# Scientific American.

# JULY 13, 1867

#### THE PARIS EXPOSITION --- OFFICIAL LIST OF THE AWARDS TO AMERICAN EXHIBITORS.

The following is an official list of awards to Americans by the committees of the Grand Exposition, as sent by the Atlantic Telegraph. Of course it may be expected that some errors have occurred in its transmission. The names are given in the order in which the report will be made.

#### GRAND PRIZES.

M. Chapin, Lawrence, Mass-Well-(Cyrus W. Field, N. Y.-Fromoter of conducted Factory. Prof. Hughes, Kentucky-Printing Dr. F. W. Evans, Paris-Samtary Col-felegraph. GOLD MEDALS.

GOLD MEDALS. GOLD MEDALS. Corliss Steam Engine Co., Providence, Chickering & Sous, N. Y. and Boston -Planos. S. White, Philadelphia-Artificial H. W. Abirtidge, N. Y.-Minerals from Idaho J. P. Whitey, Boston-Minerals from Colerado. Colorado. Cottoa. SilLVEE MEDALS.

SILVER MEDALS.

Montague & Carlos Louisiana-Mosses.
Montague & Carlos Louisiana-Mosses.
Catawba Wines.
Rozzens. N. Y.-Cigars from C. Butler, Cincinnati-Catawba Wines.
Pleasant Valley Wine Co. and F. S.
Pleasant Valley Wine Co. and F. S.
Pleasant Valley Wine Co. and F. S.
Cozzens, N. Y.-Wathing Ma.
Metroporitus Co., N. Y.-Washing Ma.
Brandon Kaohn and Paint Co., Brandon, Kaohn and Paint Co., Brandon, V.-Sperintens of Paint.
J. Ward & Co., N. Y.-Washing Ma.
Brandon, Boston-Baking Machine.
Stenhenson & Son, N. Y.-Horse Cars.
Ghas Wellwan, N. Y.-Sadiles.
Portland Packing Co.-Canned Food.

THE ENGINEER says :-

"Although our Brother Jonathan, impeded by the great distance which his wares have had to travel, has sent but a very small quota to Paris, he has made an admirable selection in what he has sent. We doubt if any nation in proportion to the amount of its exhibit, shows more elaborately and really well-finished workmanship, and certainly none has the imprint of vigorous inventive genius more clearly marked on its productions. Almost every machine and engine exhibited in the main gallery by the United States, has some special peculiarity stamped upon it which, whether it be really an invention or improvement, or only a questionable modification, at least shows the ex traordinary activity of North American thought."

As a commentary on the above, we may add a report from Commissioner Beckwith to the Department of State, showing that of the 524 United States exhibitors at Paris, 262, or exactly one-half, received honorable awards. These awards include 4 grand prizes, 17 gold medals, 52 silver medals, 103 bronze medals, and honorable mention of 79 exhibitors.

#### Exposition Notes,

SHAW'S HOT-AIR ENGINE of 20-horse power, exhibited in an annexe or shed of its own in the park, continues to work regularly, and to attract a good deal of attention. An indicator has been fitted, and diagrams have been taken which show that the engine performs well relatively with the fuel consumed a promising result in a new engine so widely removed in all essential pointsfrom engines of the usual character.

ONE of the most valuable institutions of Paris is the asphalte with which the footpaths and roads are made. The London asphalte, whether for footways or roadways, has been a complete failure, whereas the Parisian is a most eminent success-a result not imputable to the nature of the traffic so much as to the nature of the composition. The asphalte used for the footways after being heated very hot by a fire applied to a cylindrical vessel, with trunnions at the ends, so that it may be tilted and the contents poured out at a large square bung-hole by rotating it by a worm-wheel upon the trunnions, is emptied into buckets, and is spread by hot irons. Whereas that used for the roads is a brown powder consolidated by hot iron rammers, and the surface is smoothed by hot irons, and is finally rolled by a heavy iron roller. The as phalte thus laid is durable, the traction upon it nearly as easy as upon a railway, and one material benefit is that there is hardly any noise.

WRARE informed that a trial is shortly to take place between French and English guns against French and English armor-plate targets. At this com petition, unless the present rules be relaxed, no naval or military officer be longing to either country, with the exception of such as may be nominated jurors for the contest, nor any representative of the press, will be admitted It is to be hoped, however, that such an absurd rule will be rescinded, and that the public will be permitted to enjoy an equal opportunity of judging for themselves the results of such a contest as is afforded in the case of all other competitive tests of articles or machines in the Exhibition which require such proofs in order to ascertain conclusively their relative merits and advantages.-Engineering.

A FRENCH CHEMICAL PRINTING MACHINE is exhibited, printing manifold through prepared paper, without ink, in red or black, and bringing the types into operation by means of keys, with great rapidity. According to the London Printers' Register, the specimen on exhibition contains one hundred and forty five letters in seven different kinds of types and two colors-red and black—composed, and one hundred copies printed, all in three minutes. The printing was done in thirty two seconds, and the machines appear to be chiefly intended for cards and bills, letter heads, etc. The colors are good and well printcd.

Among the carriages are two droska those uncomfortable Russian backney carriages in which the driver and his "fares" sit in single file astride a longitudinal bench supported on four small wheels.

THE ONLY artillery exhibited in the American court is a Gatling's and a Ferris gun, the latter of which is a polygrooved rified breech-loader, throw-ing a ball of 3-lb. weight with a charge of 24 oz. of powder. By the side of this gup is a small piece of iron plate 3-in. in thickness, composed of three 1 in plates bolted together, and through which are several perforations made by shot firedfrom the gun at 50 yards distance. The total range of this gun, at an elevation of 35 degrees, is stated to be nine miles.

