanical Science and Engineering—James E. Denton, of Hoboken, N. J. E. Geology and Geography—John C. Branner, of Little Rock, Ark. F. Biology—Amos W. Butler, of Brookville, Ind. H. Anthropology—W. M. Beauchamp, of Baldwinville, N. J. I. Economic Science and Statistics—J. R. Dodge, of Washington, D. C. *Treasurer*—William Lilly, of Mauch Chunk, Pa.

A SPINDLE SUPPORT FOR SPINNING MACHINES.

The accompanying illustration represents a spindle support from which the oil cannot be thrown out by centrifugal force, but will be properly distributed to the bearings, and the spindle kept clean. It has been patented by Mr. Joseph Duffy, of No. 48 Wayne Avenue, Paterson, N. J. Figs. 1 and 2 represent a vertical section and elevation of the device with the oil trough in section, Figs. 3 and 5 being horizontal sections through the tubular bearing of the spindle, and Fig. 4 a horizontal section near the base. The tubular socket portion which receives the lower end of the spindle has horizontal arms connected by a vertical portion, the upper horizontal arm having an aperture through which projects a tubular bearing for the spindle, the upper end of this bearing projecting into an annular chamber on the top of the arm and forming an oil chamber. The upper end of this bearing is formed with radial grooves, as shown in Fig. 5, to per-



DUFFY'S SUPPORT FOR SPINNING SPINDLES.

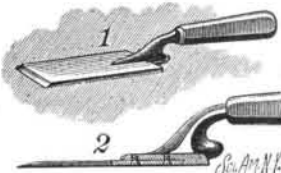
mit the passage of oil from the chamber down between the spindle and the tubular bearing. Surrounding the lower end of the aperture in the upper arm is an annular chamber, into which projects the neck of a whirl mounted on the spindle, the whirl having an annular chamber with inclined sides. From one side of the upper annular chamber an oil passage extends down through the vertical arm and the lower horizontal arm to the tubular socket at the base, and beneath the whirl, in the top of the lower horizontal arm, is an annular oil chamber also connecting with the socket at the base. As the spindle revolves, the oil works down into the upper annular chamber, the inclined sides of which prevent its escape, the oil returning to the spindle and up its tubular bearing when the spindle is at rest. Should this chamber become overcharged, the oil is carried by centrifugal force into an outer chamber and into passages finally leading to the tubular socket at the base.

The American Engineers' European Trip.

Some weeks ago we spoke of the visit of the different American engineering societies to Europe. With the Paris exposition as the central feature of interest, they proposed to visit engineering works of importance within an accessible distance. We have already printed a notice of their arrival in London and of the many receptions and entertainments to be tendered them. A ready comments on the engineering works of England have begun to reach us from them, the contrast between American and English methods proving quite impressive. It is evident that both in the way of instruction and pleasure the trip will be a memorable one to all concerned, and that a crop of ideas will be gathered that may serve as a source of seed to reproduce in this country the valuable features of the more conservative engineering practice of the older lands.

PALMER'S IMPROVED CARPENTER'S CHISEL.

The illustration herewith represents a chisel or gouge for carpenters' use which has been patented by Mr. Theron H. Palmer, of San Bernardino, Cal. Figs. 1 and 2 represent top and side views of the device, which has its shank and handle portion bent out of line with its blade or cutting portion. The blade is provided with an anvil or hammer block at its rear to form a striking surface, when using a hammer or mallet with the tool to force it up to its work, instead of striking on the end of the handle direct, which is liable to split or bruise the handle.



A Curious Chemical—Oxalomolybdic Acid.

A new substance, singular alike in its chemical nature and in its properties, says *Nature*, has been discovered by M. Pechard. It is a mixed acid derived from oxalic and molybdic acids, and is, therefore, termed "oxalomolybdic acid." The crystals of oxalomolybdic acid, when dry, may be preserved unchanged either in sunshine or in the dark; but, if moist, they quickly become colored blue when exposed to the sun's rays. If characters be written on paper with the solution, they remain invisible in a weak light; but when exposed to sunshine, they rapidly become visible, turning to a deep indigo color. It is curious that this effect only happens when the solution is spread over paper or other surfaces; for the solution itself may be kept unaltered in the bottle for any length of time, except for a trace of blue at the edge of the meniscus, where, by surface action, a little is spread against the interior glass walls. If a sheet of paper be immersed in a saturated solution of the acid, dried in the dark, and then exposed behind an ordinary photographic negative, a very sharp print in blue may be obtained by exposure to sunlight for about ten minutes. The color instantly disappears in contact with water; so that if a piece of this sensitized paper be wholly exposed to sunlight, one may write in white upon the blue ground by using a pen dipped in water. If, however, the paper with its blue markings be exposed to a gentle heat for a few minutes, the blue changes to black, and the characters are then no longer destroyed by water.

Keeping at It.

It is a great mistake to suppose that the best work of the world is done by people of great strength and great opportunities. It is unquestionably an advantage to have both these things, but neither of them is a necessity to the man who has the spirit and the pluck to achieve great results. Some of the greatest work of our time has been done by men of physical feebleness. No man has left a more distinct impression of himself on this generation than Charles Darwin, and there have been few men who have had to struggle against such prostrating ill health. Darwin was rarely able to work long at a time. He accomplished his great work by having a single aim, and putting every ounce of his force and every hour of his time into the task which he had set before him. He never scattered his energy, he never wasted an hour, and by steadily keeping at it, in spite of continual ill health and of long intervals of semi-invalidism, he did a great work, and has left the impression upon the world of a man of extraordinary energy and working capacity. Success is rarely a matter of accident, always a matter of character. The reason why so many men fail is that so few men are willing to pay the price of self-denial and hard work which success exacts.—*The Christian Union.*

The Population of the United States.

