RECENTLY PATENTED INVENTIONS.

Apparatus for Special Purposes, AUTOMATIC SUCTION-PUMP OR VACU-UM-CHAMBER.-C. H. WETTLIN, Asbury Park, N. J. This apparatus removes obstructions in wator-pipes, but is otherwise applicable where sudden and powerful suction is required. The vacuum for producing suction is produced by decomposition and explosion of some substance supplied to the chamber of a drum or cylinder. The drum has a holder for the explosive substance, means for controlling its admission to the chamber, and electrical means for producing ignition of the substance, while within the chamber is a device for distributing it, so as to produce a more effective explosion and powerful vacuum.

CONCENTRATOR.-L. F. SCHOENEFELDT, Denver, Col. In this case the invention relates to improvements in machines for separating the values from dry crushed ores, dry gravel, dry sand, an object being to provide a concen trator operating by centrifugal action that shall be light, strong, and durable, easily operated, and while taking up a very little space will provide for a large output.

Heating and Lighting.

STOVE.-F. J. PIOCH, Creston, Iowa. Ef ficiency in heating and in ventilating the fire, and easy removal of ashes, are among the objects of this invention. There are no idle corners in this stove in which ashes and dirt may accumulate. Air passing all around the fire-pot obviates all danger of burning out the pot and the degree of heat given the air is so intense as to increase the efficiency of the stove to a marked extent.

Machines and Mechanical Devices.

TUBE OR ROLL FORMING MACHINE -C SURMANN and R. D. DOUGLAS. Fall River. Mass. Primarily the inventors have in view the production of a machine the sections whereof forming the mandrel will be capable of being readily moved toward or from each other, thus enabling the tube or roll at all times to have a positive bearing inside the same, yet when it is desired to remove the tube from the mandrel the latter's circumference may be decreased, whereby the roll may be easily slipped from the same.

Of Interest to Farmers.

HAY-KNIFE.-W. S. SHIPPY, Bayfield, Col. This knife is capable of being used by the hand or foot, or both if desired. The main feature only about six inches to feed and cut the whole dian beads. of its construction is that it needs to be raised length of the knife, while knives of similar Edmonds-Metzel Mfg. Co., Chicago. Contract manucharacter must be raised nearly, if not wholly, facturers of hardware specialties, dies, stampings, etc. their entire length to cut and feed properly.

CATTLE-STANCHION .- W. T. EDWARDS, Elkhorn, Wis. This improvement refers to stanchions employed for holding cattle while milking or for other purposes which require a certain number of cattle to be separated from a herd and held spaced apart by an engagement of their heads and necks with parts of the stanchions. The object is to provide details of construction for a stanchion which will adapt the device for holding cattle by their necks and permit release either individually or all at a time.

CORN-SHOCKER .- T. L. CREATH, Mount Sterling, Ohio. The invention relates to an apparatus intended principally for forming shocks of corn and depositing them in upright position in the field, the apparatus being attached directly to the harvester by which the corn is cut. It also relates to an arrangement of the harvester-frame, the draft apparatus being rearward of the front end of the harvester and the horses walking one at each side thereof.

Pertaining to Vehicles.

NECK-YOKE ATTACHMENT .-- D. N. LUSE Carroll, Iowa. By the construction of this at-tachment the yoke can swing freely to the front and rear and can turn at its center upon the swinging bar, giving freedom of movement to the yoke and properly supporting the front end of the pole. The yoke is so connected with the pole that the invention avoids any projection of the pole beyond the neck-yoke connection, obviating difficulties resulting from the catching of checkreins over the pole ends and

of a locking device, which forms an impor-tant part of the invention. This garment.supporting device is exceedingly simple in its construction and positive in its operation, while embodying the essential features of cheapness and convenience.