### Editorial Summary.

THE HYDRO-PNEUMATIC HOIST, recently patented in England, is an appa ratus in which the chain, with a hoisting cage at each end, passes over two sheaves, so that each cage ascends while the other descends, The power is applied through the medium, alternately, of the weight and buoyancy of a bell-shaped counterweight moving like a piston in a vertical pipe filled with water. The weight being adjusted so as in descending to lift the load of one cage, (the cage itself being balanced by the other and descending cage), on reaching the bottom of the pipe, it is pumped full of air, its capacity being also so adjusted that its buoyancy when filled with air shall be sufficient to lift the load of the other cage. The mode of braking, 18 by gradually con tracting the space for the passage of the water between the sides of the pipe and the bell-shaped weight. The weight can be so geared as to lift the load through twice the distance travelled by the weight.

IRON ETC.-A co-operative foundry has been established in Rochester. The organization has purchased the Novelty Works, for the sum of \$30,000.-Shepard Iron Works, of Buffalo, have recently built an engine for the City Water Works, cost \$40,000, beams, 22 feet long, fly wheel 24 feet in diameter. and 40 tuns in weight.—The Arms Company, of Newburyport, are manu-facturing machines for carving wood, marble, stone and copper.—The

OzonE.-In another column we publish a notice of an English Patent, is sued sometime since, for decolorising sugar by means of ozone. The gener ator employed for this purpose consists of a number of flat sheets of glass, coated with tin-foil, and piled one on the other, but slightly separated. Each plate represents a Loydenjar, and when the whole number are electrified, a stream of air forced through from one end to the other becomes so strongly ozonised that breathing it is painful and dangerous. The stream of ozonised air thus produced can be used for bleaching and other chemical pur-DOSES.

A PORTABLE COMPRESSED ATMOSPHERE, similar to Galibert's, is carried by the divers of the American Submarine Company, dispensing with all communication with the general atmosphere, both for the sustenance of life and of combustion within their lamps. The compressed air in the reservoir is also, by turning a cock, allowed to expandinto and distend a pair of floats attached to the diving dress, by which the diver can ascend to the surface and float, head and shoulders out of water. A charge of air will last under water aboutfour hours.

\* EXPERIMENTS have proved that if magnesium riband is pressed broader and thinner, and by this means made to present a larger surface to the oxygen of the atmospherefor the same weight of metal, it burns much more steadily and surely.

# BUSINESS AND MANUFACTURING ITEMS.

RAILROADS, ETC.-The Boston, Hartford and Erie Railroad, Co. intend to establish coal deposits at all the stations on their road, from which residents in the vicinity can procure their supplies at moderate prices. -The Western Railroad is altering its heavy freight engines to coal burners, at its shops in Springfield.-Dull & Gowan, the new controctors on the Hoosac tunnel. will immediately put on a force of 200 men, so that the work will be carried on night and day. They will also sink two shafts, that the excavations may be made from six faces at the same time.—New Haven has voted, 3,256 to 473, to subscribe \$200,000 to the capital stock of the New Haven and Derby Railroad.—The Chicago, Rock Island & Pacific Railroad Company has been mortgaged to John A. Stewart and Wm. H. Osborn, of New York, for the sum of nine million dollars. The revenue stamps amounted to ning thousand dollars.---The land telegraph from Gainesville, Florida, to Punta Rosa, and which will there connect with the marine cable to Cuba, is finished. The line, 275 miles long, was built in 37½ days. It will be connected with the Western Union Line at Lake City, Florida, and a line will be built to connect that place with Savannah and Georgia. The submarine cableto Cuba will be laid in July.—A compa y of Eastern iron manufacturers have gone on an excursion to the mining regions in South East Missouri. They propose to furnish \$800,000, if the people of St. Josephs will subscribe \$3\$0,000, and finish the St. Josephs & Council Bluff's Railroad by January next.-The work on the Chicago tunnel has been stopped by the caving in years, is excited by high competition for freight and passengers. The Athens " cut off," a new branch built by the Central Railroad Company, from Schenectady to Athens, on the Hudson, was opened in May for passenger traffic. the magnificent palace steamers Drew and Dean R chmond of the People's Line, running in connection with the trains. The same concern continue to runtheir Albany boats as usual, but the Troyline, consisting of the Connecticut and Hero, wages an old fashioned opposition and has knocked down the fare, step by step, to fifty cents from New York to Troy. In freight, the Hudson River Railroad endeavors to head off the Athens "cut off," by reductions in rates, but the steamers have the cheaper highway.----A new way to use steam on canals without agitating the water, is under trial at Buffalo, with a view to the formation of a company to apply the plan throughout the Erie a drum worked by steam on the deck of the vessel, which is thus quictly propelled .- Bergen Cut, between Jersey City and Newark, is to be laid with steel rails; preceding trials having satisfied the company of the economy of the change, which will probably be carried gradually throughout the line to Philadelphia.---The Summit Tunnel, on the Pacific Railroad, is progressing at the rate of sixty feet a week, at four points, and at this rate will be completed by the middle of August.