The present estimated population of the United States is 64,000,000. The rate of increase, exclusive of immigration, is estimated at 1.8 per cent per annum—about 100,000 a month. By immigration the increase of population averages over 43,000 a month, or over half a million yearly. The aggregate annual growth from both causes will not fall much short of a million and three-quarters. The estimated foreign population is not far below 14,000,000.

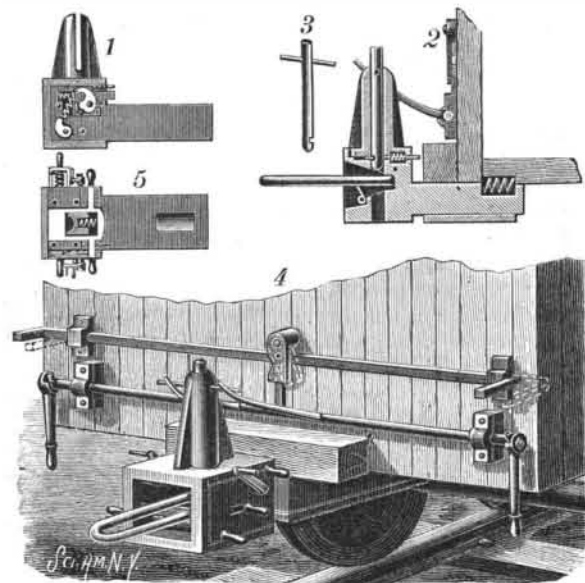
The Sources of Beautiful Colors.

The *American Druggist* has formulated a list of the choicest colors used in the arts, as follows:

The cochineal insects furnish a great many of the very fine colors. Among them are the gorgeous carmine, the crimson, scarlet carmine, and purple lakes. The cuttlefish gives the sepia. It is the inky fluid which the fish discharges in order to render the water opaque when attacked. Indian yellow comes from the camel. Ivory chips produce the ivory black and bone black. The exquisite Prussian blue is made by fusing horses' hoofs and other refuse animal matter with impure potassium carbonate. This color was discovered accidentally. Various lakes are derived from roots, barks, and gums. Blue black comes from the charcoal of the vine stalk. Lamp black is soot from certain resinous substances. Turkey red is mud from the madder plant, which grows in Hindostan. The yellow sap of a tree of Siam produces gamboge; the natives catch the sap in coconut shells. Raw sienna is the natural earth from the neighborhood of Sienna, Italy. Raw umber is also an earth found near Umbria and burnt. India ink is made from burnt camphor. The Chinese are the only manufacturers of this ink, and they will not reveal the secret of its manufacture. Mastic is made from the gum of the mastic tree, which grows in the Grecian Archipelago. Bister is the soot of wood ashes. Very little real ultramarine is found in the market. It is obtained from the precious lapis-lazuli, and commands a fabulous price. Chinese white is zinc, scarlet is iodide of mercury, and native vermilion is from the quicksilver ore called cinnabar.

AN IMPROVED CAR COUPLING.

A car coupling designed for use with a link and pin, and permitting an automatic coupling of two cars on a slight collision, while also adapted for the coupling of cars of different heights, is illustrated herewith, and has been patented by Mr. Vincent Nusly, of No. 718 Franklin Street, Sandusky, Ohio. Figs. 1 and 2 are sectional side elevations of the drawhead, Fig. 3 shows the coupling pin, Fig. 5 is a plan view of the drawhead with the top plate removed, and Fig. 4 is a perspective view of the improvement as applied. Supported by a suitable bearing in the bottom of the car is mounted to slide a bar on the front end of which is the drawhead, a spring holding the drawhead to permit a slight inward motion when two drawheads come together. In an offset on top of the drawhead the coupling pin is held to slide vertically, a notch in the lower end of the pin being engaged by a horizontal slide in the top of the drawhead, this slide having a rearward projection adapted to be engaged by a transverse beam on the front of the car, and having a projecting arm at each side of the drawhead for conveniently moving it by hand. A spring presses against the slide to hold it in engagement with the raised coupling pin until two drawheads come together, when the pin drops to engage the entering link. Near the upper end of the



NUSLY'S CAR COUPLING.

coupling pin are arms passing through vertical slots in the offset on the drawhead, the arms on the pin being adapted to be engaged by arms projecting from a shaft extending transversely on the front of the car, each outer end of this shaft having a lever by means of which the shaft may be turned to lift the coupling pin into its raised position. On this shaft is also fastened centrally an upwardly extending arm, adapted to be locked in place by a lock plate pivoted on the front of the car, and pivotally connected with a transverse rod, on each outer end of which is a handle for laterally moving the rod to disengage the lock plate, the locking of the arm holding the pin in its uppermost position when the cars come together, even if the slide is disengaged from the notch in the pin. In the drawhead is a link-raising mechanism, operated by handles at the side, whereby the link may be raised or lowered and held in the desired position to couple cars of different heights.