HATCH-COVER FOR MARINE VESSELS. -W. W. DAWLEY, Geneva, Ohio. In modern vessels hatches are made so heavy as to render their movement very laborious. Mr. Dawley seeks to overcome this disadvantage by employing a carrying wheel or wheels for the hatch-cover, and means for raising the cover on or lowering it from the support of the The cover may be lowered down on wheels. the hatch to close it, and to uncover the hatch the cover is raised until supported by

NOTE.-Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

Business and Personal Wants.

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Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 4993.-Wanted manufacturers to negotiate for manufacturing on large scale an auto-matic fence gate; has its own post and all of steel.

"U. S." Metal Polish. Indianapolis. Samples free. Inquiry No. 4994.—For manufacturers of dry placer machinery in Los Angeles, Cal.

AUTOS.-Duryea Power Co., Reading, Pa.

Inquiry No. 4995.—For manufacturers and pro-noters of suburban electric railways.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., bagrin Falls, O.

Inquiry No. 4996.—For dealers in new and second-band boilers and engines of 34 to 5 h. p., suitable for small launch. For logging engines. J. S. Mundy, Newark, N. J.

Inquiry No. 4997.-For machines for weaving wire and wood picket fencing.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 4998. -For quotations on 100 and 1,000 of a cheap grade of compressible rubber bulbs, with 1 foot of % rubber hose attached, such as used on atom-izers.

American inventions negotiated in Europe. Felix Hamburger, Equitable Building, Berlin, Germany.

Inquiry No. 5000.-For dry placer washers for gold mining.

Spring Streets, N. Y.

Inquiry No. 5001.-For manufacturers of broom machinery. Send for new and complete catalogue of Scientific

and other Books for sale by Munn & Co., 361 Broadway New York. Free on application Inquiry No. 5002.-For manufacturers of the cotton carding machine."

The largest manufacturer in the world of merry-go-

ounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker, Abilene, Kan.

Inquiry No. 5003. -For makers of machinery for utting wires in shipping tags, also firms making these tags. Empire Brass Works, 106 E. 129th Street, New York.

N. Y., have exceptional facilities formanufacuring any article requiring machine shop and plating room,

Inquiry No, 5004.-For machinery for a steam laundry.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Ma. cbine Company. Foct of East 138th Street, New York." Inquiry No. 5005 .- For manufacturers of wire

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machine ery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 5006.—For the manufacturers of the Star magnifying paper weight.

Wanted-Revolutionary Documents, Autograph Let ters, Journals, Prints, Washington Portraits, Early American Illustrated Magazines, Early Patents signed by Presidents of the United States. Valentine's

Manuals of the early 40's. Correspondence solicited. Address C. A. M., Box 773, New York. Inquiry No. 5007.-For parties to



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. Beforences to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

hatch the cover is raised until supported by the carrying-wheels, and the cover and wheels run slong the deck until the hatch is quite un-covered.

the same.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of

price. Minerals sent for examination should be distinctly marked or labeled.

(9286) F. B. asks: You no doubt READ THIS COLUMN CAREFULLY.-You have been asked the question regarding the will find inquiries for certain classes of articles numbered in consecutive order. If you mannifacture these goods write us at once and we will the opposite side of the tree from the man as send you the name and address of the party desire the walks around the tree. Does the man walk around the squirrel? It seems to me a foolish around the squirrel? It seems to me a foolish question, but I would like your answer to settle question, but I would like your answer to settle a dispute. A. We have answered the man-andsquirrel question so many times, in our columns, that we supposed every one had seen it. If a man walks around a tree he also walks around everything upon that tree whether it is in motion or at rest upon the tree. This seems so plain that there need be no question of its correctness. Any other conclusion seems to us entirely absurd and illogical.

> (9287) M. D. P. asks: Will you kindly Au let me know through your valuable paper if Au No. 30 or 31 (Brown & Sharpe's) gage soft copper wire will work on an induction coil described in SUPPLEMENT No. 160; if not, what size will I have to use? A. The description of the coil in SUPPLEMENT No. 160 states that No. 36 wire should be used in the secondary winding. We should now advise that it be silk covered rather than bare wire as was used in the original coil. The practice has changed since that paper was published. It is a long time since the paper was published and many changes have been made in the construction of coils. The extensive demand for X-ray and wireless telegraphic apparatus has required many thousands of coils.