MISCELLANEOUS.-About 200,000 quarts of strawberries are brought to New York every day from New Jersey and other places South. The sales of strawberries at Vineland amount to \$2,000 per day. A farmer near Salem, Ill., sold his strawberry crop of forty acres, to parties in Chicago, a few days ago, for \$50,000 .- The editor of the California Farmer acknowledges a present of a lot of large and delicious oranges from a tree which had 464 oranges on it on the 18th of January, and has 100 left, while its top is covered with the blossoms of another crop.—Ths Peruvian Government contracts with a firm in Philadelphiafor 1,200,000 bags a year for packing guano.—The Internal Revenue Department in the first sixty days of the vigorous enforcement of the new whisky law condemned 9.300 gallons of whicky, besides about 250,000 gallons under seizure. Western farmers are crowding their grain to market. In Delaware county, Iowa, the price of wheat fell within afew weeks from \$2 26 to \$1 50. - The Chicago City Directory this year, about to be published, contains 89,103 names, being an increase of 12,889 over the number contained in the Directory of last year. The rule in cities, to ascertain the total population, is to allow three persons to every name enumerated in the Directory. According to this rule Chicago now has a population of 267,399.-Forty steamboats bound for Fort Benton, Montana, laden with a hundred and twenty thousand tuns of freight, have passed Sioux City, Iowa, this season .- The annual report of the Merrimac Manufacturing Company shows dividends to the amount of 25 per cent, a reserve fund of \$515,079 61, and stock on hand \$541,248.—During May the aggregate losses in the United States, caused by fire, each involving a loss of at least \$20,000, were \$2,120,000. The aggregate losses during this year, thus far, have been \$16,528,000. From 1859 to 1864 inclusive, the average losses by fire in the United States were about eighteen millions of dollars per annum, while in 1865 they rose to \$43 000,000, and in 1866 to \$100,000,000. It is supposed that \$50,000,000 insurance was paid during the last year for incendiary fires.-Most of the silk manufacturers of New Jersev return no incomes, and the cotton profits are returned very much reduced. At the Clover Hill coal mines, in Virginia, the fire has been extinguished, and the preparations to resume work are being made rapidly-The Liverpool Albion says that negotiations are pending for the formation of a new and influential company, with a large capital to run the *Great Eastern* between New York and Brest, in connection with the Paris Exhibition, as it is believed, despite the failure of the first company, there are elements of success in the undertakl

ing.

W. A. Wood, Hoosick Falls, N. Y.-' Mowing Machines.
SILVER MEDALS.
Fred. E. Church, N. Y.-Oll Painting, G. J. Wardwell, Pontney, Vt.-Stone Channeling and Quarrying Machines.
Mason & Hamlin, N. Y.-Organs.
J. K. Barnes, Surreon-General, U. S. Collins & Co., N. Y.-Standard tronomical Instruments and Chro-nometers.
B. B. Toiles, 'anastota, N. Y.-Micro-scope and Telescope Glasses, Eye-pieces and Telescope.
Win. Wales, Fort Lee, N. J.-Micro-scope and Telescope.
Win. Wales, Fort Lee, N. J.-Micro-recopt Object Glasses.
J. R. Brown & Sharpe, Providence, R. I. Collescope Glasses, Eye-pieces and Telescope.
Win. Wales, Fort Lee, N. J.-Micro-scope and Telescope.
Win. Wales, Fort Lee, N. J.-Micro-recopt Object Glasses.
J. R. Brown & Sharpe, Providence, R. Collescope Glasses, Eye-pieces and Shores.
Collescope Glasses, Eye-pieces etc.
J. Hays, Boston.-Series of Woolen Fabrice
Colles and Shores.
Colles Acton.Sons, Illion, N. Y.-Sewing machine Co., N. Y.-Stetter J. Mintery, Minchedon, Mass.-Wood working machines.
Sepencer Rife Co. Boston.-Spencer Arms.
Sepencer Rife Co. Boston.-Spencer Arms.
Sepencer Rife Co. Boston.-Spencer Arms.
Sepencer Rife Co. Boston.-Coffee. Park Brotherals.
Sepencer Rife Co., Pittaburgh, Par-Edge Tools, F. S. Prase, Buffalo, N. Y.-Olis. Gratton & Co., Sitelana-Corton. A. Delpit & Co., New Orleans.-To-balla Hams.
Cal-Winerals.
Seno XZE MEDALS.
Dapteon & Co., N. Y.-Books.
Br BRONZE MEDALS.

M. F. Murphy & Sons, Fhiladelphia-Blank Books, erican Lead Pencilco., N.Y.-Lead Dencils.
G. Bay, Seymour, Conn.-Invisibit Lead Pencils.
Schrichtle & Co., N.Y.-Gold Pens Sigismund Beer, N.Y.-Gold Pens Schreiber CornetMan. Co., N.Y-Baibon Hand stamp.
Schreiber CornetMan. Co., N.Y-Bayson Instruments.
E. D. Hudson, N. Y.-Artificial Limbs.
E. D. Hudson, N. Y.-Artificial Limbs.
E. D. Hudson, N. Y.-Artificial Limbs.
Johnson & Lund, Philadelphia-Artificial Teeth.
Miton Barlow, Midway, Ky-Plane Johnson, N. Y.-Family Atlas.
J. Johnson, N. Y.-Finliy Atlas.
J. Johnson, N. Y.-Stiver Ware.
W. H. Townsend, N. Y.-Oil-cloth.
Tiffany & Co., N. Pitzsburgh-Glass Ware.
W. H. Townsend, N. Y.-Oil-cloth.
Tiffany & Co., Philrdelphia-Perform Stoves.
W. Hownsond, N. Y.-Bilver Ware.
W. H. Townsend, N. Y.-Oil-cloth.
The Hadjer Go., Molipoke, Mass-Ostothor.
K. Starer & Sons, Webster, Mass-Cotton.
K. Starer & Sons, Philadelphia-Frient.
Starer & Sons, Philadelphia-Perform Cottam.
Sing Cons, Philadelphia-Perform Stare & Sons, Philadelphia-Perform Cottam.
Sing Rober, Mass-Cottom.
M. Starsburg & Co., N. Y.-Beaver Mission Robers, Philadelphia-Steam drill Bankets, flannels, &c.
F. Starket & Sons, Philadelphia-Steam drill Bankets, flannels, &c.
F. Starket & Co., Philadelphia-Steam drill machine.
Perere Cord, Moline, IL-Steet Plow Irons.
M. G. Perry, Kingston, R. I.-Mowing machine.
H. Goodell, Antrim, N. Y.-Apple
H. Goodell, Antrim, N. Y.-Apple
H. Goodell, Antrim, N. Y.-Apple
Paret & Sensine & Sons, Thiladelphia-Steam drill Wenging machine.
M. Humphres, Louisan-Perriptic, Markets, Bankets, Ba