(9288) E. B. W. asks: I wish to know if iron, steel or copper plates will deteriorate Bic when in contact with mercury, and if so, under For Machine Tools of every description and for Ex-, what conditions and in what way? A. Iron perimental Work call upon Garvin's, 149 Varick, cor. and steel do not amalgamate with mercury and are not affected by contact with it. Copper Boi is slowly amalgamated by mercury and after a short time would be reduced to a paste by Bol Bol Boc Boc contact with mercury if the mercury were in quantity sufficient to do this.

(9289) J. and M. W. ask: Do you know of any means whereby we can obviate the difficulty which we have of late, or since cold weather set in, experienced through the paper being surcharged with electricity in running off the edition of our paper on a perfecting press? It has been represented to us that to place a coating of paraffine on the iron rollers over which the paper passes would afford relief. Do you know as to the probable virtue of such an expedient? Or can you suggest any other way in which we may remedy the evil? A. We think you will find more relief from electricity in your printing paper by use of moisture than by paraffine, which is an insulator and would not conduct the electricity off as you wish. Spraying the rolls is the method in many offices. Steam in the air of the room might produce relief. Trouble from this source is common and we have never known any complete preventive.

(9290) J. A. M. asks: What is the meaning of the occurrence of the sparks of the ocean water when in contact with hand at night? By what means so much ocean water is salted and what parts is the salt formed of? A certain article says radium turns into Саг helium; is helium electricity? A. The light

Helium is not electricity, but a gas which has been known for a good many years.

(9291) C. H. M. asks: 1. How is carborundum made? A. Carborundum is made by heating carbon and silica in an electric furnace till they combine chemically into carbide of silicon. There are numerous details, but the essential step in the process is the chemical combination of the carbon and the silicon. 2. Could you tell me how the capacity of a copper wire of an electric current is calculated by allowing 400 circular mils per ampere? A. A "mil" by which wires are rated is one thousandth of an inch. A circular mil is the square of a mil. Thus a wire whose diamcter is 10 mils will contain 100 circular mils, and at 400 circular mils per ampere may carry one-quarter of an ampere. 3. How would I determine the capacity of a copper wire by the number, B. & S. gage? What is meant by circular mils? A. A copper wire table usually gives the diameter of each size of wire in mils and in the next column the number of circular mils. Thus No. 10 B. & S. wire is 101.89 mils in diameter and contains 10,381 circular mils, which is the square of the diameter in mils.