BRONZE MEDALS. D. Appleton & Co., NY-Books. Mass-Books. & C. Merriam, Springfield, Mass-webster's Dictionary. Automatic Boller Feeder Co., Phila-delphia-Bolier Feeder. W. F. Murphy & Sons, Philadelphia-Paper. W. F. Murphy & Sons, Philadelphia-Blank Books, erican Lead PencilCo., N.Y.-Lead Brank Books, erican Lead PencilCo., N.Y.-Lead Machine. Blank Books, erican Lead PencilCo., N.Y.-Lead Brank Books, Brank Books, erican Lead PencilCo., N.Y.-Lead Brank Books, Brank Books, erican Lead PencilCo., N.Y.-Lead Brank Brank Books, erican Lead PencilCo., N.Y.-Lead Brank B

Herring, Farrel & Sherman, N. Y	1 Tovidence 1001 Company have contracted to furnish the Swiss Government	
Haaglen & Graffin, Dayton, Ohio-To- Fireproof Safes.	with 15,000 Peabody rifles and to alter 44,000 muzzle-loading muskets to	
W & D. Douglas, Middletown, Conn-Brown & Level, N. Y-Model Tackle.	breech-loaders.—The rolling mills recently started at Portland have or- ders for six months ahead. They turn out about 1,000 tuns of railroad iron	
Howe Scale Co. N. Y Scales. ton, D. C Cereals of the U. S.	permonth, one-half of which is taken by the Grand Trunk Railroad Com-	Dater this heading we shall publish weekly notes of some of the more promi-
L. H. Olmstead, Stamford, CtFric State Ohio-Cereals.	pany.	nent home and foreign patents.
T. R. ricker ng. N. YGovernor of State Kansas-Cereals.		CASE FOR HOLDING PRESERVED MEAT AND OTHER SUBSTANCES E.C.
Steam Engines. W.S. Carpenter, Westchester U., N.	A STEEL SCREW PROPELLER, one of the first we believe of any consider-	
J. B. Root, Boston-S eam Engine. YCorn. P. H. & r. M. Roots, Connersville, Ind. McPherson & Donald Smith, N. Y	able size, his been cast by Messrs, Naylor, Vickers & Co., of Sheffield, and is	Dawson. October 12, 1866.—Inperforming this invention the case is composed of wood, and is lined with plaster of Paris, so as to protect the preserved
-Rotary Blower. Ales.	really a very fine piece of work considering that it is a first attempt. The screw is three-bladed, 10ft. 2in. diameter, and 21ft. pitch, and weighs i ton 18	
Shaw Union Air Engine Co., Boston] Hot Air Engines.	cwt.3 grs.; a cast iron propeller of the same dimensions on the sister boat	meat of other substance from the action of the air. After the preverved meat or other substance has been packed in the case, a covering of paper,
HONORABLE MENTION.	Leeds, weighing 2 tons 12 cwt. 2 qrs.; representing 13 cwt. 3 qrs. in favor of	
C. K. Landis, Vineland, N. J Model Bray & Hays, Boston-Preserved Food.	steel. The steel screw might have been lighter, but Mr. Bretelle, chief of	substance, and a coating of plaster of Paris, in a state of suitable consistency,
Farms. Willard & Co., N. YObjectives.	the marine department of the company, for whom it was made, feared to re-	is spread over such covering and allowed to set. The lid of the case is then
Wm. Selpho & Co., N. Y Ar incla Uail Border, Jr., N.YExtract of Beef.	duce the proportions too much in the absence of further experience.	fastened down in the usual manner.
Limbs. Robert Bates, Philadelphia—Instru. Oneida Community, Oneida, N. Y		PIPE FOR HOLDING AND SMOKING CIGARS AND TOBACCOW. Grune. Oct.
ment to Cure Stammering. J. Wettendever, Baltimore, MdPre-	HYDRAULIC PROPULSION.—It is more than likely that the system of propell-	12, 1866. Having discovered that the ammonia vapors evolved when tobacco
George Davidson, Washington, D. C	ingby means of centrifugal pumps will prove very successful in its applica-	or cigars are smoked, are capable of reproducing or re-developing silvered
Peter Glass Boston-Mosaic Inlaid G. Sabatier, Louisiana-Sugar.	tion to canal boats. The North Moor Foundery Company are now engaged	photographs on paper, discolored or bleached with chloride of mercury, the
(enter Table. G. W. Chipman, Boston-Carpetings, Vinicultural Society, California-	in executing an order for fourteen boats, each about 40 tuns burden, the	inventor has contrived cigar or tobacco holders which will hold the papers
Howell Bro hers, Philadelphia-Paper Wines.	whole of which are to be propelled on the above system.	so that when the smoke is drawn inwards the ammonia vapors will act upon
Hangings. New Haven Clock CoClocks.	THERE are now 400mills for crushing quartz and cement in California, 40 in	the paper and cause the photograph to be developed.
Kaldenberg & Son, N.YMeerschaum Horseshoes.	Idaho, 30 in Montana, and 14 in Oregon, which have cost nearly \$10,000,000	
Pipes. Bell & Co., Alabama-Muslins. Lalance, Grosjean & Co., N. YHouse	dollars.	APPLYING ENAMEL TO CERTAIN FRIGTIONAL SUBFACESL. R. Bodmer. Oct. 13, 1863. This invention consists in providing those metallic surfaces
Williams Silk Co., N, Y,—Silk Twist Furnishing Hardware.	EXPERIMENTS (says the Owl) are being made by the French Government	
Washington Mills. Boston-Shawls. J. F. Paul & Co., Boston-Specimens Linthium & Co., N. YSpring Over- of Wood.	upon asystem of construction for cannon, by which the interior is made of	especially, the guide bars for the buffalo-bide drivers or pickers, with a cover-
coats.  Isaac Young, Kansas-Specimens of	steel and the exterior of bronze. This plated cannon is expected to give the	ing or coating of enamel, glass, or other vitreous substance, whereby the
J. C. Zallee, St. Louis-Men's Clothing, Wood. State of Alabama-Cotton. Anderson Brothers, Cincinnati, O		friction is reduced and the application of a lubricant rendered unnec ""
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REFINING OR DECOLORISING SUGAR AND SIRUP.—E. Beanes. Oct. 12, 1866. In performing this invention the patentee submits sugar, in a dry or moist state, or in solution, to the action of ozone, either with or without pressure, until the sugar, sirup, molases, or other saccharine solution is decolorised to the desired point. Pure ozone may be obtained by passing dry oxygen gas through an ozone tube or generator in connection with an induction coil and galvanic battery, or by various other means. The inventor only finds it necessary for his object to pass atmospheric air, by preference previously dried, instead of oxygen, through the ozone pipe or generator, as above explained, and from which the ozone is conveyed by a pipe to a vessel containing the sugar, sirup, molasses, or other saccharine solution to be acted upon.

DETECTING APPARATUS, ETC -J. E. Buerk. Oct. 12, 1866. This invention consists chiefly in the combination with the ordinary parts of a watch or clock of certain registering devices, which are operated by suitable keys to form impressions or perforations upon dials or indexes of card, paper, or other similar material, the exact time at which each impression is formed being shown by figures or other characters upon the said dial representing the hours and other usual divisions of time.

MEAT CUTTER.-W. M. Miller, Tulpehoccan Pa.-The circular meat block has a rim, and rotates on a vertical axis upon the bench, by means of cogs on its periphery which are engaged by a spiral flange on a drum; this derive its motion by a band from the axis of the wheels whose cogs lift the spring arms; to these are attached the cleavers which cut the meat upon the rotating block beneath.

EVAFORATOR.—Samuel Page, McAllisterville, Pa.—In this evaporator an adjustable plate or bottom is arranged beneath the receiving or skimming pan in such a manner that the heating flue of the latter may be enlarged or controlled so as to increase or diminish the heat as occasion may require. The finishing pan rests upon the walls of a chamber arranged at one side of the main flue, and a novel arrangement of daupers controls the heat within said chamber, or excludes it entirely thereirom, as may be desired.

SHACKLE BLANKS.-J. B. Clark, Plantsville, Conn.-T. s invention relates to the construction of a carriage shaft sbackle from sol blanks, and to the shape of the dies for forming the same, so that with the least amount o<sup>4</sup> labor and power, the said shackle may be gradually formed into the required shape.

VENTILATING FUNNEL.—Frederick Catlin, Watertown, Conn.—This invention consists in connecting the funnel with a stand, and in arranging a valve in its throat, and also providing for thoroughly straining the liquid.

OIL CUP.-T. Lunkenheimer, Cincinnati, Ohio.-This invention consists in the peculiar con-truction of the cup whereby it is adapted to the use of tallow and other lubricating material, and whereby the chamber which contains the oil or lubricating material, is made an-tight.

NOWING MACHINE.—Caleb Lee, Sandy, Ohio.—This invention relates to important and valuable improvements in mowing machines, and consists in providing a double joint at the torward end of the drag bar in line with the crank shaft. It also consists in the use of a jointed brace, also on line with the crank shaft, and in constructing and locating the crank shaft box so as to strike the frame and cause the outer end of the cutter bar to raise as the elevating lever is forced down, for elevating the same.

SHAFT COUPLING.-N. H. Shaw, Swanton, Vt. Patented May 14, 1867.-The shaft coupling embraced in the present invention, is made in two parts or sections, placed one upon the other and both turning at one end upon one end of the bolt, stirrup or strap, encircling the shaft and forming the means of fastening the coupling thereto; while at other ends between the car pieces at such ends, is hung, by its T-shaped cnd, the strap or bar secured to the carriage axle, this construction of the coupling cnabling the wear of the shaft strap to be compensated for or taken up, from time to time.

GRAIN SIEVE.—H. S. Townsend, Greenvale, III.—This invention consists in the application of an additional shoe, outside of and above the ordinary grain shoe of a fanning mill or thrashing machine, whereby the sieve is prolonged, and the grain or seed passed over a larger perforated surface Thereby the complete separation of the fine from the coarse grain or seed will be effected. The invention also consists in the use of strong wire supports, which are arranged under the wire netting, to keep the same flat, and prevent it from sacking.

HAY GATHERER.-J. F. Swinnerton, Marion, Ohio.-This invention has for its object to furnish a machine for hauting and delivering hay at a stack, simple and durable in construction, easily operated, and which will take the hay from a windrow, rendering the labor of previously cocking it wholly unnecessary.

ELEVATED STREET RAILWAY.-F. A. Williams, Clovesville, N. Y.-This in vention relates to a new and useful improvement in clevated street railways its object being to so arrange and construct the posts or pillars, by which the rails are supported, that they do not occupy more space on the sidewalk of the street and are in no manner more inconvenient, than the common lamp posts; so that a railway constructed on this improved plan would be no inconvenience to the pedestrians on the side walks or to the vehicles on the street.