AND EACH BEARING THAT DATE 1 See

| [See note at end of list about copies of these patents | B.] |
|--|------------|
| Acid. acetyl para cresotinic. B. R. Seifert., 749.6 | 34 |
| Adding machine, L. Cerf | 73 41 |
| Acid, acetyl para cresotinic, B. R. Seifert. 749.6 Adding machine, L. Cerf | 10 |
| feed for, Jones & Swanstrom | 12 |
| Beemer | 57 28 |
| Automobile flue shield and lamp support | |
| combined, L. C. Savale | 92 |
| mechanism for, C. C. Riotte | 80 91 |
| Axle box dust guard, car, E. E. Sager, et al. 749,3 | 27 |
| Axle boxing, vehicle, G. W. Davis | 73 31 |
| Bag frame handle, B. vom Eigen 749,4 | 32 |
| feed for, Jones & Swanstrom | 25 |
| 749,424, 749,43 Bags, etc., suspending attachment for game, G. F. Clarke Baking powder, G. L. Teller | 61 |
| Baking powder, G. L. Teller | 43 |
| heads of hay, H. P. Wilson | 48 |
| Ball and socket fastener, M. Sternwerg 749,5 Barrow wheel, C. E. Knoch | 59 66 |
| Basin, catch, W. Aylward, Jr 749,1 Bath, See Film bath | 1 8 |
| Battery tanks or cells, skeleton frame for | |
| Bearing, combination ball and roller, H. V. | 99 |
| Hillcoat | 92 07 |
| Bell, electric, H. E. Dey | 65 57 |
| Bicycle with rowing attachment, S. L. | -0 |
| Batchelor | 53 82 |
| Blind fitting, window, E. C. Harris | 30 1 |
| Boat, A. Viert | 12 |
| Boiler tubes or staybolts, fastening for | 14 |
| Barrow wheel, C. E. Knoch | 10 93 |
| Bolt holding implement, J. S. Scott | 54 |
| Bookcase, Cree & Dickson | 64 |
| Bottle, non-refilable, H. Haln | 58 35 |
| Bottle, non-refillable, E. C. Luks | 70 34 |
| Bottle stopper, J. A. Jones | 35 |
| Box-making machine, W. H. Butler 749,3 | 59 59 |
| Bracelet or other ornament, W. F. Simon 749,58 Bracket, J. Gardner | 37 70 |
| Braiding machine racer, C. W. Hassler 749,23 |)Ö |
| M. Corrington | 2 |
| Brake beam, R. P. Lamont | 57 01 |
| Brake mechanism, automatic fluid pressure, | 33 |
| Brick cut-off table, W. H. Beltz 749,35 | 54 |
| Brooder, C. E. Adair | 31 |
| Brush, combined hat and clothes, C. Lash- lie | 39 |
| Bucket, clam-shell, S. Swedenborg, reissue 12,19 Bucket, C. F. Smith | 21 |
| Butter, testing, M. Vogtherr | 13 |
| Calculating machine, D. E. Felt | 17 |
| Calendar, B. Rosenfeld | 27 28 |
| Bolt holder, Steiner & Hall. 749,44 Book holder, Steiner & Hall. 749,44 Book holder, Steiner & Hall. 749,44 Book holder, Steiner & Hall. 749,24 Book holder, Steiner & Hall. 749,24 Book holder, Steiner & Hall. 749,24 Bootk holder, Steiner & Hall. 749,24 Bottle, non-refillable, H. Kahlmus. 749,35 Bottle, non-refillable, E. C. Luks. 749,66 Bottle stopper, J. A. Jones. 749,64 Borneking machine, W. H. Butler. 749,67 Bracket, J. Gardner. 749,66 Brakelet, J. Gardner. 749,67 Brake bock shoe, M. Potter. 749,74 Brake block shoe, M. Potter. 749,74 Brake block shoe, M. Potter. 749,74 Brake block shoe, M. Potter. 749,74 Brooder, C. E. Adair. 749,33 Brush, combined hat and clothes, C. Lash- 749,33 Bucket, clam-shell, S. Swedenborg, reissue 12,11 800,49,33 Bucket, clam-shell, S. Swedenborg, reissue 12,11 800,49,49,33 Bucket, clam-shell, S. Swedenborg, reissue 12,11 800,44,94,94 Bucket, clam-shell, S. Swedenborg, reissue 12,11 < | 24 |
| Can, J. J. Shanion | 1 |
| Can opener, C. A. Ford | |
| Car brake, Copeland & Montague | 59 |
| Car, convertible, M. Power | 16 |
| Car coupling, E. C. Washburn749,344, 749,34 Car draft connection, railway, C. S. Payne 749,44 | ю 17 |
| Car coupling, H. E. Welsh | |
| Car side bearing, railway, C. F. Huntoon, | |
| reissue 12,1 Carbon articles, making, E. G. Acheson 749,41 Carbureting device, explosive engine L. P. | 13 18 |
| Larnureting device, explosive engine, L. P. | |

68

| the interference by the project | | Inquiry No. 5007,-For parties to manufacture, | nenum; is nenum electricity? A. The light | |
|---------------------------------|----------------------|---|--|---|
| pole striking animals, end-gat | es, etc. It can long | quantities, a flat, indelible pencil about 3¼ inches ng when inclosed in a nickel-plated metal case, and | seen in the ocean, when the water is stirred, | Carburgeting device, explosive engine, L. P. |
| be employed upon carriages | | | at certain times of the year is due to the | Mooers |
| | or wagons or | Inquiry No. 5008 For partice on go ged in reiging | presence of numerous tiny, microscopic ani- | Card feeding machine, D. H. Waters 749,649 |
| any other implement-tongue. | sku | unks. | | Carpet stretcher, J. M. Brown |
| WIIEELJ. B. MCMULLEN, | Howard County | | | Cart, dumping, J. Hovas |
| Md. Mr. McMullen's inventio | | atber washers 3% inch inside and 9-16 outside. | enormous numbers. They are like jelly fish, | Centering machine controller or stop bar. L. |
| ment in wheels, and particular | | | and shine as the firefly shines on the land. | H. Vold 749,243 |
| , 1 | | Inquiry No. 5010.—For manufacturers of chain ders. | The name "phosphorescence" is given to it. | Centering mechanism, J. S. Bancroft 749,149 |
| tire wheels, and has for its ob | jeet to provide a | | Saltness of the ocean water is produced | Centrifugal machine, M. de Marcheville 749,623 |
| novel construction of devices | for securing the | uging machines and tools for making the reeds for | by the constant emptying of the rivers of the | Chair head rest, shaving, C. E. Haege 749,184 |
| tire and for operating the secu | ring devices. It sam | | | Checking or unchecking device, A. E. Fisher 749,480 |
| comprises means to forcibly | anarata tha sidu | · · · · · · · · · · · · · · · · · · · | earth into the ocean, while the only escape of | Checking the output of machinery, ap- |
| plate into and out of engag | | Inquiry No. 501 2.—For manufacturers of amov- | water from the ocean is by evaporation and | paratus for, L. Lenot |
| | | aft, made in several sections and telescopes, so that | the evaporated water is fresh. The rivers | Chopping device, H. Breitstein |
| wheel by a simple appliance, | | e saw can make several cuts from a tree or log at one | carry down continually a minute proportion of | Clock, electric striking, W. Olson |
| applied to and removed from | n the wheel at sett | ting. | salt in their water, soaked out of the soils. | Closure, E. E. Chapman |
| pleasure. | | Inquiry No. 5013 For makers of gage wire | | Clothes-line fastener, C. F. Smith |
| | stit | itching or stapling machines. | | Clothes pin, A. Smith |
| | I | Inquiry No. 5014For makers of machines for | his salt has accumulated sufficiently to pro- | Wright |
| Miscellaneou | | aking shot. | duce the present saltness of the sea water. | Coal carrying vessel or bag, manual, N. R. |
| HOSE-SUPPORTER.—FRAM | | | Inland lakes without outlets are also salt, | Marshman |
| ALD, Box 399, Chicago, 12. In | carrying out the cem | ment bricks, of capacity of 5.000 bricks daily. | such, for example, as the Great Salt Lake in | Coal, depository for, Mackrow & Cameron. 749,207 Coat hanger, R. Eyres |
| present improvement the inv | ventor has par. In | Inquiry No. 5016For makers of drop forgings | Utah, and the Sea of Azof, while the great | Coffee treating machine, T. R. Timby 749,340 |
| ticularly in view the provisi | for for | r dental forceps. | lakes north of the United States are fresh. | Collapsible tube and spreader, combined, |
| | n notain the up I | Inquiry No. 5017For dealers in Indian seed | | C. L. Huddle |
| which will firmly and securel | beau | ada and all alassos of fanar aliza snar ist near aud | | Collar clasp, J. Clement |
| per edge of the stocking thro | ugh the medium Ven | enetian beads, at wholesale. | rence River, and salt does not accumulate, | Colter, N. W. Traviss |
| | - | I | • | |