PLANTING HOE.-Augustus Williams, Sebec, Me.-This invention relates to a new and improved method of depositing seeds in the ground, and covering the same.

STEAM BOILES.—Henry McDonough, N. Y.—This invention consists in the arrangement of valves at the ends of a tubular steam boiler in such a manner that the heated gases and products of combustion are retarded and detained in their passage to the chimney, and thereby compelled to part with their caloric.

FRUIT AND POULTRY BOXES.—D. B. Spinning, Brooklyn, N. Y.—This invention relates to a novel manner of constructing boxes of that kliud, which are used for transporting fruit, pouitry, vegetables or other articles to market, and which are so arranged, that they can be folded to exther, when to be transported back, empty to the farms or places, whence they were sent. Although these boxes will be slightly more cx pensive to construct, than those now in use, the reduction of return freight will, it is claimed, in a few trips, more than twice repay the difference.

MACHINE FOR MAKING BUTT HINGES.—Adrian Rais, Waterbury, Conn.— This invention relates to an improvement in machinery for bending rhe knuckles of butt hinges, by means of a single die at one operation, instead of two distinct operations with separate dies, thereby simplifying the mechanism and manufacturing hinges more rapidly and economically.

AMALGAMATOR.—J. B. Forissier, New York City.—This invention relates to an amalgamating apparatus in which several baths of mercury are employed in order to obtain a large area of amalgamation. This object is obtained by arranging in an upright cylinder a series of stationary annular pans between which a series of revolving annular pans are arranged; each of the pans containing mercury, and the water with the ore falling from one pan to another. The water falls alternately from the center of the stationary pans, and from the circumference of the revolving pans upon the pan below, thus passing in a zig-zig line from top to bottom of the apparatus, and comes.in contact with the whole surface of the mercury in each pan, thereby striking a larger area of mercury than is done by any apparatus now made.

they are carried into a position just over the periorations in the rack, and beneath two pivoted shields which serve to protect the troughs and the ieed and prevent the latter from being spilled when being placed in the troughs

CASTER.—James T. Barnes, Hudson City, N. J.—This invention relates to a new and useful improvement in a caster, for which Letters Patent were granted to this inventor, bearing date Oct. 30, 1866. The invention consists in having the shank of the caster at one side of the axis of the wheels, whereby the caster is allowed to turn, so that the wheels, when the article to which they are applied is moved, may adjust themselves in line with the movement of the article. The invention also consists in a novel manner of securing the metal socket or sheath in which the shank of the caster is fitted, in the leg or bottom of the article to which the caster is applied, whereby the socket or sheath may be secured in the leg or bottom of the article with the greatest facility.

TOILET GLASS.—Albert Ober, Beverly, Mass.—This invention relates to a new and improved toilet glass, whereby the back part of the head may be seen. The invention is more especially designed for the uss of ladies to aid them in arranging and adjusting the hair at the back of the head. The invention consists substantially of two mirrors, one of which is hung on pivots in a frame, and the latter connected by hinges or joint to a se ies of frames also connected by hinges, and the outer frame of the series provided with a mirror; all being so arranged that the two mirrors may be adjusted in such relation with each other, that a lady, for instance, by looking into the mirror which is hung on pivots, may see distinctly the back of her head, and be enabled to arrange, adjust, or dress her hair on that portion of her head with the greatest facility.

WIRE FENCE.—Lucien B. Smith, Kent, Chio.—This invention relates to an improvement in the construction of a wire fence, especially adapted to use in the prairies of the Western States where timber is scarce, and fires fre quently sweep over them, destroying every thing that is combustible.

TABLE.-H. C. Hardey, Muncie, Ind.-This invention relates to a new and useful contrivance for aiding in raising and lowering the leaves of an ordinary dining table, and consists in connecting weights to hang under the bed ef the table, with the sliding supports usually employed to hold the leaves when they are raised, which weights draw upon the supports at the time the leaves are raised, and throw them out under the leaves to support them.

SAW MILL.-Joseph Hubbell, Zanesville, Ohio.-This invention rejates to new and useful improvements in saw mills, and consists in devices and arrangements for operating the head blocks, and setting the logs for a saw with perfect accuracy, to cut boards of uniform thickness.

CULTIVATOR AND COTTON PLANT THINNER.—Geo. VV. Chambers and Isham Washam, Talladega, Ala.—This invention relates to an improved machine for thinning and cultivating cotton plants.

PROCESS FOR EXTRACTING AND SEPARATING GREASE AND OILS FROM ANIMAL AND VEGETABLE SUBSTANCES.—Joseph Besso, Philadelphia, Pa.— This invention relates to an improved process for separating and extracting the oils and fatty matters contained in unwashed wool, bones, oil cake, seeds or other animal and vegetable substances, whereby wool especially is thor oughly cleansed and purified, and the oil it may contain is separated and utilized with great economy, instead of being wasted and lost at great cost in the ordinary method of washing and cleansing wool with soap.

CONFECTION.-E. C. Maltby and Edward Smith, Northford, Conn.-This invention consists in preparing the meat of the cocoanut so that the same may be preserved and kept an indefinite period, and used at any time.

TRAM AND SELF-CENTERING DISH STAFF.—Samuel Mills and J. R. Mclrvin, Clinton, Ill.—This invention relates to a new and useful implement or device for centering hubs and scribing the circumference of wheels, and also for dishing wheels, which implement I term a tram and self-centering dish staff, and by which wheels of any desired size may be scribed precisely from the centre of the hub and the exact dish given a wheel as may be required.

ANTI-COLLISION AND CODE SIGNAL LAMP.—Joseph Wall, New York City. —This invention relates to a new and improved anti-collision and code signal lamp, adapted for vessels at sea to prevent collisions; and affords a complete method of communicating information of any description between vessels at night.

SHEEP RACE.-John D. Munson, Tyre, N. Y.-This invention has for its object to furnish a simple and convenient rack for feeding sheep with hay or grain, and which can be readily taken apart for storage.

FRAME FOR STRETCHING WET LEATHER.—Ichabod W. Dawson, Newark, N. J.—This invention has for its object to furnish an improved frame upon which hides may be extended for drying, which shall be so constructed that the hides after being extended upon the frame, may be stretched so as to bring out all the wrinkles, folds, etc., leaving the surface of the leather smooth and better prepared for the subsequent operations.

GATE.-J.B. Powell and S. H. Everett, Macedon, N. Y.-This invention has for its object to furnish an improved gate, so constructed and arranged that it may be opened or closed by the driver without getting out of the carriage

SULKY PLOW.—Israel Wing, Earlville, Iowa.—This invention has for its object to furnish an improved sulky plow, so constructed as to be easily operated, and the plows of which can be easily brought nearer together or spread further apart as may be required.

POTATO DIGGER.—Joel E. Giles and Charles S. McRobert, Meads Mills, Mich.—This invention has for its object to furnish an improved machine, by means of which potatoes may be readily and conveniently dug and separated from the soil raised with and adhering to them.

EXTENSION STEP LADDER.—Henry T. Smith, Brooklyn, N. Y.—This invention has for its object to furnish an improved step ladder, so constructed and arranged that it may be extended as desired to adapt it for use in rooms with different hight of ceiling, and so that one part may be extended independently of the other to adapt it for use upon a stairway.

GUIDE FOR CARDING MAOHINES.-F. W. Albertine and E. T. Albertine, Hanover, Conn.-This invention has for its object to furnish an improved guide for carding machines, by the use of which the carding will necessarily be done all over the cylinder, so that the tunbler, cylinder, and fancy, will be worn even, and not in creases, rendering it unnecessary to grind so often, wearing the carding clothing evenly, and doing better work.

MACHINE FOR SOFTENING OR DEESSING LEATHER OR SKINS.-F. J. Burcham, Racine, Wis.-This invention has for its object to furnish a convenient and effective machine for softening or dressing leather, particularly buckskins, calf-skins, kid, etc., but equally applicable to other kinds of skins, whether having the hair on or off.

the wrench, whereby the former may be readily moved on the shank and adjusted to the nut to be turned, and firmly'secured in position, after being thus adjusted, and while operating upon and turning the nut.

BACK SAW.-Edward H. Roe, Jersey City, N. J.-This invention relates to a new and useful improvement in what are commonly termed by joiners backsaws, and has for its object the straining, by a simple-means, of the saw plate whenever the same becomes bent or "kinked," as it is technically teruned, so that it may be brought in a plane and have a straight cutting edge, or one free from lateral bends or kinks. These back saws have their plates, as they are used for fine work, the cutting of tenons, etc., and the plates are consequently very liable to become bent or kinked, so much so as to frequently render it difficult to use them and make a smooth kerf or cut.

## Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in formation from us; besides, as so metimes happens, we may prefer to address the correspondent by mell.

SPECIAL NOTE-This column is designed for the general interest and instruction of our readers, not for yratuit aut replies to questions of a purely business or personal nature. We will publish such inquiries, however, when pais for as advertisements at 50 cents a time, under the head of "Business and Personal."

F. A. W., of Miss.—Supposes that the moon's atmosphere presses on the earth's atmosphere, and hence the tides, etc. etc.

E. J. B., of Wis.—" Why is it that an apple scion, produces fruit of its own kind when  $g_{pq}$  fted into a stock of far different and inferior quality? I do not assume to know anything about it, but would like to understand it." So would we.

C. M. S., of N. Y.-To make whitewash which will not rub off, add to it a little sugar or molasses.

F. F. L., of Pa, has failed lately to get a japan varnish for small articles of iron which gives a good gloss. He ought to try another brand of varnish or manufacture for himself.

G. A. S., of Mass.—Shellac and rubber have the property of toughening fusible cements, also they render them less fluid when melted. We cannot answer you more definitely until you give us farther details of the use of the cement.

J. W., of N. Y.—The questions you send belong to ordinary mensuration and we refer you to any good treatise on arithmetic for their solution.

R. B. N. of Me.—The simplest way to determine the hardness of water, is to observe its effect on soap. The soap test is in fact generally used by chemists. The solid contents of hard water are left on complete evaporation of the water.

T. R., of N. Y.—We do not understand the construction of pegging machines sufficiently to explain the method of finishing the came. . Jessop's, or Sanderson's are excellent brands of tool steel. Some American steel is also recommended. . . A set of ten taps such as you desire from one quarter to one and a half inches, is worth six or seven dollars.

E. C. H., of N. H.—The iron pavement you speak of as having been used in Court street, Boston, has been tried here, and remains of it are still to be seen in Cortiandt street, this city. It is not satisfactory, being displaced easily and breaking. We do not think your plan of making the sections of extremely hard iron would improve it

E. W. N., of Mass.—Your rule for ascertaining the area of a circle where diameter and circumference are known, by multiplying one halfthe diameter of the circumference by one-half the diameter is only another way ofstating the rule given by Rowland Hill on page \$76, of No. 24, Vol. XVI. Either of them are sufficiently correct for ordinary practical purposes.

H. M. C., of Pa.—This correspondent wishes to drive a circular saw by one man's power which requires four horse power now to d ive it! He proposes a wooden fly wheel 30 feet in diameter having on its shaft a pulley to run the saw, and asks if he can gain the necessary power by turning the concern with a crank by the hands of one man. We reply by asking another question: If *power* can be rained by the use of a fly wheel where is the limit, and what is the necessity of steam power for any purpose?

J. C. S., of Iowa.—Of course it is the duty of steamboat men as pilots, engineers, etc., to inform themselves as to the laws that govern steam vessels. We have no space to publish the laws on this subject; they may be found in the proper official documents.

W. H. H. H., of Pa.—If we understand your query it is this, when simplified: "Can I get more power to overcome obstructions—as unevenness of surface on land—with a traction engine, double cylinders, 7inch diameter, 100 lbs. pressure, 135 strokes per minute, by gearing down to 15 revolutions (1-9 on the main shaft of my machine, than I could by using a cylinder of nine times the area—nearly 21 inches—same length of stroke, pressure of steam, etc., and attaching connections directly to cranks on the machine sbaft, which must, of course, make only fitteen turns per minute." We reply that for the purpose intended—a "plowing machine"--we think your swiftly running engine, if properly connected would be better adapted to the work, as you would gain momentum of the driving parts to assist in surmounting occasional obstacles.

J. B. R., of Pa., says he was on board the U. S. sloop of war Date in 1857 and that it was a common practice to rub a greasy rag around the muzzle of the guns before firing salutes, in order to secure well formed smoke rings. The greasing process was very effective and certain L. G. G., of N. C.—The mineral sent by you is iron pyrites. The pyrites of your State always contains gold.

T. M. Jr., of O.—The popping of corn is explained by the expansion of air or gas contained within the kennel; it is a case of explosion. The substance of the kernel at the instant of the explosion appears to be tough and plastic.

WASHING MACHINE.—M. McEnernev, Birmingham, Ct.—This invention consists in a machine for washing clothes, rags, etc., by means of two circular corrugated plates or disks, between which the clothes are placed, said plates or disks being arranged and hung so that the one can be revolved, and in contact with the other, which is stationary, and thereby produce the desired rubbing or scouring of the clothes.

PILL MACHINE.-W. V.V. Wilson, Savannah, Ga.-This invention consists in the arrangement of adjustable rails on the sides of the board of a pill machine, insuch a manner that said rails can be raised or lowered to correspond to the diameter of the pills to be produced, whereby the rolling of the dough is materially facilitated.

SHEEP FEED RACE - Joel J. Smith, Barnesville, Ohio. - This invention relates to a sheep rack and feeding trough combined in such a way as to facilitate the feeding and economize the feed, and consists of a rectangular box perforated to admit the sheeps' head. The bottom consists of a pair of doers turning on pivots, for convenience in clearing out the rack. The troughs re inside the rack, and when feeding rest upon the bottom, but when not in use are elevated out of the way by a simple lever arrangement by which l

SHOVEL PLOW.—Daniel Gilbert, Carbondale, Ill.—This invention has for its object to so improve the construction of shovel plows as to increase their strength and steadiness in working, and so as to adapt them to all kinds of work.

MACHINE FOR UNHAIRING HIDES.—Judson Schultz, Ellenville, N. Y.—This invention has for its object to furnish an improved machine, by means of which hides may be unhaired, and leather scrubbed, scoured, or washed conveniently, thoroughly, and rapidly.

MACHINE FOR UNMAIRING HIDES.—Elias Brock, Ellenville, N. Y.—This invention has for its object to furnish an improved imachine for unhairing hides, and scrubbing, scouring, and washing leather conveniently, rapidly, and thoroughly.

WASHING MACHINE.—James M. Noble, Delhi, Iowa.—This invention has for its oblect to furnish an improved washing machine, simple in construction and operation, not liable to get out of order, and combining within itself many of the utensils ordinarily employed in washing clothes.

HANDLE ATTACHMENT FOR BLACKING BOXES.—Thomas S. Robinson, New York City.—This invention is designed to supersede the different holders now manufactured to receive and hold blacking boxes while the same are being used, the holder serving as a handle for the box, and preventing the hand of the operator being soiled by the blacking while charging the brush with the same.

WRENCH.-J. V. H. Secor, New York City.-This invention relates to a new and improved wrench of that class which are provided with a sliding jaw, and it consists in a novel manner of applying the sliding jaw to the shark of i

Wanted—Parties to engage in all kinds of manufacturing at Coloma, Ill. See advertisement and address A. P. Smith, Sterling, Ill. Publishers of Weekly Newspapers send specimen copies with advertising terms to JoelK. Reiner, Line Lexington, Pa.

For Sale Cheap—One French Pin-escapement Regulator and a small Foot Lathe. Address James H. Fignt, Shelby, Ohio,

The United States Patent Office issued, among other Letters Patent for Sewing Machines to JOSEPH W. BARTLETT into patents for " nets and useful designs for sewing machines" One of these patents is for a circular form, the same as that FIRST used in the Bartlett Machines, the otherfor an elongated long arm form, it being found that this latter form possessed advantages over the CIROULAR form, giving greater space to the work,"etc., and from a similarity of the Bartlett patent OIRCULAR form to that of the Willcox & Gibbs. Mr. Bartlett, therefore, being desirous to give as distinct a cuaracter as possible in the best form to his machines, determined, some fifteen months ago, to adopt the use of the "long arm ' form.caused the models to be made and their manufacture begun. They are to be seen at the General Office, No. 569 Broadway, New York City. SEE ILLUSTRATION OF THE MACHINE IN "HARPER'S WEEKLY," July 6. J. W. Bortlett :- DEAR SIE : At your request we state that the suite brought by us was only to prevent the use of the letter "G" form, and does not affect or interfere with your right to make or sell Sewing Machines in the form patented by you published in the Scientific American Nov. 18, 1865. WILLCOX & GIBBS S. M. CO. Signed NEW YORK, June 8, 1867.